Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMSF078773

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other
1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.
NMNM078407E

8. Lease Name and Well No.
ROSA UNIT
756H

2. Name of Operator
LOGOS OPERATING LLC

9. API Well No.

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

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

10. Field and Pool, or Exploratory
BASIN MANCOS/BASIN MANCOS

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SWNW / 2631 FNL / 951 FWL / LAT 36.856127 / LONG -107.37341
At proposed prod. zone SWSE / 1125 FSL / 1427 FEL / LAT 36.851979 / LONG -107.327456

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 33/T31N/R5W/NMP

14. Distance in miles and direction from nearest town or post office*
38 miles

12. County or Parish
RIO ARRIBA

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
951 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
960.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
25 feet

19. Proposed Depth
7099 feet / 20328 feet

20. BLM/BIA Bond No. in file
FED:

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
6534 feet

22. Approximate date work will start*
04/01/2023

23. Estimated duration
45 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature
(Electronic Submission)

Name *(Printed/Typed)*
DACYE SHULL / Ph: (505) 324-4145

Date
01/13/2023

Title
REGULATORY TECH

Approved by *(Signature)*
(Electronic Submission)

Name *(Printed/Typed)*
DAVE J MANKIEWICZ / Ph: (505) 564-7761

Date
03/28/2024

Title
AFM-Minerals

Office
Farmington Field Office

Application approval 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.
Conditions of approval, if any, are attached.

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 03/28/2024

Confidential

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

(Continued on page 3)

Approval Date: 03/28/2024

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Additional Operator Remarks

Location of Well

0. SHL: SWNW / 2631 FNL / 951 FWL / TWSP: 31N / RANGE: 5W / SECTION: 33 / LAT: 36.856127 / LONG: -107.37341 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 0 FSL / 0 FWL / TWSP: 31N / RANGE: 5W / SECTION: 35 / LAT: 0.0 / LONG: 0.0 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 0 FSL / 0 FWL / TWSP: 31N / RANGE: 5W / SECTION: 34 / LAT: 0.0 / LONG: 0.0 (TVD: 0 feet, MD: 0 feet)

PPP: SESW / 1183 FSL / 1647 FWL / TWSP: 31N / RANGE: 5W / SECTION: 33 / LAT: 36.852124 / LONG: -107.371024 (TVD: 7089 feet, MD: 7581 feet)

BHL: SWSE / 1125 FSL / 1427 FEL / TWSP: 31N / RANGE: 5W / SECTION: 35 / LAT: 36.851979 / LONG: -107.327456 (TVD: 7099 feet, MD: 20328 feet)

BLM Point of Contact

Name: JEFFREY J TAFOYA
Title: Assistant Field Manager
Phone: (505) 564-7672
Email: JTAFOYA@BLM.GOV

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Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL

Received by OCD: 3/28/2024 4:12:46 PM

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
	97232	BASIN MANCOS

[4] Property Code	[5] Property Name	[6] Well Number
320608	ROSA UNIT	756H

[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		2631	NORTH	951	WEST	RIO ARRIBA

[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	35	31N	5W		1125	SOUTH	1427	EAST	RIO ARRIBA

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

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

[17] OPERATOR CERTIFICATION

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

Etta Trujillo — Signature — 12/9/2022 — Date

Etta Trujillo — Printed Name

etrujillo@logosresourcesllc.com — E-mail Address

[18] SURVEYOR CERTIFICATION

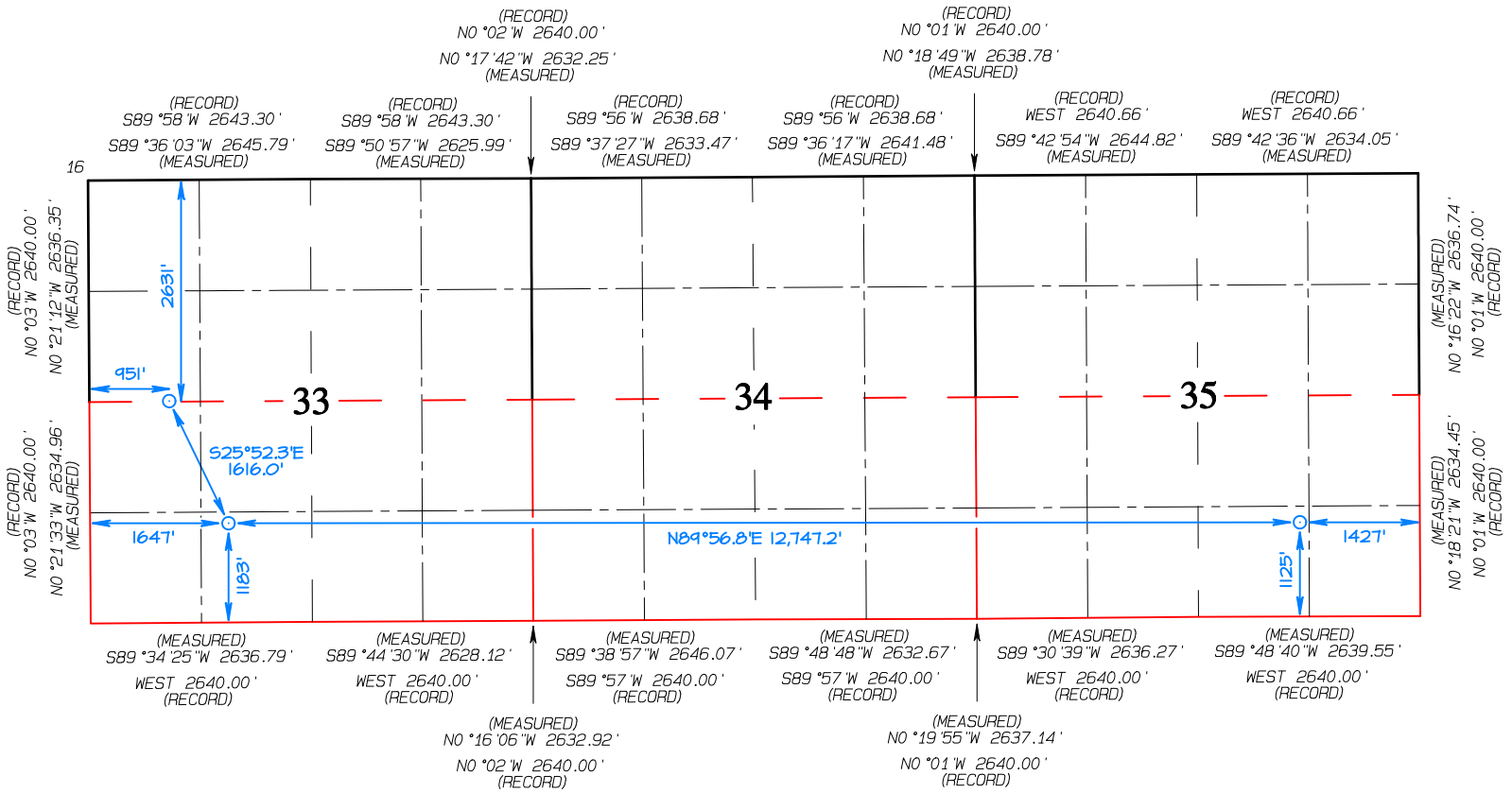
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Date Revised: DECEMBER 8, 2022
Date of Survey: JUNE 28, 2022

Signature and Seal of Professional Surveyor

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

JASON C. EDWARDS
Certificate Number 15269



SURFACE LOCATION
2631' FNL 951' FWL
SEC 33, T31N, R5W
LAT: 36.856121 °N
LONG: 107.372808 °W
DATUM: NAD1927

LAT: 36.856127 °N
LONG: 107.373410 °W
DATUM: NAD1983

S25°52.3'E 1616.0'

FIRST TAKE POINT
1183' FSL 1647' FWL
SEC 33, T31N, R5W
LAT: 36.852118 °N
LONG: 107.370421 °W
DATUM: NAD1927

LAT: 36.852124 °N
LONG: 107.371024 °W
DATUM: NAD1983

N89°56.8'E 12,747.2'

LAST TAKE POINT
1125' FSL 1427' FEL
SEC 35, T31N, R5W
LAT: 36.851972 °N
LONG: 107.326855 °W
DATUM: NAD1927

LAT: 36.851979 °N
LONG: 107.327456 °W
DATUM: NAD1983

Released to Imaging: 4/16/2024 2:36:41 PM

State of New Mexico
Energy, Minerals and Natural Resources Department

Submit Electronically
Via E-permitting

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

NATURAL GAS MANAGEMENT PLAN

This Natural Gas Management Plan must be submitted with each Application for Permit to Drill (APD) for a new or recompleted well.

Section 1 – Plan Description
Effective May 25, 2021

I. Operator: LOGOS Operating, LLC **OGRID:** 289408 **Date:** 01/ 11 / 2023

II. Type: ☒ Original ☐ Amendment due to ☐ 19.15.27.9.D(6)(a) NMAC ☐ 19.15.27.9.D(6)(b) NMAC ☐ Other.

If Other, please describe: _____

III. Well(s): Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	ULSTR	Footages	Anticipated Oil BBL/D	Anticipated Gas MCF/D	Anticipated Produced Water BBL/D
ROSA UNIT 750H	30-039-	L-33-T31N-R5W	2627 FSL 951 FWL	N/A	15,080	481
ROSA UNIT 752H	30-039-	L-33-T31N-R5W	2612 FSL 952 FWL	N/A	15,080	485
ROSA UNIT 754H	30-039-	E-33-T31N-R5W	2616 FNL 950 FWL	N/A	11,245	357
ROSA UNIT 756H	30-039-	E-33-T31N-R5W	2631 FNL 951 FWL	N/A	10,862	352

IV. Central Delivery Point Name: Harvest Gathering System [See 19.15.27.9(D)(1) NMAC]

V. Anticipated Schedule: Provide the following information for each new or recompleted well or set of wells proposed to be drilled or proposed to be recompleted from a single well pad or connected to a central delivery point.

Well Name	API	Spud Date	TD Reached Date	Completion Commencement Date	Initial Flow Back Date	First Production Date
ROSA UNIT 750H	30-039-	2023	Pending	Pending	Pending	Pending
ROSA UNIT 752H	30-039-	2023	Pending	Pending	Pending	Pending
ROSA UNIT 754H	30-039-	2023	Pending	Pending	Pending	Pending
ROSA UNIT 756H	30-039-	2023	Pending	Pending	Pending	Pending

VI. Separation Equipment: ☒ Attach a complete description of how Operator will size separation equipment to optimize gas capture.

VII. Operational Practices: ☒ Attach a complete description of the actions Operator will take to comply with the requirements of Subsection A through F of 19.15.27.8 NMAC.

VIII. Best Management Practices: ☒ Attach a complete description of Operator's best management practices to minimize venting during active and planned maintenance.

Section 2 – Enhanced Plan

EFFECTIVE APRIL 1, 2022

Beginning April 1, 2022, an operator that is not in compliance with its statewide natural gas capture requirement for the applicable reporting area must complete this section.

☒ Operator certifies that it is not required to complete this section because Operator is in compliance with its statewide natural gas capture requirement for the applicable reporting area.

IX. Anticipated Natural Gas Production:

Well	API	Anticipated Average Natural Gas Rate MCF/D	Anticipated Volume of Natural Gas for the First Year MCF

X. Natural Gas Gathering System (NGGS):

Operator	System	ULSTR of Tie-in	Anticipated Gathering Start Date	Available Maximum Daily Capacity of System Segment Tie-in

XI. Map. ☐ Attach an accurate and legible map depicting the location of the well(s), the anticipated pipeline route(s) connecting the production operations to the existing or planned interconnect of the natural gas gathering system(s), and the maximum daily capacity of the segment or portion of the natural gas gathering system(s) to which the well(s) will be connected.

XII. Line Capacity. The natural gas gathering system ☐ will ☐ will not have capacity to gather 100% of the anticipated natural gas production volume from the well prior to the date of first production.

XIII. Line Pressure. Operator ☐ does ☐ does not anticipate that its existing well(s) connected to the same segment, or portion, of the natural gas gathering system(s) described above will continue to meet anticipated increases in line pressure caused by the new well(s).

☐ Attach Operator's plan to manage production in response to the increased line pressure.

XIV. Confidentiality: ☐ Operator asserts confidentiality pursuant to Section 71-2-8 NMSA 1978 for the information provided in Section 2 as provided in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and attaches a full description of the specific information for which confidentiality is asserted and the basis for such assertion.

Section 3 - Certifications

Effective May 25, 2021

Operator certifies that, after reasonable inquiry and based on the available information at the time of submittal:

☒ Operator will be able to connect the well(s) to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system; or

☐ Operator will not be able to connect to a natural gas gathering system in the general area with sufficient capacity to transport one hundred percent of the anticipated volume of natural gas produced from the well(s) commencing on the date of first production, taking into account the current and anticipated volumes of produced natural gas from other wells connected to the pipeline gathering system. ***If Operator checks this box, Operator will select one of the following:***

Well Shut-In. ☐ Operator will shut-in and not produce the well until it submits the certification required by Paragraph (4) of Subsection D of 19.15.27.9 NMAC; or

Venting and Flaring Plan. ☐ Operator has attached a venting and flaring plan that evaluates and selects one or more of the potential alternative beneficial uses for the natural gas until a natural gas gathering system is available, including:

- **(a)** power generation on lease;
- **(b)** power generation for grid;
- **(c)** compression on lease;
- **(d)** liquids removal on lease;
- **(e)** reinjection for underground storage;
- **(f)** reinjection for temporary storage;
- **(g)** reinjection for enhanced oil recovery;
- **(h)** fuel cell production; and
- **(i)** other alternative beneficial uses approved by the division.

Section 4 - Notices

1. If, at any time after Operator submits this Natural Gas Management Plan and before the well is spud:

(a) Operator becomes aware that the natural gas gathering system it planned to connect the well(s) to has become unavailable or will not have capacity to transport one hundred percent of the production from the well(s), no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised venting and flaring plan containing the information specified in Paragraph (5) of Subsection D of 19.15.27.9 NMAC; or

(b) Operator becomes aware that it has, cumulatively for the year, become out of compliance with its baseline natural gas capture rate or natural gas capture requirement, no later than 20 days after becoming aware of such information, Operator shall submit for OCD's approval a new or revised Natural Gas Management Plan for each well it plans to spud during the next 90 days containing the information specified in Paragraph (2) of Subsection D of 19.15.27.9 NMAC, and shall file an update for each Natural Gas Management Plan until Operator is back in compliance with its baseline natural gas capture rate or natural gas capture requirement.

2. OCD may deny or conditionally approve an APD if Operator does not make a certification, fails to submit an adequate venting and flaring plan which includes alternative beneficial uses for the anticipated volume of natural gas produced, or if OCD determines that Operator will not have adequate natural gas takeaway capacity at the time a well will be spud.

I certify that, after reasonable inquiry, the statements in and attached to this Natural Gas Management Plan are true and correct to the best of my knowledge and acknowledge that a false statement may be subject to civil and criminal penalties under the Oil and Gas Act.

Signature:	Etta Trujillo
Printed Name:	Etta Trujillo
Title:	Regulatory Specialist
E-mail Address:	etrujillo@logosresourcesllc.com
Date:	1/11/2023
Phone:	(505) 324-4154

OIL CONSERVATION DIVISION
(Only applicable when submitted as a standalone form)

Approved By:	
Title:	
Approval Date:	
Conditions of Approval:	

VI. Separation Equipment

The operator will select separation equipment for the maximum anticipated throughput and pressure to optimize gas capture. Separation equipment is sized according to manufacturer's design specifications. Separation vessels are built following the A.S.M.E. section VII division 1 codes for pressure vessel design, fabrication, inspection, testing and certification. Anticipated well pressures and production rates are evaluated to select separation equipment according to the equipment's designed operating pressure and throughput.

After completion, the operator utilizes flowback equipment, including separators, to manage wellbore fluids and solids during the initial separation period. After the initial flowback period is complete the operator utilizes iterative facility separation equipment to ensure that optimal separation is achieved.

VII. Operational Practices 19.15.27.8 NMAC A through F

A. The operator will maximize the recovery of natural gas and minimize the amount of gas vented or flared when technically and safely feasible as further described and detailed within the following subsections (B-F of 19.15.27.8). In all cases where natural gas venting and flaring requires regulatory reporting, reporting will be submitted accurately and within the required time frames.
B. Venting and flaring during drilling operations:
    a. New Drill HZ Oil Wells: The operator drills wells in the area by utilizing a balanced mud to safely drill the wellbore. This technique prevents gas from coming to surface during the drilling process. If there is an emergency or malfunction and natural gas does come to surface the natural gas will be captured or combusted, with an appropriately sized and located flare stack, if technically and safely feasible.
    b. New Drill HZ Gas Wells: The operator drills wells in the area by balancing the mud weight to safely drill the wellbore with as minimal flaring as possible. When gas kicks enter the wellbore, sometimes it is necessary to circulate it out of the wellbore to an appropriately sized and located flare stack. The operator will estimate the volume flared and appropriately report.
C. Venting and flaring during completion or recompletion operations:
    a. New Drill HZ Oil Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. During the separation flowback period natural gas will be routed to a properly sized and located flare until the natural gas is of pipeline quality (less than 60 days). The natural gas will also be utilized on site as needed for fuel gas or injection gas.

    b. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from the newly drilled and completed wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. During initial flowback and initial separation flowback the operator will utilize contracted flowback equipment, including separators, to manage wellbore fluids and solids. The initial flowback period will be minimized and flow will be sent to separation equipment as soon as possible to reduce the amount of gas that is vented to atmosphere. The natural gas will be utilized on site as needed for fuel gas and natural gas will be sold.

D. Venting and flaring during production operations:

a. New Drill HZ Oil Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible. This facility will operate under a notice of intent (NOI) from the New Mexico Environment Department (NMED).

   Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

   (a) If there is an emergency or malfunction, vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
   (b) If the wellbore requires liquids to be unloaded to atmosphere, the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
   (c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low-pressure vessel, automatic tank gauges will be the primary means of gauging with minor exceptions.
   (d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will utilize a LACT system when available to minimize gas vented during oil tank loading.
   (e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
   (f) Electric controllers and pumps will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
   (g) Storage tanks and other low-pressure vessel normal operational venting will be minimized during the early life of the well with the installation of a vapor recovery unit to limit the flash and working and breathing emissions to atmosphere.
   (h) No dehydration or amine units are anticipated to be set on location.
   (i) Compressors, compressor engines, turbines, flanges, connectors, valves, and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operation.
   (j) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
   (k) When natural gas does not meet gathering pipeline specifications, for example high nitrogen content after a nearby frac, gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
   (l) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

b. New Drill HZ Gas Wells: The operator's facilities are designed to handle the maximum throughput and pressures from producing wellbores. The amount of gas vented and flared will be minimized when technically and safely feasible.

Operations will effectively manage the following scenarios to minimize the quantity of natural gas that is vented or flared:

(a) If there is an emergency or malfunction vented or flared natural gas will be reported, if required, and the emergency or malfunction will be resolved as soon as technically and safely feasible.
(b) If the wellbore needs to be unloaded to atmosphere the operator will not vent the well after the well has achieved a stabilized rate and pressure. The operator will remain on site during unloading. Plunger lift systems will be optimized to reduce the amount of natural gas venting. Downhole maintenance, such as workovers, swabbing, etc. will only be conducted as needed and best management practices will be utilized to reduce venting of natural gas.
(c) The operator will minimize the amount of time that natural gas is vented to atmosphere from gauging and sampling a storage tank or low-pressure vessel, automatic tank gauges will be the primary means of gauging. The formation is only anticipated to produce water and therefore tank emissions are anticipated to be negligible.
(d) The operator will reduce the amount of time needed for loading out liquids from a storage tanks or other low-pressure vessels whenever feasible. Operations will always utilize the water transfer systems when available. Water loading emissions are anticipated to be negligible.
(e) Equipment will be repaired and maintained routinely to minimize the venting or flaring of natural gas. Repairs and maintenance will be conducted in a manner that minimizes the amount of natural gas vented to atmosphere through the isolation of the equipment that is being repaired or maintained.
(f) Electric controllers and pumps, or instrument air, will be installed to replace pneumatic controllers whenever feasible. Pneumatic controllers and pumps will be inspected frequently to ensure that no excess gas is vented to atmosphere.
(g) No dehydration or amine units are anticipated to be set on location.
(h) Compressors, compressor engines, turbines, flanges, connectors, valves, storage tanks, and other low-pressure vessels and flanges will be routinely inspected to ensure that no excess venting occurs outside of normal operations.
(i) Regulatory required testing, such as bradenhead and packer testing will be performed in a manner that minimizes the amount of natural gas vented to atmosphere.
(j) If natural gas does not meet gathering pipeline specifications gas samples will be collected twice per week to determine when pipeline specification gas content has been achieved. During this time frame gas will be flared and not vented to atmosphere. Natural gas that meets pipeline specifications will be sold via pipeline and natural gas that can be utilized for fuel gas will be used during this time.
(k) If pipeline, equipment, or facilities need purged of impurities gas losses will be minimized as much as technically and safely feasible.

E. Performance standards:
a. The production facilities are designed to handle the maximum throughput and pressures from producing wellbores and will be designed to minimize waste. The amount of gas vented and flared will be minimized when technically and safely feasible.

b. All tanks that are routed to a control device that is installed after 5/25/2021 will have an automatic gauging system to minimize the amount of vented natural gas.
c. If a flare stack is installed or replaced after 5/25/2021 it will be equipped with an automatic ignitor or continuous pilot. The flare stack will be properly sized and designed to ensure proper combustion efficiency. The flare stack will be located 100 feet away from the nearest wellhead or storage tank.
d. AVO inspections will be conducted weekly for the year after completion and for all wells producing greater than 60,000 cubic feet of natural gas daily. The AVO inspection will include all components, including flare stacks, thief hatches, closed vent systems, pumps, compressors, pressure relief devices, valves, lines, flanges, connectors, and associated pipeline to identify any leaks and releases by comprehensive auditory, visual, and olfactory inspection. The AVO inspection records will be maintained for 5 years which will be available at the department's request. Identified leaks will be repaired as soon as feasible to minimize the amount of vented natural gas.

F. Measurement or estimation of vented and flared natural gas.
a. The volume of natural gas that is vented, flared or consumed for beneficial use will be measured when possible, or estimated, during drilling, completions, or production operations.
b. Equipment will be installed to measure the volume of natural gas flared for all APD's issued after 5/25/2021 on facilities that will have an average daily gas rate greater than 60,000 cubic feet of natural gas. Measurement equipment will conform to API MPMS Chapter 14.10 regulations. The measurement equipment will not have a manifold that allows the diversion of natural gas around the metering element except for the sole purpose of inspecting and servicing the measurement equipment. If metering is not practical, then the volume of gas will be estimated.

LOGOS Operating, LLC
Operations Plan

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

Date:	December 20 2022	Pool:	Basin Mancos
Well Name:	**Rosa Unit 756H**	GL Elevation:	6,534’
Surface Location:	Sec 33, T31N, R5W 2631 FSL, 951 FWL (36.856121º N, 107.372808º W – NAD83)	Measured Depth:	20,328’ (KB)
Bottom Hole Location:	Sec 35, T31N, R5W 1125 FSL, 1427 FEL (36.851972º N, 107.326855º W – NAD83)	County:	Rio Arriba

Lease Serial #NMSF0078773 CA Serial #NMNM78407E

I. GEOLOGY

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

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2,734'	2,687'	*POINT LOOKOUT	5,935'	5,804'
KIRTLAND	2,883'	2,832'	*MANCOS	6,419'	6,275'
*FRUITLAND	3,294'	3,232'	KICKOFF POINT	6,694'	6,543'
*PICTURED CLIFFS	3,624'	3,554'	LANDING POINT	7,581'	7,089'
LEWIS	3,736'	3,663'			
CHACRA	4,833'	4,731'			
*CLIFF HOUSE	5,688'	5,563'			
MENEFEE	5,716'	5,591'	TD	20,328'	7,099'

* 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 17-1/2" surface hole as well as the 12-1/4” directional vertical 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 **1500 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:** 7,099' TVD x 0.43 = 3053 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	17.5"	320' or greater	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,494'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,328'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

NOTE: All casing depths are approximate, based on GL 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: 13-3/8" notched regular pattern guide shoe. Run (1) standard centralizer on each of the bottom (3) joints of Surface Casing.
2. INTERMEDIATE CASING: 9-5/8" cement nose guide shoe with a self-fill insert float. 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.
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 ~ 320' and cemented to surface. TOC at Surface. 263 sks of 15.8 ppg Type Neat G, 1.18 cuft/sk yield or equivalent 223 sks of 14.6 ppg Type III with 1.39 cuf/sk yield, 30% excess.

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 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.

	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,385	1,109	0.3132	1.3	469	84	1.15	408	15.8
Stage 1 Lead	4,884	501	0.31318	1.3	204	36	2.30	89	12.3
					673	**120**		**497**	
Stage 2 Tail	3,709	1,175	0.31318	1.3	478	85	1.50	319	13.5
Stage 2 Lead	3,345	364	0.31318	1.3	148	26	2.30	64	12.3
					627	**112**		**383**	
Stage 3 Tail	2,695	650	0.31318	1.3	265	47	1.99	133	12.8
Stage 3 Lead	320	2,375	0.31318	1.3	967	172	2.53	382	12
Stage 3 Lead	-	320	0.36268	1	116	21	2.53	46	12
					1,348	**240**		**561**	
All Stage Totals					**2,647**	**472**		**1,441**	

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.

	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased Lead	**5,494**	**100**	**0.2531**	**1**	**25**	**5**	**1.56**	**16**	13
Open Hole Lead	**6,494**	**13,834**	**0.2291**	**1.15**	**3,655**	**651**	**1.56**	**2,343**	13
					3,681	**656**		**2,359**	

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 * 7,109 TVD=1562 psi for 30 minutes. Increase pressure to Open RSI sleeves.

D. STIMULATION

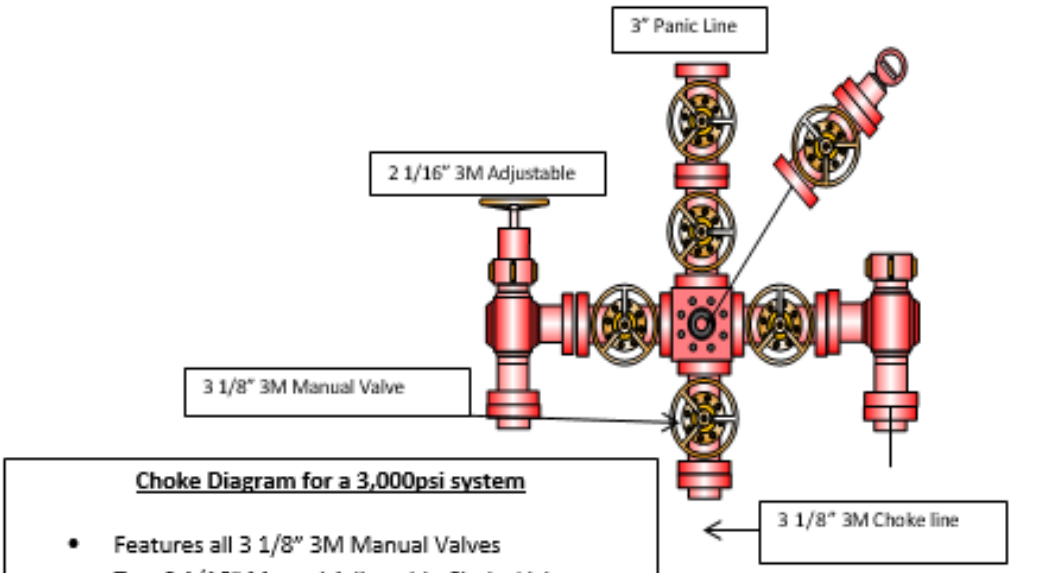
Stimulate with sand and water. Isolate stages with flow through or dissolvable frac plugs. Drill out frac plugs and flowback lateral.

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 12-18 months after completion.

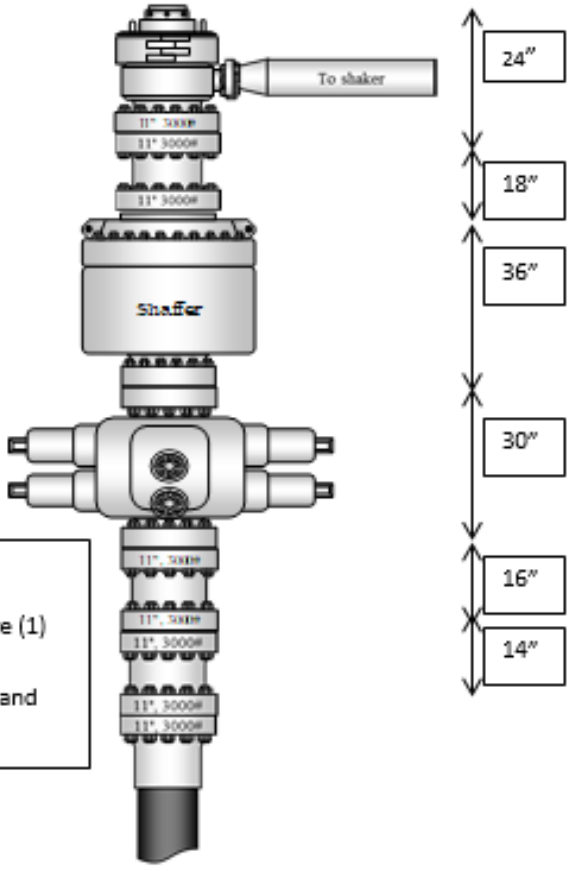
*NOTE: Although this horizontal well may be drilled past the applicable setbacks, an unorthodox location application is not required because the completed interval in this well, as defined by 19.15.16.7 8(1) NMAC, will be entirely within the applicable setbacks. This approach complies with all applicable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

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

ROSA UNIT 756H

Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 32
Rosa Unit 756H - Slot B04

OH

Plan: Plan #3

Standard Planning Report

03 December, 2022

Planning Report

Database:	Well Planning	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Company:	Logos Operating LLC	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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 "	**Grid Convergence:**	0.28 °

Well	Rosa Unit 756H - Slot B04					
Well Position	**+N/-S**	-41.62 usft	**Northing:**	2,131,277.87 usft	**Latitude:**	36.856127
	+E/-W	-149.29 usft	**Easting:**	2,857,646.16 usft	**Longitude:**	-107.373410
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	6,533.99 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2015	11/21/2022	8.56	63.43	49,565.14493451

Design	Plan #3			
Audit Notes:				
Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	90.22

Plan Survey Tool Program **Date** 12/3/2022

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	20,328.16	Plan #3 (OH)	MWD-SDI	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,157.34	13.15	174.57	1,151.58	-74.75	7.10	2.00	2.00	0.00	174.57	
6,694.27	13.15	174.57	6,543.40	-1,328.45	126.24	0.00	0.00	0.00	0.00	
7,581.00	89.96	90.22	7,089.00	-1,457.39	698.12	10.00	8.66	-9.51	-84.51	Rosa Unit 756H POE
20,328.16	89.96	90.22	7,099.00	-1,507.00	13,445.18	0.00	0.00	0.00	0.00	Rosa Unit 756H PBHl

Planning Report

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Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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
600.00	2.00	174.57	599.98	-1.74	0.17	0.17	2.00	2.00	0.00
700.00	4.00	174.57	699.84	-6.95	0.66	0.69	2.00	2.00	0.00
800.00	6.00	174.57	799.45	-15.62	1.48	1.54	2.00	2.00	0.00
900.00	8.00	174.57	898.70	-27.75	2.64	2.74	2.00	2.00	0.00
1,000.00	10.00	174.57	997.47	-43.33	4.12	4.28	2.00	2.00	0.00
1,100.00	12.00	174.57	1,095.62	-62.32	5.92	6.16	2.00	2.00	0.00
1,157.34	13.15	174.57	1,151.58	-74.75	7.10	7.39	2.00	2.00	0.00
1,200.00	13.15	174.57	1,193.13	-84.41	8.02	8.35	0.00	0.00	0.00
1,300.00	13.15	174.57	1,290.51	-107.05	10.17	10.58	0.00	0.00	0.00
1,400.00	13.15	174.57	1,387.89	-129.69	12.32	12.82	0.00	0.00	0.00
1,500.00	13.15	174.57	1,485.27	-152.33	14.48	15.06	0.00	0.00	0.00
1,600.00	13.15	174.57	1,582.65	-174.98	16.63	17.30	0.00	0.00	0.00
1,700.00	13.15	174.57	1,680.02	-197.62	18.78	19.54	0.00	0.00	0.00
1,800.00	13.15	174.57	1,777.40	-220.26	20.93	21.78	0.00	0.00	0.00
1,900.00	13.15	174.57	1,874.78	-242.90	23.08	24.02	0.00	0.00	0.00
2,000.00	13.15	174.57	1,972.16	-265.55	25.23	26.25	0.00	0.00	0.00
2,100.00	13.15	174.57	2,069.54	-288.19	27.39	28.49	0.00	0.00	0.00
2,200.00	13.15	174.57	2,166.92	-310.83	29.54	30.73	0.00	0.00	0.00
2,300.00	13.15	174.57	2,264.30	-333.47	31.69	32.97	0.00	0.00	0.00
2,400.00	13.15	174.57	2,361.68	-356.12	33.84	35.21	0.00	0.00	0.00
2,500.00	13.15	174.57	2,459.06	-378.76	35.99	37.45	0.00	0.00	0.00
2,600.00	13.15	174.57	2,556.44	-401.40	38.14	39.69	0.00	0.00	0.00
2,700.00	13.15	174.57	2,653.82	-424.04	40.30	41.92	0.00	0.00	0.00
2,800.00	13.15	174.57	2,751.19	-446.69	42.45	44.16	0.00	0.00	0.00
2,900.00	13.15	174.57	2,848.57	-469.33	44.60	46.40	0.00	0.00	0.00
3,000.00	13.15	174.57	2,945.95	-491.97	46.75	48.64	0.00	0.00	0.00
3,100.00	13.15	174.57	3,043.33	-514.61	48.90	50.88	0.00	0.00	0.00
3,200.00	13.15	174.57	3,140.71	-537.26	51.05	53.12	0.00	0.00	0.00
3,300.00	13.15	174.57	3,238.09	-559.90	53.21	55.36	0.00	0.00	0.00
3,400.00	13.15	174.57	3,335.47	-582.54	55.36	57.59	0.00	0.00	0.00
3,500.00	13.15	174.57	3,432.85	-605.18	57.51	59.83	0.00	0.00	0.00
3,600.00	13.15	174.57	3,530.23	-627.83	59.66	62.07	0.00	0.00	0.00
3,700.00	13.15	174.57	3,627.61	-650.47	61.81	64.31	0.00	0.00	0.00
3,800.00	13.15	174.57	3,724.99	-673.11	63.96	66.55	0.00	0.00	0.00
3,900.00	13.15	174.57	3,822.36	-695.75	66.12	68.79	0.00	0.00	0.00
4,000.00	13.15	174.57	3,919.74	-718.40	68.27	71.03	0.00	0.00	0.00
4,100.00	13.15	174.57	4,017.12	-741.04	70.42	73.26	0.00	0.00	0.00
4,200.00	13.15	174.57	4,114.50	-763.68	72.57	75.50	0.00	0.00	0.00
4,300.00	13.15	174.57	4,211.88	-786.32	74.72	77.74	0.00	0.00	0.00
4,400.00	13.15	174.57	4,309.26	-808.97	76.87	79.98	0.00	0.00	0.00
4,500.00	13.15	174.57	4,406.64	-831.61	79.03	82.22	0.00	0.00	0.00
4,600.00	13.15	174.57	4,504.02	-854.25	81.18	84.46	0.00	0.00	0.00
4,700.00	13.15	174.57	4,601.40	-876.90	83.33	86.70	0.00	0.00	0.00
4,800.00	13.15	174.57	4,698.78	-899.54	85.48	88.93	0.00	0.00	0.00
4,900.00	13.15	174.57	4,796.16	-922.18	87.63	91.17	0.00	0.00	0.00
5,000.00	13.15	174.57	4,893.53	-944.82	89.78	93.41	0.00	0.00	0.00
5,100.00	13.15	174.57	4,990.91	-967.47	91.94	95.65	0.00	0.00	0.00
5,200.00	13.15	174.57	5,088.29	-990.11	94.09	97.89	0.00	0.00	0.00

Planning Report

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Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
5,300.00	13.15	174.57	5,185.67	-1,012.75	96.24	100.13	0.00	0.00	0.00
5,400.00	13.15	174.57	5,283.05	-1,035.39	98.39	102.37	0.00	0.00	0.00
5,500.00	13.15	174.57	5,380.43	-1,058.04	100.54	104.60	0.00	0.00	0.00
5,600.00	13.15	174.57	5,477.81	-1,080.68	102.69	106.84	0.00	0.00	0.00
5,700.00	13.15	174.57	5,575.19	-1,103.32	104.85	109.08	0.00	0.00	0.00
5,800.00	13.15	174.57	5,672.57	-1,125.96	107.00	111.32	0.00	0.00	0.00
5,900.00	13.15	174.57	5,769.95	-1,148.61	109.15	113.56	0.00	0.00	0.00
6,000.00	13.15	174.57	5,867.33	-1,171.25	111.30	115.80	0.00	0.00	0.00
6,100.00	13.15	174.57	5,964.70	-1,193.89	113.45	118.04	0.00	0.00	0.00
6,200.00	13.15	174.57	6,062.08	-1,216.53	115.60	120.27	0.00	0.00	0.00
6,300.00	13.15	174.57	6,159.46	-1,239.18	117.76	122.51	0.00	0.00	0.00
6,400.00	13.15	174.57	6,256.84	-1,261.82	119.91	124.75	0.00	0.00	0.00
6,500.00	13.15	174.57	6,354.22	-1,284.46	122.06	126.99	0.00	0.00	0.00
6,600.00	13.15	174.57	6,451.60	-1,307.10	124.21	129.23	0.00	0.00	0.00
6,694.27	13.15	174.57	6,543.40	-1,328.45	126.24	131.34	0.00	0.00	0.00
6,700.00	13.21	172.07	6,548.98	-1,329.75	126.39	131.50	10.00	1.17	-43.56
6,750.00	14.74	152.25	6,597.52	-1,341.04	130.14	135.29	10.00	3.06	-39.65
6,800.00	17.59	137.38	6,645.56	-1,352.24	138.23	143.42	10.00	5.69	-29.74
6,850.00	21.22	126.98	6,692.73	-1,363.25	150.58	155.81	10.00	7.27	-20.79
6,900.00	25.31	119.66	6,738.66	-1,373.99	167.10	172.38	10.00	8.17	-14.65
6,950.00	29.66	114.30	6,783.02	-1,384.37	187.68	192.99	10.00	8.70	-10.71
7,000.00	34.17	110.23	6,825.45	-1,394.33	212.14	217.50	10.00	9.03	-8.14
7,050.00	38.80	107.02	6,865.65	-1,403.77	240.32	245.70	10.00	9.24	-6.43
7,100.00	43.49	104.40	6,903.29	-1,412.64	271.98	277.40	10.00	9.39	-5.25
7,150.00	48.23	102.19	6,938.11	-1,420.86	306.89	312.35	10.00	9.49	-4.41
7,200.00	53.01	100.30	6,969.82	-1,428.37	344.79	350.27	10.00	9.56	-3.80
7,250.00	57.82	98.62	6,998.19	-1,435.12	385.38	390.89	10.00	9.61	-3.34
7,300.00	62.65	97.12	7,023.01	-1,441.05	428.37	433.90	10.00	9.65	-3.01
7,350.00	67.49	95.74	7,044.08	-1,446.11	473.41	478.96	10.00	9.68	-2.76
7,400.00	72.34	94.46	7,061.25	-1,450.28	520.17	525.73	10.00	9.70	-2.57
7,450.00	77.20	93.24	7,074.38	-1,453.51	568.29	573.86	10.00	9.72	-2.43
7,500.00	82.07	92.07	7,083.37	-1,455.78	617.40	622.99	10.00	9.73	-2.34
7,550.00	86.94	90.93	7,088.16	-1,457.08	667.14	672.73	10.00	9.74	-2.29
7,581.00	89.96	90.22	7,089.00	-1,457.39	698.12	703.71	10.00	9.74	-2.27
7,600.00	89.96	90.22	7,089.02	-1,457.46	717.12	722.71	0.00	0.00	0.00
7,700.00	89.96	90.22	7,089.09	-1,457.85	817.12	822.71	0.00	0.00	0.00
7,800.00	89.96	90.22	7,089.17	-1,458.24	917.12	922.71	0.00	0.00	0.00
7,900.00	89.96	90.22	7,089.25	-1,458.63	1,017.12	1,022.71	0.00	0.00	0.00
8,000.00	89.96	90.22	7,089.33	-1,459.02	1,117.12	1,122.71	0.00	0.00	0.00
8,100.00	89.96	90.22	7,089.41	-1,459.41	1,217.12	1,222.71	0.00	0.00	0.00
8,200.00	89.96	90.22	7,089.49	-1,459.80	1,317.12	1,322.71	0.00	0.00	0.00
8,300.00	89.96	90.22	7,089.56	-1,460.19	1,417.12	1,422.71	0.00	0.00	0.00
8,400.00	89.96	90.22	7,089.64	-1,460.57	1,517.12	1,522.71	0.00	0.00	0.00
8,500.00	89.96	90.22	7,089.72	-1,460.96	1,617.12	1,622.71	0.00	0.00	0.00
8,600.00	89.96	90.22	7,089.80	-1,461.35	1,717.11	1,722.71	0.00	0.00	0.00
8,700.00	89.96	90.22	7,089.88	-1,461.74	1,817.11	1,822.71	0.00	0.00	0.00
8,800.00	89.96	90.22	7,089.96	-1,462.13	1,917.11	1,922.71	0.00	0.00	0.00
8,900.00	89.96	90.22	7,090.03	-1,462.52	2,017.11	2,022.71	0.00	0.00	0.00
9,000.00	89.96	90.22	7,090.11	-1,462.91	2,117.11	2,122.71	0.00	0.00	0.00
9,100.00	89.96	90.22	7,090.19	-1,463.30	2,217.11	2,222.71	0.00	0.00	0.00
9,200.00	89.96	90.22	7,090.27	-1,463.69	2,317.11	2,322.71	0.00	0.00	0.00
9,300.00	89.96	90.22	7,090.35	-1,464.08	2,417.11	2,422.71	0.00	0.00	0.00
9,400.00	89.96	90.22	7,090.43	-1,464.47	2,517.11	2,522.71	0.00	0.00	0.00
9,500.00	89.96	90.22	7,090.51	-1,464.86	2,617.11	2,622.71	0.00	0.00	0.00

Planning Report

Database:	Well Planning	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Company:	Logos Operating LLC	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
9,600.00	89.96	90.22	7,090.58	-1,465.24	2,717.11	2,722.71	0.00	0.00	0.00
9,700.00	89.96	90.22	7,090.66	-1,465.63	2,817.11	2,822.71	0.00	0.00	0.00
9,800.00	89.96	90.22	7,090.74	-1,466.02	2,917.11	2,922.71	0.00	0.00	0.00
9,900.00	89.96	90.22	7,090.82	-1,466.41	3,017.10	3,022.71	0.00	0.00	0.00
10,000.00	89.96	90.22	7,090.90	-1,466.80	3,117.10	3,122.71	0.00	0.00	0.00
10,100.00	89.96	90.22	7,090.98	-1,467.19	3,217.10	3,222.71	0.00	0.00	0.00
10,200.00	89.96	90.22	7,091.05	-1,467.58	3,317.10	3,322.71	0.00	0.00	0.00
10,300.00	89.96	90.22	7,091.13	-1,467.97	3,417.10	3,422.71	0.00	0.00	0.00
10,400.00	89.96	90.22	7,091.21	-1,468.36	3,517.10	3,522.71	0.00	0.00	0.00
10,500.00	89.96	90.22	7,091.29	-1,468.75	3,617.10	3,622.71	0.00	0.00	0.00
10,600.00	89.96	90.22	7,091.37	-1,469.14	3,717.10	3,722.71	0.00	0.00	0.00
10,700.00	89.96	90.22	7,091.45	-1,469.53	3,817.10	3,822.71	0.00	0.00	0.00
10,800.00	89.96	90.22	7,091.53	-1,469.92	3,917.10	3,922.71	0.00	0.00	0.00
10,900.00	89.96	90.22	7,091.60	-1,470.30	4,017.10	4,022.71	0.00	0.00	0.00
11,000.00	89.96	90.22	7,091.68	-1,470.69	4,117.10	4,122.71	0.00	0.00	0.00
11,100.00	89.96	90.22	7,091.76	-1,471.08	4,217.10	4,222.71	0.00	0.00	0.00
11,200.00	89.96	90.22	7,091.84	-1,471.47	4,317.09	4,322.71	0.00	0.00	0.00
11,300.00	89.96	90.22	7,091.92	-1,471.86	4,417.09	4,422.71	0.00	0.00	0.00
11,400.00	89.96	90.22	7,092.00	-1,472.25	4,517.09	4,522.71	0.00	0.00	0.00
11,500.00	89.96	90.22	7,092.07	-1,472.64	4,617.09	4,622.71	0.00	0.00	0.00
11,600.00	89.96	90.22	7,092.15	-1,473.03	4,717.09	4,722.71	0.00	0.00	0.00
11,700.00	89.96	90.22	7,092.23	-1,473.42	4,817.09	4,822.71	0.00	0.00	0.00
11,800.00	89.96	90.22	7,092.31	-1,473.81	4,917.09	4,922.71	0.00	0.00	0.00
11,900.00	89.96	90.22	7,092.39	-1,474.20	5,017.09	5,022.71	0.00	0.00	0.00
12,000.00	89.96	90.22	7,092.47	-1,474.59	5,117.09	5,122.71	0.00	0.00	0.00
12,100.00	89.96	90.22	7,092.55	-1,474.97	5,217.09	5,222.71	0.00	0.00	0.00
12,200.00	89.96	90.22	7,092.62	-1,475.36	5,317.09	5,322.71	0.00	0.00	0.00
12,300.00	89.96	90.22	7,092.70	-1,475.75	5,417.09	5,422.71	0.00	0.00	0.00
12,400.00	89.96	90.22	7,092.78	-1,476.14	5,517.08	5,522.71	0.00	0.00	0.00
12,500.00	89.96	90.22	7,092.86	-1,476.53	5,617.08	5,622.71	0.00	0.00	0.00
12,600.00	89.96	90.22	7,092.94	-1,476.92	5,717.08	5,722.71	0.00	0.00	0.00
12,700.00	89.96	90.22	7,093.02	-1,477.31	5,817.08	5,822.71	0.00	0.00	0.00
12,800.00	89.96	90.22	7,093.09	-1,477.70	5,917.08	5,922.71	0.00	0.00	0.00
12,900.00	89.96	90.22	7,093.17	-1,478.09	6,017.08	6,022.71	0.00	0.00	0.00
13,000.00	89.96	90.22	7,093.25	-1,478.48	6,117.08	6,122.71	0.00	0.00	0.00
13,100.00	89.96	90.22	7,093.33	-1,478.87	6,217.08	6,222.71	0.00	0.00	0.00
13,200.00	89.96	90.22	7,093.41	-1,479.26	6,317.08	6,322.71	0.00	0.00	0.00
13,300.00	89.96	90.22	7,093.49	-1,479.65	6,417.08	6,422.71	0.00	0.00	0.00
13,400.00	89.96	90.22	7,093.57	-1,480.03	6,517.08	6,522.71	0.00	0.00	0.00
13,500.00	89.96	90.22	7,093.64	-1,480.42	6,617.08	6,622.71	0.00	0.00	0.00
13,600.00	89.96	90.22	7,093.72	-1,480.81	6,717.08	6,722.71	0.00	0.00	0.00
13,700.00	89.96	90.22	7,093.80	-1,481.20	6,817.07	6,822.71	0.00	0.00	0.00
13,800.00	89.96	90.22	7,093.88	-1,481.59	6,917.07	6,922.71	0.00	0.00	0.00
13,900.00	89.96	90.22	7,093.96	-1,481.98	7,017.07	7,022.71	0.00	0.00	0.00
14,000.00	89.96	90.22	7,094.04	-1,482.37	7,117.07	7,122.71	0.00	0.00	0.00
14,100.00	89.96	90.22	7,094.11	-1,482.76	7,217.07	7,222.71	0.00	0.00	0.00
14,200.00	89.96	90.22	7,094.19	-1,483.15	7,317.07	7,322.71	0.00	0.00	0.00
14,300.00	89.96	90.22	7,094.27	-1,483.54	7,417.07	7,422.71	0.00	0.00	0.00
14,400.00	89.96	90.22	7,094.35	-1,483.93	7,517.07	7,522.71	0.00	0.00	0.00
14,500.00	89.96	90.22	7,094.43	-1,484.32	7,617.07	7,622.71	0.00	0.00	0.00
14,600.00	89.96	90.22	7,094.51	-1,484.70	7,717.07	7,722.71	0.00	0.00	0.00
14,700.00	89.96	90.22	7,094.58	-1,485.09	7,817.07	7,822.71	0.00	0.00	0.00
14,800.00	89.96	90.22	7,094.66	-1,485.48	7,917.07	7,922.71	0.00	0.00	0.00
14,900.00	89.96	90.22	7,094.74	-1,485.87	8,017.07	8,022.71	0.00	0.00	0.00

Planning Report

Database:	Well Planning	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Company:	Logos Operating LLC	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
15,000.00	89.96	90.22	7,094.82	-1,486.26	8,117.06	8,122.71	0.00	0.00	0.00
15,100.00	89.96	90.22	7,094.90	-1,486.65	8,217.06	8,222.71	0.00	0.00	0.00
15,200.00	89.96	90.22	7,094.98	-1,487.04	8,317.06	8,322.71	0.00	0.00	0.00
15,300.00	89.96	90.22	7,095.06	-1,487.43	8,417.06	8,422.71	0.00	0.00	0.00
15,400.00	89.96	90.22	7,095.13	-1,487.82	8,517.06	8,522.71	0.00	0.00	0.00
15,500.00	89.96	90.22	7,095.21	-1,488.21	8,617.06	8,622.71	0.00	0.00	0.00
15,600.00	89.96	90.22	7,095.29	-1,488.60	8,717.06	8,722.71	0.00	0.00	0.00
15,700.00	89.96	90.22	7,095.37	-1,488.99	8,817.06	8,822.71	0.00	0.00	0.00
15,800.00	89.96	90.22	7,095.45	-1,489.37	8,917.06	8,922.71	0.00	0.00	0.00
15,900.00	89.96	90.22	7,095.53	-1,489.76	9,017.06	9,022.71	0.00	0.00	0.00
16,000.00	89.96	90.22	7,095.60	-1,490.15	9,117.06	9,122.71	0.00	0.00	0.00
16,100.00	89.96	90.22	7,095.68	-1,490.54	9,217.06	9,222.71	0.00	0.00	0.00
16,200.00	89.96	90.22	7,095.76	-1,490.93	9,317.06	9,322.71	0.00	0.00	0.00
16,300.00	89.96	90.22	7,095.84	-1,491.32	9,417.05	9,422.71	0.00	0.00	0.00
16,400.00	89.96	90.22	7,095.92	-1,491.71	9,517.05	9,522.71	0.00	0.00	0.00
16,500.00	89.96	90.22	7,096.00	-1,492.10	9,617.05	9,622.71	0.00	0.00	0.00
16,600.00	89.96	90.22	7,096.08	-1,492.49	9,717.05	9,722.71	0.00	0.00	0.00
16,700.00	89.96	90.22	7,096.15	-1,492.88	9,817.05	9,822.71	0.00	0.00	0.00
16,800.00	89.96	90.22	7,096.23	-1,493.27	9,917.05	9,922.71	0.00	0.00	0.00
16,900.00	89.96	90.22	7,096.31	-1,493.66	10,017.05	10,022.71	0.00	0.00	0.00
17,000.00	89.96	90.22	7,096.39	-1,494.05	10,117.05	10,122.71	0.00	0.00	0.00
17,100.00	89.96	90.22	7,096.47	-1,494.43	10,217.05	10,222.71	0.00	0.00	0.00
17,200.00	89.96	90.22	7,096.55	-1,494.82	10,317.05	10,322.71	0.00	0.00	0.00
17,300.00	89.96	90.22	7,096.62	-1,495.21	10,417.05	10,422.71	0.00	0.00	0.00
17,400.00	89.96	90.22	7,096.70	-1,495.60	10,517.05	10,522.71	0.00	0.00	0.00
17,500.00	89.96	90.22	7,096.78	-1,495.99	10,617.04	10,622.71	0.00	0.00	0.00
17,600.00	89.96	90.22	7,096.86	-1,496.38	10,717.04	10,722.71	0.00	0.00	0.00
17,700.00	89.96	90.22	7,096.94	-1,496.77	10,817.04	10,822.71	0.00	0.00	0.00
17,800.00	89.96	90.22	7,097.02	-1,497.16	10,917.04	10,922.71	0.00	0.00	0.00
17,900.00	89.96	90.22	7,097.10	-1,497.55	11,017.04	11,022.71	0.00	0.00	0.00
18,000.00	89.96	90.22	7,097.17	-1,497.94	11,117.04	11,122.71	0.00	0.00	0.00
18,100.00	89.96	90.22	7,097.25	-1,498.33	11,217.04	11,222.71	0.00	0.00	0.00
18,200.00	89.96	90.22	7,097.33	-1,498.72	11,317.04	11,322.71	0.00	0.00	0.00
18,300.00	89.96	90.22	7,097.41	-1,499.10	11,417.04	11,422.71	0.00	0.00	0.00
18,400.00	89.96	90.22	7,097.49	-1,499.49	11,517.04	11,522.71	0.00	0.00	0.00
18,500.00	89.96	90.22	7,097.57	-1,499.88	11,617.04	11,622.71	0.00	0.00	0.00
18,600.00	89.96	90.22	7,097.64	-1,500.27	11,717.04	11,722.71	0.00	0.00	0.00
18,700.00	89.96	90.22	7,097.72	-1,500.66	11,817.04	11,822.71	0.00	0.00	0.00
18,800.00	89.96	90.22	7,097.80	-1,501.05	11,917.03	11,922.71	0.00	0.00	0.00
18,900.00	89.96	90.22	7,097.88	-1,501.44	12,017.03	12,022.71	0.00	0.00	0.00
19,000.00	89.96	90.22	7,097.96	-1,501.83	12,117.03	12,122.71	0.00	0.00	0.00
19,100.00	89.96	90.22	7,098.04	-1,502.22	12,217.03	12,222.71	0.00	0.00	0.00
19,200.00	89.96	90.22	7,098.12	-1,502.61	12,317.03	12,322.71	0.00	0.00	0.00
19,300.00	89.96	90.22	7,098.19	-1,503.00	12,417.03	12,422.71	0.00	0.00	0.00
19,400.00	89.96	90.22	7,098.27	-1,503.39	12,517.03	12,522.71	0.00	0.00	0.00
19,500.00	89.96	90.22	7,098.35	-1,503.78	12,617.03	12,622.71	0.00	0.00	0.00
19,600.00	89.96	90.22	7,098.43	-1,504.16	12,717.03	12,722.71	0.00	0.00	0.00
19,700.00	89.96	90.22	7,098.51	-1,504.55	12,817.03	12,822.71	0.00	0.00	0.00
19,800.00	89.96	90.22	7,098.59	-1,504.94	12,917.03	12,922.71	0.00	0.00	0.00
19,900.00	89.96	90.22	7,098.66	-1,505.33	13,017.03	13,022.71	0.00	0.00	0.00
20,000.00	89.96	90.22	7,098.74	-1,505.72	13,117.03	13,122.71	0.00	0.00	0.00
20,100.00	89.96	90.22	7,098.82	-1,506.11	13,217.02	13,222.71	0.00	0.00	0.00
20,200.00	89.96	90.22	7,098.90	-1,506.50	13,317.02	13,322.71	0.00	0.00	0.00
20,300.00	89.96	90.22	7,098.98	-1,506.89	13,417.02	13,422.71	0.00	0.00	0.00

Planning Report

Database:	Well Planning	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Company:	Logos Operating LLC	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Project:	Rio Arriba, NM NAD83	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site:	Rosa Unit 32	**North Reference:**	True
Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3		

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)
20,328.16	89.96	90.22	7,099.00	-1,507.00	13,445.18	13,450.87	0.00	0.00	0.00

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
Rosa Unit 756H SHL - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	2,131,277.87	2,857,646.16	36.856127	-107.373410
Rosa Unit 756H POE - plan hits target center - Point	0.00	0.00	7,089.00	-1,457.39	698.12	2,129,823.86	2,858,351.29	36.852124	-107.371024
Rosa Unit 756H PBHL - plan hits target center - Point	0.00	0.00	7,099.00	-1,507.00	13,445.18	2,129,835.63	2,871,098.45	36.851979	-107.327456

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,734.08	2,687.00	Ojo Alamo		0.00	90.22
2,882.98	2,832.00	Kirtland		0.00	90.22
3,293.75	3,232.00	Fruitland		0.00	90.22
3,624.41	3,554.00	Pictured Cliffs		0.00	90.22
3,736.35	3,663.00	Lewis		0.00	90.22
4,833.09	4,731.00	Chacra		0.00	90.22
5,687.48	5,563.00	Cliff House		0.00	90.22
5,716.24	5,591.00	Menefee		0.00	90.22
5,934.97	5,804.00	Point Lookout		0.00	90.22
6,418.65	6,275.00	Mancos		0.00	90.22

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
1,157.34	1,151.58	-74.75	7.10	Start 5536.93 hold at 1157.34 MD
6,694.27	6,543.40	-1,328.45	126.24	Start DLS 10.00 TFO -84.51
7,581.00	7,089.00	-1,457.39	698.12	Start 12747.16 hold at 7581.00 MD
20,328.16	7,099.00	-1,507.00	13,445.18	TD at 20328.16

Logos Operating LLC

Rio Arriba, NM NAD83
Rosa Unit 32
Rosa Unit 756H

OH
Plan #3

Anticollision Report

03 December, 2022

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference	Plan #3		
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:	Maximum center-center distance of 19,999.96 usft	**Error Surface:**	Pedal Curve
Warning Levels Evaluated at:	2.00 **Sigma**	**Casing Method:**	Not applied

Survey Tool Program **Date** 12/3/2022

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	20,328.16	Plan #3 (OH)	MWD-SDI	

Summary

Site Name / Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 32						
Rosa Unit 750H - OH - Plan #3	903.96	902.56	12.79	7.52	2.426	CC, ES, SF
Rosa Unit 752H - OH - Plan #3	796.19	793.13	29.84	25.22	6.461	CC
Rosa Unit 752H - OH - Plan #3	1,000.00	994.76	30.32	24.49	5.200	ES
Rosa Unit 752H - OH - Plan #3	1,200.00	1,192.52	32.93	25.91	4.690	SF
Rosa Unit 754H - OH - Plan #3	500.00	500.00	15.02	12.16	5.263	CC
Rosa Unit 754H - OH - Plan #3	600.00	600.48	15.14	11.69	4.384	ES
Rosa Unit 754H - OH - Plan #3	700.00	700.68	16.14	12.08	3.980	SF
RU #024 (Offset) - OH - OH	5,910.25	5,749.44	5,366.77	5,098.67	20.018	CC
RU #024 (Offset) - OH - OH	6,700.00	6,518.49	5,369.81	5,065.84	17.665	ES, SF
RU #024B (Offset) - OH - OH	6,695.60	6,505.32	4,397.18	4,239.59	27.903	CC
RU #024B (Offset) - OH - OH	6,700.00	6,509.60	4,397.19	4,239.51	27.887	ES
RU #024B (Offset) - OH - OH	7,000.00	6,782.99	4,476.31	4,312.63	27.348	SF
RU #026A (Offset) - OH - OH	6,704.61	6,487.70	2,577.09	2,422.02	16.619	CC, ES
RU #026A (Offset) - OH - OH	6,950.00	6,720.78	2,628.69	2,466.48	16.206	SF
RU #026C (Offset) - OH - OH	173.23	185.74	1,066.74	1,063.89	374.145	CC
RU #026C (Offset) - OH - OH	1,100.00	1,169.66	1,071.76	1,045.09	40.186	ES
RU #026C (Offset) - OH - OH	6,900.00	6,777.93	1,812.14	1,644.06	10.782	SF
RU #055 (Offset) - OH - OH	15,326.10	7,129.47	329.99	279.07	6.480	CC, ES, SF
RU #077 (Offset) - OH - OH	4,526.97	4,418.71	213.37	196.72	12.811	CC, ES
RU #077 (Offset) - OH - OH	4,800.00	4,686.19	220.36	202.80	12.548	SF
RU #077A (Offset) - OH - OH	10,045.57	7,036.70	390.49	221.08	2.305	CC, ES, SF
RU #077B (Offset) - OH - OH	8,458.31	6,219.00	864.91	794.60	12.301	CC, ES
RU #077B (Offset) - OH - OH	9,100.00	6,219.00	1,076.96	968.39	9.920	SF
RU #077C (Offset) - OH - OH	10,668.99	7,247.04	491.72	454.74	13.297	CC, ES
RU #077C (Offset) - OH - OH	10,700.00	7,247.14	492.70	455.63	13.292	SF
RU #097 (Offset) - OH - OH	636.52	622.99	9,309.67	9,296.88	727.859	CC
RU #097 (Offset) - OH - OH	5,300.00	5,225.09	9,374.30	9,250.88	75.955	ES
RU #097 (Offset) - OH - OH	7,000.00	6,906.91	9,506.53	9,339.34	56.860	SF
RU #137 (Offset) - OH - OH	2,811.00	2,751.98	9,328.38	9,259.60	135.638	CC
RU #137 (Offset) - OH - OH	6,300.00	6,151.70	9,362.65	9,188.29	53.697	ES
RU #137 (Offset) - OH - OH	6,750.00	6,170.00	9,384.05	9,207.83	53.251	SF
RU #137A (Offset) - OH - OH	1,272.56	1,206.15	7,269.96	7,245.59	298.343	CC
RU #137A (Offset) - OH - OH	4,400.00	4,324.67	7,303.34	7,203.46	73.121	ES
RU #137A (Offset) - OH - OH	6,700.00	6,210.00	7,377.27	7,219.82	46.856	SF
RU #137B (Offset) - OH - OH	6,537.59	6,289.93	6,647.16	6,500.01	45.173	CC, ES, SF
RU #137C (Offset) - OH - OH	6,066.43	5,832.47	8,604.92	8,581.76	371.516	CC
RU #137C (Offset) - OH - OH	6,200.00	5,937.58	8,605.29	8,581.67	364.295	ES

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 32						
RU #137C (Offset) - OH - OH	8,800.00	8,800.00	10,391.06	10,356.80	303.311	SF
RU #184 (Offset) - OH - OH	15,241.61	6,308.00	883.79	782.90	8.759	CC, ES
RU #184 (Offset) - OH - OH	15,800.00	6,308.00	1,045.41	914.81	8.005	SF
RU #184B (Offset) - OH - OH	16,245.26	6,298.00	959.23	790.28	5.678	CC, ES
RU #184B (Offset) - OH - OH	16,800.00	6,298.00	1,108.09	903.18	5.408	SF
RU #188 (Offset) - OH - OH	12,938.16	6,476.00	1,171.18	1,036.29	8.683	CC, ES
RU #188 (Offset) - OH - OH	13,000.00	6,476.00	1,172.81	1,037.63	8.676	SF
RU #188C (Offset) - OH - OH	13,755.75	7,263.91	259.36	213.07	5.603	CC, ES, SF
RU #231 (Offset) - OH - OH	3,082.71	3,011.20	9,423.83	9,358.56	144.379	CC
RU #231 (Offset) - OH - OH	3,500.00	3,337.00	9,425.09	9,351.72	128.468	ES
RU #231 (Offset) - OH - OH	5,500.00	3,337.00	9,657.17	9,579.16	123.805	SF
RU #231A (Offset) - OH - OH	3,667.07	3,384.00	6,548.72	6,470.82	84.068	CC
RU #231A (Offset) - OH - OH	3,700.00	3,384.00	6,548.80	6,470.81	83.970	ES
RU #231A (Offset) - OH - OH	4,500.00	3,384.00	6,601.48	6,521.72	82.767	SF
RU #259 (Offset) - OH - OH	3,600.00	3,402.00	735.21	658.95	9.641	SF
RU #259 (Offset) - OH - OH	3,673.84	3,402.00	731.49	656.12	9.705	CC, ES
RU #259A (Offset) - OH - OH	3,693.19	3,414.00	3,179.41	3,101.89	41.015	CC
RU #259A (Offset) - OH - OH	3,700.00	3,414.00	3,179.42	3,101.88	41.008	ES
RU #259A (Offset) - OH - OH	3,800.00	3,414.00	3,181.20	3,103.51	40.944	SF
RU #269A (Offset) - OH - OH	15,494.77	3,512.00	3,671.66	3,614.75	64.515	CC
RU #269A (Offset) - OH - OH	15,500.00	3,512.00	3,671.66	3,614.74	64.498	ES
RU #269A (Offset) - OH - OH	16,200.00	3,512.00	3,738.77	3,679.75	63.338	SF
RU #270 (Offset) - OH - OH	12,819.72	3,597.00	3,771.83	3,713.81	65.011	CC, ES
RU #270 (Offset) - OH - OH	15,600.00	3,597.00	4,685.79	4,594.98	51.601	SF
RU #271A (Offset) - OH - OH	20,328.16	3,527.00	3,895.96	3,824.54	54.545	CC, ES, SF
RU #272 (Offset) - OH - OH	17,275.34	3,569.00	3,928.30	3,851.28	51.006	CC, ES
RU #272 (Offset) - OH - OH	19,600.00	3,569.00	4,564.60	4,465.51	46.062	SF
RU #334A (Offset) - OH - OH	500.00	477.52	2,872.67	2,865.02	375.526	CC
RU #334A (Offset) - OH - OH	1,800.00	1,828.85	2,891.33	2,850.83	71.387	ES
RU #334A (Offset) - OH - OH	3,600.00	3,468.00	2,969.62	2,886.77	35.844	SF
RU #337 (Offset) - OH - OH	1,488.13	1,440.37	4,809.09	4,776.93	149.497	CC
RU #337 (Offset) - OH - OH	3,400.00	3,302.36	4,828.71	4,752.39	63.267	ES
RU #337 (Offset) - OH - OH	3,900.00	3,351.00	4,860.08	4,781.49	61.842	SF

Offset Design Rosa Unit 32 - Rosa Unit 750H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	177.68	-14.99	0.61	15.01				
100.00	100.00	100.00	100.00	0.23	0.23	177.68	-14.99	0.61	15.01	14.55	0.45	33.124	
200.00	200.00	200.00	200.00	0.53	0.53	177.68	-14.99	0.61	15.01	13.95	1.05	14.250	
300.00	300.00	300.00	300.00	0.83	0.83	177.68	-14.99	0.61	15.01	13.35	1.65	9.078	
400.00	400.00	400.00	400.00	1.13	1.13	177.68	-14.99	0.61	15.01	12.75	2.25	6.660	
500.00	500.00	500.00	500.00	1.43	1.43	177.68	-14.99	0.61	15.01	12.15	2.85	5.260	
600.00	599.98	599.53	599.51	1.73	1.73	6.48	-16.57	-0.11	14.84	11.39	3.45	4.300	
678.69	678.58	677.82	677.70	1.96	1.96	14.06	-20.01	-1.68	14.66	10.74	3.92	3.739	
700.00	699.84	716.86	698.80	2.03	2.08	16.86	-21.27	-2.25	14.65	10.55	4.10	3.571	
800.00	799.45	801.14	798.44	2.33	2.33	34.14	-27.86	-5.24	14.00	9.35	4.66	3.008	
900.00	898.70	901.38	897.93	2.63	2.63	63.62	-34.44	-8.24	12.79	7.54	5.26	2.434	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 750H - OH - Plan #3 — **Offset Site Error:** 0.00 usft

Survey Program: 0-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
903.96	902.63	902.56	901.87	2.64	2.63	65.13	-34.71	-8.36	12.79	7.52	5.27	2.426	CC, ES, SF
1,000.00	997.47	1,001.90	997.16	2.93	2.93	103.61	-41.01	-11.23	15.52	9.66	5.86	2.649	
1,100.00	1,095.62	1,102.80	1,095.99	3.23	3.24	131.21	-47.55	-14.20	24.96	18.50	6.46	3.863	
1,157.34	1,151.58	1,153.80	1,152.44	3.40	3.39	140.46	-51.29	-15.90	32.87	26.08	6.79	4.842	
1,200.00	1,193.13	1,204.15	1,194.38	3.53	3.54	145.27	-54.06	-17.16	39.45	32.39	7.07	5.583	
1,300.00	1,290.51	1,305.60	1,292.67	3.83	3.84	151.95	-60.57	-20.12	55.52	47.85	7.67	7.238	
1,400.00	1,387.89	1,407.05	1,390.97	4.13	4.15	155.61	-67.07	-23.08	72.00	63.72	8.28	8.700	
1,500.00	1,485.27	1,508.50	1,489.26	4.43	4.45	157.90	-73.58	-26.04	88.66	79.78	8.88	9.984	
1,600.00	1,582.65	1,609.94	1,587.55	4.73	4.76	159.47	-80.08	-29.00	105.41	95.92	9.48	11.113	
1,700.00	1,680.02	1,688.61	1,685.85	5.03	4.99	160.61	-86.59	-31.95	122.21	112.19	10.02	12.196	
1,800.00	1,777.40	1,787.16	1,784.14	5.33	5.29	161.47	-93.09	-34.91	139.05	128.44	10.62	13.098	
1,900.00	1,874.78	1,885.71	1,882.43	5.63	5.58	162.14	-99.60	-37.87	155.92	144.71	11.21	13.906	
2,000.00	1,972.16	1,984.27	1,980.73	5.93	5.88	162.69	-106.10	-40.83	172.80	160.99	11.81	14.634	
2,100.00	2,069.54	2,082.82	2,079.02	6.23	6.18	163.13	-112.61	-43.79	189.70	177.29	12.40	15.293	
2,200.00	2,166.92	2,181.37	2,177.31	6.53	6.47	163.51	-119.11	-46.75	206.60	193.60	13.00	15.893	
2,300.00	2,264.30	2,279.93	2,275.60	6.83	6.77	163.83	-125.62	-49.71	223.51	209.92	13.60	16.440	
2,400.00	2,361.68	2,378.48	2,373.90	7.13	7.06	164.10	-132.12	-52.66	240.43	226.24	14.19	16.942	
2,500.00	2,459.06	2,477.03	2,472.19	7.43	7.36	164.33	-138.63	-55.62	257.35	242.56	14.79	17.404	
2,600.00	2,556.44	2,575.58	2,570.48	7.73	7.65	164.54	-145.13	-58.58	274.28	258.89	15.38	17.830	
2,700.00	2,653.82	2,674.14	2,668.78	8.03	7.95	164.73	-151.64	-61.54	291.21	275.23	15.98	18.225	
2,800.00	2,751.19	2,772.69	2,767.07	8.33	8.25	164.89	-158.14	-64.50	308.14	291.56	16.57	18.591	
2,900.00	2,848.57	2,871.24	2,865.36	8.63	8.54	165.03	-164.65	-67.46	325.07	307.90	17.17	18.932	
3,000.00	2,945.95	2,969.79	2,963.66	8.93	8.84	165.17	-171.15	-70.42	342.01	324.24	17.77	19.251	
3,100.00	3,043.33	3,068.35	3,061.95	9.23	9.13	165.29	-177.66	-73.37	358.94	340.58	18.36	19.549	
3,200.00	3,140.71	3,166.90	3,160.24	9.53	9.43	165.39	-184.16	-76.33	375.88	356.92	18.96	19.828	
3,300.00	3,238.09	3,265.45	3,258.54	9.83	9.72	165.49	-190.67	-79.29	392.82	373.27	19.55	20.090	
3,400.00	3,335.47	3,364.00	3,356.83	10.13	10.02	165.58	-197.17	-82.25	409.76	389.61	20.15	20.337	
3,500.00	3,432.85	3,462.56	3,455.12	10.43	10.31	165.67	-203.68	-85.21	426.70	405.96	20.74	20.569	
3,600.00	3,530.23	3,561.11	3,553.42	10.73	10.61	165.75	-210.18	-88.17	443.64	422.30	21.34	20.789	
3,700.00	3,627.61	3,659.66	3,651.71	11.03	10.91	165.82	-216.69	-91.13	460.59	438.65	21.94	20.997	
3,800.00	3,724.99	3,758.22	3,750.00	11.33	11.20	165.88	-223.19	-94.08	477.53	455.00	22.53	21.194	
3,900.00	3,822.36	3,856.77	3,848.30	11.63	11.50	165.95	-229.70	-97.04	494.47	471.35	23.13	21.381	
4,000.00	3,919.74	3,955.32	3,946.59	11.93	11.79	166.00	-236.20	-100.00	511.42	487.70	23.72	21.558	
4,100.00	4,017.12	4,053.87	4,044.88	12.23	12.09	166.06	-242.71	-102.96	528.36	504.05	24.32	21.727	
4,200.00	4,114.50	4,152.43	4,143.18	12.53	12.38	166.11	-249.21	-105.92	545.31	520.40	24.91	21.887	
4,300.00	4,211.88	4,250.98	4,241.47	12.83	12.68	166.16	-255.71	-108.88	562.26	536.75	25.51	22.041	
4,400.00	4,309.26	4,349.53	4,339.76	13.13	12.98	166.20	-262.22	-111.84	579.20	553.10	26.11	22.187	
4,500.00	4,406.64	4,448.08	4,438.06	13.43	13.27	166.24	-268.72	-114.79	596.15	569.45	26.70	22.327	
4,600.00	4,504.02	4,546.64	4,536.35	13.73	13.57	166.28	-275.23	-117.75	613.10	585.80	27.30	22.460	
4,700.00	4,601.40	4,645.19	4,634.64	14.03	13.86	166.32	-281.73	-120.71	630.04	602.15	27.89	22.588	
4,800.00	4,698.78	4,743.74	4,732.94	14.33	14.16	166.36	-288.24	-123.67	646.99	618.50	28.49	22.711	
4,900.00	4,796.16	4,842.29	4,831.23	14.63	14.45	166.39	-294.74	-126.63	663.94	634.85	29.08	22.828	
5,000.00	4,893.53	4,940.85	4,929.52	14.93	14.75	166.42	-301.25	-129.59	680.89	651.21	29.68	22.941	
5,100.00	4,990.91	5,039.40	5,027.82	15.23	15.05	166.46	-307.75	-132.55	697.83	667.56	30.28	23.049	
5,200.00	5,088.29	5,137.95	5,126.11	15.53	15.34	166.49	-314.26	-135.50	714.78	683.91	30.87	23.154	
5,300.00	5,185.67	5,236.51	5,224.40	15.83	15.64	166.51	-320.76	-138.46	731.73	700.26	31.47	23.254	
5,400.00	5,283.05	5,335.06	5,322.70	16.13	15.93	166.54	-327.27	-141.42	748.68	716.62	32.06	23.351	
5,500.00	5,380.43	5,433.61	5,420.99	16.43	16.23	166.57	-333.77	-144.38	765.63	732.97	32.66	23.444	
5,600.00	5,477.81	5,532.16	5,519.28	16.73	16.52	166.59	-340.28	-147.34	782.58	749.32	33.25	23.533	
5,700.00	5,575.19	5,630.72	5,617.57	17.03	16.82	166.61	-346.78	-150.30	799.53	765.68	33.85	23.620	
5,800.00	5,672.57	5,729.27	5,715.87	17.33	17.12	166.64	-353.29	-153.26	816.48	782.03	34.45	23.704	
5,900.00	5,769.95	5,827.82	5,814.16	17.63	17.41	166.66	-359.79	-156.21	833.42	798.38	35.04	23.784	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 750H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
6,000.00	5,867.33	5,926.37	5,912.45	17.93	17.71	166.68	-366.30	-159.17	850.37	814.74	35.64	23.862	
6,100.00	5,964.70	6,024.93	6,010.75	18.23	18.00	166.70	-372.80	-162.13	867.32	831.09	36.23	23.938	
6,200.00	6,062.08	6,123.48	6,109.04	18.53	18.30	166.72	-379.31	-165.09	884.27	847.45	36.83	24.011	
6,300.00	6,159.46	6,222.03	6,207.33	18.83	18.59	166.74	-385.81	-168.05	901.22	863.80	37.42	24.082	
6,400.00	6,256.84	6,320.58	6,305.63	19.13	18.89	166.75	-392.32	-171.01	918.17	880.15	38.02	24.150	
6,500.00	6,354.22	6,419.14	6,403.92	19.43	19.18	166.77	-398.82	-173.97	935.12	896.51	38.61	24.217	
6,600.00	6,451.60	6,517.69	6,502.21	19.73	19.48	166.79	-405.33	-176.92	952.07	912.86	39.21	24.281	
6,694.27	6,543.40	6,592.76	6,577.04	20.02	19.71	166.74	-410.28	-180.12	968.52	928.80	39.72	24.384	
6,700.00	6,548.98	6,600.00	6,584.23	20.03	19.73	169.25	-410.75	-180.80	969.62	929.86	39.76	24.388	
6,750.00	6,597.52	6,627.55	6,611.51	20.18	19.81	-170.68	-412.54	-184.21	980.37	940.38	39.99	24.514	
6,800.00	6,645.56	6,657.09	6,640.54	20.33	19.90	-155.58	-414.45	-189.32	993.36	953.13	40.23	24.691	
6,850.00	6,692.73	6,684.34	6,667.05	20.48	19.98	-144.87	-416.18	-195.35	1,008.60	968.13	40.46	24.925	
6,900.00	6,738.66	6,708.81	6,690.59	20.63	20.05	-137.07	-417.71	-201.85	1,026.10	985.41	40.69	25.218	
6,950.00	6,783.02	6,730.21	6,710.94	20.78	20.12	-131.01	-419.04	-208.35	1,045.90	1,004.99	40.90	25.569	
7,000.00	6,825.45	6,750.00	6,729.53	20.94	20.18	-125.99	-420.24	-215.03	1,067.95	1,026.84	41.11	25.975	
7,050.00	6,865.65	6,763.50	6,742.06	21.09	20.22	-121.32	-421.05	-219.95	1,092.18	1,050.88	41.31	26.441	
7,100.00	6,903.29	6,775.51	6,753.13	21.24	20.25	-116.90	-421.77	-224.59	1,118.46	1,076.97	41.49	26.955	
7,150.00	6,938.11	6,784.67	6,761.49	21.39	20.28	-112.48	-422.31	-228.27	1,146.61	1,104.94	41.67	27.516	
7,200.00	6,969.82	6,800.00	6,775.36	21.54	20.33	-108.47	-423.20	-234.74	1,176.46	1,134.59	41.87	28.100	
7,250.00	6,998.19	6,800.00	6,775.36	21.69	20.33	-103.55	-423.20	-234.74	1,207.56	1,165.54	42.02	28.739	
7,300.00	7,023.01	6,800.00	6,775.36	21.84	20.33	-98.60	-423.20	-234.74	1,239.78	1,197.61	42.17	29.401	
7,350.00	7,044.08	6,800.00	6,775.36	21.99	20.33	-93.67	-423.20	-234.74	1,272.81	1,230.49	42.32	30.077	
7,400.00	7,061.25	6,800.00	6,775.36	22.14	20.33	-88.82	-423.20	-234.74	1,306.33	1,263.86	42.47	30.760	
7,450.00	7,074.38	6,800.00	6,775.36	22.29	20.33	-84.13	-423.20	-234.74	1,340.07	1,297.46	42.62	31.444	
7,500.00	7,083.37	6,800.00	6,775.36	22.44	20.33	-79.68	-423.20	-234.74	1,373.77	1,331.00	42.77	32.122	
7,550.00	7,088.16	6,781.37	6,758.48	22.59	20.27	-74.63	-422.11	-226.93	1,406.84	1,363.98	42.86	32.823	
7,581.00	7,089.00	6,777.12	6,754.60	22.68	20.26	-72.08	-421.86	-225.23	1,427.13	1,384.19	42.94	33.234	
7,600.00	7,089.02	6,774.42	6,752.13	22.74	20.25	-71.96	-421.70	-224.16	1,439.55	1,396.56	42.99	33.485	
7,700.00	7,089.09	6,750.00	6,729.53	23.04	20.18	-70.86	-420.24	-215.03	1,507.07	1,463.85	43.22	34.871	
7,800.00	7,089.17	6,750.00	6,729.53	23.34	20.18	-70.86	-420.24	-215.03	1,577.51	1,533.99	43.52	36.249	
7,900.00	7,089.25	6,750.00	6,729.53	23.64	20.18	-70.86	-420.24	-215.03	1,651.01	1,607.19	43.82	37.678	
8,000.00	7,089.33	6,728.83	6,709.63	23.94	20.11	-69.90	-418.95	-207.90	1,726.73	1,682.67	44.06	39.193	
8,100.00	7,089.41	6,720.03	6,701.29	24.24	20.09	-69.51	-418.41	-205.16	1,804.77	1,760.43	44.33	40.711	
8,200.00	7,089.49	6,700.00	6,682.15	24.54	20.03	-68.61	-417.17	-199.39	1,884.89	1,840.32	44.57	42.289	
8,300.00	7,089.56	6,700.00	6,682.15	24.84	20.03	-68.61	-417.17	-199.39	1,966.46	1,921.59	44.87	43.823	
8,400.00	7,089.64	6,700.00	6,682.15	25.14	20.03	-68.61	-417.17	-199.39	2,049.67	2,004.50	45.17	45.374	
8,500.00	7,089.72	6,700.00	6,682.15	25.44	20.03	-68.61	-417.17	-199.39	2,134.32	2,088.85	45.47	46.936	
8,600.00	7,089.80	6,700.00	6,682.15	25.75	20.03	-68.61	-417.17	-199.39	2,220.25	2,174.48	45.77	48.505	
8,700.00	7,089.88	6,680.59	6,663.42	26.05	19.97	-67.74	-415.94	-194.45	2,306.93	2,260.92	46.02	50.133	
8,800.00	7,089.96	6,675.63	6,658.61	26.35	19.95	-67.52	-415.63	-193.29	2,394.79	2,348.49	46.30	51.721	
8,900.00	7,090.03	6,671.02	6,654.13	26.65	19.94	-67.31	-415.34	-192.24	2,483.52	2,436.93	46.59	53.307	
9,000.00	7,090.11	6,650.00	6,633.60	26.95	19.88	-66.38	-413.99	-187.95	2,573.32	2,526.49	46.83	54.954	
9,100.00	7,090.19	6,650.00	6,633.60	27.25	19.88	-66.38	-413.99	-187.95	2,663.43	2,616.30	47.13	56.516	
9,200.00	7,090.27	6,650.00	6,633.60	27.55	19.88	-66.38	-413.99	-187.95	2,754.22	2,706.80	47.43	58.073	
9,300.00	7,090.35	6,650.00	6,633.60	27.85	19.88	-66.38	-413.99	-187.95	2,845.64	2,797.91	47.73	59.623	
9,400.00	7,090.43	6,650.00	6,633.60	28.15	19.88	-66.38	-413.99	-187.95	2,937.61	2,889.58	48.03	61.165	
9,500.00	7,090.51	6,650.00	6,633.60	28.45	19.88	-66.38	-413.99	-187.95	3,030.09	2,981.76	48.33	62.698	
9,600.00	7,090.58	6,650.00	6,633.60	28.75	19.88	-66.38	-413.99	-187.95	3,123.03	3,074.40	48.63	64.222	
9,700.00	7,090.66	6,650.00	6,633.60	29.05	19.88	-66.38	-413.99	-187.95	3,216.40	3,167.47	48.93	65.736	
9,800.00	7,090.74	6,650.00	6,633.60	29.35	19.88	-66.38	-413.99	-187.95	3,310.16	3,260.93	49.23	67.240	
9,900.00	7,090.82	6,650.00	6,633.60	29.65	19.88	-66.38	-413.99	-187.95	3,404.27	3,354.74	49.53	68.732	
10,000.00	7,090.90	6,650.00	6,633.60	29.95	19.88	-66.38	-413.99	-187.95	3,498.70	3,448.87	49.83	70.213	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 750H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
10,100.00	7,090.98	6,650.00	6,633.60	30.25	19.88	-66.38	-413.99	-187.95	3,593.44	3,543.31	50.13	71.682	
10,200.00	7,091.05	6,650.00	6,633.60	30.55	19.88	-66.38	-413.99	-187.95	3,688.46	3,638.03	50.43	73.139	
10,300.00	7,091.13	6,628.96	6,612.90	30.85	19.81	-65.46	-412.64	-184.41	3,783.30	3,732.63	50.67	74.668	
10,400.00	7,091.21	6,626.98	6,610.95	31.15	19.81	-65.38	-412.51	-184.12	3,878.73	3,827.76	50.96	76.109	
10,500.00	7,091.29	6,625.09	6,609.08	31.45	19.80	-65.29	-412.38	-183.85	3,974.37	3,923.11	51.26	77.538	
10,600.00	7,091.37	6,623.29	6,607.30	31.76	19.80	-65.21	-412.27	-183.59	4,070.22	4,018.67	51.55	78.953	
10,700.00	7,091.45	6,621.56	6,605.59	32.06	19.79	-65.14	-412.16	-183.35	4,166.26	4,114.41	51.85	80.356	
10,800.00	7,091.53	6,600.00	6,584.23	32.36	19.73	-64.21	-410.75	-180.80	4,262.85	4,210.77	52.08	81.847	
10,900.00	7,091.60	6,600.00	6,584.23	32.66	19.73	-64.21	-410.75	-180.80	4,359.17	4,306.79	52.38	83.216	
11,000.00	7,091.68	6,600.00	6,584.23	32.96	19.73	-64.21	-410.75	-180.80	4,455.66	4,402.97	52.68	84.573	
11,100.00	7,091.76	6,600.00	6,584.23	33.26	19.73	-64.21	-410.75	-180.80	4,552.29	4,499.31	52.98	85.918	
11,200.00	7,091.84	6,600.00	6,584.23	33.56	19.73	-64.21	-410.75	-180.80	4,649.07	4,595.78	53.28	87.250	
11,300.00	7,091.92	6,600.00	6,584.23	33.86	19.73	-64.21	-410.75	-180.80	4,745.98	4,692.39	53.58	88.570	
11,400.00	7,092.00	6,600.00	6,584.23	34.16	19.73	-64.21	-410.75	-180.80	4,843.01	4,789.13	53.89	89.877	
11,500.00	7,092.07	6,600.00	6,584.23	34.46	19.73	-64.21	-410.75	-180.80	4,940.17	4,885.98	54.19	91.172	
11,600.00	7,092.15	6,600.00	6,584.23	34.76	19.73	-64.21	-410.75	-180.80	5,037.43	4,982.95	54.49	92.454	
11,700.00	7,092.23	6,600.00	6,584.23	35.06	19.73	-64.21	-410.75	-180.80	5,134.80	5,080.02	54.79	93.725	
11,800.00	7,092.31	6,600.00	6,584.23	35.36	19.73	-64.21	-410.75	-180.80	5,232.27	5,177.19	55.09	94.983	
11,900.00	7,092.39	6,600.00	6,584.23	35.66	19.73	-64.21	-410.75	-180.80	5,329.84	5,274.45	55.39	96.230	
12,000.00	7,092.47	6,600.00	6,584.23	35.96	19.73	-64.21	-410.75	-180.80	5,427.49	5,371.80	55.69	97.465	
12,100.00	7,092.55	6,600.00	6,584.23	36.26	19.73	-64.21	-410.75	-180.80	5,525.22	5,469.24	55.99	98.688	
12,200.00	7,092.62	6,600.00	6,584.23	36.56	19.73	-64.21	-410.75	-180.80	5,623.04	5,566.75	56.29	99.899	
12,300.00	7,092.70	6,600.00	6,584.23	36.86	19.73	-64.21	-410.75	-180.80	5,720.93	5,664.34	56.59	101.099	
12,400.00	7,092.78	6,600.00	6,584.23	37.16	19.73	-64.21	-410.75	-180.80	5,818.89	5,762.01	56.89	102.287	
12,500.00	7,092.86	6,600.00	6,584.23	37.46	19.73	-64.21	-410.75	-180.80	5,916.93	5,859.74	57.19	103.464	
12,600.00	7,092.94	6,600.00	6,584.23	37.76	19.73	-64.21	-410.75	-180.80	6,015.02	5,957.53	57.49	104.630	
12,700.00	7,093.02	6,600.00	6,584.23	38.06	19.73	-64.21	-410.75	-180.80	6,113.18	6,055.39	57.79	105.785	
12,800.00	7,093.09	6,600.00	6,584.23	38.36	19.73	-64.21	-410.75	-180.80	6,211.40	6,153.31	58.09	106.929	
12,900.00	7,093.17	6,600.00	6,584.23	38.66	19.73	-64.21	-410.75	-180.80	6,309.67	6,251.28	58.39	108.062	
13,000.00	7,093.25	6,600.00	6,584.23	38.96	19.73	-64.21	-410.75	-180.80	6,407.99	6,349.30	58.69	109.185	
13,100.00	7,093.33	6,600.00	6,584.23	39.26	19.73	-64.21	-410.75	-180.80	6,506.37	6,447.38	58.99	110.297	
13,200.00	7,093.41	6,600.00	6,584.23	39.56	19.73	-64.21	-410.75	-180.80	6,604.80	6,545.51	59.29	111.398	
13,300.00	7,093.49	6,600.00	6,584.23	39.86	19.73	-64.21	-410.75	-180.80	6,703.27	6,643.68	59.59	112.489	
13,400.00	7,093.57	6,600.00	6,584.23	40.16	19.73	-64.21	-410.75	-180.80	6,801.79	6,741.90	59.89	113.570	
13,500.00	7,093.64	6,600.00	6,584.23	40.47	19.73	-64.21	-410.75	-180.80	6,900.35	6,840.16	60.19	114.641	
13,600.00	7,093.72	6,600.00	6,584.23	40.77	19.73	-64.21	-410.75	-180.80	6,998.95	6,938.46	60.49	115.702	
13,700.00	7,093.80	6,600.00	6,584.23	41.07	19.73	-64.21	-410.75	-180.80	7,097.59	7,036.79	60.79	116.754	
13,800.00	7,093.88	6,600.00	6,584.23	41.37	19.73	-64.21	-410.75	-180.80	7,196.26	7,135.17	61.09	117.795	
13,900.00	7,093.96	6,600.00	6,584.23	41.67	19.73	-64.21	-410.75	-180.80	7,294.98	7,233.58	61.39	118.827	
14,000.00	7,094.04	6,600.00	6,584.23	41.97	19.73	-64.21	-410.75	-180.80	7,393.72	7,332.03	61.69	119.849	
14,100.00	7,094.11	6,600.00	6,584.23	42.27	19.73	-64.21	-410.75	-180.80	7,492.51	7,430.51	61.99	120.862	
14,200.00	7,094.19	6,600.00	6,584.23	42.57	19.73	-64.21	-410.75	-180.80	7,591.32	7,529.03	62.29	121.866	
14,300.00	7,094.27	6,600.00	6,584.23	42.87	19.73	-64.21	-410.75	-180.80	7,690.16	7,627.57	62.59	122.861	
14,400.00	7,094.35	6,600.00	6,584.23	43.17	19.73	-64.21	-410.75	-180.80	7,789.03	7,726.14	62.89	123.846	
14,500.00	7,094.43	6,600.00	6,584.23	43.47	19.73	-64.21	-410.75	-180.80	7,887.94	7,824.74	63.19	124.823	
14,600.00	7,094.51	6,600.00	6,584.23	43.77	19.73	-64.21	-410.75	-180.80	7,986.87	7,923.37	63.49	125.791	
14,700.00	7,094.58	6,600.00	6,584.23	44.07	19.73	-64.21	-410.75	-180.80	8,085.82	8,022.03	63.79	126.750	
14,800.00	7,094.66	6,600.00	6,584.23	44.37	19.73	-64.21	-410.75	-180.80	8,184.80	8,120.71	64.09	127.701	
14,900.00	7,094.74	6,600.00	6,584.23	44.67	19.73	-64.21	-410.75	-180.80	8,283.81	8,219.41	64.39	128.643	
15,000.00	7,094.82	6,600.00	6,584.23	44.97	19.73	-64.21	-410.75	-180.80	8,382.83	8,318.14	64.69	129.577	
15,100.00	7,094.90	6,600.00	6,584.23	45.27	19.73	-64.21	-410.75	-180.80	8,481.89	8,416.89	64.99	130.502	
15,200.00	7,094.98	6,600.00	6,584.23	45.57	19.73	-64.21	-410.75	-180.80	8,580.96	8,515.67	65.29	131.420	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 750H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
15,300.00	7,095.06	6,600.00	6,584.23	45.87	19.73	-64.21	-410.75	-180.80	8,680.05	8,614.46	65.59	132.329	
15,400.00	7,095.13	6,600.00	6,584.23	46.17	19.73	-64.21	-410.75	-180.80	8,779.17	8,713.28	65.89	133.230	
15,500.00	7,095.21	6,600.00	6,584.23	46.47	19.73	-64.21	-410.75	-180.80	8,878.31	8,812.11	66.19	134.124	
15,600.00	7,095.29	6,581.25	6,565.59	46.77	19.67	-63.41	-409.52	-179.23	8,977.14	8,910.70	66.44	135.118	
15,700.00	7,095.37	6,580.86	6,565.20	47.07	19.67	-63.40	-409.49	-179.20	9,076.29	9,009.56	66.74	135.999	
15,800.00	7,095.45	6,580.47	6,564.81	47.37	19.67	-63.38	-409.47	-179.18	9,175.47	9,108.43	67.04	136.872	
15,900.00	7,095.53	6,580.09	6,564.44	47.67	19.67	-63.36	-409.44	-179.15	9,274.67	9,207.33	67.34	137.737	
16,000.00	7,095.60	6,579.72	6,564.07	47.97	19.67	-63.35	-409.42	-179.13	9,373.88	9,306.24	67.64	138.595	
16,100.00	7,095.68	6,579.36	6,563.70	48.27	19.67	-63.33	-409.40	-179.11	9,473.11	9,405.17	67.93	139.445	
16,200.00	7,095.76	6,579.00	6,563.35	48.57	19.66	-63.32	-409.37	-179.08	9,572.35	9,504.12	68.23	140.288	
16,300.00	7,095.84	6,578.65	6,563.00	48.87	19.66	-63.30	-409.35	-179.06	9,671.61	9,603.08	68.53	141.125	
16,400.00	7,095.92	6,559.90	6,544.31	49.17	19.61	-62.52	-408.11	-178.19	9,771.19	9,702.42	68.78	142.072	
16,500.00	7,096.00	6,559.90	6,544.31	49.47	19.61	-62.52	-408.11	-178.19	9,870.47	9,801.39	69.08	142.892	
16,600.00	7,096.08	6,559.90	6,544.31	49.77	19.61	-62.52	-408.11	-178.19	9,969.76	9,900.39	69.38	143.705	
16,700.00	7,096.15	6,559.90	6,544.31	50.07	19.61	-62.52	-408.11	-178.19	10,069.07	9,999.39	69.68	144.511	
16,800.00	7,096.23	6,559.90	6,544.31	50.37	19.61	-62.52	-408.11	-178.19	10,168.39	10,098.41	69.98	145.310	
16,900.00	7,096.31	6,559.90	6,544.31	50.67	19.61	-62.52	-408.11	-178.19	10,267.72	10,197.44	70.28	146.103	
17,000.00	7,096.39	6,559.90	6,544.31	50.97	19.61	-62.52	-408.11	-178.19	10,367.06	10,296.49	70.58	146.889	
17,100.00	7,096.47	6,559.90	6,544.31	51.27	19.61	-62.52	-408.11	-178.19	10,466.42	10,395.54	70.88	147.669	
17,200.00	7,096.55	6,559.90	6,544.31	51.57	19.61	-62.52	-408.11	-178.19	10,565.79	10,494.61	71.18	148.442	
17,300.00	7,096.62	6,559.90	6,544.31	51.87	19.61	-62.52	-408.11	-178.19	10,665.17	10,593.69	71.48	149.209	
17,400.00	7,096.70	6,559.90	6,544.31	52.17	19.61	-62.52	-408.11	-178.19	10,764.57	10,692.79	71.78	149.970	
17,500.00	7,096.78	6,559.90	6,544.31	52.47	19.61	-62.52	-408.11	-178.19	10,863.97	10,791.89	72.08	150.725	
17,600.00	7,096.86	6,559.90	6,544.31	52.77	19.61	-62.52	-408.11	-178.19	10,963.38	10,891.01	72.38	151.473	
17,700.00	7,096.94	6,559.90	6,544.31	53.07	19.61	-62.52	-408.11	-178.19	11,062.81	10,990.13	72.68	152.216	
17,800.00	7,097.02	6,559.90	6,544.31	53.37	19.61	-62.52	-408.11	-178.19	11,162.25	11,089.27	72.98	152.952	
17,900.00	7,097.10	6,559.90	6,544.31	53.67	19.61	-62.52	-408.11	-178.19	11,261.69	11,188.41	73.28	153.683	
18,000.00	7,097.17	6,559.90	6,544.31	53.97	19.61	-62.52	-408.11	-178.19	11,361.15	11,287.57	73.58	154.408	
18,100.00	7,097.25	6,559.90	6,544.31	54.27	19.61	-62.52	-408.11	-178.19	11,460.61	11,386.73	73.88	155.127	
18,200.00	7,097.33	6,559.90	6,544.31	54.57	19.61	-62.52	-408.11	-178.19	11,560.09	11,485.91	74.18	155.840	
18,300.00	7,097.41	6,559.90	6,544.31	54.87	19.61	-62.52	-408.11	-178.19	11,659.57	11,585.09	74.48	156.548	
18,400.00	7,097.49	6,559.90	6,544.31	55.17	19.61	-62.52	-408.11	-178.19	11,759.06	11,684.28	74.78	157.250	
18,500.00	7,097.57	6,559.90	6,544.31	55.47	19.61	-62.52	-408.11	-178.19	11,858.56	11,783.48	75.08	157.946	
18,600.00	7,097.64	6,559.90	6,544.31	55.78	19.61	-62.52	-408.11	-178.19	11,958.07	11,882.69	75.38	158.638	
18,700.00	7,097.72	6,559.90	6,544.31	56.08	19.61	-62.52	-408.11	-178.19	12,057.59	11,981.91	75.68	159.323	
18,800.00	7,097.80	6,559.90	6,544.31	56.38	19.61	-62.52	-408.11	-178.19	12,157.11	12,081.13	75.98	160.004	
18,900.00	7,097.88	6,559.90	6,544.31	56.68	19.61	-62.52	-408.11	-178.19	12,256.64	12,180.36	76.28	160.679	
19,000.00	7,097.96	6,559.90	6,544.31	56.98	19.61	-62.52	-408.11	-178.19	12,356.18	12,279.60	76.58	161.349	
19,100.00	7,098.04	6,559.90	6,544.31	57.28	19.61	-62.52	-408.11	-178.19	12,455.73	12,378.85	76.88	162.014	
19,200.00	7,098.12	6,559.90	6,544.31	57.58	19.61	-62.52	-408.11	-178.19	12,555.29	12,478.11	77.18	162.674	
19,300.00	7,098.19	6,559.90	6,544.31	57.88	19.61	-62.52	-408.11	-178.19	12,654.85	12,577.37	77.48	163.329	
19,400.00	7,098.27	6,559.90	6,544.31	58.18	19.61	-62.52	-408.11	-178.19	12,754.42	12,676.64	77.78	163.979	
19,500.00	7,098.35	6,559.90	6,544.31	58.48	19.61	-62.52	-408.11	-178.19	12,853.99	12,775.91	78.08	164.624	
19,600.00	7,098.43	6,559.90	6,544.31	58.78	19.61	-62.52	-408.11	-178.19	12,953.57	12,875.19	78.38	165.264	
19,700.00	7,098.51	6,559.90	6,544.31	59.08	19.61	-62.52	-408.11	-178.19	13,053.16	12,974.48	78.68	165.899	
19,800.00	7,098.59	6,559.90	6,544.31	59.38	19.61	-62.52	-408.11	-178.19	13,152.76	13,073.77	78.98	166.530	
19,900.00	7,098.66	6,559.90	6,544.31	59.68	19.61	-62.52	-408.11	-178.19	13,252.36	13,173.07	79.28	167.156	
20,000.00	7,098.74	6,559.90	6,544.31	59.98	19.61	-62.52	-408.11	-178.19	13,351.96	13,272.38	79.58	167.777	
20,100.00	7,098.82	6,559.90	6,544.31	60.28	19.61	-62.52	-408.11	-178.19	13,451.58	13,371.69	79.88	168.394	
20,200.00	7,098.90	6,559.90	6,544.31	60.58	19.61	-62.52	-408.11	-178.19	13,551.19	13,471.01	80.18	169.006	
20,300.00	7,098.98	6,559.90	6,544.31	60.88	19.61	-62.52	-408.11	-178.19	13,650.82	13,570.34	80.48	169.613	
20,328.16	7,099.00	6,559.90	6,544.31	60.96	19.61	-62.52	-408.11	-178.19	13,678.87	13,598.30	80.57	169.784	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 752H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	177.60	-29.96	1.26	29.98				
100.00	100.00	100.00	100.00	0.23	0.23	177.60	-29.96	1.26	29.98	29.53	0.45	66.187	
200.00	200.00	200.00	200.00	0.53	0.53	177.60	-29.96	1.26	29.98	28.93	1.05	28.474	
300.00	300.00	300.00	300.00	0.83	0.83	177.60	-29.96	1.26	29.98	28.33	1.65	18.138	
400.00	400.00	400.00	400.00	1.13	1.13	177.60	-29.96	1.26	29.98	27.73	2.25	13.308	
500.00	500.00	500.00	500.00	1.43	1.43	177.60	-29.96	1.26	29.98	27.13	2.85	10.509	
600.00	599.98	598.97	598.95	1.73	1.72	3.66	-31.66	1.09	29.95	26.50	3.45	8.683	
700.00	699.84	697.94	697.78	2.03	2.02	5.55	-36.76	0.59	29.88	25.84	4.05	7.386	
796.19	795.66	793.13	792.61	2.32	2.31	8.57	-44.87	-0.20	29.84	25.22	4.62	6.461	CC
800.00	799.45	796.90	796.37	2.33	2.32	8.71	-45.25	-0.24	29.84	25.20	4.64	6.430	
900.00	898.70	895.84	894.58	2.63	2.61	13.13	-57.13	-1.40	29.94	24.70	5.24	5.717	
1,000.00	997.47	994.76	992.30	2.93	2.91	18.70	-72.37	-2.89	30.32	24.49	5.83	5.200	ES
1,100.00	1,095.62	1,093.65	1,089.41	3.23	3.21	25.24	-90.96	-4.71	31.17	24.74	6.43	4.850	
1,157.34	1,151.58	1,150.34	1,144.77	3.40	3.38	29.29	-103.11	-5.89	31.93	25.17	6.77	4.719	
1,200.00	1,193.13	1,192.52	1,185.79	3.53	3.51	32.11	-112.86	-6.85	32.93	25.91	7.02	4.690	SF
1,300.00	1,290.51	1,292.24	1,282.50	3.83	3.81	37.22	-137.08	-9.21	36.63	29.00	7.62	4.806	
1,400.00	1,387.89	1,392.12	1,379.36	4.13	4.11	41.36	-161.37	-11.59	40.59	32.37	8.22	4.937	
1,500.00	1,485.27	1,507.99	1,476.21	4.43	4.45	44.74	-185.66	-13.96	44.74	35.87	8.87	5.043	
1,600.00	1,582.65	1,608.11	1,573.06	4.73	4.76	47.54	-209.95	-16.34	49.01	39.54	9.47	5.174	
1,700.00	1,680.02	1,691.77	1,669.92	5.03	5.01	49.89	-234.25	-18.71	53.38	43.36	10.02	5.325	
1,800.00	1,777.40	1,808.35	1,766.77	5.33	5.36	51.88	-258.54	-21.08	57.82	47.15	10.67	5.417	
1,900.00	1,874.78	1,908.46	1,863.63	5.63	5.66	53.59	-282.83	-23.46	62.33	51.06	11.27	5.528	
2,000.00	1,972.16	1,991.42	1,960.48	5.93	5.91	55.06	-307.13	-25.83	66.88	55.06	11.82	5.657	
2,100.00	2,069.54	2,108.70	2,057.33	6.23	6.26	56.35	-331.42	-28.21	71.47	59.00	12.48	5.729	
2,200.00	2,166.92	2,208.82	2,154.19	6.53	6.56	57.48	-355.71	-30.58	76.10	63.02	13.08	5.819	
2,300.00	2,264.30	2,291.07	2,251.04	6.83	6.81	58.48	-380.01	-32.96	80.75	67.12	13.62	5.927	
2,400.00	2,361.68	2,409.05	2,347.90	7.13	7.16	59.37	-404.30	-35.33	85.42	71.14	14.28	5.983	
2,500.00	2,459.06	2,509.17	2,444.75	7.43	7.46	60.17	-428.59	-37.70	90.11	75.23	14.88	6.056	
2,600.00	2,556.44	2,609.29	2,541.61	7.73	7.76	60.89	-452.89	-40.08	94.81	79.33	15.48	6.125	
2,700.00	2,653.82	2,709.40	2,638.46	8.03	8.06	61.54	-477.18	-42.45	99.53	83.45	16.08	6.190	
2,800.00	2,751.19	2,809.52	2,735.31	8.33	8.36	62.13	-501.47	-44.83	104.26	87.58	16.68	6.251	
2,900.00	2,848.57	2,909.64	2,832.17	8.63	8.66	62.67	-525.77	-47.20	109.00	91.72	17.28	6.308	
3,000.00	2,945.95	2,990.24	2,929.02	8.93	8.90	63.17	-550.06	-49.58	113.75	95.93	17.82	6.383	
3,100.00	3,043.33	3,109.87	3,025.88	9.23	9.26	63.62	-574.35	-51.95	118.51	100.03	18.48	6.413	
3,200.00	3,140.71	3,209.99	3,122.73	9.53	9.56	64.04	-598.65	-54.32	123.27	104.19	19.08	6.461	
3,300.00	3,238.09	3,289.89	3,219.58	9.83	9.80	64.43	-622.94	-56.70	128.04	108.42	19.62	6.526	
3,400.00	3,335.47	3,389.77	3,316.44	10.13	10.10	64.79	-647.23	-59.07	132.82	112.60	20.22	6.569	
3,500.00	3,432.85	3,489.66	3,413.29	10.43	10.40	65.13	-671.53	-61.45	137.60	116.78	20.82	6.609	
3,600.00	3,530.23	3,589.54	3,510.15	10.73	10.70	65.44	-695.82	-63.82	142.39	120.97	21.42	6.647	
3,700.00	3,627.61	3,689.42	3,607.00	11.03	11.00	65.74	-720.11	-66.20	147.18	125.16	22.02	6.684	
3,800.00	3,724.99	3,789.30	3,703.85	11.33	11.30	66.01	-744.41	-68.57	151.97	129.35	22.62	6.719	
3,900.00	3,822.36	3,889.19	3,800.71	11.63	11.60	66.27	-768.70	-70.94	156.77	133.55	23.22	6.752	
4,000.00	3,919.74	3,989.07	3,897.56	11.93	11.90	66.51	-792.99	-73.32	161.56	137.75	23.82	6.783	
4,100.00	4,017.12	4,088.95	3,994.42	12.23	12.20	66.74	-817.28	-75.69	166.37	141.95	24.42	6.813	
4,200.00	4,114.50	4,188.83	4,091.27	12.53	12.50	66.96	-841.58	-78.07	171.17	146.15	25.02	6.842	
4,300.00	4,211.88	4,288.72	4,188.13	12.83	12.80	67.16	-865.87	-80.44	175.98	150.36	25.62	6.869	
4,400.00	4,309.26	4,388.60	4,284.98	13.13	13.10	67.36	-890.16	-82.82	180.79	154.57	26.22	6.896	
4,500.00	4,406.64	4,488.48	4,381.83	13.43	13.40	67.54	-914.46	-85.19	185.60	158.78	26.82	6.921	
4,600.00	4,504.02	4,588.36	4,478.69	13.73	13.70	67.71	-938.75	-87.56	190.41	162.99	27.42	6.945	
4,700.00	4,601.40	4,688.25	4,575.54	14.03	14.00	67.88	-963.04	-89.94	195.22	167.21	28.02	6.968	
4,800.00	4,698.78	4,788.13	4,672.40	14.33	14.30	68.03	-987.34	-92.31	200.04	171.42	28.62	6.990	
4,900.00	4,796.16	4,888.01	4,769.25	14.63	14.60	68.18	-1,011.63	-94.69	204.86	175.64	29.22	7.012	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 752H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
5,000.00	4,893.53	4,987.89	4,866.10	14.93	14.90	68.33	-1,035.92	-97.06	209.67	179.86	29.82	7.032	
5,100.00	4,990.91	5,087.78	4,962.96	15.23	15.20	68.46	-1,060.22	-99.44	214.49	184.08	30.42	7.052	
5,200.00	5,088.29	5,187.66	5,059.81	15.53	15.50	68.60	-1,084.51	-101.81	219.31	188.30	31.01	7.071	
5,300.00	5,185.67	5,287.54	5,156.67	15.83	15.80	68.72	-1,108.80	-104.18	224.14	192.52	31.61	7.090	
5,400.00	5,283.05	5,387.42	5,253.52	16.13	16.10	68.84	-1,133.10	-106.56	228.96	196.75	32.21	7.107	
5,500.00	5,380.43	5,487.31	5,350.37	16.43	16.40	68.95	-1,157.39	-108.93	233.78	200.97	32.81	7.125	
5,600.00	5,477.81	5,587.19	5,447.23	16.73	16.70	69.06	-1,181.68	-111.31	238.61	205.19	33.41	7.141	
5,700.00	5,575.19	5,687.07	5,544.08	17.03	17.00	69.17	-1,205.98	-113.68	243.43	209.42	34.01	7.157	
5,800.00	5,672.57	5,786.95	5,640.94	17.33	17.30	69.27	-1,230.27	-116.06	248.26	213.65	34.61	7.172	
5,900.00	5,769.95	5,886.84	5,737.79	17.63	17.59	69.37	-1,254.56	-118.43	253.09	217.88	35.21	7.187	
6,000.00	5,867.33	5,986.72	5,834.65	17.93	17.89	69.46	-1,278.86	-120.80	257.92	222.10	35.81	7.202	
6,100.00	5,964.70	6,086.60	5,931.50	18.23	18.19	69.56	-1,303.15	-123.18	262.74	226.33	36.41	7.216	
6,200.00	6,062.08	6,186.48	6,028.35	18.53	18.49	69.64	-1,327.44	-125.55	267.57	230.56	37.01	7.229	
6,300.00	6,159.46	6,286.37	6,125.21	18.83	18.79	69.73	-1,351.73	-127.93	272.40	234.79	37.61	7.243	
6,400.00	6,256.84	6,386.25	6,222.06	19.13	19.09	69.81	-1,376.03	-130.30	277.23	239.02	38.21	7.255	
6,500.00	6,354.22	6,486.13	6,318.92	19.43	19.39	69.89	-1,400.32	-132.68	282.06	243.25	38.81	7.268	
6,600.00	6,451.60	6,586.01	6,415.77	19.73	19.69	69.96	-1,424.61	-135.05	286.90	247.49	39.41	7.280	
6,694.27	6,543.40	6,680.17	6,507.07	20.02	19.97	70.03	-1,447.52	-137.29	291.45	251.48	39.98	7.291	
6,700.00	6,548.98	6,685.90	6,512.62	20.03	19.99	72.46	-1,448.91	-137.42	291.75	251.74	40.01	7.292	
6,750.00	6,597.52	6,729.14	6,554.55	20.18	20.12	91.72	-1,459.42	-138.62	296.81	256.52	40.29	7.367	
6,800.00	6,645.56	6,761.97	6,586.30	20.33	20.22	106.07	-1,467.38	-141.13	307.91	267.38	40.54	7.596	
6,850.00	6,692.73	6,792.77	6,615.92	20.48	20.31	115.94	-1,474.79	-145.19	325.30	284.52	40.78	7.977	
6,900.00	6,738.66	6,820.87	6,642.71	20.63	20.40	122.61	-1,481.50	-150.32	348.60	307.59	41.01	8.500	
6,950.00	6,783.02	6,850.00	6,670.20	20.78	20.49	127.26	-1,488.37	-157.06	377.34	336.09	41.25	9.147	
7,000.00	6,825.45	6,867.29	6,686.35	20.94	20.54	129.74	-1,492.40	-161.74	410.80	369.34	41.45	9.910	
7,050.00	6,865.65	6,885.34	6,703.05	21.09	20.59	130.97	-1,496.57	-167.15	448.42	406.76	41.66	10.764	
7,100.00	6,903.29	6,900.00	6,716.50	21.24	20.64	130.70	-1,499.93	-171.95	489.47	447.62	41.85	11.695	
7,150.00	6,938.11	6,911.46	6,726.92	21.39	20.67	128.64	-1,502.53	-175.95	533.29	491.25	42.04	12.685	
7,200.00	6,969.82	6,919.96	6,734.60	21.54	20.70	124.09	-1,504.44	-179.05	579.24	537.02	42.22	13.721	
7,250.00	6,998.19	6,925.75	6,739.80	21.69	20.71	115.56	-1,505.74	-181.23	626.74	584.35	42.38	14.787	
7,300.00	7,023.01	6,929.09	6,742.80	21.84	20.72	100.44	-1,506.48	-182.51	675.26	632.71	42.55	15.871	
7,350.00	7,044.08	6,930.24	6,743.82	21.99	20.73	76.75	-1,506.74	-182.96	724.32	681.62	42.70	16.963	
7,400.00	7,061.25	6,929.43	6,743.10	22.14	20.72	50.30	-1,506.56	-182.64	773.51	730.67	42.85	18.053	
7,450.00	7,074.38	6,926.88	6,740.81	22.29	20.72	30.63	-1,505.99	-181.66	822.46	779.47	42.99	19.131	
7,500.00	7,083.37	6,922.78	6,737.14	22.44	20.70	18.51	-1,505.07	-180.10	870.82	827.69	43.13	20.192	
7,550.00	7,088.16	6,917.32	6,732.22	22.59	20.69	11.02	-1,503.85	-178.07	918.29	875.03	43.26	21.227	
7,581.00	7,089.00	6,900.00	6,716.50	22.68	20.64	7.04	-1,499.93	-171.95	947.41	904.11	43.30	21.879	
7,600.00	7,089.02	6,900.00	6,716.50	22.74	20.64	7.04	-1,499.93	-171.95	964.89	921.53	43.36	22.253	
7,700.00	7,089.09	6,900.00	6,716.50	23.04	20.64	7.04	-1,499.93	-171.95	1,057.76	1,014.10	43.66	24.226	
7,800.00	7,089.17	6,900.00	6,716.50	23.34	20.64	7.04	-1,499.93	-171.95	1,151.82	1,107.86	43.96	26.200	
7,900.00	7,089.25	6,877.03	6,695.38	23.64	20.57	5.90	-1,494.66	-164.59	1,246.14	1,201.95	44.20	28.196	
8,000.00	7,089.33	6,868.02	6,687.03	23.94	20.54	5.48	-1,492.57	-161.94	1,341.26	1,296.79	44.47	30.161	
8,100.00	7,089.41	6,850.00	6,670.20	24.24	20.49	4.69	-1,488.37	-157.06	1,436.99	1,392.27	44.72	32.135	
8,200.00	7,089.49	6,850.00	6,670.20	24.54	20.49	4.69	-1,488.37	-157.06	1,532.91	1,487.89	45.02	34.051	
8,300.00	7,089.56	6,850.00	6,670.20	24.84	20.49	4.69	-1,488.37	-157.06	1,629.32	1,584.00	45.32	35.953	
8,400.00	7,089.64	6,850.00	6,670.20	25.14	20.49	4.69	-1,488.37	-157.06	1,726.14	1,680.52	45.62	37.838	
8,500.00	7,089.72	6,850.00	6,670.20	25.44	20.49	4.69	-1,488.37	-157.06	1,823.30	1,777.38	45.92	39.707	
8,600.00	7,089.80	6,828.67	6,650.10	25.75	20.42	3.82	-1,483.35	-151.98	1,920.24	1,874.09	46.16	41.603	
8,700.00	7,089.88	6,823.83	6,645.52	26.05	20.41	3.63	-1,482.20	-150.94	2,017.70	1,971.25	46.44	43.445	
8,800.00	7,089.96	6,819.35	6,641.27	26.35	20.39	3.46	-1,481.14	-150.01	2,115.34	2,068.61	46.73	45.268	
8,900.00	7,090.03	6,800.00	6,622.83	26.65	20.33	2.76	-1,476.53	-146.38	2,213.41	2,166.44	46.97	47.121	
9,000.00	7,090.11	6,800.00	6,622.83	26.95	20.33	2.76	-1,476.53	-146.38	2,311.26	2,263.99	47.27	48.892	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 752H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
9,100.00	7,090.19	6,800.00	6,622.83	27.25	20.33	2.76	-1,476.53	-146.38	2,409.29	2,361.72	47.57	50.644	
9,200.00	7,090.27	6,800.00	6,622.83	27.55	20.33	2.76	-1,476.53	-146.38	2,507.48	2,459.60	47.87	52.377	
9,300.00	7,090.35	6,800.00	6,622.83	27.85	20.33	2.76	-1,476.53	-146.38	2,605.80	2,557.63	48.17	54.091	
9,400.00	7,090.43	6,800.00	6,622.83	28.15	20.33	2.76	-1,476.53	-146.38	2,704.25	2,655.77	48.47	55.787	
9,500.00	7,090.51	6,800.00	6,622.83	28.45	20.33	2.76	-1,476.53	-146.38	2,802.81	2,754.03	48.78	57.464	
9,600.00	7,090.58	6,800.00	6,622.83	28.75	20.33	2.76	-1,476.53	-146.38	2,901.46	2,852.39	49.08	59.122	
9,700.00	7,090.66	6,800.00	6,622.83	29.05	20.33	2.76	-1,476.53	-146.38	3,000.21	2,950.83	49.38	60.762	
9,800.00	7,090.74	6,800.00	6,622.83	29.35	20.33	2.76	-1,476.53	-146.38	3,099.03	3,049.35	49.68	62.384	
9,900.00	7,090.82	6,800.00	6,622.83	29.65	20.33	2.76	-1,476.53	-146.38	3,197.93	3,147.95	49.98	63.988	
10,000.00	7,090.90	6,800.00	6,622.83	29.95	20.33	2.76	-1,476.53	-146.38	3,296.89	3,246.62	50.28	65.574	
10,100.00	7,090.98	6,800.00	6,622.83	30.25	20.33	2.76	-1,476.53	-146.38	3,395.92	3,345.34	50.58	67.143	
10,200.00	7,091.05	6,800.00	6,622.83	30.55	20.33	2.76	-1,476.53	-146.38	3,495.00	3,444.12	50.88	68.694	
10,300.00	7,091.13	6,777.56	6,601.31	30.85	20.27	2.00	-1,471.14	-142.98	3,593.62	3,542.51	51.11	70.310	
10,400.00	7,091.21	6,775.81	6,599.63	31.15	20.26	1.95	-1,470.72	-142.75	3,692.72	3,641.31	51.41	71.834	
10,500.00	7,091.29	6,774.13	6,598.02	31.45	20.26	1.89	-1,470.31	-142.54	3,791.86	3,740.16	51.70	73.341	
10,600.00	7,091.37	6,772.54	6,596.48	31.76	20.25	1.84	-1,469.93	-142.34	3,891.04	3,839.04	52.00	74.831	
10,700.00	7,091.45	6,750.00	6,574.74	32.06	20.18	1.16	-1,464.48	-140.00	3,990.69	3,938.46	52.23	76.405	
10,800.00	7,091.53	6,750.00	6,574.74	32.36	20.18	1.16	-1,464.48	-140.00	4,089.88	4,037.35	52.53	77.857	
10,900.00	7,091.60	6,750.00	6,574.74	32.66	20.18	1.16	-1,464.48	-140.00	4,189.11	4,136.28	52.83	79.292	
11,000.00	7,091.68	6,750.00	6,574.74	32.96	20.18	1.16	-1,464.48	-140.00	4,288.37	4,235.24	53.13	80.712	
11,100.00	7,091.76	6,750.00	6,574.74	33.26	20.18	1.16	-1,464.48	-140.00	4,387.67	4,334.24	53.43	82.117	
11,200.00	7,091.84	6,750.00	6,574.74	33.56	20.18	1.16	-1,464.48	-140.00	4,486.99	4,433.26	53.73	83.506	
11,300.00	7,091.92	6,750.00	6,574.74	33.86	20.18	1.16	-1,464.48	-140.00	4,586.35	4,532.32	54.03	84.881	
11,400.00	7,092.00	6,750.00	6,574.74	34.16	20.18	1.16	-1,464.48	-140.00	4,685.74	4,631.40	54.33	86.241	
11,500.00	7,092.07	6,750.00	6,574.74	34.46	20.18	1.16	-1,464.48	-140.00	4,785.15	4,730.51	54.63	87.587	
11,600.00	7,092.15	6,750.00	6,574.74	34.76	20.18	1.16	-1,464.48	-140.00	4,884.58	4,829.65	54.93	88.918	
11,700.00	7,092.23	6,750.00	6,574.74	35.06	20.18	1.16	-1,464.48	-140.00	4,984.04	4,928.80	55.23	90.235	
11,800.00	7,092.31	6,750.00	6,574.74	35.36	20.18	1.16	-1,464.48	-140.00	5,083.51	5,027.98	55.53	91.538	
11,900.00	7,092.39	6,750.00	6,574.74	35.66	20.18	1.16	-1,464.48	-140.00	5,183.01	5,127.18	55.83	92.828	
12,000.00	7,092.47	6,750.00	6,574.74	35.96	20.18	1.16	-1,464.48	-140.00	5,282.53	5,226.39	56.13	94.104	
12,100.00	7,092.55	6,750.00	6,574.74	36.26	20.18	1.16	-1,464.48	-140.00	5,382.06	5,325.63	56.44	95.367	
12,200.00	7,092.62	6,750.00	6,574.74	36.56	20.18	1.16	-1,464.48	-140.00	5,481.62	5,424.88	56.74	96.617	
12,300.00	7,092.70	6,750.00	6,574.74	36.86	20.18	1.16	-1,464.48	-140.00	5,581.18	5,524.15	57.04	97.854	
12,400.00	7,092.78	6,750.00	6,574.74	37.16	20.18	1.16	-1,464.48	-140.00	5,680.77	5,623.43	57.34	99.078	
12,500.00	7,092.86	6,750.00	6,574.74	37.46	20.18	1.16	-1,464.48	-140.00	5,780.36	5,722.73	57.64	100.290	
12,600.00	7,092.94	6,750.00	6,574.74	37.76	20.18	1.16	-1,464.48	-140.00	5,879.97	5,822.04	57.94	101.490	
12,700.00	7,093.02	6,750.00	6,574.74	38.06	20.18	1.16	-1,464.48	-140.00	5,979.60	5,921.36	58.24	102.677	
12,800.00	7,093.09	6,750.00	6,574.74	38.36	20.18	1.16	-1,464.48	-140.00	6,079.23	6,020.70	58.54	103.852	
12,900.00	7,093.17	6,750.00	6,574.74	38.66	20.18	1.16	-1,464.48	-140.00	6,178.88	6,120.05	58.84	105.016	
13,000.00	7,093.25	6,750.00	6,574.74	38.96	20.18	1.16	-1,464.48	-140.00	6,278.54	6,219.40	59.14	106.168	
13,100.00	7,093.33	6,750.00	6,574.74	39.26	20.18	1.16	-1,464.48	-140.00	6,378.21	6,318.77	59.44	107.309	
13,200.00	7,093.41	6,750.00	6,574.74	39.56	20.18	1.16	-1,464.48	-140.00	6,477.89	6,418.15	59.74	108.438	
13,300.00	7,093.49	6,750.00	6,574.74	39.86	20.18	1.16	-1,464.48	-140.00	6,577.58	6,517.54	60.04	109.556	
13,400.00	7,093.57	6,750.00	6,574.74	40.16	20.18	1.16	-1,464.48	-140.00	6,677.28	6,616.94	60.34	110.663	
13,500.00	7,093.64	6,750.00	6,574.74	40.47	20.18	1.16	-1,464.48	-140.00	6,776.99	6,716.35	60.64	111.759	
13,600.00	7,093.72	6,750.00	6,574.74	40.77	20.18	1.16	-1,464.48	-140.00	6,876.71	6,815.77	60.94	112.845	
13,700.00	7,093.80	6,750.00	6,574.74	41.07	20.18	1.16	-1,464.48	-140.00	6,976.43	6,915.19	61.24	113.920	
13,800.00	7,093.88	6,750.00	6,574.74	41.37	20.18	1.16	-1,464.48	-140.00	7,076.16	7,014.62	61.54	114.985	
13,900.00	7,093.96	6,750.00	6,574.74	41.67	20.18	1.16	-1,464.48	-140.00	7,175.90	7,114.06	61.84	116.040	
14,000.00	7,094.04	6,750.00	6,574.74	41.97	20.18	1.16	-1,464.48	-140.00	7,275.65	7,213.51	62.14	117.084	
14,100.00	7,094.11	6,750.00	6,574.74	42.27	20.18	1.16	-1,464.48	-140.00	7,375.40	7,312.96	62.44	118.119	
14,200.00	7,094.19	6,750.00	6,574.74	42.57	20.18	1.16	-1,464.48	-140.00	7,475.16	7,412.42	62.74	119.144	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 752H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
14,300.00	7,094.27	6,750.00	6,574.74	42.87	20.18	1.16	-1,464.48	-140.00	7,574.93	7,511.89	63.04	120.159	
14,400.00	7,094.35	6,750.00	6,574.74	43.17	20.18	1.16	-1,464.48	-140.00	7,674.70	7,611.36	63.34	121.164	
14,500.00	7,094.43	6,750.00	6,574.74	43.47	20.18	1.16	-1,464.48	-140.00	7,774.48	7,710.84	63.64	122.161	
14,600.00	7,094.51	6,750.00	6,574.74	43.77	20.18	1.16	-1,464.48	-140.00	7,874.27	7,810.32	63.94	123.148	
14,700.00	7,094.58	6,750.00	6,574.74	44.07	20.18	1.16	-1,464.48	-140.00	7,974.06	7,909.81	64.24	124.125	
14,800.00	7,094.66	6,750.00	6,574.74	44.37	20.18	1.16	-1,464.48	-140.00	8,073.85	8,009.31	64.54	125.094	
14,900.00	7,094.74	6,750.00	6,574.74	44.67	20.18	1.16	-1,464.48	-140.00	8,173.65	8,108.81	64.84	126.054	
15,000.00	7,094.82	6,750.00	6,574.74	44.97	20.18	1.16	-1,464.48	-140.00	8,273.45	8,208.31	65.14	127.005	
15,100.00	7,094.90	6,750.00	6,574.74	45.27	20.18	1.16	-1,464.48	-140.00	8,373.26	8,307.82	65.44	127.948	
15,200.00	7,094.98	6,750.00	6,574.74	45.57	20.18	1.16	-1,464.48	-140.00	8,473.08	8,407.34	65.74	128.882	
15,300.00	7,095.06	6,750.00	6,574.74	45.87	20.18	1.16	-1,464.48	-140.00	8,572.90	8,506.85	66.04	129.807	
15,400.00	7,095.13	6,750.00	6,574.74	46.17	20.18	1.16	-1,464.48	-140.00	8,672.72	8,606.38	66.34	130.725	
15,500.00	7,095.21	6,750.00	6,574.74	46.47	20.18	1.16	-1,464.48	-140.00	8,772.55	8,705.90	66.64	131.634	
15,600.00	7,095.29	6,750.00	6,574.74	46.77	20.18	1.16	-1,464.48	-140.00	8,872.38	8,805.43	66.94	132.535	
15,700.00	7,095.37	6,750.00	6,574.74	47.07	20.18	1.16	-1,464.48	-140.00	8,972.21	8,904.97	67.24	133.428	
15,800.00	7,095.45	6,750.00	6,574.74	47.37	20.18	1.16	-1,464.48	-140.00	9,072.05	9,004.50	67.54	134.313	
15,900.00	7,095.53	6,750.00	6,574.74	47.67	20.18	1.16	-1,464.48	-140.00	9,171.89	9,104.04	67.84	135.190	
16,000.00	7,095.60	6,750.00	6,574.74	47.97	20.18	1.16	-1,464.48	-140.00	9,271.73	9,203.59	68.14	136.060	
16,100.00	7,095.68	6,750.00	6,574.74	48.27	20.18	1.16	-1,464.48	-140.00	9,371.58	9,303.14	68.44	136.922	
16,200.00	7,095.76	6,733.63	6,558.90	48.57	20.14	0.69	-1,460.51	-138.85	9,471.18	9,402.49	68.70	137.871	
16,300.00	7,095.84	6,733.32	6,558.60	48.87	20.13	0.68	-1,460.44	-138.84	9,571.03	9,502.03	69.00	138.720	
16,400.00	7,095.92	6,733.02	6,558.31	49.17	20.13	0.67	-1,460.37	-138.82	9,670.88	9,601.58	69.29	139.562	
16,500.00	7,096.00	6,732.73	6,558.03	49.47	20.13	0.67	-1,460.30	-138.80	9,770.73	9,701.14	69.59	140.397	
16,600.00	7,096.08	6,732.44	6,557.75	49.77	20.13	0.66	-1,460.23	-138.79	9,870.58	9,800.69	69.89	141.224	
16,700.00	7,096.15	6,732.16	6,557.48	50.07	20.13	0.65	-1,460.16	-138.77	9,970.44	9,900.25	70.19	142.044	
16,800.00	7,096.23	6,731.88	6,557.21	50.37	20.13	0.64	-1,460.09	-138.76	10,070.30	9,999.81	70.49	142.858	
16,900.00	7,096.31	6,731.61	6,556.94	50.67	20.13	0.64	-1,460.02	-138.74	10,170.16	10,099.37	70.79	143.664	
17,000.00	7,096.39	6,715.28	6,541.12	50.97	20.08	0.20	-1,456.05	-138.12	10,270.26	10,199.22	71.04	144.565	
17,100.00	7,096.47	6,715.28	6,541.12	51.27	20.08	0.20	-1,456.05	-138.12	10,370.12	10,298.78	71.34	145.357	
17,200.00	7,096.55	6,715.28	6,541.12	51.57	20.08	0.20	-1,456.05	-138.12	10,469.99	10,398.34	71.64	146.142	
17,300.00	7,096.62	6,715.28	6,541.12	51.87	20.08	0.20	-1,456.05	-138.12	10,569.85	10,497.91	71.94	146.920	
17,400.00	7,096.70	6,715.28	6,541.12	52.17	20.08	0.20	-1,456.05	-138.12	10,669.72	10,597.47	72.24	147.692	
17,500.00	7,096.78	6,715.28	6,541.12	52.47	20.08	0.20	-1,456.05	-138.12	10,769.59	10,697.04	72.54	148.458	
17,600.00	7,096.86	6,715.28	6,541.12	52.77	20.08	0.20	-1,456.05	-138.12	10,869.46	10,796.62	72.84	149.217	
17,700.00	7,096.94	6,715.28	6,541.12	53.07	20.08	0.20	-1,456.05	-138.12	10,969.33	10,896.19	73.14	149.970	
17,800.00	7,097.02	6,715.28	6,541.12	53.37	20.08	0.20	-1,456.05	-138.12	11,069.21	10,995.77	73.44	150.717	
17,900.00	7,097.10	6,715.28	6,541.12	53.67	20.08	0.20	-1,456.05	-138.12	11,169.09	11,095.34	73.74	151.458	
18,000.00	7,097.17	6,715.28	6,541.12	53.97	20.08	0.20	-1,456.05	-138.12	11,268.97	11,194.93	74.04	152.193	
18,100.00	7,097.25	6,715.28	6,541.12	54.27	20.08	0.20	-1,456.05	-138.12	11,368.85	11,294.51	74.34	152.922	
18,200.00	7,097.33	6,715.28	6,541.12	54.57	20.08	0.20	-1,456.05	-138.12	11,468.74	11,394.09	74.64	153.645	
18,300.00	7,097.41	6,715.28	6,541.12	54.87	20.08	0.20	-1,456.05	-138.12	11,568.62	11,493.68	74.94	154.363	
18,400.00	7,097.49	6,715.28	6,541.12	55.17	20.08	0.20	-1,456.05	-138.12	11,668.51	11,593.27	75.24	155.074	
18,500.00	7,097.57	6,715.28	6,541.12	55.47	20.08	0.20	-1,456.05	-138.12	11,768.40	11,692.86	75.54	155.781	
18,600.00	7,097.64	6,715.28	6,541.12	55.78	20.08	0.20	-1,456.05	-138.12	11,868.30	11,792.45	75.84	156.481	
18,700.00	7,097.72	6,715.28	6,541.12	56.08	20.08	0.20	-1,456.05	-138.12	11,968.19	11,892.05	76.15	157.176	
18,800.00	7,097.80	6,715.28	6,541.12	56.38	20.08	0.20	-1,456.05	-138.12	12,068.09	11,991.64	76.45	157.866	
18,900.00	7,097.88	6,715.28	6,541.12	56.68	20.08	0.20	-1,456.05	-138.12	12,167.99	12,091.24	76.75	158.550	
19,000.00	7,097.96	6,715.28	6,541.12	56.98	20.08	0.20	-1,456.05	-138.12	12,267.89	12,190.84	77.05	159.229	
19,100.00	7,098.04	6,715.28	6,541.12	57.28	20.08	0.20	-1,456.05	-138.12	12,367.79	12,290.44	77.35	159.903	
19,200.00	7,098.12	6,715.28	6,541.12	57.58	20.08	0.20	-1,456.05	-138.12	12,467.69	12,390.04	77.65	160.571	
19,300.00	7,098.19	6,715.28	6,541.12	57.88	20.08	0.20	-1,456.05	-138.12	12,567.59	12,489.65	77.95	161.235	
19,400.00	7,098.27	6,715.28	6,541.12	58.18	20.08	0.20	-1,456.05	-138.12	12,667.50	12,589.25	78.25	161.893	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 752H - OH - Plan #3

Survey Program: 0-MWD-SDI

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	6,715.28	6,541.12	58.48	20.08	0.20	-1,456.05	-138.12	12,767.41	12,688.86	78.55	162.547	
19,600.00	7,098.43	6,715.28	6,541.12	58.78	20.08	0.20	-1,456.05	-138.12	12,867.32	12,788.47	78.85	163.195	
19,700.00	7,098.51	6,715.28	6,541.12	59.08	20.08	0.20	-1,456.05	-138.12	12,967.23	12,888.08	79.15	163.838	
19,800.00	7,098.59	6,715.28	6,541.12	59.38	20.08	0.20	-1,456.05	-138.12	13,067.14	12,987.69	79.45	164.477	
19,900.00	7,098.66	6,715.28	6,541.12	59.68	20.08	0.20	-1,456.05	-138.12	13,167.05	13,087.30	79.75	165.111	
20,000.00	7,098.74	6,715.28	6,541.12	59.98	20.08	0.20	-1,456.05	-138.12	13,266.97	13,186.92	80.05	165.740	
20,100.00	7,098.82	6,715.28	6,541.12	60.28	20.08	0.20	-1,456.05	-138.12	13,366.88	13,286.53	80.35	166.365	
20,200.00	7,098.90	6,715.28	6,541.12	60.58	20.08	0.20	-1,456.05	-138.12	13,466.80	13,386.15	80.65	166.984	
20,300.00	7,098.98	6,715.28	6,541.12	60.88	20.08	0.20	-1,456.05	-138.12	13,566.72	13,485.77	80.95	167.600	
20,328.16	7,099.00	6,715.28	6,541.12	60.96	20.08	0.20	-1,456.05	-138.12	13,594.85	13,513.82	81.03	167.772	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 754H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-2.36	15.00	-0.62	15.02				
100.00	100.00	100.00	100.00	0.23	0.23	-2.36	15.00	-0.62	15.02	14.56	0.45	33.148	
200.00	200.00	200.00	200.00	0.53	0.53	-2.36	15.00	-0.62	15.02	13.96	1.05	14.260	
300.00	300.00	300.00	300.00	0.83	0.83	-2.36	15.00	-0.62	15.02	13.36	1.65	9.084	
400.00	400.00	400.00	400.00	1.13	1.13	-2.36	15.00	-0.62	15.02	12.76	2.25	6.665	
500.00	500.00	500.00	500.00	1.43	1.43	-2.36	15.00	-0.62	15.02	12.16	2.85	5.263	CC
600.00	599.98	600.48	600.46	1.73	1.73	-174.78	13.40	0.11	15.14	11.69	3.45	4.384	ES
700.00	699.84	700.68	700.55	2.03	2.03	-169.62	9.11	2.05	16.14	12.08	4.05	3.980	SF
800.00	799.45	800.58	800.32	2.33	2.33	-167.09	4.54	4.13	20.35	15.70	4.65	4.373	
900.00	898.70	900.28	899.90	2.63	2.63	-167.21	-0.03	6.20	27.98	22.73	5.25	5.326	
1,000.00	997.47	1,000.33	999.16	2.93	2.93	-168.38	-4.58	8.26	39.00	33.15	5.85	6.663	
1,100.00	1,095.62	1,101.39	1,097.97	3.23	3.23	-169.72	-9.11	10.32	53.44	46.98	6.46	8.276	
1,157.34	1,151.58	1,155.09	1,154.38	3.40	3.39	-170.44	-11.70	11.49	63.26	56.47	6.79	9.316	
1,200.00	1,193.13	1,202.96	1,196.28	3.53	3.54	-170.92	-13.62	12.36	70.99	63.93	7.06	10.051	
1,300.00	1,290.51	1,304.62	1,294.50	3.83	3.84	-171.72	-18.12	14.40	89.12	81.45	7.67	11.622	
1,400.00	1,387.89	1,406.28	1,392.71	4.13	4.15	-172.25	-22.63	16.45	107.25	98.98	8.27	12.963	
1,500.00	1,485.27	1,507.94	1,490.92	4.43	4.45	-172.62	-27.13	18.49	125.40	116.52	8.88	14.123	
1,600.00	1,582.65	1,609.60	1,589.14	4.73	4.76	-172.90	-31.63	20.53	143.54	134.06	9.48	15.135	
1,700.00	1,680.02	1,688.73	1,687.35	5.03	4.99	-173.12	-36.14	22.57	161.69	151.67	10.02	16.134	
1,800.00	1,777.40	1,787.07	1,785.56	5.33	5.29	-173.29	-40.64	24.62	179.84	169.23	10.62	16.939	
1,900.00	1,874.78	1,885.41	1,883.78	5.63	5.58	-173.43	-45.15	26.66	198.00	186.78	11.21	17.659	
2,000.00	1,972.16	1,983.75	1,981.99	5.93	5.88	-173.55	-49.65	28.70	216.15	204.34	11.81	18.307	
2,100.00	2,069.54	2,082.08	2,080.20	6.23	6.17	-173.65	-54.15	30.74	234.30	221.90	12.40	18.892	
2,200.00	2,166.92	2,180.42	2,178.42	6.53	6.47	-173.74	-58.66	32.78	252.46	239.46	13.00	19.424	
2,300.00	2,264.30	2,278.76	2,276.63	6.83	6.76	-173.81	-63.16	34.83	270.61	257.02	13.59	19.909	
2,400.00	2,361.68	2,377.10	2,374.84	7.13	7.06	-173.87	-67.66	36.87	288.77	274.58	14.19	20.353	
2,500.00	2,459.06	2,475.43	2,473.06	7.43	7.35	-173.93	-72.17	38.91	306.93	292.14	14.78	20.762	
2,600.00	2,556.44	2,573.77	2,571.27	7.73	7.65	-173.98	-76.67	40.95	325.08	309.70	15.38	21.139	
2,700.00	2,653.82	2,672.11	2,669.48	8.03	7.94	-174.03	-81.17	42.99	343.24	327.27	15.97	21.489	
2,800.00	2,751.19	2,770.45	2,767.69	8.33	8.24	-174.07	-85.68	45.04	361.39	344.83	16.57	21.813	
2,900.00	2,848.57	2,868.78	2,865.91	8.63	8.53	-174.10	-90.18	47.08	379.55	362.39	17.16	22.114	
3,000.00	2,945.95	2,967.12	2,964.12	8.93	8.83	-174.14	-94.69	49.12	397.71	379.95	17.76	22.396	
3,100.00	3,043.33	3,065.46	3,062.33	9.23	9.12	-174.17	-99.19	51.16	415.87	397.51	18.35	22.659	
3,200.00	3,140.71	3,163.80	3,160.55	9.53	9.42	-174.20	-103.69	53.21	434.02	415.07	18.95	22.905	
3,300.00	3,238.09	3,262.13	3,258.76	9.83	9.71	-174.22	-108.20	55.25	452.18	432.64	19.54	23.137	
3,400.00	3,335.47	3,360.47	3,356.97	10.13	10.01	-174.25	-112.70	57.29	470.34	450.20	20.14	23.355	
3,500.00	3,432.85	3,458.81	3,455.19	10.43	10.30	-174.27	-117.20	59.33	488.50	467.76	20.73	23.560	
3,600.00	3,530.23	3,557.15	3,553.40	10.73	10.60	-174.29	-121.71	61.37	506.65	485.32	21.33	23.754	
3,700.00	3,627.61	3,655.48	3,651.61	11.03	10.89	-174.31	-126.21	63.42	524.81	502.89	21.92	23.938	
3,800.00	3,724.99	3,753.82	3,749.83	11.33	11.19	-174.32	-130.71	65.46	542.97	520.45	22.52	24.112	
3,900.00	3,822.36	3,852.16	3,848.04	11.63	11.48	-174.34	-135.22	67.50	561.13	538.01	23.11	24.277	
4,000.00	3,919.74	3,950.50	3,946.25	11.93	11.78	-174.36	-139.72	69.54	579.28	555.57	23.71	24.433	
4,100.00	4,017.12	4,048.83	4,044.47	12.23	12.07	-174.37	-144.23	71.59	597.44	573.14	24.30	24.582	
4,200.00	4,114.50	4,147.17	4,142.68	12.53	12.37	-174.39	-148.73	73.63	615.60	590.70	24.90	24.724	
4,300.00	4,211.88	4,245.51	4,240.89	12.83	12.66	-174.40	-153.23	75.67	633.76	608.26	25.49	24.859	
4,400.00	4,309.26	4,343.85	4,339.11	13.13	12.96	-174.41	-157.74	77.71	651.91	625.83	26.09	24.988	
4,500.00	4,406.64	4,442.18	4,437.32	13.43	13.25	-174.42	-162.24	79.75	670.07	643.39	26.68	25.111	
4,600.00	4,504.02	4,540.52	4,535.53	13.73	13.55	-174.43	-166.74	81.80	688.23	660.95	27.28	25.229	
4,700.00	4,601.40	4,638.86	4,633.74	14.03	13.84	-174.44	-171.25	83.84	706.39	678.51	27.87	25.342	
4,800.00	4,698.78	4,737.20	4,731.96	14.33	14.14	-174.45	-175.75	85.88	724.55	696.08	28.47	25.450	
4,900.00	4,796.16	4,835.53	4,830.17	14.63	14.43	-174.46	-180.25	87.92	742.70	713.64	29.06	25.554	
5,000.00	4,893.53	4,933.87	4,928.38	14.93	14.73	-174.47	-184.76	89.97	760.86	731.20	29.66	25.653	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 754H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
5,100.00	4,990.91	5,032.21	5,026.60	15.23	15.02	-174.48	-189.26	92.01	779.02	748.77	30.25	25.749	
5,200.00	5,088.29	5,130.55	5,124.81	15.53	15.32	-174.49	-193.77	94.05	797.18	766.33	30.85	25.841	
5,300.00	5,185.67	5,228.88	5,223.02	15.83	15.61	-174.50	-198.27	96.09	815.34	783.89	31.44	25.929	
5,400.00	5,283.05	5,327.22	5,321.24	16.13	15.91	-174.50	-202.77	98.13	833.49	801.46	32.04	26.015	
5,500.00	5,380.43	5,425.56	5,419.45	16.43	16.20	-174.51	-207.28	100.18	851.65	819.02	32.63	26.097	
5,600.00	5,477.81	5,523.90	5,517.66	16.73	16.50	-174.52	-211.78	102.22	869.81	836.58	33.23	26.176	
5,700.00	5,575.19	5,622.23	5,615.88	17.03	16.79	-174.52	-216.28	104.26	887.97	854.14	33.82	26.252	
5,800.00	5,672.57	5,720.57	5,714.09	17.33	17.09	-174.53	-220.79	106.30	906.13	871.71	34.42	26.326	
5,900.00	5,769.95	5,818.91	5,812.30	17.63	17.38	-174.54	-225.29	108.35	924.29	889.27	35.01	26.397	
6,000.00	5,867.33	5,917.25	5,910.52	17.93	17.68	-174.54	-229.79	110.39	942.44	906.83	35.61	26.466	
6,100.00	5,964.70	6,015.59	6,008.73	18.23	17.97	-174.55	-234.30	112.43	960.60	924.40	36.20	26.532	
6,200.00	6,062.08	6,113.92	6,106.94	18.53	18.27	-174.55	-238.80	114.47	978.76	941.96	36.80	26.597	
6,300.00	6,159.46	6,212.26	6,205.15	18.83	18.56	-174.56	-243.31	116.51	996.92	959.52	37.39	26.659	
6,400.00	6,256.84	6,310.60	6,303.37	19.13	18.86	-174.56	-247.81	118.56	1,015.08	977.09	37.99	26.720	
6,500.00	6,354.22	6,408.94	6,401.58	19.43	19.15	-174.57	-252.31	120.60	1,033.23	994.65	38.58	26.778	
6,600.00	6,451.60	6,507.27	6,499.79	19.73	19.45	-174.57	-256.82	122.64	1,051.39	1,012.21	39.18	26.835	
6,694.27	6,543.40	6,600.49	6,592.79	20.02	19.73	-174.46	-261.09	126.69	1,068.50	1,028.75	39.74	26.886	
6,700.00	6,548.98	6,606.16	6,598.42	20.03	19.75	-171.90	-261.35	127.33	1,069.54	1,029.76	39.78	26.889	
6,750.00	6,597.52	6,655.42	6,646.98	20.18	19.89	-151.51	-263.62	135.15	1,078.57	1,038.50	40.07	26.914	
6,800.00	6,645.56	6,704.36	6,694.39	20.33	20.04	-136.10	-265.85	147.04	1,087.52	1,047.15	40.37	26.938	
6,850.00	6,692.73	6,753.03	6,740.36	20.48	20.19	-125.20	-268.04	162.83	1,096.31	1,055.65	40.67	26.958	
6,900.00	6,738.66	6,801.44	6,784.59	20.63	20.33	-117.41	-270.17	182.36	1,104.88	1,063.92	40.96	26.973	
6,950.00	6,783.02	6,849.63	6,826.83	20.78	20.48	-111.66	-272.23	205.43	1,113.15	1,071.89	41.26	26.981	
7,000.00	6,825.45	6,897.63	6,866.82	20.94	20.62	-107.25	-274.20	231.87	1,121.07	1,079.51	41.55	26.981	
7,050.00	6,865.65	6,945.45	6,904.34	21.09	20.77	-103.77	-276.07	261.45	1,128.56	1,086.72	41.84	26.971	
7,100.00	6,903.29	6,993.13	6,939.15	21.24	20.91	-100.96	-277.84	293.95	1,135.58	1,093.44	42.14	26.950	
7,150.00	6,938.11	7,040.67	6,971.06	21.39	21.05	-98.66	-279.49	329.14	1,142.06	1,099.63	42.43	26.917	
7,200.00	6,969.82	7,088.10	6,999.88	21.54	21.19	-96.76	-281.02	366.76	1,147.96	1,105.24	42.72	26.871	
7,250.00	6,998.19	7,135.43	7,025.44	21.69	21.34	-95.20	-282.40	406.56	1,153.23	1,110.22	43.01	26.811	
7,300.00	7,023.01	7,182.67	7,047.60	21.84	21.48	-93.91	-283.64	448.25	1,157.84	1,114.53	43.31	26.737	
7,350.00	7,044.08	7,229.83	7,066.22	21.99	21.62	-92.87	-284.73	491.55	1,161.74	1,118.14	43.60	26.647	
7,400.00	7,061.25	7,276.93	7,081.21	22.14	21.76	-92.05	-285.66	536.17	1,164.90	1,121.01	43.89	26.543	
7,450.00	7,074.38	7,323.95	7,092.47	22.29	21.90	-91.44	-286.42	581.81	1,167.31	1,123.13	44.18	26.422	
7,500.00	7,083.37	7,370.92	7,099.94	22.44	22.05	-91.02	-287.01	628.15	1,168.93	1,124.46	44.47	26.286	
7,550.00	7,088.16	7,417.82	7,103.60	22.59	22.19	-90.78	-287.43	674.90	1,169.77	1,125.01	44.76	26.135	
7,581.00	7,089.00	7,447.40	7,104.00	22.68	22.28	-90.73	-287.61	704.48	1,169.89	1,124.95	44.94	26.031	
7,600.00	7,089.02	7,466.41	7,104.01	22.74	22.33	-90.73	-287.72	723.48	1,169.86	1,124.80	45.06	25.965	
7,700.00	7,089.09	7,566.41	7,104.05	23.04	22.63	-90.73	-288.26	823.48	1,169.70	1,124.05	45.66	25.620	
7,800.00	7,089.17	7,666.41	7,104.09	23.34	22.94	-90.73	-288.80	923.48	1,169.55	1,123.29	46.26	25.285	
7,900.00	7,089.25	7,766.41	7,104.13	23.64	23.24	-90.73	-289.35	1,023.48	1,169.39	1,122.54	46.86	24.958	
8,000.00	7,089.33	7,866.41	7,104.17	23.94	23.54	-90.73	-289.89	1,123.48	1,169.24	1,121.78	47.46	24.639	
8,100.00	7,089.41	7,966.41	7,104.21	24.24	23.84	-90.73	-290.44	1,223.48	1,169.08	1,121.03	48.06	24.328	
8,200.00	7,089.49	8,066.41	7,104.25	24.54	24.14	-90.72	-290.98	1,323.47	1,168.93	1,120.27	48.66	24.025	
8,300.00	7,089.56	8,166.41	7,104.29	24.84	24.44	-90.72	-291.53	1,423.47	1,168.77	1,119.51	49.26	23.729	
8,400.00	7,089.64	8,266.41	7,104.32	25.14	24.74	-90.72	-292.07	1,523.47	1,168.61	1,118.76	49.86	23.440	
8,500.00	7,089.72	8,366.41	7,104.36	25.44	25.04	-90.72	-292.61	1,623.47	1,168.46	1,118.00	50.45	23.158	
8,600.00	7,089.80	8,466.41	7,104.40	25.75	25.34	-90.72	-293.16	1,723.47	1,168.30	1,117.25	51.05	22.883	
8,700.00	7,089.88	8,566.41	7,104.44	26.05	25.64	-90.71	-293.70	1,823.47	1,168.15	1,116.49	51.65	22.614	
8,800.00	7,089.96	8,666.41	7,104.48	26.35	25.94	-90.71	-294.25	1,923.46	1,167.99	1,115.74	52.25	22.352	
8,900.00	7,090.03	8,766.41	7,104.52	26.65	26.24	-90.71	-294.79	2,023.46	1,167.84	1,114.98	52.85	22.095	
9,000.00	7,090.11	8,866.41	7,104.56	26.95	26.54	-90.71	-295.34	2,123.46	1,167.68	1,114.23	53.45	21.844	
9,100.00	7,090.19	8,966.41	7,104.60	27.25	26.84	-90.71	-295.88	2,223.46	1,167.52	1,113.47	54.05	21.599	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 754H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
9,200.00	7,090.27	9,066.41	7,104.64	27.55	27.15	-90.71	-296.42	2,323.46	1,167.37	1,112.71	54.65	21.359	
9,300.00	7,090.35	9,166.41	7,104.68	27.85	27.45	-90.70	-296.97	2,423.46	1,167.21	1,111.96	55.25	21.124	
9,400.00	7,090.43	9,266.41	7,104.72	28.15	27.75	-90.70	-297.51	2,523.46	1,167.06	1,111.20	55.85	20.895	
9,500.00	7,090.51	9,366.41	7,104.75	28.45	28.05	-90.70	-298.06	2,623.45	1,166.90	1,110.45	56.45	20.670	
9,600.00	7,090.58	9,466.41	7,104.79	28.75	28.35	-90.70	-298.60	2,723.45	1,166.75	1,109.69	57.05	20.450	
9,700.00	7,090.66	9,566.41	7,104.83	29.05	28.65	-90.70	-299.15	2,823.45	1,166.59	1,108.94	57.65	20.234	
9,800.00	7,090.74	9,666.41	7,104.87	29.35	28.95	-90.69	-299.69	2,923.45	1,166.44	1,108.18	58.25	20.023	
9,900.00	7,090.82	9,766.41	7,104.91	29.65	29.25	-90.69	-300.24	3,023.45	1,166.28	1,107.43	58.85	19.816	
10,000.00	7,090.90	9,866.41	7,104.95	29.95	29.55	-90.69	-300.78	3,123.45	1,166.12	1,106.67	59.45	19.614	
10,100.00	7,090.98	9,966.41	7,104.99	30.25	29.85	-90.69	-301.32	3,223.44	1,165.97	1,105.91	60.05	19.415	
10,200.00	7,091.05	10,066.41	7,105.03	30.55	30.15	-90.69	-301.87	3,323.44	1,165.81	1,105.16	60.65	19.221	
10,300.00	7,091.13	10,166.41	7,105.07	30.85	30.45	-90.68	-302.41	3,423.44	1,165.66	1,104.40	61.25	19.030	
10,400.00	7,091.21	10,266.41	7,105.11	31.15	30.75	-90.68	-302.96	3,523.44	1,165.50	1,103.65	61.85	18.843	
10,500.00	7,091.29	10,366.41	7,105.15	31.45	31.05	-90.68	-303.50	3,623.44	1,165.35	1,102.89	62.45	18.659	
10,600.00	7,091.37	10,466.41	7,105.19	31.76	31.35	-90.68	-304.05	3,723.44	1,165.19	1,102.14	63.05	18.479	
10,700.00	7,091.45	10,566.41	7,105.22	32.06	31.65	-90.68	-304.59	3,823.43	1,165.03	1,101.38	63.65	18.302	
10,800.00	7,091.53	10,666.41	7,105.26	32.36	31.95	-90.68	-305.13	3,923.43	1,164.88	1,100.62	64.25	18.129	
10,900.00	7,091.60	10,766.41	7,105.30	32.66	32.25	-90.67	-305.68	4,023.43	1,164.72	1,099.87	64.85	17.959	
11,000.00	7,091.68	10,866.41	7,105.34	32.96	32.55	-90.67	-306.22	4,123.43	1,164.57	1,099.11	65.45	17.792	
11,100.00	7,091.76	10,966.41	7,105.38	33.26	32.85	-90.67	-306.77	4,223.43	1,164.41	1,098.36	66.05	17.628	
11,200.00	7,091.84	11,066.40	7,105.42	33.56	33.16	-90.67	-307.31	4,323.43	1,164.26	1,097.60	66.65	17.467	
11,300.00	7,091.92	11,166.40	7,105.46	33.86	33.46	-90.67	-307.86	4,423.42	1,164.10	1,096.85	67.25	17.309	
11,400.00	7,092.00	11,266.40	7,105.50	34.16	33.76	-90.66	-308.40	4,523.42	1,163.95	1,096.09	67.85	17.154	
11,500.00	7,092.07	11,366.40	7,105.54	34.46	34.06	-90.66	-308.94	4,623.42	1,163.79	1,095.34	68.45	17.001	
11,600.00	7,092.15	11,466.40	7,105.58	34.76	34.36	-90.66	-309.49	4,723.42	1,163.63	1,094.58	69.05	16.851	
11,700.00	7,092.23	11,566.40	7,105.62	35.06	34.66	-90.66	-310.03	4,823.42	1,163.48	1,093.82	69.65	16.704	
11,800.00	7,092.31	11,666.40	7,105.66	35.36	34.96	-90.66	-310.58	4,923.42	1,163.32	1,093.07	70.25	16.559	
11,900.00	7,092.39	11,766.40	7,105.69	35.66	35.26	-90.66	-311.12	5,023.41	1,163.17	1,092.31	70.85	16.416	
12,000.00	7,092.47	11,866.40	7,105.73	35.96	35.56	-90.65	-311.67	5,123.41	1,163.01	1,091.56	71.45	16.276	
12,100.00	7,092.55	11,966.40	7,105.77	36.26	35.86	-90.65	-312.21	5,223.41	1,162.86	1,090.80	72.05	16.139	
12,200.00	7,092.62	12,066.40	7,105.81	36.56	36.16	-90.65	-312.76	5,323.41	1,162.70	1,090.05	72.65	16.003	
12,300.00	7,092.70	12,166.40	7,105.85	36.86	36.46	-90.65	-313.30	5,423.41	1,162.55	1,089.29	73.25	15.870	
12,400.00	7,092.78	12,266.40	7,105.89	37.16	36.76	-90.65	-313.84	5,523.41	1,162.39	1,088.54	73.85	15.739	
12,500.00	7,092.86	12,366.40	7,105.93	37.46	37.06	-90.64	-314.39	5,623.41	1,162.23	1,087.78	74.45	15.610	
12,600.00	7,092.94	12,466.40	7,105.97	37.76	37.36	-90.64	-314.93	5,723.40	1,162.08	1,087.02	75.05	15.483	
12,700.00	7,093.02	12,566.40	7,106.01	38.06	37.66	-90.64	-315.48	5,823.40	1,161.92	1,086.27	75.65	15.358	
12,800.00	7,093.09	12,666.40	7,106.05	38.36	37.96	-90.64	-316.02	5,923.40	1,161.77	1,085.51	76.25	15.235	
12,900.00	7,093.17	12,766.40	7,106.09	38.66	38.26	-90.64	-316.57	6,023.40	1,161.61	1,084.76	76.85	15.115	
13,000.00	7,093.25	12,866.40	7,106.13	38.96	38.56	-90.64	-317.11	6,123.40	1,161.46	1,084.00	77.45	14.995	
13,100.00	7,093.33	12,966.40	7,106.16	39.26	38.86	-90.63	-317.65	6,223.40	1,161.30	1,083.25	78.05	14.878	
13,200.00	7,093.41	13,066.40	7,106.20	39.56	39.16	-90.63	-318.20	6,323.39	1,161.14	1,082.49	78.65	14.763	
13,300.00	7,093.49	13,166.40	7,106.24	39.86	39.46	-90.63	-318.74	6,423.39	1,160.99	1,081.74	79.25	14.649	
13,400.00	7,093.57	13,266.40	7,106.28	40.16	39.76	-90.63	-319.29	6,523.39	1,160.83	1,080.98	79.85	14.537	
13,500.00	7,093.64	13,366.40	7,106.32	40.47	40.06	-90.63	-319.83	6,623.39	1,160.68	1,080.22	80.45	14.427	
13,600.00	7,093.72	13,466.40	7,106.36	40.77	40.36	-90.62	-320.38	6,723.39	1,160.52	1,079.47	81.05	14.318	
13,700.00	7,093.80	13,566.40	7,106.40	41.07	40.66	-90.62	-320.92	6,823.39	1,160.37	1,078.71	81.65	14.211	
13,800.00	7,093.88	13,666.40	7,106.44	41.37	40.96	-90.62	-321.46	6,923.38	1,160.21	1,077.96	82.25	14.105	
13,900.00	7,093.96	13,766.40	7,106.48	41.67	41.26	-90.62	-322.01	7,023.38	1,160.06	1,077.20	82.85	14.001	
14,000.00	7,094.04	13,866.40	7,106.52	41.97	41.56	-90.62	-322.55	7,123.38	1,159.90	1,076.45	83.45	13.899	
14,100.00	7,094.11	13,966.40	7,106.56	42.27	41.86	-90.61	-323.10	7,223.38	1,159.74	1,075.69	84.05	13.798	
14,200.00	7,094.19	14,066.40	7,106.60	42.57	42.16	-90.61	-323.64	7,323.38	1,159.59	1,074.94	84.65	13.698	
14,300.00	7,094.27	14,166.40	7,106.63	42.87	42.47	-90.61	-324.19	7,423.38	1,159.43	1,074.18	85.25	13.600	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 754H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-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
14,400.00	7,094.35	14,266.40	7,106.67	43.17	42.77	-90.61	-324.73	7,523.37	1,159.28	1,073.42	85.85	13.503	
14,500.00	7,094.43	14,366.40	7,106.71	43.47	43.07	-90.61	-325.28	7,623.37	1,159.12	1,072.67	86.45	13.407	
14,600.00	7,094.51	14,466.40	7,106.75	43.77	43.37	-90.61	-325.82	7,723.37	1,158.97	1,071.91	87.05	13.313	
14,700.00	7,094.58	14,566.40	7,106.79	44.07	43.67	-90.60	-326.36	7,823.37	1,158.81	1,071.16	87.65	13.220	
14,800.00	7,094.66	14,666.40	7,106.83	44.37	43.97	-90.60	-326.91	7,923.37	1,158.66	1,070.40	88.25	13.129	
14,900.00	7,094.74	14,766.40	7,106.87	44.67	44.27	-90.60	-327.45	8,023.37	1,158.50	1,069.65	88.85	13.038	
15,000.00	7,094.82	14,866.40	7,106.91	44.97	44.57	-90.60	-328.00	8,123.36	1,158.34	1,068.89	89.45	12.949	
15,100.00	7,094.90	14,966.40	7,106.95	45.27	44.87	-90.60	-328.54	8,223.36	1,158.19	1,068.14	90.05	12.861	
15,200.00	7,094.98	15,066.40	7,106.99	45.57	45.17	-90.59	-329.09	8,323.36	1,158.03	1,067.38	90.65	12.774	
15,300.00	7,095.06	15,166.40	7,107.03	45.87	45.47	-90.59	-329.63	8,423.36	1,157.88	1,066.62	91.25	12.689	
15,400.00	7,095.13	15,266.40	7,107.07	46.17	45.77	-90.59	-330.17	8,523.36	1,157.72	1,065.87	91.85	12.604	
15,500.00	7,095.21	15,366.40	7,107.10	46.47	46.07	-90.59	-330.72	8,623.36	1,157.57	1,065.11	92.45	12.521	
15,600.00	7,095.29	15,466.40	7,107.14	46.77	46.37	-90.59	-331.26	8,723.36	1,157.41	1,064.36	93.05	12.438	
15,700.00	7,095.37	15,566.40	7,107.18	47.07	46.67	-90.58	-331.81	8,823.35	1,157.26	1,063.60	93.65	12.357	
15,800.00	7,095.45	15,666.40	7,107.22	47.37	46.97	-90.58	-332.35	8,923.35	1,157.10	1,062.85	94.25	12.276	
15,900.00	7,095.53	15,766.40	7,107.26	47.67	47.27	-90.58	-332.90	9,023.35	1,156.94	1,062.09	94.85	12.197	
16,000.00	7,095.60	15,866.40	7,107.30	47.97	47.57	-90.58	-333.44	9,123.35	1,156.79	1,061.34	95.45	12.119	
16,100.00	7,095.68	15,966.40	7,107.34	48.27	47.87	-90.58	-333.98	9,223.35	1,156.63	1,060.58	96.05	12.042	
16,200.00	7,095.76	16,066.40	7,107.38	48.57	48.17	-90.58	-334.53	9,323.35	1,156.48	1,059.82	96.65	11.965	
16,300.00	7,095.84	16,166.40	7,107.42	48.87	48.47	-90.57	-335.07	9,423.34	1,156.32	1,059.07	97.25	11.890	
16,400.00	7,095.92	16,266.40	7,107.46	49.17	48.77	-90.57	-335.62	9,523.34	1,156.17	1,058.31	97.85	11.815	
16,500.00	7,096.00	16,366.40	7,107.50	49.47	49.07	-90.57	-336.16	9,623.34	1,156.01	1,057.56	98.45	11.742	
16,600.00	7,096.08	16,466.40	7,107.53	49.77	49.37	-90.57	-336.71	9,723.34	1,155.86	1,056.80	99.05	11.669	
16,700.00	7,096.15	16,566.40	7,107.57	50.07	49.67	-90.57	-337.25	9,823.34	1,155.70	1,056.05	99.65	11.597	
16,800.00	7,096.23	16,666.40	7,107.61	50.37	49.97	-90.56	-337.80	9,923.34	1,155.54	1,055.29	100.25	11.526	
16,900.00	7,096.31	16,766.40	7,107.65	50.67	50.27	-90.56	-338.34	10,023.33	1,155.39	1,054.54	100.85	11.456	
17,000.00	7,096.39	16,866.40	7,107.69	50.97	50.57	-90.56	-338.88	10,123.33	1,155.23	1,053.78	101.45	11.387	
17,100.00	7,096.47	16,966.40	7,107.73	51.27	50.87	-90.56	-339.43	10,223.33	1,155.08	1,053.02	102.05	11.318	
17,200.00	7,096.55	17,066.40	7,107.77	51.57	51.17	-90.56	-339.97	10,323.33	1,154.92	1,052.27	102.65	11.251	
17,300.00	7,096.62	17,166.40	7,107.81	51.87	51.47	-90.55	-340.52	10,423.33	1,154.77	1,051.51	103.25	11.184	
17,400.00	7,096.70	17,266.40	7,107.85	52.17	51.77	-90.55	-341.06	10,523.33	1,154.61	1,050.76	103.85	11.118	
17,500.00	7,096.78	17,366.40	7,107.89	52.47	52.07	-90.55	-341.61	10,623.32	1,154.46	1,050.00	104.45	11.052	
17,600.00	7,096.86	17,466.40	7,107.93	52.77	52.37	-90.55	-342.15	10,723.32	1,154.30	1,049.25	105.05	10.988	
17,700.00	7,096.94	17,566.40	7,107.97	53.07	52.67	-90.55	-342.69	10,823.32	1,154.14	1,048.49	105.65	10.924	
17,800.00	7,097.02	17,666.40	7,108.00	53.37	52.97	-90.55	-343.24	10,923.32	1,153.99	1,047.74	106.25	10.861	
17,900.00	7,097.10	17,766.40	7,108.04	53.67	53.27	-90.54	-343.78	11,023.32	1,153.83	1,046.98	106.85	10.798	
18,000.00	7,097.17	17,866.40	7,108.08	53.97	53.57	-90.54	-344.33	11,123.32	1,153.68	1,046.22	107.45	10.737	
18,100.00	7,097.25	17,966.40	7,108.12	54.27	53.87	-90.54	-344.87	11,223.31	1,153.52	1,045.47	108.05	10.675	
18,200.00	7,097.33	18,066.40	7,108.16	54.57	54.17	-90.54	-345.42	11,323.31	1,153.37	1,044.71	108.65	10.615	
18,300.00	7,097.41	18,166.40	7,108.20	54.87	54.47	-90.54	-345.96	11,423.31	1,153.21	1,043.96	109.25	10.555	
18,400.00	7,097.49	18,266.40	7,108.24	55.17	54.77	-90.53	-346.50	11,523.31	1,153.06	1,043.20	109.85	10.496	
18,500.00	7,097.57	18,366.40	7,108.28	55.47	55.07	-90.53	-347.05	11,623.31	1,152.90	1,042.45	110.45	10.438	
18,600.00	7,097.64	18,466.40	7,108.32	55.78	55.37	-90.53	-347.59	11,723.31	1,152.75	1,041.69	111.05	10.380	
18,700.00	7,097.72	18,566.40	7,108.36	56.08	55.67	-90.53	-348.14	11,823.31	1,152.59	1,040.94	111.65	10.323	
18,800.00	7,097.80	18,666.40	7,108.40	56.38	55.97	-90.53	-348.68	11,923.30	1,152.43	1,040.18	112.25	10.266	
18,900.00	7,097.88	18,766.40	7,108.44	56.68	56.27	-90.52	-349.23	12,023.30	1,152.28	1,039.43	112.85	10.210	
19,000.00	7,097.96	18,866.40	7,108.47	56.98	56.57	-90.52	-349.77	12,123.30	1,152.12	1,038.67	113.45	10.155	
19,100.00	7,098.04	18,966.39	7,108.51	57.28	56.87	-90.52	-350.32	12,223.30	1,151.97	1,037.91	114.05	10.100	
19,200.00	7,098.12	19,066.39	7,108.55	57.58	57.17	-90.52	-350.86	12,323.30	1,151.81	1,037.16	114.65	10.046	
19,300.00	7,098.19	19,166.39	7,108.59	57.88	57.47	-90.52	-351.40	12,423.30	1,151.66	1,036.40	115.25	9.992	
19,400.00	7,098.27	19,266.39	7,108.63	58.18	57.77	-90.52	-351.95	12,523.29	1,151.50	1,035.65	115.85	9.939	
19,500.00	7,098.35	19,366.39	7,108.67	58.48	58.07	-90.51	-352.49	12,623.29	1,151.35	1,034.89	116.45	9.887	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - Rosa Unit 754H - OH - Plan #3

Offset Site Error: 0.00 usft

Survey Program: 0-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,600.00	7,098.43	19,466.39	7,108.71	58.78	58.37	-90.51	-353.04	12,723.29	1,151.19	1,034.14	117.05	9.835	
19,700.00	7,098.51	19,566.39	7,108.75	59.08	58.67	-90.51	-353.58	12,823.29	1,151.03	1,033.38	117.65	9.783	
19,800.00	7,098.59	19,666.39	7,108.79	59.38	58.97	-90.51	-354.13	12,923.29	1,150.88	1,032.63	118.25	9.732	
19,900.00	7,098.66	19,766.39	7,108.83	59.68	59.28	-90.51	-354.67	13,023.29	1,150.72	1,031.87	118.85	9.682	
20,000.00	7,098.74	19,866.39	7,108.87	59.98	59.58	-90.50	-355.21	13,123.28	1,150.57	1,031.11	119.45	9.632	
20,100.00	7,098.82	19,966.39	7,108.91	60.28	59.88	-90.50	-355.76	13,223.28	1,150.41	1,030.36	120.05	9.583	
20,200.00	7,098.90	20,066.39	7,108.94	60.58	60.18	-90.50	-356.30	13,323.28	1,150.26	1,029.60	120.65	9.534	
20,300.00	7,098.98	20,166.39	7,108.98	60.88	60.48	-90.50	-356.85	13,423.28	1,150.10	1,028.85	121.25	9.485	
20,328.16	7,099.00	20,194.55	7,108.99	60.96	60.56	-90.50	-357.00	13,451.44	1,150.06	1,028.64	121.42	9.472	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore 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	30.49	-30.49	0.00	1.33	-107.59	-1,658.63	-5,233.33	5,489.89				
100.00	100.00	69.51	69.51	0.23	3.03	-107.59	-1,658.63	-5,233.33	5,489.89	5,486.63	3.25	1,686.867	
200.00	200.00	169.51	169.51	0.53	7.38	-107.59	-1,658.63	-5,233.33	5,489.89	5,481.98	7.91	694.002	
300.00	300.00	269.51	269.51	0.83	11.74	-107.59	-1,658.63	-5,233.33	5,489.89	5,477.32	12.57	436.868	
400.00	400.00	369.51	369.51	1.13	16.10	-107.59	-1,658.63	-5,233.33	5,489.89	5,472.66	17.22	318.763	
500.00	500.00	469.51	469.51	1.43	20.45	-107.59	-1,658.63	-5,233.33	5,489.89	5,468.01	21.88	250.927	
600.00	599.98	569.49	569.49	1.73	24.81	77.87	-1,658.63	-5,233.33	5,489.52	5,462.98	26.53	206.890	
700.00	699.84	669.35	669.35	2.03	29.16	77.94	-1,658.63	-5,233.33	5,488.42	5,457.24	31.18	176.005	
800.00	799.45	768.97	768.97	2.33	33.50	78.07	-1,658.63	-5,233.33	5,486.60	5,450.78	35.82	153.160	
900.00	898.70	868.21	868.21	2.63	37.82	78.24	-1,658.63	-5,233.33	5,484.08	5,443.64	40.45	135.591	
1,000.00	997.47	966.98	966.98	2.93	42.12	78.46	-1,658.63	-5,233.33	5,480.89	5,435.84	45.05	121.668	
1,100.00	1,095.62	1,065.14	1,065.14	3.23	46.40	78.73	-1,658.63	-5,233.33	5,477.04	5,427.42	49.62	110.371	
1,157.34	1,151.58	1,121.10	1,121.10	3.40	48.83	78.90	-1,658.63	-5,233.33	5,474.57	5,422.33	52.23	104.810	
1,200.00	1,193.13	1,162.64	1,162.64	3.53	50.64	79.00	-1,658.63	-5,233.33	5,472.66	5,418.49	54.17	101.025	
1,300.00	1,290.51	1,260.02	1,260.02	3.83	54.89	79.23	-1,658.63	-5,233.33	5,468.25	5,409.54	58.71	93.135	
1,400.00	1,387.89	1,357.40	1,357.40	4.13	59.13	79.46	-1,658.63	-5,233.33	5,463.94	5,400.68	63.25	86.380	
1,500.00	1,485.27	1,454.78	1,454.78	4.43	63.37	79.68	-1,658.63	-5,233.33	5,459.71	5,391.91	67.80	80.531	
1,600.00	1,582.65	1,552.16	1,552.16	4.73	67.61	79.91	-1,658.63	-5,233.33	5,455.58	5,383.24	72.34	75.417	
1,700.00	1,680.02	1,649.54	1,649.54	5.03	71.85	80.14	-1,658.63	-5,233.33	5,451.54	5,374.66	76.88	70.909	
1,800.00	1,777.40	1,746.92	1,746.92	5.33	76.10	80.37	-1,658.63	-5,233.33	5,447.59	5,366.17	81.42	66.905	
1,900.00	1,874.78	1,844.30	1,844.30	5.63	80.34	80.60	-1,658.63	-5,233.33	5,443.73	5,357.77	85.96	63.326	
2,000.00	1,972.16	1,941.67	1,941.67	5.93	84.58	80.83	-1,658.63	-5,233.33	5,439.97	5,349.46	90.51	60.106	
2,100.00	2,069.54	2,039.05	2,039.05	6.23	88.82	81.06	-1,658.63	-5,233.33	5,436.29	5,341.25	95.05	57.195	
2,200.00	2,166.92	2,136.43	2,136.43	6.53	93.06	81.29	-1,658.63	-5,233.33	5,432.71	5,333.12	99.59	54.551	
2,300.00	2,264.30	2,233.81	2,233.81	6.83	97.30	81.53	-1,658.63	-5,233.33	5,429.23	5,325.10	104.13	52.138	
2,400.00	2,361.68	2,331.19	2,331.19	7.13	101.55	81.76	-1,658.63	-5,233.33	5,425.83	5,317.16	108.67	49.928	
2,500.00	2,459.06	2,428.57	2,428.57	7.43	105.79	81.99	-1,658.63	-5,233.33	5,422.53	5,309.32	113.21	47.896	
2,600.00	2,556.44	2,525.95	2,525.95	7.73	110.03	82.22	-1,658.63	-5,233.33	5,419.33	5,301.57	117.76	46.021	
2,700.00	2,653.82	2,623.33	2,623.33	8.03	114.27	82.45	-1,658.63	-5,233.33	5,416.21	5,293.92	122.30	44.287	
2,800.00	2,751.19	2,720.71	2,720.71	8.33	118.51	82.69	-1,658.63	-5,233.33	5,413.20	5,286.35	126.84	42.677	
2,900.00	2,848.57	2,818.09	2,818.09	8.63	122.76	82.92	-1,658.63	-5,233.33	5,410.27	5,278.89	131.38	41.180	
3,000.00	2,945.95	2,915.47	2,915.47	8.93	127.00	83.15	-1,658.63	-5,233.33	5,407.44	5,271.51	135.92	39.783	
3,100.00	3,043.33	3,012.84	3,012.84	9.23	131.24	83.38	-1,658.63	-5,233.33	5,404.70	5,264.24	140.47	38.477	
3,200.00	3,140.71	3,110.22	3,110.22	9.53	135.48	83.62	-1,658.63	-5,233.33	5,402.06	5,257.05	145.01	37.254	
3,300.00	3,238.09	3,207.60	3,207.60	9.83	139.72	83.85	-1,658.63	-5,233.33	5,399.51	5,249.96	149.55	36.105	
3,400.00	3,335.47	3,304.98	3,304.98	10.13	143.96	84.09	-1,658.63	-5,233.33	5,397.06	5,242.97	154.09	35.025	
3,500.00	3,432.85	3,402.36	3,402.36	10.43	148.21	84.32	-1,658.63	-5,233.33	5,394.70	5,236.07	158.63	34.007	
3,600.00	3,530.23	3,499.74	3,499.74	10.73	152.45	84.55	-1,658.63	-5,233.33	5,392.44	5,229.26	163.17	33.047	
3,700.00	3,627.61	3,597.12	3,597.12	11.03	156.69	84.79	-1,658.63	-5,233.33	5,390.27	5,222.55	167.72	32.139	
3,800.00	3,724.99	3,694.50	3,694.50	11.33	160.93	85.02	-1,658.63	-5,233.33	5,388.19	5,215.93	172.26	31.280	
3,900.00	3,822.36	3,791.88	3,791.88	11.63	165.17	85.26	-1,658.63	-5,233.33	5,386.21	5,209.41	176.80	30.465	
4,000.00	3,919.74	3,889.26	3,889.26	11.93	169.42	85.49	-1,658.63	-5,233.33	5,384.33	5,202.99	181.34	29.692	
4,100.00	4,017.12	3,986.64	3,986.64	12.23	173.66	85.73	-1,658.63	-5,233.33	5,382.54	5,196.66	185.88	28.956	
4,200.00	4,114.50	4,084.01	4,084.01	12.53	177.90	85.96	-1,658.63	-5,233.33	5,380.85	5,190.43	190.43	28.257	
4,300.00	4,211.88	4,181.39	4,181.39	12.83	182.14	86.20	-1,658.63	-5,233.33	5,379.26	5,184.29	194.97	27.590	
4,400.00	4,309.26	4,278.77	4,278.77	13.13	186.38	86.43	-1,658.63	-5,233.33	5,377.75	5,178.25	199.51	26.955	
4,500.00	4,406.64	4,376.15	4,376.15	13.43	190.62	86.67	-1,658.63	-5,233.33	5,376.35	5,172.30	204.05	26.348	
4,600.00	4,504.02	4,473.53	4,473.53	13.73	194.87	86.90	-1,658.63	-5,233.33	5,375.04	5,166.45	208.59	25.768	
4,700.00	4,601.40	4,570.91	4,570.91	14.03	199.11	87.14	-1,658.63	-5,233.33	5,373.83	5,160.69	213.14	25.213	
4,800.00	4,698.78	4,668.29	4,668.29	14.33	203.35	87.38	-1,658.63	-5,233.33	5,372.71	5,155.03	217.68	24.682	
4,900.00	4,796.16	4,765.67	4,765.67	14.63	207.59	87.61	-1,658.63	-5,233.33	5,371.69	5,149.47	222.22	24.173	
5,000.00	4,893.53	4,863.05	4,863.05	14.93	211.83	87.85	-1,658.63	-5,233.33	5,370.76	5,144.00	226.76	23.685	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	4,960.43	4,960.43	15.23	216.08	88.08	-1,658.63	-5,233.33	5,369.94	5,138.63	231.30	23.216	
5,200.00	5,088.29	5,057.81	5,057.81	15.53	220.32	88.32	-1,658.63	-5,233.33	5,369.20	5,133.36	235.84	22.766	
5,300.00	5,185.67	5,155.18	5,155.18	15.83	224.56	88.56	-1,658.63	-5,233.33	5,368.57	5,128.18	240.39	22.333	
5,400.00	5,283.05	5,252.56	5,252.56	16.13	228.80	88.79	-1,658.63	-5,233.33	5,368.03	5,123.10	244.93	21.917	
5,500.00	5,380.43	5,349.94	5,349.94	16.43	233.04	89.03	-1,658.63	-5,233.33	5,367.58	5,118.11	249.47	21.516	
5,600.00	5,477.81	5,447.32	5,447.32	16.73	237.28	89.27	-1,658.63	-5,233.33	5,367.24	5,113.23	254.01	21.130	
5,700.00	5,575.19	5,544.70	5,544.70	17.03	241.53	89.50	-1,658.63	-5,233.33	5,366.99	5,108.43	258.55	20.758	
5,800.00	5,672.57	5,642.08	5,642.08	17.33	245.77	89.74	-1,658.63	-5,233.33	5,366.83	5,103.74	263.10	20.399	
5,900.00	5,769.95	5,739.46	5,739.46	17.63	250.01	89.98	-1,658.63	-5,233.33	5,366.77	5,099.14	267.64	20.052	
5,910.25	5,779.93	5,749.44	5,749.44	17.66	250.45	90.00	-1,658.63	-5,233.33	5,366.77	5,098.67	268.10	20.018	CC
6,000.00	5,867.33	5,836.84	5,836.84	17.93	254.25	90.21	-1,658.63	-5,233.33	5,366.81	5,094.63	272.18	19.718	
6,100.00	5,964.70	5,934.22	5,934.22	18.23	258.49	90.45	-1,658.63	-5,233.33	5,366.95	5,090.23	276.72	19.395	
6,200.00	6,062.08	6,031.60	6,031.60	18.53	262.74	90.69	-1,658.63	-5,233.33	5,367.18	5,085.92	281.26	19.082	
6,300.00	6,159.46	6,128.98	6,128.98	18.83	266.98	90.92	-1,658.63	-5,233.33	5,367.51	5,081.70	285.80	18.780	
6,400.00	6,256.84	6,226.35	6,226.35	19.13	271.22	91.16	-1,658.63	-5,233.33	5,367.93	5,077.58	290.35	18.488	
6,500.00	6,354.22	6,323.73	6,323.73	19.43	275.46	91.39	-1,658.63	-5,233.33	5,368.45	5,073.56	294.89	18.205	
6,600.00	6,451.60	6,421.11	6,421.11	19.73	279.70	91.63	-1,658.63	-5,233.33	5,369.07	5,069.64	299.43	17.931	
6,694.27	6,543.40	6,512.91	6,512.91	20.02	283.70	91.85	-1,658.63	-5,233.33	5,369.73	5,066.02	303.71	17.680	
6,700.00	6,548.98	6,518.49	6,518.49	20.03	283.94	94.30	-1,658.63	-5,233.33	5,369.81	5,065.84	303.97	17.665	ES, SF
6,750.00	6,597.52	5,952.00	5,952.00	20.18	259.27	112.10	-1,658.63	-5,233.33	5,407.96	5,130.19	277.77	19.469	
6,800.00	6,645.56	5,952.00	5,952.00	20.33	259.27	126.27	-1,658.63	-5,233.33	5,421.00	5,143.35	277.65	19.524	
6,850.00	6,692.73	5,952.00	5,952.00	20.48	259.27	135.90	-1,658.63	-5,233.33	5,438.59	5,161.06	277.53	19.596	
6,900.00	6,738.66	5,952.00	5,952.00	20.63	259.27	142.41	-1,658.63	-5,233.33	5,460.55	5,183.14	277.40	19.684	
6,950.00	6,783.02	5,952.00	5,952.00	20.78	259.27	146.85	-1,658.63	-5,233.33	5,486.66	5,209.38	277.28	19.788	
7,000.00	6,825.45	5,952.00	5,952.00	20.94	259.27	149.91	-1,658.63	-5,233.33	5,516.67	5,239.51	277.16	19.904	
7,050.00	6,865.65	5,952.00	5,952.00	21.09	259.27	151.98	-1,658.63	-5,233.33	5,550.29	5,273.24	277.05	20.033	
7,100.00	6,903.29	5,952.00	5,952.00	21.24	259.27	153.27	-1,658.63	-5,233.33	5,587.21	5,310.24	276.96	20.173	
7,150.00	6,938.11	5,952.00	5,952.00	21.39	259.27	153.88	-1,658.63	-5,233.33	5,627.06	5,350.17	276.89	20.322	
7,200.00	6,969.82	5,952.00	5,952.00	21.54	259.27	153.82	-1,658.63	-5,233.33	5,669.51	5,392.66	276.85	20.479	
7,250.00	6,998.19	5,952.00	5,952.00	21.69	259.27	152.93	-1,658.63	-5,233.33	5,714.16	5,437.33	276.83	20.641	
7,300.00	7,023.01	5,952.00	5,952.00	21.84	259.27	150.85	-1,658.63	-5,233.33	5,760.63	5,483.78	276.85	20.808	
7,350.00	7,044.08	5,952.00	5,952.00	21.99	259.27	146.57	-1,658.63	-5,233.33	5,808.53	5,531.63	276.90	20.977	
7,400.00	7,061.25	5,952.00	5,952.00	22.14	259.27	137.21	-1,658.63	-5,233.33	5,857.47	5,580.49	276.98	21.148	
7,450.00	7,074.38	5,952.00	5,952.00	22.29	259.27	112.06	-1,658.63	-5,233.33	5,907.04	5,629.94	277.10	21.318	
7,500.00	7,083.37	5,952.00	5,952.00	22.44	259.27	55.51	-1,658.63	-5,233.33	5,956.86	5,679.61	277.25	21.486	
7,550.00	7,088.16	5,952.00	5,952.00	22.59	259.27	20.62	-1,658.63	-5,233.33	6,006.56	5,729.12	277.44	21.650	
7,581.00	7,089.00	5,952.00	5,952.00	22.68	259.27	11.51	-1,658.63	-5,233.33	6,037.14	5,759.57	277.57	21.750	
7,600.00	7,089.02	5,952.00	5,952.00	22.74	259.27	11.51	-1,658.63	-5,233.33	6,055.81	5,778.16	277.65	21.811	
7,700.00	7,089.09	5,952.00	5,952.00	23.04	259.27	11.51	-1,658.63	-5,233.33	6,154.10	5,876.01	278.09	22.130	
7,800.00	7,089.17	5,952.00	5,952.00	23.34	259.27	11.51	-1,658.63	-5,233.33	6,252.44	5,973.92	278.52	22.449	
7,900.00	7,089.25	5,952.00	5,952.00	23.64	259.27	11.51	-1,658.63	-5,233.33	6,350.84	6,071.89	278.95	22.767	
8,000.00	7,089.33	5,952.00	5,952.00	23.94	259.27	11.51	-1,658.63	-5,233.33	6,449.28	6,169.91	279.37	23.085	
8,100.00	7,089.41	5,952.00	5,952.00	24.24	259.27	11.51	-1,658.63	-5,233.33	6,547.77	6,267.99	279.79	23.403	
8,200.00	7,089.49	5,952.00	5,952.00	24.54	259.27	11.51	-1,658.63	-5,233.33	6,646.31	6,366.11	280.20	23.720	
8,300.00	7,089.56	5,952.00	5,952.00	24.84	259.27	11.51	-1,658.63	-5,233.33	6,744.89	6,464.29	280.60	24.037	
8,400.00	7,089.64	5,952.00	5,952.00	25.14	259.27	11.51	-1,658.63	-5,233.33	6,843.51	6,562.51	281.00	24.354	
8,500.00	7,089.72	5,952.00	5,952.00	25.44	259.27	11.51	-1,658.63	-5,233.33	6,942.17	6,660.77	281.40	24.670	
8,600.00	7,089.80	5,952.00	5,952.00	25.75	259.27	11.51	-1,658.63	-5,233.33	7,040.87	6,759.07	281.79	24.986	
8,700.00	7,089.88	5,952.00	5,952.00	26.05	259.27	11.51	-1,658.63	-5,233.33	7,139.60	6,857.42	282.18	25.301	
8,800.00	7,089.96	5,952.00	5,952.00	26.35	259.27	11.51	-1,658.63	-5,233.33	7,238.37	6,955.80	282.57	25.616	
8,900.00	7,090.03	5,952.00	5,952.00	26.65	259.27	11.51	-1,658.63	-5,233.33	7,337.17	7,054.22	282.95	25.931	
9,000.00	7,090.11	5,952.00	5,952.00	26.95	259.27	11.51	-1,658.63	-5,233.33	7,436.01	7,152.68	283.33	26.245	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	5,952.00	5,952.00	27.25	259.27	11.51	-1,658.63	-5,233.33	7,534.87	7,251.17	283.70	26.559	
9,200.00	7,090.27	5,952.00	5,952.00	27.55	259.27	11.51	-1,658.63	-5,233.33	7,633.77	7,349.69	284.08	26.872	
9,300.00	7,090.35	5,952.00	5,952.00	27.85	259.27	11.51	-1,658.63	-5,233.33	7,732.69	7,448.24	284.45	27.185	
9,400.00	7,090.43	5,952.00	5,952.00	28.15	259.27	11.51	-1,658.63	-5,233.33	7,831.64	7,546.83	284.81	27.497	
9,500.00	7,090.51	5,952.00	5,952.00	28.45	259.27	11.51	-1,658.63	-5,233.33	7,930.62	7,645.44	285.18	27.809	
9,600.00	7,090.58	5,952.00	5,952.00	28.75	259.27	11.51	-1,658.63	-5,233.33	8,029.62	7,744.08	285.54	28.121	
9,700.00	7,090.66	5,952.00	5,952.00	29.05	259.27	11.51	-1,658.63	-5,233.33	8,128.65	7,842.74	285.90	28.432	
9,800.00	7,090.74	5,952.00	5,952.00	29.35	259.27	11.51	-1,658.63	-5,233.33	8,227.70	7,941.44	286.26	28.742	
9,900.00	7,090.82	5,952.00	5,952.00	29.65	259.27	11.51	-1,658.63	-5,233.33	8,326.77	8,040.15	286.62	29.052	
10,000.00	7,090.90	5,952.00	5,952.00	29.95	259.27	11.51	-1,658.63	-5,233.33	8,425.86	8,138.89	286.97	29.361	
10,100.00	7,090.98	5,952.00	5,952.00	30.25	259.27	11.51	-1,658.63	-5,233.33	8,524.98	8,237.66	287.32	29.670	
10,200.00	7,091.05	5,952.00	5,952.00	30.55	259.27	11.51	-1,658.63	-5,233.33	8,624.12	8,336.44	287.67	29.979	
10,300.00	7,091.13	5,952.00	5,952.00	30.85	259.27	11.51	-1,658.63	-5,233.33	8,723.27	8,435.25	288.02	30.287	
10,400.00	7,091.21	5,952.00	5,952.00	31.15	259.27	11.51	-1,658.63	-5,233.33	8,822.45	8,534.08	288.37	30.594	
10,500.00	7,091.29	5,952.00	5,952.00	31.45	259.27	11.51	-1,658.63	-5,233.33	8,921.64	8,632.93	288.71	30.901	
10,600.00	7,091.37	5,952.00	5,952.00	31.76	259.27	11.51	-1,658.63	-5,233.33	9,020.85	8,731.79	289.06	31.208	
10,700.00	7,091.45	5,952.00	5,952.00	32.06	259.27	11.51	-1,658.63	-5,233.33	9,120.08	8,830.68	289.40	31.514	
10,800.00	7,091.53	5,952.00	5,952.00	32.36	259.27	11.51	-1,658.63	-5,233.33	9,219.33	8,929.58	289.74	31.819	
10,900.00	7,091.60	5,952.00	5,952.00	32.66	259.27	11.51	-1,658.63	-5,233.33	9,318.59	9,028.51	290.08	32.124	
11,000.00	7,091.68	5,952.00	5,952.00	32.96	259.27	11.51	-1,658.63	-5,233.33	9,417.87	9,127.44	290.42	32.428	
11,100.00	7,091.76	5,952.00	5,952.00	33.26	259.27	11.51	-1,658.63	-5,233.33	9,517.16	9,226.40	290.76	32.732	
11,200.00	7,091.84	5,952.00	5,952.00	33.56	259.27	11.51	-1,658.63	-5,233.33	9,616.46	9,325.37	291.10	33.035	
11,300.00	7,091.92	5,952.00	5,952.00	33.86	259.27	11.51	-1,658.63	-5,233.33	9,715.79	9,424.35	291.43	33.338	
11,400.00	7,092.00	5,952.00	5,952.00	34.16	259.27	11.51	-1,658.63	-5,233.33	9,815.12	9,523.35	291.77	33.640	
11,500.00	7,092.07	5,952.00	5,952.00	34.46	259.27	11.51	-1,658.63	-5,233.33	9,914.47	9,622.37	292.10	33.942	
11,600.00	7,092.15	5,952.00	5,952.00	34.76	259.27	11.51	-1,658.63	-5,233.33	10,013.83	9,721.40	292.43	34.243	
11,700.00	7,092.23	5,952.00	5,952.00	35.06	259.27	11.51	-1,658.63	-5,233.33	10,113.20	9,820.44	292.76	34.544	
11,800.00	7,092.31	5,952.00	5,952.00	35.36	259.27	11.51	-1,658.63	-5,233.33	10,212.59	9,919.50	293.09	34.844	
11,900.00	7,092.39	5,952.00	5,952.00	35.66	259.27	11.51	-1,658.63	-5,233.33	10,311.99	10,018.56	293.42	35.144	
12,000.00	7,092.47	5,952.00	5,952.00	35.96	259.27	11.51	-1,658.63	-5,233.33	10,411.40	10,117.65	293.75	35.443	
12,100.00	7,092.55	5,952.00	5,952.00	36.26	259.27	11.51	-1,658.63	-5,233.33	10,510.82	10,216.74	294.08	35.741	
12,200.00	7,092.62	5,952.00	5,952.00	36.56	259.27	11.51	-1,658.63	-5,233.33	10,610.25	10,315.84	294.41	36.039	
12,300.00	7,092.70	5,952.00	5,952.00	36.86	259.27	11.51	-1,658.63	-5,233.33	10,709.69	10,414.96	294.73	36.337	
12,400.00	7,092.78	5,952.00	5,952.00	37.16	259.27	11.51	-1,658.63	-5,233.33	10,809.14	10,514.08	295.06	36.634	
12,500.00	7,092.86	5,952.00	5,952.00	37.46	259.27	11.51	-1,658.63	-5,233.33	10,908.61	10,613.22	295.38	36.930	
12,600.00	7,092.94	5,952.00	5,952.00	37.76	259.27	11.51	-1,658.63	-5,233.33	11,008.08	10,712.37	295.71	37.226	
12,700.00	7,093.02	5,952.00	5,952.00	38.06	259.27	11.51	-1,658.63	-5,233.33	11,107.56	10,811.53	296.03	37.522	
12,800.00	7,093.09	5,952.00	5,952.00	38.36	259.27	11.51	-1,658.63	-5,233.33	11,207.05	10,910.70	296.35	37.816	
12,900.00	7,093.17	5,952.00	5,952.00	38.66	259.27	11.51	-1,658.63	-5,233.33	11,306.55	11,009.87	296.68	38.111	
13,000.00	7,093.25	5,952.00	5,952.00	38.96	259.27	11.51	-1,658.63	-5,233.33	11,406.06	11,109.06	297.00	38.404	
13,100.00	7,093.33	5,952.00	5,952.00	39.26	259.27	11.51	-1,658.63	-5,233.33	11,505.58	11,208.26	297.32	38.698	
13,200.00	7,093.41	5,952.00	5,952.00	39.56	259.27	11.51	-1,658.63	-5,233.33	11,605.10	11,307.46	297.64	38.990	
13,300.00	7,093.49	5,952.00	5,952.00	39.86	259.27	11.51	-1,658.63	-5,233.33	11,704.63	11,406.67	297.96	39.282	
13,400.00	7,093.57	5,952.00	5,952.00	40.16	259.27	11.51	-1,658.63	-5,233.33	11,804.18	11,505.89	298.28	39.574	
13,500.00	7,093.64	5,952.00	5,952.00	40.47	259.27	11.51	-1,658.63	-5,233.33	11,903.72	11,605.12	298.60	39.865	
13,600.00	7,093.72	5,952.00	5,952.00	40.77	259.27	11.51	-1,658.63	-5,233.33	12,003.28	11,704.36	298.92	40.156	
13,700.00	7,093.80	5,952.00	5,952.00	41.07	259.27	11.51	-1,658.63	-5,233.33	12,102.85	11,803.61	299.24	40.446	
13,800.00	7,093.88	5,952.00	5,952.00	41.37	259.27	11.51	-1,658.63	-5,233.33	12,202.42	11,902.86	299.56	40.735	
13,900.00	7,093.96	5,952.00	5,952.00	41.67	259.27	11.51	-1,658.63	-5,233.33	12,301.99	12,002.12	299.87	41.024	
14,000.00	7,094.04	5,952.00	5,952.00	41.97	259.27	11.51	-1,658.63	-5,233.33	12,401.58	12,101.39	300.19	41.312	
14,100.00	7,094.11	5,952.00	5,952.00	42.27	259.27	11.51	-1,658.63	-5,233.33	12,501.17	12,200.66	300.51	41.600	
14,200.00	7,094.19	5,952.00	5,952.00	42.57	259.27	11.51	-1,658.63	-5,233.33	12,600.77	12,299.95	300.82	41.888	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	5,952.00	5,952.00	42.87	259.27	11.51	-1,658.63	-5,233.33	12,700.37	12,399.23	301.14	42.174	
14,400.00	7,094.35	5,952.00	5,952.00	43.17	259.27	11.51	-1,658.63	-5,233.33	12,799.98	12,498.53	301.45	42.461	
14,500.00	7,094.43	5,952.00	5,952.00	43.47	259.27	11.51	-1,658.63	-5,233.33	12,899.60	12,597.83	301.77	42.747	
14,600.00	7,094.51	5,952.00	5,952.00	43.77	259.27	11.51	-1,658.63	-5,233.33	12,999.22	12,697.14	302.08	43.032	
14,700.00	7,094.58	5,952.00	5,952.00	44.07	259.27	11.51	-1,658.63	-5,233.33	13,098.85	12,796.45	302.40	43.316	
14,800.00	7,094.66	5,952.00	5,952.00	44.37	259.27	11.51	-1,658.63	-5,233.33	13,198.48	12,895.77	302.71	43.601	
14,900.00	7,094.74	5,952.00	5,952.00	44.67	259.27	11.51	-1,658.63	-5,233.33	13,298.12	12,995.10	303.03	43.884	
15,000.00	7,094.82	5,952.00	5,952.00	44.97	259.27	11.51	-1,658.63	-5,233.33	13,397.77	13,094.43	303.34	44.167	
15,100.00	7,094.90	5,952.00	5,952.00	45.27	259.27	11.51	-1,658.63	-5,233.33	13,497.42	13,193.76	303.65	44.450	
15,200.00	7,094.98	5,952.00	5,952.00	45.57	259.27	11.51	-1,658.63	-5,233.33	13,597.07	13,293.10	303.97	44.732	
15,300.00	7,095.06	5,952.00	5,952.00	45.87	259.27	11.51	-1,658.63	-5,233.33	13,696.73	13,392.45	304.28	45.014	
15,400.00	7,095.13	5,952.00	5,952.00	46.17	259.27	11.51	-1,658.63	-5,233.33	13,796.40	13,491.80	304.59	45.295	
15,500.00	7,095.21	5,952.00	5,952.00	46.47	259.27	11.51	-1,658.63	-5,233.33	13,896.07	13,591.16	304.90	45.575	
15,600.00	7,095.29	5,952.00	5,952.00	46.77	259.27	11.51	-1,658.63	-5,233.33	13,995.74	13,690.52	305.22	45.855	
15,700.00	7,095.37	5,952.00	5,952.00	47.07	259.27	11.51	-1,658.63	-5,233.33	14,095.42	13,789.89	305.53	46.135	
15,800.00	7,095.45	5,952.00	5,952.00	47.37	259.27	11.51	-1,658.63	-5,233.33	14,195.10	13,889.26	305.84	46.414	
15,900.00	7,095.53	5,952.00	5,952.00	47.67	259.27	11.51	-1,658.63	-5,233.33	14,294.79	13,988.64	306.15	46.692	
16,000.00	7,095.60	5,952.00	5,952.00	47.97	259.27	11.51	-1,658.63	-5,233.33	14,394.48	14,088.02	306.46	46.970	
16,100.00	7,095.68	5,952.00	5,952.00	48.27	259.27	11.51	-1,658.63	-5,233.33	14,494.18	14,187.41	306.77	47.247	
16,200.00	7,095.76	5,952.00	5,952.00	48.57	259.27	11.51	-1,658.63	-5,233.33	14,593.88	14,286.80	307.08	47.524	
16,300.00	7,095.84	5,952.00	5,952.00	48.87	259.27	11.51	-1,658.63	-5,233.33	14,693.58	14,386.19	307.39	47.801	
16,400.00	7,095.92	5,952.00	5,952.00	49.17	259.27	11.51	-1,658.63	-5,233.33	14,793.29	14,485.59	307.70	48.077	
16,500.00	7,096.00	5,952.00	5,952.00	49.47	259.27	11.51	-1,658.63	-5,233.33	14,893.01	14,584.99	308.01	48.352	
16,600.00	7,096.08	5,952.00	5,952.00	49.77	259.27	11.51	-1,658.63	-5,233.33	14,992.72	14,684.40	308.32	48.627	
16,700.00	7,096.15	5,952.00	5,952.00	50.07	259.27	11.51	-1,658.63	-5,233.33	15,092.44	14,783.81	308.63	48.901	
16,800.00	7,096.23	5,952.00	5,952.00	50.37	259.27	11.51	-1,658.63	-5,233.33	15,192.17	14,883.23	308.94	49.175	
16,900.00	7,096.31	5,952.00	5,952.00	50.67	259.27	11.51	-1,658.63	-5,233.33	15,291.89	14,982.64	309.25	49.448	
17,000.00	7,096.39	5,952.00	5,952.00	50.97	259.27	11.51	-1,658.63	-5,233.33	15,391.63	15,082.07	309.56	49.721	
17,100.00	7,096.47	5,952.00	5,952.00	51.27	259.27	11.51	-1,658.63	-5,233.33	15,491.36	15,181.49	309.87	49.993	
17,200.00	7,096.55	5,952.00	5,952.00	51.57	259.27	11.51	-1,658.63	-5,233.33	15,591.10	15,280.92	310.18	50.265	
17,300.00	7,096.62	5,952.00	5,952.00	51.87	259.27	11.51	-1,658.63	-5,233.33	15,690.84	15,380.35	310.48	50.537	
17,400.00	7,096.70	5,952.00	5,952.00	52.17	259.27	11.51	-1,658.63	-5,233.33	15,790.58	15,479.79	310.79	50.807	
17,500.00	7,096.78	5,952.00	5,952.00	52.47	259.27	11.51	-1,658.63	-5,233.33	15,890.33	15,579.23	311.10	51.078	
17,600.00	7,096.86	5,952.00	5,952.00	52.77	259.27	11.51	-1,658.63	-5,233.33	15,990.08	15,678.67	311.41	51.347	
17,700.00	7,096.94	5,952.00	5,952.00	53.07	259.27	11.51	-1,658.63	-5,233.33	16,089.84	15,778.12	311.72	51.617	
17,800.00	7,097.02	5,952.00	5,952.00	53.37	259.27	11.51	-1,658.63	-5,233.33	16,189.59	15,877.57	312.03	51.886	
17,900.00	7,097.10	5,952.00	5,952.00	53.67	259.27	11.51	-1,658.63	-5,233.33	16,289.35	15,977.02	312.33	52.154	
18,000.00	7,097.17	5,952.00	5,952.00	53.97	259.27	11.51	-1,658.63	-5,233.33	16,389.12	16,076.48	312.64	52.422	
18,100.00	7,097.25	5,952.00	5,952.00	54.27	259.27	11.51	-1,658.63	-5,233.33	16,488.88	16,175.93	312.95	52.689	
18,200.00	7,097.33	5,952.00	5,952.00	54.57	259.27	11.51	-1,658.63	-5,233.33	16,588.65	16,275.40	313.25	52.956	
18,300.00	7,097.41	5,952.00	5,952.00	54.87	259.27	11.51	-1,658.63	-5,233.33	16,688.42	16,374.86	313.56	53.222	
18,400.00	7,097.49	5,952.00	5,952.00	55.17	259.27	11.51	-1,658.63	-5,233.33	16,788.20	16,474.33	313.87	53.488	
18,500.00	7,097.57	5,952.00	5,952.00	55.47	259.27	11.51	-1,658.63	-5,233.33	16,887.97	16,573.80	314.18	53.753	
18,600.00	7,097.64	5,952.00	5,952.00	55.78	259.27	11.51	-1,658.63	-5,233.33	16,987.75	16,673.27	314.48	54.018	
18,700.00	7,097.72	5,952.00	5,952.00	56.08	259.27	11.51	-1,658.63	-5,233.33	17,087.53	16,772.75	314.79	54.283	
18,800.00	7,097.80	5,952.00	5,952.00	56.38	259.27	11.51	-1,658.63	-5,233.33	17,187.32	16,872.22	315.10	54.546	
18,900.00	7,097.88	5,952.00	5,952.00	56.68	259.27	11.51	-1,658.63	-5,233.33	17,287.11	16,971.70	315.40	54.810	
19,000.00	7,097.96	5,952.00	5,952.00	56.98	259.27	11.51	-1,658.63	-5,233.33	17,386.89	17,071.19	315.71	55.073	
19,100.00	7,098.04	5,952.00	5,952.00	57.28	259.27	11.51	-1,658.63	-5,233.33	17,486.69	17,170.67	316.01	55.335	
19,200.00	7,098.12	5,952.00	5,952.00	57.58	259.27	11.51	-1,658.63	-5,233.33	17,586.48	17,270.16	316.32	55.597	
19,300.00	7,098.19	5,952.00	5,952.00	57.88	259.27	11.51	-1,658.63	-5,233.33	17,686.28	17,369.65	316.63	55.859	
19,400.00	7,098.27	5,952.00	5,952.00	58.18	259.27	11.51	-1,658.63	-5,233.33	17,786.08	17,469.14	316.93	56.120	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	5,952.00	5,952.00	58.48	259.27	11.51	-1,658.63	-5,233.33	17,885.88	17,568.64	317.24	56.380	
19,600.00	7,098.43	5,952.00	5,952.00	58.78	259.27	11.51	-1,658.63	-5,233.33	17,985.68	17,668.14	317.54	56.640	
19,700.00	7,098.51	5,952.00	5,952.00	59.08	259.27	11.51	-1,658.63	-5,233.33	18,085.49	17,767.64	317.85	56.900	
19,800.00	7,098.59	5,952.00	5,952.00	59.38	259.27	11.51	-1,658.63	-5,233.33	18,185.29	17,867.14	318.15	57.159	
19,900.00	7,098.66	5,952.00	5,952.00	59.68	259.27	11.51	-1,658.63	-5,233.33	18,285.10	17,966.64	318.46	57.417	
20,000.00	7,098.74	5,952.00	5,952.00	59.98	259.27	11.51	-1,658.63	-5,233.33	18,384.92	18,066.15	318.76	57.676	
20,100.00	7,098.82	5,952.00	5,952.00	60.28	259.27	11.51	-1,658.63	-5,233.33	18,484.73	18,165.66	319.07	57.933	
20,200.00	7,098.90	5,952.00	5,952.00	60.58	259.27	11.51	-1,658.63	-5,233.33	18,584.54	18,265.17	319.37	58.190	
20,300.00	7,098.98	5,952.00	5,952.00	60.88	259.27	11.51	-1,658.63	-5,233.33	18,684.36	18,364.68	319.68	58.447	
20,328.16	7,099.00	5,952.00	5,952.00	60.96	259.27	11.51	-1,658.63	-5,233.33	18,712.47	18,392.71	319.77	58.519	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 136-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-112.85	-1,789.35	-4,246.71	4,608.47				
100.00	100.00	59.51	59.51	0.23	0.59	-112.85	-1,789.35	-4,246.71	4,608.29	4,607.48	0.81	5,669.582	
200.00	200.00	159.52	159.51	0.53	1.77	-112.85	-1,789.35	-4,246.71	4,608.29	4,605.99	2.30	2,004.370	
241.02	241.02	200.53	200.53	0.65	2.53	-112.85	-1,789.14	-4,246.71	4,608.21	4,605.03	3.18	1,450.289	
300.00	300.00	250.45	250.44	0.83	3.45	-112.85	-1,789.27	-4,246.71	4,608.27	4,604.00	4.27	1,078.318	
400.00	400.00	359.52	359.51	1.13	5.46	-112.85	-1,789.35	-4,246.71	4,608.29	4,601.71	6.59	699.494	
500.00	500.00	459.52	459.51	1.43	7.31	-112.85	-1,789.35	-4,246.71	4,608.29	4,599.56	8.74	527.518	
600.00	599.98	558.74	558.73	1.73	9.14	72.61	-1,789.10	-4,246.71	4,607.67	4,596.80	10.87	423.926	
700.00	699.84	657.04	657.03	2.03	10.96	72.70	-1,789.18	-4,246.71	4,606.14	4,593.16	12.99	354.714	
800.00	799.45	758.99	758.97	2.33	12.85	72.86	-1,789.35	-4,246.71	4,603.62	4,588.45	15.17	303.413	
900.00	898.70	858.24	858.21	2.63	14.79	73.07	-1,789.35	-4,246.71	4,600.02	4,582.61	17.42	264.089	
1,000.00	997.47	957.01	956.98	2.93	16.73	73.34	-1,789.35	-4,246.71	4,595.45	4,575.80	19.65	233.811	
1,100.00	1,095.62	1,052.89	1,052.85	3.23	18.61	73.67	-1,788.58	-4,246.71	4,589.65	4,567.82	21.83	210.205	
1,157.34	1,151.58	1,106.43	1,106.40	3.40	19.66	73.88	-1,788.69	-4,246.71	4,586.13	4,563.07	23.06	198.913	
1,200.00	1,193.13	1,146.22	1,146.18	3.53	20.44	73.99	-1,788.82	-4,246.71	4,583.43	4,559.47	23.96	191.265	
1,300.00	1,290.51	1,239.54	1,239.49	3.83	22.27	74.24	-1,789.29	-4,246.71	4,577.24	4,551.15	26.09	175.420	
1,400.00	1,387.89	1,347.47	1,347.40	4.13	24.45	74.53	-1,789.35	-4,246.71	4,570.98	4,542.41	28.58	159.948	
1,500.00	1,485.27	1,444.85	1,444.78	4.43	26.43	74.80	-1,789.35	-4,246.71	4,564.82	4,533.96	30.86	147.941	
1,600.00	1,582.65	1,540.16	1,540.08	4.73	28.36	75.07	-1,788.59	-4,246.71	4,558.49	4,525.40	33.09	137.754	
1,700.00	1,680.02	1,633.56	1,633.48	5.03	30.26	75.33	-1,788.83	-4,246.71	4,552.63	4,517.34	35.29	129.012	
1,800.00	1,777.40	1,727.08	1,727.00	5.33	32.16	75.58	-1,789.30	-4,246.71	4,546.95	4,509.47	37.49	121.292	
1,900.00	1,874.78	1,834.42	1,834.30	5.63	34.35	75.88	-1,789.35	-4,246.71	4,541.22	4,501.24	39.97	113.603	
2,000.00	1,972.16	1,931.80	1,931.67	5.93	36.33	76.15	-1,789.35	-4,246.71	4,535.59	4,493.33	42.26	107.329	
2,100.00	2,069.54	2,026.75	2,026.61	6.23	38.27	76.43	-1,788.32	-4,246.71	4,529.72	4,485.22	44.49	101.806	
2,200.00	2,166.92	2,119.33	2,119.19	6.53	40.15	76.69	-1,788.62	-4,246.71	4,524.41	4,477.73	46.68	96.924	
2,300.00	2,264.30	2,212.06	2,211.91	6.83	42.04	76.94	-1,789.23	-4,246.71	4,519.30	4,470.43	48.87	92.478	
2,400.00	2,361.68	2,321.38	2,321.19	7.13	44.21	77.25	-1,789.35	-4,246.71	4,514.12	4,462.79	51.33	87.938	
2,500.00	2,459.06	2,418.76	2,418.57	7.43	46.12	77.52	-1,789.35	-4,246.71	4,509.03	4,455.48	53.55	84.201	
2,600.00	2,556.44	2,514.52	2,514.33	7.73	48.01	77.80	-1,788.58	-4,246.71	4,503.81	4,448.07	55.74	80.804	
2,700.00	2,653.82	2,608.49	2,608.30	8.03	49.86	78.07	-1,788.81	-4,246.71	4,499.01	4,441.12	57.89	77.718	
2,800.00	2,751.19	2,702.58	2,702.38	8.33	51.72	78.33	-1,789.27	-4,246.71	4,494.39	4,434.35	60.04	74.854	
2,900.00	2,848.57	2,808.31	2,808.09	8.63	54.14	78.63	-1,789.35	-4,246.71	4,489.75	4,426.98	62.77	71.528	
3,000.00	2,945.95	2,905.69	2,905.47	8.93	56.42	78.91	-1,789.35	-4,246.71	4,485.20	4,419.86	65.35	68.638	
3,100.00	3,043.33	3,002.73	3,002.50	9.23	58.69	79.19	-1,788.45	-4,246.71	4,480.51	4,412.60	67.91	65.972	
3,200.00	3,140.71	3,097.32	3,097.09	9.53	60.90	79.46	-1,788.58	-4,246.71	4,476.23	4,405.80	70.43	63.559	
3,300.00	3,238.09	3,192.02	3,191.77	9.83	63.11	79.73	-1,788.93	-4,246.71	4,472.12	4,399.18	72.94	61.311	
3,400.00	3,335.47	3,295.38	3,294.98	10.13	65.56	80.02	-1,789.35	-4,246.71	4,468.13	4,392.45	75.69	59.033	
3,500.00	3,432.85	3,392.76	3,392.36	10.43	67.95	80.30	-1,789.35	-4,246.71	4,464.15	4,385.77	78.37	56.961	
3,600.00	3,530.23	3,490.14	3,489.74	10.73	70.33	80.58	-1,789.35	-4,246.71	4,460.27	4,379.21	81.06	55.027	
3,700.00	3,627.61	3,584.02	3,583.58	11.03	72.63	80.88	-1,787.08	-4,246.71	4,455.93	4,372.28	83.66	53.266	
3,800.00	3,724.99	3,674.96	3,674.49	11.33	74.85	81.14	-1,787.63	-4,246.71	4,452.44	4,366.26	86.18	51.664	
3,900.00	3,822.36	3,766.16	3,765.67	11.63	77.09	81.39	-1,788.73	-4,246.71	4,449.20	4,360.48	88.71	50.152	
4,000.00	3,919.74	3,879.85	3,879.26	11.93	79.63	81.71	-1,789.35	-4,246.71	4,445.90	4,354.34	91.56	48.559	
4,100.00	4,017.12	3,977.23	3,976.64	12.23	81.70	81.99	-1,789.35	-4,246.71	4,442.59	4,348.66	93.93	47.297	
4,200.00	4,114.50	4,073.93	4,073.33	12.53	83.76	82.29	-1,788.27	-4,246.71	4,439.14	4,342.86	96.29	46.103	
4,300.00	4,211.88	4,168.04	4,167.44	12.83	85.76	82.56	-1,788.49	-4,246.71	4,436.12	4,337.53	98.59	44.996	
4,400.00	4,309.26	4,262.31	4,261.70	13.13	87.77	82.83	-1,789.01	-4,246.71	4,433.28	4,332.38	100.89	43.940	
4,500.00	4,406.64	4,366.82	4,366.15	13.43	89.99	83.13	-1,789.35	-4,246.71	4,430.50	4,327.08	103.42	42.841	
4,600.00	4,504.02	4,464.20	4,463.53	13.73	92.06	83.41	-1,789.35	-4,246.71	4,427.76	4,321.97	105.79	41.854	
4,700.00	4,601.40	4,561.37	4,560.70	14.03	94.13	83.71	-1,788.26	-4,246.71	4,424.92	4,316.76	108.16	40.912	
4,800.00	4,698.78	4,655.84	4,655.16	14.33	96.14	83.98	-1,788.44	-4,246.71	4,422.45	4,311.98	110.47	40.034	
4,900.00	4,796.16	4,750.46	4,749.77	14.63	98.15	84.26	-1,788.93	-4,246.71	4,420.16	4,307.38	112.78	39.192	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 136-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	4,853.79	4,853.05	14.93	100.35	84.55	-1,789.35	-4,246.71	4,417.97	4,302.69	115.28	38.324	
5,100.00	4,990.91	4,951.17	4,950.43	15.23	102.43	84.84	-1,789.35	-4,246.71	4,415.81	4,298.16	117.65	37.533	
5,200.00	5,088.29	5,048.55	5,047.81	15.53	104.50	85.13	-1,789.35	-4,246.71	4,413.77	4,293.75	120.02	36.774	
5,300.00	5,185.67	5,143.54	5,142.79	15.83	106.52	85.42	-1,788.40	-4,246.71	4,411.68	4,289.33	122.35	36.059	
5,400.00	5,283.05	5,238.51	5,237.75	16.13	108.54	85.69	-1,788.85	-4,246.71	4,409.95	4,285.28	124.67	35.374	
5,500.00	5,380.43	5,340.76	5,339.94	16.43	110.81	85.99	-1,789.35	-4,246.71	4,408.34	4,281.11	127.23	34.647	
5,600.00	5,477.81	5,438.14	5,437.32	16.73	113.13	86.27	-1,789.35	-4,246.71	4,406.77	4,276.91	129.86	33.936	
5,700.00	5,575.19	5,535.52	5,534.70	17.03	115.45	86.56	-1,789.35	-4,246.71	4,405.31	4,272.83	132.48	33.253	
5,800.00	5,672.57	5,631.15	5,630.31	17.33	117.73	86.86	-1,788.36	-4,246.71	4,403.82	4,268.75	135.06	32.606	
5,900.00	5,769.95	5,726.47	5,725.64	17.63	120.01	87.13	-1,788.78	-4,246.71	4,402.66	4,265.02	137.63	31.988	
6,000.00	5,867.33	5,827.80	5,826.84	17.93	122.43	87.43	-1,789.35	-4,246.71	4,401.63	4,261.28	140.35	31.361	
6,100.00	5,964.70	5,925.18	5,924.22	18.23	124.76	87.71	-1,789.35	-4,246.71	4,400.64	4,257.66	142.98	30.778	
6,200.00	6,062.08	6,022.56	6,021.60	18.53	127.08	88.00	-1,789.35	-4,246.71	4,399.77	4,254.16	145.61	30.216	
6,300.00	6,159.46	6,117.86	6,116.86	18.83	129.36	88.31	-1,787.57	-4,246.71	4,398.79	4,250.60	148.19	29.684	
6,400.00	6,256.84	6,212.35	6,211.33	19.13	131.62	88.58	-1,788.20	-4,246.71	4,398.24	4,247.49	150.75	29.176	
6,500.00	6,354.22	6,314.85	6,313.73	19.43	134.02	88.87	-1,789.35	-4,246.71	4,397.85	4,244.40	153.45	28.660	
6,600.00	6,451.60	6,412.23	6,411.11	19.73	135.84	89.16	-1,789.35	-4,246.71	4,397.45	4,241.88	155.56	28.268	
6,694.27	6,543.40	6,504.02	6,502.91	20.02	137.55	89.43	-1,789.35	-4,246.71	4,397.18	4,239.62	157.56	27.908	
6,695.60	6,544.70	6,505.32	6,504.21	20.02	137.57	90.00	-1,789.35	-4,246.71	4,397.18	4,239.59	157.59	27.903	CC
6,700.00	6,548.98	6,509.60	6,508.49	20.03	137.65	91.87	-1,789.35	-4,246.71	4,397.19	4,239.51	157.68	27.887	ES
6,750.00	6,597.52	6,558.10	6,556.98	20.18	138.56	111.26	-1,788.26	-4,246.71	4,399.65	4,240.91	158.73	27.717	
6,800.00	6,645.56	6,605.43	6,604.30	20.33	139.44	125.63	-1,788.31	-4,246.71	4,406.57	4,246.80	159.77	27.581	
6,850.00	6,692.73	6,651.93	6,650.80	20.48	140.31	135.48	-1,788.43	-4,246.71	4,417.80	4,257.02	160.79	27.476	
6,900.00	6,738.66	6,697.25	6,696.13	20.63	141.15	142.21	-1,788.62	-4,246.71	4,433.25	4,271.47	161.78	27.403	
6,950.00	6,783.02	6,741.05	6,739.92	20.78	141.97	146.91	-1,788.87	-4,246.71	4,452.80	4,290.06	162.75	27.360	
7,000.00	6,825.45	6,782.99	6,781.85	20.94	142.75	150.25	-1,789.17	-4,246.71	4,476.31	4,312.63	163.68	27.348	SF
7,050.00	6,865.65	6,826.31	6,825.16	21.09	143.53	152.68	-1,789.35	-4,246.71	4,503.57	4,338.96	164.60	27.360	
7,100.00	6,903.29	6,863.95	6,862.81	21.24	144.17	154.41	-1,789.35	-4,246.71	4,534.37	4,368.98	165.39	27.416	
7,150.00	6,938.11	6,898.76	6,897.62	21.39	144.76	155.59	-1,789.35	-4,246.71	4,568.49	4,402.36	166.13	27.499	
7,200.00	6,969.82	6,930.48	6,929.33	21.54	145.30	156.31	-1,789.35	-4,246.71	4,605.67	4,438.85	166.82	27.608	
7,250.00	6,998.19	6,958.85	6,957.70	21.69	145.78	156.57	-1,789.35	-4,246.71	4,645.62	4,478.17	167.46	27.742	
7,300.00	7,023.01	6,983.67	6,982.52	21.84	146.20	156.35	-1,789.35	-4,246.71	4,688.04	4,520.01	168.03	27.900	
7,350.00	7,044.08	7,004.74	7,003.59	21.99	146.56	155.50	-1,789.35	-4,246.71	4,732.59	4,564.05	168.54	28.080	
7,400.00	7,061.25	7,021.84	7,020.70	22.14	146.85	153.71	-1,789.14	-4,246.71	4,778.91	4,609.93	168.98	28.281	
7,450.00	7,074.38	7,034.93	7,033.78	22.29	147.07	150.21	-1,789.14	-4,246.71	4,826.69	4,657.33	169.35	28.501	
7,500.00	7,083.37	7,043.89	7,042.74	22.44	147.22	142.75	-1,789.14	-4,246.71	4,875.53	4,705.87	169.65	28.738	
7,550.00	7,088.16	7,048.66	7,047.51	22.59	147.30	122.51	-1,789.15	-4,246.71	4,925.06	4,755.18	169.89	28.990	
7,581.00	7,089.00	7,049.50	7,048.35	22.68	147.32	90.61	-1,789.15	-4,246.71	4,955.95	4,785.96	169.99	29.154	
7,600.00	7,089.02	7,049.51	7,048.37	22.74	147.32	90.61	-1,789.15	-4,246.71	4,974.91	4,804.86	170.05	29.255	
7,700.00	7,089.09	7,049.59	7,048.44	23.04	147.32	90.62	-1,789.15	-4,246.71	5,074.66	4,904.31	170.35	29.789	
7,800.00	7,089.17	7,049.67	7,048.52	23.34	147.32	90.63	-1,789.15	-4,246.71	5,174.43	5,003.77	170.65	30.321	
7,900.00	7,089.25	7,049.75	7,048.60	23.64	147.32	90.65	-1,789.15	-4,246.71	5,274.20	5,103.24	170.96	30.851	
8,000.00	7,089.33	7,049.83	7,048.68	23.94	147.32	90.66	-1,789.15	-4,246.71	5,373.98	5,202.72	171.26	31.379	
8,100.00	7,089.41	7,049.91	7,048.76	24.24	147.33	90.67	-1,789.15	-4,246.71	5,473.77	5,302.21	171.56	31.906	
8,200.00	7,089.49	7,049.98	7,048.84	24.54	147.33	90.69	-1,789.15	-4,246.71	5,573.57	5,401.71	171.86	32.430	
8,300.00	7,089.56	7,050.06	7,048.91	24.84	147.33	90.70	-1,789.15	-4,246.71	5,673.38	5,501.21	172.17	32.953	
8,400.00	7,089.64	7,050.14	7,048.99	25.14	147.33	90.71	-1,789.15	-4,246.71	5,773.19	5,600.72	172.47	33.474	
8,500.00	7,089.72	7,050.22	7,049.07	25.44	147.33	90.72	-1,789.15	-4,246.71	5,873.01	5,700.24	172.77	33.993	
8,600.00	7,089.80	7,050.30	7,049.15	25.75	147.33	90.74	-1,789.15	-4,246.71	5,972.83	5,799.76	173.07	34.511	
8,700.00	7,089.88	7,050.38	7,049.23	26.05	147.33	90.75	-1,789.15	-4,246.71	6,072.66	5,899.29	173.37	35.026	
8,800.00	7,089.96	7,050.45	7,049.31	26.35	147.33	90.76	-1,789.15	-4,246.71	6,172.50	5,998.82	173.68	35.540	
8,900.00	7,090.03	7,050.53	7,049.39	26.65	147.34	90.78	-1,789.15	-4,246.71	6,272.34	6,098.36	173.98	36.052	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 136-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,090.11	7,050.61	7,049.46	26.95	147.34	90.79	-1,789.15	-4,246.71	6,372.18	6,197.90	174.28	36.563	
9,100.00	7,090.19	7,050.69	7,049.54	27.25	147.34	90.80	-1,789.15	-4,246.71	6,472.03	6,297.45	174.58	37.072	
9,200.00	7,090.27	7,050.77	7,049.62	27.55	147.34	90.81	-1,789.15	-4,246.71	6,571.89	6,397.00	174.88	37.579	
9,300.00	7,090.35	7,050.85	7,049.70	27.85	147.34	90.83	-1,789.15	-4,246.71	6,671.75	6,496.56	175.19	38.084	
9,400.00	7,090.43	7,050.92	7,049.78	28.15	147.34	90.84	-1,789.15	-4,246.71	6,771.61	6,596.12	175.49	38.587	
9,500.00	7,090.51	7,051.00	7,049.86	28.45	147.34	90.85	-1,789.15	-4,246.71	6,871.48	6,695.69	175.79	39.089	
9,600.00	7,090.58	7,051.08	7,049.93	28.75	147.35	90.86	-1,789.15	-4,246.71	6,971.35	6,795.26	176.09	39.589	
9,700.00	7,090.66	7,051.16	7,050.01	29.05	147.35	90.88	-1,789.15	-4,246.71	7,071.23	6,894.83	176.39	40.088	
9,800.00	7,090.74	7,051.24	7,050.09	29.35	147.35	90.89	-1,789.15	-4,246.71	7,171.10	6,994.41	176.70	40.585	
9,900.00	7,090.82	7,051.32	7,050.17	29.65	147.35	90.90	-1,789.15	-4,246.71	7,270.99	7,093.99	177.00	41.080	
10,000.00	7,090.90	7,051.39	7,050.25	29.95	147.35	90.92	-1,789.15	-4,246.71	7,370.87	7,193.57	177.30	41.573	
10,100.00	7,090.98	7,051.47	7,050.33	30.25	147.35	90.93	-1,789.15	-4,246.71	7,470.76	7,293.16	177.60	42.065	
10,200.00	7,091.05	7,051.55	7,050.40	30.55	147.35	90.94	-1,789.15	-4,246.71	7,570.65	7,392.75	177.90	42.555	
10,300.00	7,091.13	7,051.63	7,050.48	30.85	147.35	90.95	-1,789.15	-4,246.71	7,670.54	7,492.34	178.20	43.043	
10,400.00	7,091.21	7,051.71	7,050.56	31.15	147.36	90.97	-1,789.15	-4,246.71	7,770.44	7,591.93	178.51	43.530	
10,500.00	7,091.29	7,051.79	7,050.64	31.45	147.36	90.98	-1,789.15	-4,246.71	7,870.34	7,691.53	178.81	44.016	
10,600.00	7,091.37	7,051.86	7,050.72	31.76	147.36	90.99	-1,789.15	-4,246.71	7,970.24	7,791.13	179.11	44.499	
10,700.00	7,091.45	7,051.94	7,050.80	32.06	147.36	91.01	-1,789.15	-4,246.71	8,070.14	7,890.73	179.41	44.981	
10,800.00	7,091.53	7,052.02	7,050.87	32.36	147.36	91.02	-1,789.15	-4,246.71	8,170.05	7,990.34	179.71	45.462	
10,900.00	7,091.60	7,052.10	7,050.95	32.66	147.36	91.03	-1,789.15	-4,246.71	8,269.96	8,089.94	180.02	45.940	
11,000.00	7,091.68	7,052.18	7,051.03	32.96	147.36	91.04	-1,789.15	-4,246.71	8,369.87	8,189.55	180.32	46.418	
11,100.00	7,091.76	7,052.26	7,051.11	33.26	147.37	91.06	-1,789.15	-4,246.71	8,469.78	8,289.17	180.62	46.893	
11,200.00	7,091.84	7,052.33	7,051.19	33.56	147.37	91.07	-1,789.15	-4,246.71	8,569.70	8,388.78	180.92	47.367	
11,300.00	7,091.92	7,052.41	7,051.27	33.86	147.37	91.08	-1,789.15	-4,246.71	8,669.62	8,488.39	181.22	47.840	
11,400.00	7,092.00	7,052.49	7,051.34	34.16	147.37	91.10	-1,789.15	-4,246.71	8,769.54	8,588.01	181.52	48.311	
11,500.00	7,092.07	7,052.57	7,051.42	34.46	147.37	91.11	-1,789.15	-4,246.71	8,869.46	8,687.63	181.83	48.780	
11,600.00	7,092.15	7,052.65	7,051.50	34.76	147.37	91.12	-1,789.15	-4,246.71	8,969.38	8,787.25	182.13	49.248	
11,700.00	7,092.23	7,052.73	7,051.58	35.06	147.37	91.13	-1,789.15	-4,246.71	9,069.30	8,886.87	182.43	49.714	
11,800.00	7,092.31	7,052.80	7,051.66	35.36	147.37	91.15	-1,789.15	-4,246.71	9,169.23	8,986.50	182.73	50.179	
11,900.00	7,092.39	7,052.88	7,051.74	35.66	147.38	91.16	-1,789.15	-4,246.71	9,269.16	9,086.12	183.03	50.642	
12,000.00	7,092.47	7,052.96	7,051.81	35.96	147.38	91.17	-1,789.15	-4,246.71	9,369.08	9,185.75	183.33	51.104	
12,100.00	7,092.55	7,053.04	7,051.89	36.26	147.38	91.18	-1,789.15	-4,246.71	9,469.02	9,285.38	183.64	51.564	
12,200.00	7,092.62	7,053.12	7,051.97	36.56	147.38	91.20	-1,789.15	-4,246.71	9,568.95	9,385.01	183.94	52.023	
12,300.00	7,092.70	7,053.20	7,052.05	36.86	147.38	91.21	-1,789.15	-4,246.71	9,668.88	9,484.64	184.24	52.480	
12,400.00	7,092.78	7,053.27	7,052.13	37.16	147.38	91.22	-1,789.15	-4,246.71	9,768.82	9,584.27	184.54	52.936	
12,500.00	7,092.86	7,053.35	7,052.21	37.46	147.38	91.24	-1,789.15	-4,246.71	9,868.75	9,683.91	184.84	53.390	
12,600.00	7,092.94	7,053.43	7,052.28	37.76	147.38	91.25	-1,789.15	-4,246.71	9,968.69	9,783.54	185.14	53.843	
12,700.00	7,093.02	7,053.51	7,052.36	38.06	147.39	91.26	-1,789.15	-4,246.71	10,068.63	9,883.18	185.45	54.294	
12,800.00	7,093.09	7,053.59	7,052.44	38.36	147.39	91.27	-1,789.15	-4,246.71	10,168.57	9,982.82	185.75	54.744	
12,900.00	7,093.17	7,053.67	7,052.52	38.66	147.39	91.29	-1,789.15	-4,246.71	10,268.51	10,082.46	186.05	55.192	
13,000.00	7,093.25	7,053.74	7,052.60	38.96	147.39	91.30	-1,789.15	-4,246.71	10,368.45	10,182.10	186.35	55.639	
13,100.00	7,093.33	7,053.82	7,052.68	39.26	147.39	91.31	-1,789.15	-4,246.71	10,468.39	10,281.74	186.65	56.085	
13,200.00	7,093.41	7,053.90	7,052.75	39.56	147.39	91.33	-1,789.15	-4,246.71	10,568.34	10,381.38	186.95	56.529	
13,300.00	7,093.49	7,053.98	7,052.83	39.86	147.39	91.34	-1,789.15	-4,246.71	10,668.28	10,481.03	187.26	56.972	
13,400.00	7,093.57	7,054.06	7,052.91	40.16	147.40	91.35	-1,789.15	-4,246.71	10,768.23	10,580.67	187.56	57.413	
13,500.00	7,093.64	7,054.14	7,052.99	40.47	147.40	91.36	-1,789.15	-4,246.71	10,868.18	10,680.32	187.86	57.853	
13,600.00	7,093.72	7,054.22	7,053.07	40.77	147.40	91.38	-1,789.15	-4,246.71	10,968.13	10,779.96	188.16	58.291	
13,700.00	7,093.80	7,054.29	7,053.15	41.07	147.40	91.39	-1,789.15	-4,246.71	11,068.07	10,879.61	188.46	58.728	
13,800.00	7,093.88	7,054.37	7,053.23	41.37	147.40	91.40	-1,789.15	-4,246.71	11,168.02	10,979.26	188.76	59.164	
13,900.00	7,093.96	7,054.45	7,053.30	41.67	147.40	91.41	-1,789.15	-4,246.71	11,267.98	11,078.91	189.07	59.598	
14,000.00	7,094.04	7,054.53	7,053.38	41.97	147.40	91.43	-1,789.15	-4,246.71	11,367.93	11,178.56	189.37	60.031	
14,100.00	7,094.11	7,054.61	7,053.46	42.27	147.40	91.44	-1,789.15	-4,246.71	11,467.88	11,278.21	189.67	60.463	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 136-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,094.19	7,054.69	7,053.54	42.57	147.41	91.45	-1,789.15	-4,246.71	11,567.83	11,377.86	189.97	60.893	
14,300.00	7,094.27	7,054.76	7,053.62	42.87	147.41	91.47	-1,789.15	-4,246.71	11,667.79	11,477.52	190.27	61.322	
14,400.00	7,094.35	7,054.84	7,053.70	43.17	147.41	91.48	-1,789.15	-4,246.71	11,767.74	11,577.17	190.57	61.749	
14,500.00	7,094.43	7,054.92	7,053.77	43.47	147.41	91.49	-1,789.15	-4,246.71	11,867.70	11,676.82	190.88	62.175	
14,600.00	7,094.51	7,055.00	7,053.85	43.77	147.41	91.50	-1,789.15	-4,246.71	11,967.66	11,776.48	191.18	62.600	
14,700.00	7,094.58	7,055.08	7,053.93	44.07	147.41	91.52	-1,789.15	-4,246.71	12,067.61	11,876.13	191.48	63.023	
14,800.00	7,094.66	7,055.16	7,054.01	44.37	147.41	91.53	-1,789.15	-4,246.71	12,167.57	11,975.79	191.78	63.445	
14,900.00	7,094.74	7,055.23	7,054.09	44.67	147.42	91.54	-1,789.15	-4,246.71	12,267.53	12,075.45	192.08	63.866	
15,000.00	7,094.82	7,055.31	7,054.17	44.97	147.42	91.56	-1,789.15	-4,246.71	12,367.49	12,175.11	192.38	64.286	
15,100.00	7,094.90	7,055.39	7,054.24	45.27	147.42	91.57	-1,789.15	-4,246.71	12,467.45	12,274.76	192.68	64.704	
15,200.00	7,094.98	7,055.47	7,054.32	45.57	147.42	91.58	-1,789.15	-4,246.71	12,567.41	12,374.42	192.99	65.121	
15,300.00	7,095.06	7,055.55	7,054.40	45.87	147.42	91.59	-1,789.15	-4,246.71	12,667.37	12,474.08	193.29	65.536	
15,400.00	7,095.13	7,055.63	7,054.48	46.17	147.42	91.61	-1,789.15	-4,246.71	12,767.33	12,573.74	193.59	65.951	
15,500.00	7,095.21	7,055.70	7,054.56	46.47	147.42	91.62	-1,789.15	-4,246.71	12,867.30	12,673.40	193.89	66.364	
15,600.00	7,095.29	7,055.78	7,054.64	46.77	147.42	91.63	-1,789.15	-4,246.71	12,967.26	12,773.07	194.19	66.775	
15,700.00	7,095.37	7,055.86	7,054.71	47.07	147.43	91.64	-1,789.15	-4,246.71	13,067.22	12,872.73	194.49	67.186	
15,800.00	7,095.45	7,055.94	7,054.79	47.37	147.43	91.66	-1,789.15	-4,246.71	13,167.19	12,972.39	194.80	67.595	
15,900.00	7,095.53	7,056.02	7,054.87	47.67	147.43	91.67	-1,789.15	-4,246.71	13,267.15	13,072.05	195.10	68.003	
16,000.00	7,095.60	7,056.10	7,054.95	47.97	147.43	91.68	-1,789.15	-4,246.71	13,367.12	13,171.72	195.40	68.409	
16,100.00	7,095.68	7,056.18	7,055.03	48.27	147.43	91.70	-1,789.15	-4,246.71	13,467.08	13,271.38	195.70	68.815	
16,200.00	7,095.76	7,056.25	7,055.11	48.57	147.43	91.71	-1,789.15	-4,246.71	13,567.05	13,371.05	196.00	69.219	
16,300.00	7,095.84	7,056.33	7,055.19	48.87	147.43	91.72	-1,789.15	-4,246.71	13,667.01	13,470.71	196.30	69.622	
16,400.00	7,095.92	7,056.41	7,055.26	49.17	147.44	91.73	-1,789.15	-4,246.71	13,766.98	13,570.38	196.60	70.024	
16,500.00	7,096.00	7,056.49	7,055.34	49.47	147.44	91.75	-1,789.15	-4,246.71	13,866.95	13,670.04	196.91	70.424	
16,600.00	7,096.08	7,056.57	7,055.42	49.77	147.44	91.76	-1,789.15	-4,246.71	13,966.92	13,769.71	197.21	70.823	
16,700.00	7,096.15	7,056.65	7,055.50	50.07	147.44	91.77	-1,789.15	-4,246.71	14,066.89	13,869.38	197.51	71.221	
16,800.00	7,096.23	7,056.72	7,055.58	50.37	147.44	91.79	-1,789.15	-4,246.71	14,166.86	13,969.04	197.81	71.618	
16,900.00	7,096.31	7,056.80	7,055.66	50.67	147.44	91.80	-1,789.15	-4,246.71	14,266.82	14,068.71	198.11	72.014	
17,000.00	7,096.39	7,056.88	7,055.73	50.97	147.44	91.81	-1,789.15	-4,246.71	14,366.79	14,168.38	198.41	72.408	
17,100.00	7,096.47	7,056.96	7,055.81	51.27	147.44	91.82	-1,789.15	-4,246.71	14,466.77	14,268.05	198.72	72.801	
17,200.00	7,096.55	7,057.04	7,055.89	51.57	147.45	91.84	-1,789.15	-4,246.71	14,566.74	14,367.72	199.02	73.193	
17,300.00	7,096.62	7,057.12	7,055.97	51.87	147.45	91.85	-1,789.15	-4,246.71	14,666.71	14,467.39	199.32	73.584	
17,400.00	7,096.70	7,057.19	7,056.05	52.17	147.45	91.86	-1,789.15	-4,246.71	14,766.68	14,567.06	199.62	73.974	
17,500.00	7,096.78	7,057.27	7,056.13	52.47	147.45	91.88	-1,789.15	-4,246.71	14,866.65	14,666.73	199.92	74.362	
17,600.00	7,096.86	7,057.35	7,056.20	52.77	147.45	91.89	-1,789.15	-4,246.71	14,966.62	14,766.40	200.22	74.750	
17,700.00	7,096.94	7,057.43	7,056.28	53.07	147.45	91.90	-1,789.15	-4,246.71	15,066.60	14,866.07	200.52	75.136	
17,800.00	7,097.02	7,057.51	7,056.36	53.37	147.45	91.91	-1,789.15	-4,246.71	15,166.57	14,965.74	200.83	75.521	
17,900.00	7,097.10	7,057.59	7,056.44	53.67	147.46	91.93	-1,789.15	-4,246.71	15,266.54	15,065.41	201.13	75.905	
18,000.00	7,097.17	7,057.66	7,056.52	53.97	147.46	91.94	-1,789.15	-4,246.71	15,366.52	15,165.09	201.43	76.288	
18,100.00	7,097.25	7,057.74	7,056.60	54.27	147.46	91.95	-1,789.15	-4,246.71	15,466.49	15,264.76	201.73	76.669	
18,200.00	7,097.33	7,057.82	7,056.67	54.57	147.46	91.96	-1,789.15	-4,246.71	15,566.46	15,364.43	202.03	77.050	
18,300.00	7,097.41	7,057.90	7,056.75	54.87	147.46	91.98	-1,789.15	-4,246.71	15,666.44	15,464.11	202.33	77.429	
18,400.00	7,097.49	7,057.98	7,056.83	55.17	147.46	91.99	-1,789.15	-4,246.71	15,766.41	15,563.78	202.63	77.807	
18,500.00	7,097.57	7,058.06	7,056.91	55.47	147.46	92.00	-1,789.15	-4,246.71	15,866.39	15,663.45	202.94	78.184	
18,600.00	7,097.64	7,058.14	7,056.99	55.78	147.46	92.02	-1,789.15	-4,246.71	15,966.36	15,763.13	203.24	78.560	
18,700.00	7,097.72	7,058.21	7,057.07	56.08	147.47	92.03	-1,789.15	-4,246.71	16,066.34	15,862.80	203.54	78.935	
18,800.00	7,097.80	7,058.29	7,057.15	56.38	147.47	92.04	-1,789.15	-4,246.71	16,166.32	15,962.48	203.84	79.309	
18,900.00	7,097.88	7,058.37	7,057.22	56.68	147.47	92.05	-1,789.15	-4,246.71	16,266.29	16,062.15	204.14	79.681	
19,000.00	7,097.96	7,058.45	7,057.30	56.98	147.47	92.07	-1,789.15	-4,246.71	16,366.27	16,161.83	204.44	80.053	
19,100.00	7,098.04	7,058.53	7,057.38	57.28	147.47	92.08	-1,789.15	-4,246.71	16,466.25	16,261.50	204.75	80.423	
19,200.00	7,098.12	7,058.61	7,057.46	57.58	147.47	92.09	-1,789.15	-4,246.71	16,566.22	16,361.18	205.05	80.792	
19,300.00	7,098.19	7,058.68	7,057.54	57.88	147.47	92.11	-1,789.15	-4,246.71	16,666.20	16,460.85	205.35	81.161	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 136-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,098.27	7,058.76	7,057.62	58.18	147.48	92.12	-1,789.15	-4,246.71	16,766.18	16,560.53	205.65	81.528	
19,500.00	7,098.35	7,058.84	7,057.69	58.48	147.48	92.13	-1,789.15	-4,246.71	16,866.16	16,660.21	205.95	81.894	
19,600.00	7,098.43	7,058.92	7,057.77	58.78	147.48	92.14	-1,789.15	-4,246.71	16,966.14	16,759.88	206.25	82.259	
19,700.00	7,098.51	7,059.00	7,057.85	59.08	147.48	92.16	-1,789.15	-4,246.71	17,066.12	16,859.56	206.55	82.623	
19,800.00	7,098.59	7,059.08	7,057.93	59.38	147.48	92.17	-1,789.15	-4,246.71	17,166.09	16,959.24	206.86	82.986	
19,900.00	7,098.66	7,059.15	7,058.01	59.68	147.48	92.18	-1,789.15	-4,246.71	17,266.07	17,058.92	207.16	83.348	
20,000.00	7,098.74	7,059.23	7,058.09	59.98	147.48	92.19	-1,789.15	-4,246.71	17,366.05	17,158.59	207.46	83.709	
20,100.00	7,098.82	7,059.31	7,058.16	60.28	147.48	92.21	-1,789.15	-4,246.71	17,466.03	17,258.27	207.76	84.068	
20,200.00	7,098.90	7,059.39	7,058.24	60.58	147.49	92.22	-1,789.15	-4,246.71	17,566.01	17,357.95	208.06	84.427	
20,300.00	7,098.98	7,059.47	7,058.32	60.88	147.49	92.23	-1,789.15	-4,246.71	17,665.99	17,457.63	208.36	84.785	
20,328.16	7,099.00	7,059.49	7,058.34	60.96	147.49	92.24	-1,789.15	-4,246.71	17,694.15	17,485.70	208.45	84.885	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 310-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-126.60	-1,789.57	-2,409.59	3,002.12				
100.00	100.00	36.51	36.51	0.23	0.32	-126.60	-1,789.57	-2,409.59	3,001.45	3,000.90	0.55	5,455.916	
200.00	200.00	136.51	136.51	0.53	1.21	-126.60	-1,789.57	-2,409.59	3,001.45	2,999.72	1.74	1,729.034	
300.00	300.00	236.51	236.51	0.83	2.10	-126.60	-1,789.57	-2,409.59	3,001.45	2,998.53	2.92	1,027.298	
400.00	400.00	336.51	336.51	1.13	3.22	-126.60	-1,789.57	-2,409.59	3,001.45	2,997.10	4.35	689.898	
500.00	500.00	436.51	436.51	1.43	5.03	-126.60	-1,789.57	-2,409.59	3,001.45	2,995.00	6.45	465.114	
600.00	599.98	536.49	536.49	1.73	6.83	58.87	-1,789.57	-2,409.59	3,000.55	2,991.99	8.56	350.721	
700.00	699.84	634.88	634.87	2.03	8.60	59.01	-1,789.35	-2,409.59	2,997.72	2,987.09	10.63	282.036	
800.00	799.45	732.89	732.89	2.33	10.37	59.22	-1,789.48	-2,409.59	2,993.30	2,980.61	12.70	235.774	
900.00	898.70	835.23	835.21	2.63	12.24	59.53	-1,789.57	-2,409.59	2,987.12	2,972.25	14.86	200.983	
1,000.00	997.47	933.99	933.98	2.93	14.06	59.93	-1,789.57	-2,409.59	2,979.16	2,962.17	16.98	175.418	
1,100.00	1,095.62	1,031.61	1,031.60	3.23	15.86	60.41	-1,789.07	-2,409.59	2,969.24	2,950.15	19.08	155.597	
1,157.34	1,151.58	1,085.84	1,085.83	3.40	16.86	60.72	-1,789.11	-2,409.59	2,963.02	2,942.76	20.25	146.289	
1,200.00	1,193.13	1,126.13	1,126.11	3.53	17.60	60.88	-1,789.18	-2,409.59	2,958.23	2,937.10	21.13	140.034	
1,300.00	1,290.51	1,220.59	1,220.58	3.83	19.34	61.24	-1,789.46	-2,409.59	2,947.17	2,924.00	23.17	127.217	
1,400.00	1,387.89	1,324.43	1,324.40	4.13	21.29	61.64	-1,789.57	-2,409.59	2,936.14	2,910.72	25.42	115.514	
1,500.00	1,485.27	1,421.81	1,421.78	4.43	23.13	62.03	-1,789.57	-2,409.59	2,925.18	2,897.62	27.56	106.134	
1,600.00	1,582.65	1,518.53	1,518.50	4.73	24.96	62.42	-1,789.04	-2,409.59	2,914.06	2,884.37	29.69	98.143	
1,700.00	1,680.02	1,613.25	1,613.22	5.03	26.76	62.80	-1,789.16	-2,409.59	2,903.45	2,871.66	31.79	91.346	
1,800.00	1,777.40	1,708.05	1,708.02	5.33	28.55	63.18	-1,789.44	-2,409.59	2,893.06	2,859.18	33.88	85.393	
1,900.00	1,874.78	1,811.35	1,811.30	5.63	30.59	63.59	-1,789.57	-2,409.59	2,882.72	2,846.51	36.21	79.605	
2,000.00	1,972.16	1,908.73	1,908.67	5.93	32.54	63.99	-1,789.57	-2,409.59	2,872.46	2,834.00	38.47	74.676	
2,100.00	2,069.54	2,004.69	2,004.63	6.23	34.46	64.40	-1,788.84	-2,409.59	2,861.96	2,821.27	40.69	70.336	
2,200.00	2,166.92	2,098.16	2,098.10	6.53	36.34	64.78	-1,789.05	-2,409.59	2,852.11	2,809.24	42.86	66.538	
2,300.00	2,264.30	2,191.75	2,191.68	6.83	38.21	65.16	-1,789.51	-2,409.59	2,842.53	2,797.49	45.04	63.110	
2,400.00	2,361.68	2,298.30	2,298.19	7.13	40.43	65.61	-1,789.57	-2,409.59	2,832.87	2,785.32	47.55	59.574	
2,500.00	2,459.06	2,395.68	2,395.57	7.43	42.45	66.02	-1,789.57	-2,409.59	2,823.35	2,773.47	49.88	56.603	
2,600.00	2,556.44	2,489.38	2,489.25	7.73	44.40	66.43	-1,788.70	-2,409.59	2,813.54	2,761.41	52.13	53.971	
2,700.00	2,653.82	2,581.86	2,581.73	8.03	46.33	66.82	-1,789.11	-2,409.59	2,804.54	2,750.18	54.36	51.596	
2,800.00	2,751.19	2,687.89	2,687.71	8.33	48.60	67.27	-1,789.57	-2,409.59	2,795.68	2,738.75	56.93	49.106	
2,900.00	2,848.57	2,785.27	2,785.09	8.63	50.78	67.69	-1,789.57	-2,409.59	2,786.77	2,727.37	59.41	46.909	
3,000.00	2,945.95	2,882.36	2,882.17	8.93	52.95	68.13	-1,788.56	-2,409.59	2,777.54	2,715.67	61.88	44.888	
3,100.00	3,043.33	2,975.33	2,975.14	9.23	55.03	68.53	-1,788.74	-2,409.59	2,769.05	2,704.79	64.25	43.096	
3,200.00	3,140.71	3,068.46	3,068.26	9.53	57.11	68.94	-1,789.24	-2,409.59	2,760.86	2,694.22	66.63	41.433	
3,300.00	3,238.09	3,174.90	3,174.60	9.83	59.60	69.40	-1,789.57	-2,409.59	2,752.72	2,683.30	69.43	39.650	
3,400.00	3,335.47	3,272.27	3,271.98	10.13	61.94	69.84	-1,789.57	-2,409.59	2,744.61	2,672.54	72.07	38.082	
3,500.00	3,432.85	3,365.38	3,365.06	10.43	64.19	70.28	-1,788.37	-2,409.59	2,736.15	2,661.54	74.61	36.671	
3,600.00	3,530.23	3,456.00	3,455.67	10.73	66.37	70.67	-1,788.96	-2,409.59	2,728.66	2,651.56	77.10	35.393	
3,700.00	3,627.61	3,564.55	3,564.12	11.03	69.00	71.15	-1,789.57	-2,409.59	2,721.29	2,641.26	80.03	34.005	
3,800.00	3,724.99	3,661.29	3,660.85	11.33	71.35	71.61	-1,788.63	-2,409.59	2,713.46	2,630.78	82.68	32.818	
3,900.00	3,822.36	3,749.97	3,749.52	11.63	73.51	72.01	-1,789.03	-2,409.59	2,706.38	2,621.24	85.14	31.787	
4,000.00	3,919.74	3,856.79	3,856.26	11.93	76.08	72.49	-1,789.57	-2,409.59	2,699.48	2,611.48	88.01	30.674	
4,100.00	4,017.12	3,954.17	3,953.64	12.23	78.39	72.94	-1,789.57	-2,409.59	2,692.56	2,601.94	90.62	29.714	
4,200.00	4,114.50	4,051.18	4,050.63	12.53	80.69	73.42	-1,787.98	-2,409.59	2,685.20	2,591.99	93.22	28.806	
4,300.00	4,211.88	4,143.64	4,143.08	12.83	82.88	73.85	-1,788.24	-2,409.59	2,678.75	2,583.04	95.71	27.988	
4,400.00	4,309.26	4,236.33	4,235.75	13.13	85.08	74.27	-1,788.96	-2,409.59	2,672.64	2,574.43	98.21	27.214	
4,500.00	4,406.64	4,343.82	4,343.15	13.43	87.50	74.77	-1,789.57	-2,409.59	2,666.63	2,565.71	100.92	26.422	
4,600.00	4,504.02	4,441.20	4,440.53	13.73	89.57	75.23	-1,789.57	-2,409.59	2,660.59	2,557.30	103.30	25.757	
4,700.00	4,601.40	4,538.42	4,537.74	14.03	91.64	75.71	-1,788.24	-2,409.59	2,654.28	2,548.62	105.66	25.120	
4,800.00	4,698.78	4,632.13	4,631.44	14.33	93.63	76.16	-1,788.45	-2,409.59	2,648.69	2,540.73	107.96	24.534	
4,900.00	4,796.16	4,726.03	4,725.32	14.63	95.63	76.60	-1,789.05	-2,409.59	2,643.42	2,533.16	110.26	23.975	
5,000.00	4,893.53	4,830.79	4,830.05	14.93	97.69	77.09	-1,789.57	-2,409.59	2,638.27	2,525.66	112.62	23.427	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 310-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	4,928.17	4,927.43	15.23	99.44	77.56	-1,789.57	-2,409.59	2,633.16	2,518.49	114.67	22.964	
5,200.00	5,088.29	5,025.41	5,024.66	15.53	101.19	78.05	-1,788.79	-2,409.59	2,627.99	2,511.27	116.71	22.517	
5,300.00	5,185.67	5,120.78	5,120.02	15.83	102.90	78.51	-1,788.93	-2,409.59	2,623.29	2,504.57	118.73	22.095	
5,400.00	5,283.05	5,216.26	5,215.50	16.13	104.61	78.97	-1,789.32	-2,409.59	2,618.86	2,498.12	120.74	21.690	
5,500.00	5,380.43	5,317.71	5,316.94	16.43	106.59	79.46	-1,789.57	-2,409.59	2,614.56	2,491.55	123.01	21.255	
5,600.00	5,477.81	5,415.09	5,414.32	16.73	108.58	79.94	-1,789.57	-2,409.59	2,610.39	2,485.08	125.30	20.833	
5,700.00	5,575.19	5,512.23	5,511.47	17.03	110.56	80.42	-1,789.34	-2,409.59	2,606.34	2,478.75	127.59	20.428	
5,800.00	5,672.57	5,608.99	5,608.22	17.33	112.54	80.90	-1,789.42	-2,409.59	2,602.58	2,472.71	129.87	20.040	
5,900.00	5,769.95	5,707.29	5,706.46	17.63	114.60	81.38	-1,789.57	-2,409.59	2,599.02	2,466.80	132.22	19.656	
6,000.00	5,867.33	5,804.67	5,803.84	17.93	117.07	81.86	-1,789.57	-2,409.59	2,595.62	2,460.62	135.00	19.227	
6,100.00	5,964.70	5,902.04	5,901.22	18.23	119.55	82.35	-1,789.57	-2,409.59	2,592.41	2,454.64	137.77	18.816	
6,200.00	6,062.08	5,997.58	5,996.73	18.53	121.98	82.86	-1,788.10	-2,409.59	2,589.08	2,448.57	140.50	18.427	
6,300.00	6,159.46	6,092.24	6,091.38	18.83	124.38	83.32	-1,788.65	-2,409.59	2,586.40	2,443.19	143.21	18.060	
6,400.00	6,256.84	6,194.37	6,193.35	19.13	127.01	83.81	-1,789.57	-2,409.59	2,583.97	2,437.83	146.14	17.682	
6,500.00	6,354.22	6,291.75	6,290.73	19.43	129.67	84.30	-1,789.57	-2,409.59	2,581.55	2,432.45	149.10	17.314	
6,600.00	6,451.60	6,389.07	6,388.03	19.73	132.34	84.82	-1,787.97	-2,409.59	2,579.03	2,426.97	152.06	16.960	
6,694.27	6,543.40	6,477.94	6,476.88	20.02	134.76	85.26	-1,788.27	-2,409.59	2,577.19	2,422.41	154.77	16.651	
6,700.00	6,548.98	6,483.35	6,482.30	20.03	134.91	87.72	-1,788.31	-2,409.59	2,577.11	2,422.17	154.94	16.633	
6,704.61	6,553.46	6,487.70	6,486.64	20.05	135.03	89.68	-1,788.34	-2,409.59	2,577.09	2,422.02	155.07	16.619	CC, ES
6,750.00	6,597.52	6,530.48	6,529.41	20.18	136.20	107.18	-1,788.72	-2,409.59	2,578.90	2,422.52	156.38	16.492	
6,800.00	6,645.56	6,577.19	6,576.11	20.33	137.48	121.62	-1,789.29	-2,409.59	2,585.04	2,427.24	157.80	16.381	
6,850.00	6,692.73	6,630.49	6,629.24	20.48	138.94	131.56	-1,789.57	-2,409.59	2,595.43	2,436.01	159.42	16.281	
6,900.00	6,738.66	6,676.42	6,675.18	20.63	140.21	138.33	-1,789.57	-2,409.59	2,610.00	2,449.16	160.84	16.228	
6,950.00	6,783.02	6,720.78	6,719.53	20.78	141.43	143.05	-1,789.57	-2,409.59	2,628.69	2,466.48	162.21	16.206	SF
7,000.00	6,825.45	6,763.21	6,761.97	20.94	142.60	146.39	-1,789.57	-2,409.59	2,651.36	2,487.84	163.53	16.214	
7,050.00	6,865.65	6,803.40	6,802.16	21.09	143.71	148.76	-1,789.57	-2,409.59	2,677.85	2,513.06	164.79	16.250	
7,100.00	6,903.29	6,840.36	6,839.08	21.24	144.73	150.44	-1,787.68	-2,409.59	2,707.67	2,541.72	165.96	16.316	
7,150.00	6,938.11	6,874.23	6,872.94	21.39	145.66	151.48	-1,787.79	-2,409.59	2,741.15	2,574.12	167.04	16.410	
7,200.00	6,969.82	6,905.12	6,903.82	21.54	146.51	151.98	-1,787.96	-2,409.59	2,777.76	2,609.72	168.04	16.530	
7,250.00	6,998.19	6,932.79	6,931.49	21.69	147.28	151.94	-1,788.19	-2,409.59	2,817.19	2,648.24	168.95	16.674	
7,300.00	7,023.01	6,957.01	6,955.71	21.84	147.94	151.28	-1,788.43	-2,409.59	2,859.14	2,689.37	169.77	16.841	
7,350.00	7,044.08	6,977.60	6,976.29	21.99	148.51	149.80	-1,788.68	-2,409.59	2,903.28	2,732.79	170.49	17.029	
7,400.00	7,061.25	6,994.39	6,993.07	22.14	148.97	147.10	-1,788.90	-2,409.59	2,949.27	2,778.16	171.10	17.237	
7,450.00	7,074.38	7,007.24	7,005.92	22.29	149.33	142.23	-1,789.09	-2,409.59	2,996.73	2,825.12	171.61	17.463	
7,500.00	7,083.37	7,016.05	7,014.72	22.44	149.57	132.87	-1,789.23	-2,409.59	3,045.31	2,873.31	172.00	17.705	
7,550.00	7,088.16	7,020.74	7,019.41	22.59	149.70	112.59	-1,789.30	-2,409.59	3,094.62	2,922.34	172.28	17.963	
7,581.00	7,089.00	7,021.56	7,020.24	22.68	149.72	89.53	-1,789.32	-2,409.59	3,125.39	2,952.99	172.40	18.129	
7,600.00	7,089.02	7,021.58	7,020.25	22.74	149.72	89.53	-1,789.32	-2,409.59	3,144.28	2,971.83	172.46	18.232	
7,700.00	7,089.09	7,021.66	7,020.33	23.04	149.73	89.54	-1,789.32	-2,409.59	3,243.70	3,070.94	172.76	18.776	
7,800.00	7,089.17	7,021.74	7,020.42	23.34	149.73	89.56	-1,789.32	-2,409.59	3,343.15	3,170.09	173.06	19.318	
7,900.00	7,089.25	7,021.83	7,020.50	23.64	149.73	89.57	-1,789.32	-2,409.59	3,442.64	3,269.27	173.37	19.858	
8,000.00	7,089.33	7,021.91	7,020.58	23.94	149.73	89.58	-1,789.32	-2,409.59	3,542.15	3,368.48	173.67	20.396	
8,100.00	7,089.41	7,021.99	7,020.66	24.24	149.74	89.60	-1,789.32	-2,409.59	3,641.69	3,467.72	173.97	20.933	
8,200.00	7,089.49	7,022.07	7,020.75	24.54	149.74	89.61	-1,789.32	-2,409.59	3,741.26	3,566.98	174.27	21.468	
8,300.00	7,089.56	7,022.16	7,020.83	24.84	149.74	89.63	-1,789.33	-2,409.59	3,840.84	3,666.27	174.58	22.001	
8,400.00	7,089.64	7,022.24	7,020.91	25.14	149.74	89.64	-1,789.33	-2,409.59	3,940.45	3,765.57	174.88	22.532	
8,500.00	7,089.72	7,022.32	7,020.99	25.44	149.74	89.65	-1,789.33	-2,409.59	4,040.08	3,864.89	175.18	23.062	
8,600.00	7,089.80	7,022.41	7,021.08	25.75	149.75	89.67	-1,789.33	-2,409.59	4,139.72	3,964.24	175.49	23.590	
8,700.00	7,089.88	7,022.49	7,021.16	26.05	149.75	89.68	-1,789.33	-2,409.59	4,239.39	4,063.60	175.79	24.116	
8,800.00	7,089.96	7,022.57	7,021.24	26.35	149.75	89.69	-1,789.33	-2,409.59	4,339.06	4,162.97	176.09	24.641	
8,900.00	7,090.03	7,022.65	7,021.32	26.65	149.75	89.71	-1,789.33	-2,409.59	4,438.76	4,262.36	176.40	25.164	
9,000.00	7,090.11	7,022.74	7,021.41	26.95	149.76	89.72	-1,789.34	-2,409.59	4,538.46	4,361.76	176.70	25.685	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 310-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	7,022.82	7,021.49	27.25	149.76	89.74	-1,789.34	-2,409.59	4,638.18	4,461.18	177.00	26.204	
9,200.00	7,090.27	7,022.90	7,021.57	27.55	149.76	89.75	-1,789.34	-2,409.59	4,737.91	4,560.61	177.30	26.722	
9,300.00	7,090.35	7,022.98	7,021.66	27.85	149.76	89.76	-1,789.34	-2,409.59	4,837.65	4,660.05	177.61	27.238	
9,400.00	7,090.43	7,023.07	7,021.74	28.15	149.77	89.78	-1,789.34	-2,409.59	4,937.40	4,759.49	177.91	27.752	
9,500.00	7,090.51	7,023.15	7,021.82	28.45	149.77	89.79	-1,789.34	-2,409.59	5,037.17	4,858.95	178.21	28.265	
9,600.00	7,090.58	7,023.23	7,021.90	28.75	149.77	89.80	-1,789.34	-2,409.59	5,136.94	4,958.42	178.52	28.776	
9,700.00	7,090.66	7,023.31	7,021.99	29.05	149.77	89.82	-1,789.34	-2,409.59	5,236.72	5,057.90	178.82	29.285	
9,800.00	7,090.74	7,023.40	7,022.07	29.35	149.77	89.83	-1,789.35	-2,409.59	5,336.50	5,157.38	179.12	29.793	
9,900.00	7,090.82	7,023.48	7,022.15	29.65	149.78	89.85	-1,789.35	-2,409.59	5,436.30	5,256.88	179.42	30.299	
10,000.00	7,090.90	7,023.56	7,022.23	29.95	149.78	89.86	-1,789.35	-2,409.59	5,536.10	5,356.38	179.73	30.803	
10,100.00	7,090.98	7,023.65	7,022.32	30.25	149.78	89.87	-1,789.35	-2,409.59	5,635.91	5,455.88	180.03	31.305	
10,200.00	7,091.05	7,023.73	7,022.40	30.55	149.78	89.89	-1,789.35	-2,409.59	5,735.73	5,555.40	180.33	31.806	
10,300.00	7,091.13	7,023.81	7,022.48	30.85	149.79	89.90	-1,789.35	-2,409.59	5,835.55	5,654.92	180.64	32.306	
10,400.00	7,091.21	7,023.89	7,022.56	31.15	149.79	89.91	-1,789.35	-2,409.59	5,935.38	5,754.44	180.94	32.803	
10,500.00	7,091.29	7,023.98	7,022.65	31.45	149.79	89.93	-1,789.36	-2,409.59	6,035.22	5,853.98	181.24	33.299	
10,600.00	7,091.37	7,024.06	7,022.73	31.76	149.79	89.94	-1,789.36	-2,409.59	6,135.06	5,953.51	181.54	33.794	
10,700.00	7,091.45	7,024.14	7,022.81	32.06	149.79	89.96	-1,789.36	-2,409.59	6,234.90	6,053.06	181.85	34.287	
10,800.00	7,091.53	7,024.22	7,022.89	32.36	149.80	89.97	-1,789.36	-2,409.59	6,334.75	6,152.60	182.15	34.778	
10,900.00	7,091.60	7,024.31	7,022.98	32.66	149.80	89.98	-1,789.36	-2,409.59	6,434.61	6,252.15	182.45	35.267	
11,000.00	7,091.68	7,024.39	7,023.06	32.96	149.80	90.00	-1,789.36	-2,409.59	6,534.47	6,351.71	182.75	35.755	
11,100.00	7,091.76	7,024.47	7,023.14	33.26	149.80	90.01	-1,789.36	-2,409.59	6,634.33	6,451.27	183.06	36.242	
11,200.00	7,091.84	7,024.55	7,023.23	33.56	149.81	90.02	-1,789.37	-2,409.59	6,734.20	6,550.84	183.36	36.727	
11,300.00	7,091.92	7,024.64	7,023.31	33.86	149.81	90.04	-1,789.37	-2,409.59	6,834.07	6,650.41	183.66	37.210	
11,400.00	7,092.00	7,024.72	7,023.39	34.16	149.81	90.05	-1,789.37	-2,409.59	6,933.94	6,749.98	183.97	37.692	
11,500.00	7,092.07	7,024.80	7,023.47	34.46	149.81	90.07	-1,789.37	-2,409.59	7,033.82	6,849.55	184.27	38.172	
11,600.00	7,092.15	7,024.89	7,023.56	34.76	149.82	90.08	-1,789.37	-2,409.59	7,133.70	6,949.13	184.57	38.650	
11,700.00	7,092.23	7,024.97	7,023.64	35.06	149.82	90.09	-1,789.37	-2,409.59	7,233.59	7,048.72	184.87	39.127	
11,800.00	7,092.31	7,025.05	7,023.72	35.36	149.82	90.11	-1,789.37	-2,409.59	7,333.48	7,148.30	185.18	39.603	
11,900.00	7,092.39	7,025.13	7,023.80	35.66	149.82	90.12	-1,789.37	-2,409.59	7,433.37	7,247.89	185.48	40.077	
12,000.00	7,092.47	7,025.22	7,023.89	35.96	149.82	90.14	-1,789.38	-2,409.59	7,533.26	7,347.48	185.78	40.549	
12,100.00	7,092.55	7,025.30	7,023.97	36.26	149.83	90.15	-1,789.38	-2,409.59	7,633.16	7,447.08	186.08	41.020	
12,200.00	7,092.62	7,025.38	7,024.05	36.56	149.83	90.16	-1,789.38	-2,409.59	7,733.06	7,546.67	186.39	41.489	
12,300.00	7,092.70	7,025.47	7,024.14	36.86	149.83	90.18	-1,789.38	-2,409.59	7,832.96	7,646.27	186.69	41.957	
12,400.00	7,092.78	7,025.55	7,024.22	37.16	149.83	90.19	-1,789.38	-2,409.59	7,932.87	7,745.87	186.99	42.424	
12,500.00	7,092.86	7,025.63	7,024.30	37.46	149.84	90.20	-1,789.38	-2,409.59	8,032.77	7,845.48	187.29	42.888	
12,600.00	7,092.94	7,025.71	7,024.38	37.76	149.84	90.22	-1,789.38	-2,409.59	8,132.68	7,945.09	187.60	43.352	
12,700.00	7,093.02	7,025.80	7,024.47	38.06	149.84	90.23	-1,789.39	-2,409.59	8,232.59	8,044.69	187.90	43.814	
12,800.00	7,093.09	7,025.88	7,024.55	38.36	149.84	90.25	-1,789.39	-2,409.59	8,332.51	8,144.31	188.20	44.274	
12,900.00	7,093.17	7,025.96	7,024.63	38.66	149.85	90.26	-1,789.39	-2,409.59	8,432.42	8,243.92	188.51	44.733	
13,000.00	7,093.25	7,026.04	7,024.72	38.96	149.85	90.27	-1,789.39	-2,409.59	8,532.34	8,343.53	188.81	45.191	
13,100.00	7,093.33	7,026.13	7,024.80	39.26	149.85	90.29	-1,789.39	-2,409.59	8,632.26	8,443.15	189.11	45.647	
13,200.00	7,093.41	7,026.21	7,024.88	39.56	149.85	90.30	-1,789.39	-2,409.59	8,732.18	8,542.77	189.41	46.101	
13,300.00	7,093.49	7,026.29	7,024.96	39.86	149.85	90.31	-1,789.39	-2,409.59	8,832.11	8,642.39	189.72	46.554	
13,400.00	7,093.57	7,026.38	7,025.05	40.16	149.86	90.33	-1,789.40	-2,409.59	8,932.03	8,742.01	190.02	47.006	
13,500.00	7,093.64	7,026.46	7,025.13	40.47	149.86	90.34	-1,789.40	-2,409.59	9,031.96	8,841.64	190.32	47.456	
13,600.00	7,093.72	7,026.54	7,025.21	40.77	149.86	90.36	-1,789.40	-2,409.59	9,131.89	8,941.26	190.62	47.905	
13,700.00	7,093.80	7,026.62	7,025.29	41.07	149.86	90.37	-1,789.40	-2,409.59	9,231.82	9,040.89	190.93	48.353	
13,800.00	7,093.88	7,026.71	7,025.38	41.37	149.87	90.38	-1,789.40	-2,409.59	9,331.75	9,140.52	191.23	48.799	
13,900.00	7,093.96	7,026.79	7,025.46	41.67	149.87	90.40	-1,789.40	-2,409.59	9,431.68	9,240.15	191.53	49.244	
14,000.00	7,094.04	7,026.87	7,025.54	41.97	149.87	90.41	-1,789.40	-2,409.59	9,531.61	9,339.78	191.83	49.687	
14,100.00	7,094.11	7,026.96	7,025.63	42.27	149.87	90.42	-1,789.40	-2,409.59	9,631.55	9,439.41	192.14	50.129	
14,200.00	7,094.19	7,027.04	7,025.71	42.57	149.87	90.44	-1,789.41	-2,409.59	9,731.49	9,539.05	192.44	50.569	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 310-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	7,027.12	7,025.79	42.87	149.88	90.45	-1,789.41	-2,409.59	9,831.42	9,638.68	192.74	51.008	
14,400.00	7,094.35	7,027.20	7,025.87	43.17	149.88	90.47	-1,789.41	-2,409.59	9,931.36	9,738.32	193.04	51.446	
14,500.00	7,094.43	7,027.29	7,025.96	43.47	149.88	90.48	-1,789.41	-2,409.59	10,031.30	9,837.96	193.35	51.883	
14,600.00	7,094.51	7,027.37	7,026.04	43.77	149.88	90.49	-1,789.41	-2,409.59	10,131.25	9,937.60	193.65	52.318	
14,700.00	7,094.58	7,027.45	7,026.12	44.07	149.89	90.51	-1,789.41	-2,409.59	10,231.19	10,037.24	193.95	52.751	
14,800.00	7,094.66	7,027.54	7,026.21	44.37	149.89	90.52	-1,789.41	-2,409.59	10,331.13	10,136.88	194.25	53.184	
14,900.00	7,094.74	7,027.62	7,026.29	44.67	149.89	90.53	-1,789.42	-2,409.59	10,431.08	10,236.52	194.56	53.615	
15,000.00	7,094.82	7,027.70	7,026.37	44.97	149.89	90.55	-1,789.42	-2,409.59	10,531.02	10,336.16	194.86	54.044	
15,100.00	7,094.90	7,027.79	7,026.45	45.27	149.90	90.56	-1,789.42	-2,409.59	10,630.97	10,435.81	195.16	54.473	
15,200.00	7,094.98	7,027.87	7,026.54	45.57	149.90	90.58	-1,789.42	-2,409.59	10,730.92	10,535.45	195.46	54.900	
15,300.00	7,095.06	7,027.95	7,026.62	45.87	149.90	90.59	-1,789.42	-2,409.59	10,830.87	10,635.10	195.77	55.325	
15,400.00	7,095.13	7,028.03	7,026.70	46.17	149.90	90.60	-1,789.42	-2,409.59	10,930.82	10,734.75	196.07	55.750	
15,500.00	7,095.21	7,028.12	7,026.79	46.47	149.90	90.62	-1,789.42	-2,409.59	11,030.77	10,834.40	196.37	56.173	
15,600.00	7,095.29	7,028.20	7,026.87	46.77	149.91	90.63	-1,789.43	-2,409.59	11,130.72	10,934.05	196.67	56.595	
15,700.00	7,095.37	7,028.28	7,026.95	47.07	149.91	90.65	-1,789.43	-2,409.59	11,230.67	11,033.70	196.98	57.015	
15,800.00	7,095.45	7,028.37	7,027.04	47.37	149.91	90.66	-1,789.43	-2,409.59	11,330.63	11,133.35	197.28	57.435	
15,900.00	7,095.53	7,028.45	7,027.12	47.67	149.91	90.67	-1,789.43	-2,409.59	11,430.58	11,233.00	197.58	57.852	
16,000.00	7,095.60	7,028.53	7,027.20	47.97	149.92	90.69	-1,789.43	-2,409.59	11,530.54	11,332.65	197.88	58.269	
16,100.00	7,095.68	7,028.61	7,027.28	48.27	149.92	90.70	-1,789.43	-2,409.59	11,630.49	11,432.30	198.19	58.685	
16,200.00	7,095.76	7,028.70	7,027.37	48.57	149.92	90.71	-1,789.43	-2,409.59	11,730.45	11,531.96	198.49	59.099	
16,300.00	7,095.84	7,028.78	7,027.45	48.87	149.92	90.73	-1,789.44	-2,409.59	11,830.41	11,631.61	198.79	59.512	
16,400.00	7,095.92	7,028.86	7,027.53	49.17	149.93	90.74	-1,789.44	-2,409.59	11,930.36	11,731.27	199.09	59.923	
16,500.00	7,096.00	7,028.95	7,027.62	49.47	149.93	90.76	-1,789.44	-2,409.59	12,030.32	11,830.93	199.40	60.334	
16,600.00	7,096.08	7,029.03	7,027.70	49.77	149.93	90.77	-1,789.44	-2,409.59	12,130.28	11,930.58	199.70	60.743	
16,700.00	7,096.15	7,029.11	7,027.78	50.07	149.93	90.78	-1,789.44	-2,409.59	12,230.24	12,030.24	200.00	61.151	
16,800.00	7,096.23	7,029.20	7,027.86	50.37	149.93	90.80	-1,789.44	-2,409.59	12,330.20	12,129.90	200.30	61.557	
16,900.00	7,096.31	7,029.28	7,027.95	50.67	149.94	90.81	-1,789.44	-2,409.59	12,430.16	12,229.56	200.61	61.963	
17,000.00	7,096.39	7,029.36	7,028.03	50.97	149.94	90.82	-1,789.45	-2,409.59	12,530.13	12,329.22	200.91	62.367	
17,100.00	7,096.47	7,029.44	7,028.11	51.27	149.94	90.84	-1,789.45	-2,409.59	12,630.09	12,428.88	201.21	62.770	
17,200.00	7,096.55	7,029.53	7,028.20	51.57	149.94	90.85	-1,789.45	-2,409.59	12,730.05	12,528.54	201.51	63.172	
17,300.00	7,096.62	7,029.61	7,028.28	51.87	149.95	90.87	-1,789.45	-2,409.59	12,830.01	12,628.20	201.82	63.573	
17,400.00	7,096.70	7,029.69	7,028.36	52.17	149.95	90.88	-1,789.45	-2,409.59	12,929.98	12,727.86	202.12	63.972	
17,500.00	7,096.78	7,029.78	7,028.45	52.47	149.95	90.89	-1,789.45	-2,409.59	13,029.94	12,827.52	202.42	64.370	
17,600.00	7,096.86	7,029.86	7,028.53	52.77	149.95	90.91	-1,789.45	-2,409.59	13,129.91	12,927.19	202.72	64.768	
17,700.00	7,096.94	7,029.94	7,028.61	53.07	149.95	90.92	-1,789.45	-2,409.59	13,229.88	13,026.85	203.03	65.163	
17,800.00	7,097.02	7,030.03	7,028.69	53.37	149.96	90.94	-1,789.46	-2,409.59	13,329.84	13,126.51	203.33	65.558	
17,900.00	7,097.10	7,030.11	7,028.78	53.67	149.96	90.95	-1,789.46	-2,409.59	13,429.81	13,226.18	203.63	65.952	
18,000.00	7,097.17	7,030.19	7,028.86	53.97	149.96	90.96	-1,789.46	-2,409.59	13,529.78	13,325.84	203.93	66.344	
18,100.00	7,097.25	7,030.28	7,028.94	54.27	149.96	90.98	-1,789.46	-2,409.59	13,629.74	13,425.51	204.24	66.735	
18,200.00	7,097.33	7,030.36	7,029.03	54.57	149.97	90.99	-1,789.46	-2,409.59	13,729.71	13,525.17	204.54	67.125	
18,300.00	7,097.41	7,030.44	7,029.11	54.87	149.97	91.00	-1,789.46	-2,409.59	13,829.68	13,624.84	204.84	67.514	
18,400.00	7,097.49	7,030.52	7,029.19	55.17	149.97	91.02	-1,789.46	-2,409.59	13,929.65	13,724.51	205.14	67.902	
18,500.00	7,097.57	7,030.61	7,029.28	55.47	149.97	91.03	-1,789.47	-2,409.59	14,029.62	13,824.17	205.45	68.289	
18,600.00	7,097.64	7,030.69	7,029.36	55.78	149.98	91.05	-1,789.47	-2,409.59	14,129.59	13,923.84	205.75	68.674	
18,700.00	7,097.72	7,030.77	7,029.44	56.08	149.98	91.06	-1,789.47	-2,409.59	14,229.56	14,023.51	206.05	69.059	
18,800.00	7,097.80	7,030.86	7,029.53	56.38	149.98	91.07	-1,789.47	-2,409.59	14,329.53	14,123.18	206.35	69.442	
18,900.00	7,097.88	7,030.94	7,029.61	56.68	149.98	91.09	-1,789.47	-2,409.59	14,429.50	14,222.85	206.66	69.824	
19,000.00	7,097.96	7,031.02	7,029.69	56.98	149.98	91.10	-1,789.47	-2,409.59	14,529.47	14,322.52	206.96	70.205	
19,100.00	7,098.04	7,031.11	7,029.77	57.28	149.99	91.11	-1,789.47	-2,409.59	14,629.45	14,422.19	207.26	70.585	
19,200.00	7,098.12	7,031.19	7,029.86	57.58	149.99	91.13	-1,789.48	-2,409.59	14,729.42	14,521.86	207.56	70.964	
19,300.00	7,098.19	7,031.27	7,029.94	57.88	149.99	91.14	-1,789.48	-2,409.59	14,829.39	14,621.53	207.87	71.341	
19,400.00	7,098.27	7,031.36	7,030.02	58.18	149.99	91.16	-1,789.48	-2,409.59	14,929.37	14,721.20	208.17	71.718	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 310-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	7,031.44	7,030.11	58.48	150.00	91.17	-1,789.48	-2,409.59	15,029.34	14,820.87	208.47	72.094	
19,600.00	7,098.43	7,031.52	7,030.19	58.78	150.00	91.18	-1,789.48	-2,409.59	15,129.31	14,920.54	208.77	72.468	
19,700.00	7,098.51	7,031.60	7,030.27	59.08	150.00	91.20	-1,789.48	-2,409.59	15,229.29	15,020.21	209.07	72.841	
19,800.00	7,098.59	7,031.69	7,030.36	59.38	150.00	91.21	-1,789.48	-2,409.59	15,329.26	15,119.88	209.38	73.214	
19,900.00	7,098.66	7,031.77	7,030.44	59.68	150.01	91.23	-1,789.49	-2,409.59	15,429.24	15,219.56	209.68	73.585	
20,000.00	7,098.74	7,031.85	7,030.52	59.98	150.01	91.24	-1,789.49	-2,409.59	15,529.21	15,319.23	209.98	73.955	
20,100.00	7,098.82	7,031.94	7,030.61	60.28	150.01	91.25	-1,789.49	-2,409.59	15,629.19	15,418.90	210.28	74.324	
20,200.00	7,098.90	7,032.02	7,030.69	60.58	150.01	91.27	-1,789.49	-2,409.59	15,729.16	15,518.58	210.59	74.692	
20,300.00	7,098.98	7,032.10	7,030.77	60.88	150.01	91.28	-1,789.49	-2,409.59	15,829.14	15,618.25	210.89	75.059	
20,328.16	7,099.00	7,032.13	7,030.80	60.96	150.02	91.28	-1,789.49	-2,409.59	15,857.29	15,646.32	210.97	75.162	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-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	12.51	12.51	0.00	0.11	-92.51	-46.69	-1,065.73	1,066.75				
100.00	100.00	112.51	112.51	0.23	1.11	-92.51	-46.69	-1,065.73	1,066.75	1,065.41	1.33	799.632	
173.23	173.23	185.74	185.74	0.45	2.40	-92.50	-46.60	-1,065.73	1,066.74	1,063.89	2.85	374.145	CC
200.00	200.00	212.48	212.48	0.53	2.88	-92.50	-46.61	-1,065.73	1,066.74	1,063.34	3.41	313.279	
300.00	300.00	312.52	312.51	0.83	4.74	-92.51	-46.69	-1,065.73	1,066.75	1,061.18	5.57	191.517	
329.99	329.99	342.51	342.51	0.92	5.33	-92.50	-46.60	-1,065.73	1,066.74	1,060.49	6.25	170.685	
400.00	400.00	412.42	412.42	1.13	6.71	-92.51	-46.67	-1,065.73	1,066.75	1,058.91	7.83	136.159	
500.00	500.00	512.54	512.51	1.43	9.09	-92.51	-46.69	-1,065.73	1,066.75	1,056.23	10.52	101.439	
500.00	500.00	512.54	512.52	1.43	9.09	-92.51	-46.69	-1,065.73	1,066.75	1,056.23	10.52	101.438	
600.00	599.98	612.50	612.47	1.73	11.50	93.08	-45.45	-1,065.73	1,066.79	1,053.56	13.23	80.646	
700.00	699.84	712.14	712.09	2.03	13.91	93.33	-45.83	-1,065.73	1,067.09	1,051.16	15.93	66.979	
800.00	799.45	812.12	811.97	2.33	16.26	93.74	-46.69	-1,065.73	1,067.66	1,049.07	18.59	57.438	
900.00	898.70	911.37	911.21	2.63	18.29	94.37	-46.69	-1,065.73	1,068.53	1,047.62	20.91	51.091	
1,000.00	997.47	1,010.14	1,009.97	2.93	20.30	95.22	-45.64	-1,065.73	1,069.85	1,046.61	23.23	46.052	
1,100.00	1,095.62	1,169.66	1,108.14	3.23	23.44	96.13	-46.69	-1,065.73	1,071.76	1,045.09	26.67	40.186	ES
1,157.34	1,151.58	1,164.79	1,164.59	3.40	23.46	96.73	-47.05	-1,065.73	1,073.19	1,046.33	26.86	39.954	
1,200.00	1,193.13	1,205.84	1,205.64	3.53	24.04	97.25	-46.69	-1,065.73	1,074.41	1,046.84	27.57	38.971	
1,300.00	1,290.51	1,303.22	1,303.02	3.83	25.66	98.42	-46.69	-1,065.73	1,077.59	1,048.11	29.48	36.549	
1,400.00	1,387.89	1,400.62	1,400.42	4.13	27.27	99.59	-46.43	-1,065.73	1,081.26	1,049.86	31.40	34.438	
1,500.00	1,485.27	1,498.10	1,497.90	4.43	28.89	100.74	-46.50	-1,065.73	1,085.37	1,052.06	33.31	32.581	
1,600.00	1,582.65	1,624.64	1,595.16	4.73	31.00	101.88	-46.69	-1,065.73	1,089.93	1,054.20	35.73	30.508	
1,700.00	1,680.02	1,692.74	1,692.54	5.03	32.20	103.01	-46.69	-1,065.73	1,094.96	1,057.73	37.23	29.411	
1,800.00	1,777.40	1,790.12	1,789.92	5.33	33.93	104.14	-46.69	-1,065.73	1,100.43	1,061.18	39.25	28.035	
1,900.00	1,874.78	1,887.55	1,887.34	5.63	35.65	105.27	-46.42	-1,065.73	1,106.40	1,065.12	41.27	26.806	
2,000.00	1,972.16	1,985.12	1,984.92	5.93	37.37	106.37	-46.48	-1,065.73	1,112.74	1,069.44	43.30	25.698	
2,100.00	2,069.54	2,135.73	2,082.05	6.23	40.09	107.45	-46.69	-1,065.73	1,119.47	1,073.16	46.32	24.170	
2,200.00	2,166.92	2,179.65	2,179.43	6.53	40.95	108.52	-46.69	-1,065.73	1,126.67	1,079.18	47.48	23.729	
2,300.00	2,264.30	2,277.03	2,276.81	6.83	42.87	109.59	-46.69	-1,065.73	1,134.27	1,084.57	49.70	22.824	
2,400.00	2,361.68	2,374.51	2,374.29	7.13	44.79	110.67	-46.15	-1,065.73	1,142.42	1,090.51	51.92	22.005	
2,500.00	2,459.06	2,472.48	2,472.26	7.43	46.72	111.70	-46.27	-1,065.73	1,150.80	1,096.65	54.14	21.254	
2,600.00	2,556.44	2,634.79	2,568.95	7.73	49.98	112.70	-46.69	-1,065.73	1,159.46	1,101.76	57.71	20.093	
2,700.00	2,653.82	2,666.59	2,666.33	8.03	50.67	113.70	-46.69	-1,065.73	1,168.62	1,109.93	58.70	19.910	
2,800.00	2,751.19	2,763.97	2,763.71	8.33	52.79	114.69	-46.69	-1,065.73	1,178.15	1,117.04	61.11	19.278	
2,900.00	2,848.57	2,861.82	2,861.55	8.63	54.91	115.72	-45.70	-1,065.73	1,188.40	1,124.86	63.54	18.703	
3,000.00	2,945.95	2,960.92	2,960.64	8.93	57.06	116.68	-45.99	-1,065.73	1,198.54	1,132.55	65.99	18.162	
3,100.00	3,043.33	3,069.81	3,055.84	9.23	59.42	117.57	-46.69	-1,065.73	1,208.86	1,140.22	68.64	17.610	
3,200.00	3,140.71	3,153.57	3,153.22	9.53	61.07	118.50	-46.69	-1,065.73	1,219.78	1,149.18	70.59	17.279	
3,300.00	3,238.09	3,250.95	3,250.60	9.83	62.99	119.41	-46.69	-1,065.73	1,231.01	1,158.20	72.81	16.907	
3,400.00	3,335.47	3,349.20	3,348.84	10.13	64.92	120.37	-45.36	-1,065.73	1,243.14	1,168.09	75.05	16.564	
3,500.00	3,432.85	3,449.09	3,448.72	10.43	66.89	121.26	-45.73	-1,065.73	1,254.85	1,177.54	77.32	16.230	
3,600.00	3,530.23	3,580.86	3,542.74	10.73	69.50	122.05	-46.69	-1,065.73	1,266.58	1,186.35	80.23	15.788	
3,700.00	3,627.61	3,640.52	3,640.12	11.03	70.71	122.90	-46.69	-1,065.73	1,279.02	1,197.28	81.74	15.647	
3,800.00	3,724.99	3,737.90	3,737.50	11.33	72.70	123.73	-46.69	-1,065.73	1,291.75	1,207.72	84.03	15.372	
3,900.00	3,822.36	3,835.55	3,835.16	11.63	74.70	124.56	-46.45	-1,065.73	1,304.86	1,218.54	86.32	15.116	
4,000.00	3,919.74	3,933.57	3,933.18	11.93	76.70	125.36	-46.53	-1,065.73	1,318.08	1,229.46	88.62	14.873	
4,100.00	4,017.12	4,031.64	4,031.24	12.23	78.70	126.14	-46.71	-1,065.73	1,331.51	1,240.58	90.93	14.644	
4,200.00	4,114.50	4,127.47	4,127.01	12.53	80.89	126.90	-46.69	-1,065.73	1,345.29	1,251.87	93.42	14.400	
4,300.00	4,211.88	4,224.85	4,224.39	12.83	83.10	127.66	-46.69	-1,065.73	1,359.30	1,263.37	95.93	14.170	
4,400.00	4,309.26	4,325.06	4,324.58	13.13	85.36	128.47	-45.25	-1,065.73	1,374.34	1,275.85	98.49	13.954	
4,500.00	4,406.64	4,574.27	4,419.15	13.43	91.09	129.12	-46.69	-1,065.73	1,388.01	1,283.49	104.51	13.281	
4,600.00	4,504.02	4,529.14	4,528.62	13.73	89.98	129.90	-47.14	-1,065.73	1,402.49	1,298.78	103.71	13.523	
4,700.00	4,601.40	4,614.48	4,613.91	14.03	92.04	130.52	-46.69	-1,065.73	1,417.59	1,311.53	106.07	13.365	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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	4,698.78	4,711.86	4,711.29	14.33	94.34	131.21	-46.69	-1,065.73	1,432.70	1,324.03	108.67	13.184	
4,900.00	4,796.16	4,809.24	4,808.67	14.63	96.65	131.87	-46.69	-1,065.73	1,448.01	1,336.73	111.28	13.013	
5,000.00	4,893.53	4,906.62	4,906.05	14.93	98.95	132.53	-46.69	-1,065.73	1,463.51	1,349.62	113.88	12.851	
5,100.00	4,990.91	5,004.00	5,003.43	15.23	101.26	133.17	-46.69	-1,065.73	1,479.19	1,362.70	116.49	12.698	
5,200.00	5,088.29	5,101.38	5,100.81	15.53	103.57	133.79	-46.69	-1,065.73	1,495.06	1,375.97	119.10	12.554	
5,300.00	5,185.67	5,198.76	5,198.18	15.83	105.87	134.41	-46.69	-1,065.73	1,511.11	1,389.41	121.70	12.417	
5,400.00	5,283.05	5,296.14	5,295.56	16.13	108.18	135.01	-46.69	-1,065.73	1,527.32	1,403.01	124.31	12.287	
5,500.00	5,380.43	5,394.08	5,393.48	16.43	110.50	135.70	-43.02	-1,065.73	1,546.10	1,419.18	126.93	12.181	
5,600.00	5,477.81	5,492.55	5,491.93	16.73	112.83	136.28	-43.12	-1,065.73	1,562.60	1,433.04	129.56	12.061	
5,700.00	5,575.19	5,591.06	5,590.44	17.03	115.16	136.85	-43.33	-1,065.73	1,579.19	1,447.00	132.19	11.946	
5,800.00	5,672.57	5,689.62	5,689.00	17.33	117.49	137.40	-43.63	-1,065.73	1,595.85	1,461.02	134.82	11.837	
5,900.00	5,769.95	5,788.23	5,787.60	17.63	119.83	137.93	-44.04	-1,065.73	1,612.58	1,475.12	137.46	11.731	
6,000.00	5,867.33	5,886.89	5,886.25	17.93	122.16	138.46	-44.55	-1,065.73	1,629.38	1,489.29	140.09	11.631	
6,100.00	5,964.70	5,985.59	5,984.95	18.23	124.50	138.97	-45.15	-1,065.73	1,646.24	1,503.51	142.73	11.534	
6,200.00	6,062.08	6,084.35	6,083.70	18.53	126.84	139.47	-45.86	-1,065.73	1,663.16	1,517.79	145.37	11.441	
6,300.00	6,159.46	6,196.95	6,171.98	18.83	129.51	139.90	-46.69	-1,065.73	1,680.08	1,531.74	148.34	11.326	
6,400.00	6,256.84	6,274.27	6,273.19	19.13	131.35	140.42	-46.15	-1,065.73	1,698.12	1,547.63	150.48	11.285	
6,500.00	6,354.22	6,367.85	6,366.73	19.43	133.61	140.87	-46.69	-1,065.73	1,715.49	1,562.45	153.04	11.209	
6,600.00	6,451.60	6,465.29	6,464.11	19.73	136.27	141.34	-46.69	-1,065.73	1,733.38	1,577.38	156.00	11.111	
6,694.27	6,543.40	6,557.17	6,555.91	20.02	139.50	141.77	-46.69	-1,065.73	1,750.34	1,590.83	159.51	10.973	
6,700.00	6,548.98	6,562.75	6,561.49	20.03	139.70	144.30	-46.69	-1,065.73	1,751.39	1,591.67	159.73	10.965	
6,750.00	6,597.52	6,643.41	6,642.10	20.18	142.63	164.61	-46.60	-1,065.73	1,762.59	1,599.80	162.79	10.827	
6,800.00	6,645.56	6,659.52	6,658.08	20.33	143.21	179.94	-46.69	-1,065.73	1,775.94	1,612.40	163.54	10.859	
6,850.00	6,692.73	6,706.68	6,705.24	20.48	144.90	-168.99	-46.69	-1,065.73	1,792.41	1,627.02	165.39	10.838	
6,900.00	6,738.66	6,777.93	6,776.43	20.63	147.46	-160.93	-46.07	-1,065.73	1,812.14	1,644.06	168.08	10.782	SF
6,950.00	6,783.02	6,810.81	6,795.53	20.78	148.62	-154.45	-46.69	-1,065.73	1,833.15	1,663.74	169.40	10.821	
7,000.00	6,825.45	6,839.62	6,837.97	20.94	149.58	-149.16	-46.69	-1,065.73	1,857.17	1,686.65	170.52	10.891	
7,050.00	6,865.65	6,879.82	6,878.16	21.09	150.93	-144.49	-46.69	-1,065.73	1,883.46	1,711.45	172.01	10.950	
7,100.00	6,903.29	6,927.31	6,925.61	21.24	152.51	-140.28	-45.65	-1,065.73	1,912.65	1,738.90	173.75	11.008	
7,150.00	6,938.11	6,980.87	6,979.15	21.39	154.30	-136.45	-46.40	-1,065.73	1,942.69	1,767.02	175.67	11.059	
7,200.00	6,969.82	7,029.99	7,028.23	21.54	155.94	-132.68	-47.72	-1,065.73	1,974.30	1,796.86	177.44	11.127	
7,250.00	6,998.19	7,012.56	7,010.70	21.69	155.33	-127.14	-46.69	-1,065.73	2,008.35	1,831.33	177.02	11.345	
7,300.00	7,023.01	7,037.38	7,035.52	21.84	156.12	-122.40	-46.69	-1,065.73	2,043.66	1,865.70	177.96	11.484	
7,350.00	7,044.08	7,058.45	7,056.59	21.99	156.79	-117.33	-46.69	-1,065.73	2,080.22	1,901.45	178.78	11.636	
7,400.00	7,061.25	7,075.62	7,073.76	22.14	157.33	-111.89	-46.69	-1,065.73	2,117.81	1,938.34	179.47	11.800	
7,450.00	7,074.38	7,088.75	7,086.89	22.29	157.75	-106.11	-46.69	-1,065.73	2,156.19	1,976.15	180.04	11.976	
7,500.00	7,083.37	7,097.74	7,095.88	22.44	158.04	-100.06	-46.69	-1,065.73	2,195.10	2,014.62	180.48	12.163	
7,550.00	7,088.16	7,102.53	7,100.67	22.59	158.19	-93.88	-46.69	-1,065.73	2,234.28	2,053.51	180.78	12.359	
7,581.00	7,089.00	7,103.37	7,101.51	22.68	158.21	-90.06	-46.69	-1,065.73	2,258.59	2,077.69	180.90	12.485	
7,600.00	7,089.02	7,103.39	7,101.53	22.74	158.22	-90.06	-46.69	-1,065.73	2,273.51	2,092.55	180.95	12.564	
7,700.00	7,089.09	7,103.46	7,101.61	23.04	158.22	-90.06	-46.69	-1,065.73	2,352.98	2,171.72	181.26	12.981	
7,800.00	7,089.17	7,103.54	7,101.69	23.34	158.22	-90.06	-46.69	-1,065.73	2,433.96	2,252.40	181.56	13.406	
7,900.00	7,089.25	7,103.62	7,101.76	23.64	158.22	-90.07	-46.69	-1,065.73	2,516.31	2,334.45	181.86	13.836	
8,000.00	7,089.33	7,103.70	7,101.84	23.94	158.23	-90.07	-46.69	-1,065.73	2,599.90	2,417.74	182.17	14.272	
8,100.00	7,089.41	7,103.78	7,101.92	24.24	158.23	-90.07	-46.69	-1,065.73	2,684.62	2,502.15	182.47	14.713	
8,200.00	7,089.49	7,103.86	7,102.00	24.54	158.23	-90.08	-46.69	-1,065.73	2,770.35	2,587.57	182.77	15.157	
8,300.00	7,089.56	7,103.93	7,102.08	24.84	158.23	-90.08	-46.69	-1,065.73	2,857.01	2,673.93	183.08	15.606	
8,400.00	7,089.64	7,104.01	7,102.16	25.14	158.24	-90.08	-46.69	-1,065.73	2,944.51	2,761.13	183.38	16.057	
8,500.00	7,089.72	7,104.09	7,102.23	25.44	158.24	-90.09	-46.69	-1,065.73	3,032.79	2,849.11	183.68	16.511	
8,600.00	7,089.80	7,104.17	7,102.31	25.75	158.24	-90.09	-46.69	-1,065.73	3,121.78	2,937.79	183.99	16.968	
8,700.00	7,089.88	7,104.25	7,102.39	26.05	158.24	-90.09	-46.69	-1,065.73	3,211.41	3,027.12	184.29	17.426	
8,800.00	7,089.96	7,104.33	7,102.47	26.35	158.25	-90.10	-46.69	-1,065.73	3,301.64	3,117.05	184.59	17.886	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-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	7,090.03	7,104.40	7,102.55	26.65	158.25	-90.10	-46.69	-1,065.73	3,392.41	3,207.52	184.89	18.348	
9,000.00	7,090.11	7,104.48	7,102.63	26.95	158.25	-90.10	-46.69	-1,065.73	3,483.70	3,298.50	185.20	18.811	
9,100.00	7,090.19	7,104.56	7,102.70	27.25	158.25	-90.11	-46.69	-1,065.73	3,575.45	3,389.94	185.50	19.275	
9,200.00	7,090.27	7,104.64	7,102.78	27.55	158.26	-90.11	-46.69	-1,065.73	3,667.62	3,481.82	185.80	19.739	
9,300.00	7,090.35	7,104.72	7,102.86	27.85	158.26	-90.11	-46.69	-1,065.73	3,760.20	3,574.10	186.11	20.205	
9,400.00	7,090.43	7,104.80	7,102.94	28.15	158.26	-90.11	-46.69	-1,065.73	3,853.15	3,666.75	186.41	20.670	
9,500.00	7,090.51	7,104.88	7,103.02	28.45	158.26	-90.12	-46.69	-1,065.73	3,946.45	3,759.74	186.71	21.137	
9,600.00	7,090.58	7,104.95	7,103.10	28.75	158.27	-90.12	-46.69	-1,065.73	4,040.07	3,853.05	187.02	21.603	
9,700.00	7,090.66	7,105.03	7,103.18	29.05	158.27	-90.12	-46.69	-1,065.73	4,133.98	3,946.66	187.32	22.069	
9,800.00	7,090.74	7,105.11	7,103.25	29.35	158.27	-90.13	-46.69	-1,065.73	4,228.17	4,040.55	187.62	22.536	
9,900.00	7,090.82	7,105.19	7,103.33	29.65	158.27	-90.13	-46.69	-1,065.73	4,322.63	4,134.71	187.92	23.002	
10,000.00	7,090.90	7,105.27	7,103.41	29.95	158.28	-90.13	-46.69	-1,065.73	4,417.33	4,229.10	188.23	23.468	
10,100.00	7,090.98	7,105.35	7,103.49	30.25	158.28	-90.14	-46.69	-1,065.73	4,512.26	4,323.73	188.53	23.934	
10,200.00	7,091.05	7,105.42	7,103.57	30.55	158.28	-90.14	-46.69	-1,065.73	4,607.40	4,418.57	188.83	24.399	
10,300.00	7,091.13	7,105.50	7,103.65	30.85	158.28	-90.14	-46.69	-1,065.73	4,702.74	4,513.61	189.14	24.864	
10,400.00	7,091.21	7,105.58	7,103.72	31.15	158.29	-90.15	-46.69	-1,065.73	4,798.28	4,608.84	189.44	25.329	
10,500.00	7,091.29	7,105.66	7,103.80	31.45	158.29	-90.15	-46.69	-1,065.73	4,893.99	4,704.25	189.74	25.793	
10,600.00	7,091.37	7,105.74	7,103.88	31.76	158.29	-90.15	-46.69	-1,065.73	4,989.87	4,799.82	190.04	26.256	
10,700.00	7,091.45	7,105.82	7,103.96	32.06	158.29	-90.16	-46.69	-1,065.73	5,085.91	4,895.56	190.35	26.719	
10,800.00	7,091.53	7,105.90	7,104.04	32.36	158.30	-90.16	-46.69	-1,065.73	5,182.09	4,991.44	190.65	27.181	
10,900.00	7,091.60	7,105.97	7,104.12	32.66	158.30	-90.16	-46.69	-1,065.73	5,278.43	5,087.47	190.95	27.642	
11,000.00	7,091.68	7,106.05	7,104.20	32.96	158.30	-90.17	-46.69	-1,065.73	5,374.89	5,183.63	191.26	28.103	
11,100.00	7,091.76	7,106.13	7,104.27	33.26	158.30	-90.17	-46.69	-1,065.73	5,471.48	5,279.92	191.56	28.563	
11,200.00	7,091.84	7,106.21	7,104.35	33.56	158.31	-90.17	-46.69	-1,065.73	5,568.19	5,376.33	191.86	29.022	
11,300.00	7,091.92	7,106.29	7,104.43	33.86	158.31	-90.18	-46.69	-1,065.73	5,665.02	5,472.85	192.16	29.480	
11,400.00	7,092.00	7,106.37	7,104.51	34.16	158.31	-90.18	-46.69	-1,065.73	5,761.95	5,569.48	192.47	29.937	
11,500.00	7,092.07	7,106.44	7,104.59	34.46	158.31	-90.18	-46.69	-1,065.73	5,858.99	5,666.22	192.77	30.394	
11,600.00	7,092.15	7,106.52	7,104.67	34.76	158.32	-90.19	-46.69	-1,065.73	5,956.12	5,763.05	193.07	30.849	
11,700.00	7,092.23	7,106.60	7,104.74	35.06	158.32	-90.19	-46.69	-1,065.73	6,053.35	5,859.98	193.38	31.303	
11,800.00	7,092.31	7,106.68	7,104.82	35.36	158.32	-90.19	-46.69	-1,065.73	6,150.67	5,956.99	193.68	31.757	
11,900.00	7,092.39	7,106.76	7,104.90	35.66	158.32	-90.19	-46.69	-1,065.73	6,248.07	6,054.09	193.98	32.210	
12,000.00	7,092.47	7,106.84	7,104.98	35.96	158.33	-90.20	-46.69	-1,065.73	6,345.56	6,151.27	194.28	32.661	
12,100.00	7,092.55	7,106.92	7,105.06	36.26	158.33	-90.20	-46.69	-1,065.73	6,443.12	6,248.53	194.59	33.112	
12,200.00	7,092.62	7,106.99	7,105.14	36.56	158.33	-90.20	-46.69	-1,065.73	6,540.75	6,345.86	194.89	33.561	
12,300.00	7,092.70	7,107.07	7,105.22	36.86	158.33	-90.21	-46.69	-1,065.73	6,638.45	6,443.26	195.19	34.010	
12,400.00	7,092.78	7,107.15	7,105.29	37.16	158.33	-90.21	-46.69	-1,065.73	6,736.23	6,540.73	195.50	34.457	
12,500.00	7,092.86	7,107.23	7,105.37	37.46	158.34	-90.21	-46.69	-1,065.73	6,834.06	6,638.26	195.80	34.903	
12,600.00	7,092.94	7,107.31	7,105.45	37.76	158.34	-90.22	-46.69	-1,065.73	6,931.96	6,735.86	196.10	35.349	
12,700.00	7,093.02	7,107.39	7,105.53	38.06	158.34	-90.22	-46.69	-1,065.73	7,029.92	6,833.51	196.40	35.793	
12,800.00	7,093.09	7,107.46	7,105.61	38.36	158.34	-90.22	-46.69	-1,065.73	7,127.93	6,931.22	196.71	36.236	
12,900.00	7,093.17	7,107.54	7,105.69	38.66	158.35	-90.23	-46.69	-1,065.73	7,226.00	7,028.99	197.01	36.678	
13,000.00	7,093.25	7,107.62	7,105.76	38.96	158.35	-90.23	-46.69	-1,065.73	7,324.12	7,126.81	197.31	37.119	
13,100.00	7,093.33	7,107.70	7,105.84	39.26	158.35	-90.23	-46.69	-1,065.73	7,422.29	7,224.67	197.62	37.559	
13,200.00	7,093.41	7,107.78	7,105.92	39.56	158.35	-90.24	-46.69	-1,065.73	7,520.51	7,322.59	197.92	37.998	
13,300.00	7,093.49	7,107.86	7,106.00	39.86	158.36	-90.24	-46.69	-1,065.73	7,618.77	7,420.55	198.22	38.436	
13,400.00	7,093.57	7,107.94	7,106.08	40.16	158.36	-90.24	-46.69	-1,065.73	7,717.08	7,518.56	198.52	38.872	
13,500.00	7,093.64	7,108.01	7,106.16	40.47	158.36	-90.25	-46.69	-1,065.73	7,815.44	7,616.61	198.83	39.308	
13,600.00	7,093.72	7,108.09	7,106.24	40.77	158.36	-90.25	-46.69	-1,065.73	7,913.83	7,714.70	199.13	39.742	
13,700.00	7,093.80	7,108.17	7,106.31	41.07	158.37	-90.25	-46.69	-1,065.73	8,012.26	7,812.83	199.43	40.175	
13,800.00	7,093.88	7,108.25	7,106.39	41.37	158.37	-90.26	-46.69	-1,065.73	8,110.74	7,911.00	199.73	40.608	
13,900.00	7,093.96	7,108.33	7,106.47	41.67	158.37	-90.26	-46.69	-1,065.73	8,209.25	8,009.21	200.04	41.038	
14,000.00	7,094.04	7,108.41	7,106.55	41.97	158.37	-90.26	-46.69	-1,065.73	8,307.79	8,107.45	200.34	41.468	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,094.11	7,108.48	7,106.63	42.27	158.38	-90.27	-46.69	-1,065.73	8,406.37	8,205.73	200.64	41.897	
14,200.00	7,094.19	7,108.56	7,106.71	42.57	158.38	-90.27	-46.69	-1,065.73	8,504.98	8,304.03	200.95	42.325	
14,300.00	7,094.27	7,108.64	7,106.78	42.87	158.38	-90.27	-46.69	-1,065.73	8,603.62	8,402.38	201.25	42.751	
14,400.00	7,094.35	7,108.72	7,106.86	43.17	158.38	-90.27	-46.69	-1,065.73	8,702.30	8,500.75	201.55	43.177	
14,500.00	7,094.43	7,108.80	7,106.94	43.47	158.39	-90.28	-46.69	-1,065.73	8,801.01	8,599.15	201.85	43.601	
14,600.00	7,094.51	7,108.88	7,107.02	43.77	158.39	-90.28	-46.69	-1,065.73	8,899.74	8,697.58	202.16	44.024	
14,700.00	7,094.58	7,108.96	7,107.10	44.07	158.39	-90.28	-46.69	-1,065.73	8,998.50	8,796.04	202.46	44.446	
14,800.00	7,094.66	7,109.03	7,107.18	44.37	158.39	-90.29	-46.69	-1,065.73	9,097.29	8,894.53	202.76	44.867	
14,900.00	7,094.74	7,109.11	7,107.25	44.67	158.40	-90.29	-46.69	-1,065.73	9,196.11	8,993.04	203.06	45.287	
15,000.00	7,094.82	7,109.19	7,107.33	44.97	158.40	-90.29	-46.69	-1,065.73	9,294.95	9,091.58	203.37	45.705	
15,100.00	7,094.90	7,109.27	7,107.41	45.27	158.40	-90.30	-46.69	-1,065.73	9,393.81	9,190.14	203.67	46.123	
15,200.00	7,094.98	7,109.35	7,107.49	45.57	158.40	-90.30	-46.69	-1,065.73	9,492.70	9,288.73	203.97	46.539	
15,300.00	7,095.06	7,109.43	7,107.57	45.87	158.41	-90.30	-46.69	-1,065.73	9,591.61	9,387.34	204.28	46.954	
15,400.00	7,095.13	7,109.50	7,107.65	46.17	158.41	-90.31	-46.69	-1,065.73	9,690.55	9,485.97	204.58	47.368	
15,500.00	7,095.21	7,109.58	7,107.73	46.47	158.41	-90.31	-46.69	-1,065.73	9,789.50	9,584.62	204.88	47.781	
15,600.00	7,095.29	7,109.66	7,107.80	46.77	158.41	-90.31	-46.69	-1,065.73	9,888.48	9,683.29	205.18	48.193	
15,700.00	7,095.37	7,109.74	7,107.88	47.07	158.42	-90.32	-46.69	-1,065.73	9,987.48	9,781.99	205.49	48.604	
15,800.00	7,095.45	7,109.82	7,107.96	47.37	158.42	-90.32	-46.69	-1,065.73	10,086.49	9,880.70	205.79	49.014	
15,900.00	7,095.53	7,109.90	7,108.04	47.67	158.42	-90.32	-46.69	-1,065.73	10,185.53	9,979.44	206.09	49.422	
16,000.00	7,095.60	7,109.97	7,108.12	47.97	158.42	-90.33	-46.69	-1,065.73	10,284.58	10,078.19	206.39	49.830	
16,100.00	7,095.68	7,110.05	7,108.20	48.27	158.43	-90.33	-46.69	-1,065.73	10,383.66	10,176.96	206.70	50.236	
16,200.00	7,095.76	7,110.13	7,108.27	48.57	158.43	-90.33	-46.69	-1,065.73	10,482.75	10,275.75	207.00	50.641	
16,300.00	7,095.84	7,110.21	7,108.35	48.87	158.43	-90.34	-46.69	-1,065.73	10,581.85	10,374.55	207.30	51.045	
16,400.00	7,095.92	7,110.29	7,108.43	49.17	158.43	-90.34	-46.69	-1,065.73	10,680.98	10,473.37	207.61	51.448	
16,500.00	7,096.00	7,110.37	7,108.51	49.47	158.44	-90.34	-46.69	-1,065.73	10,780.12	10,572.21	207.91	51.850	
16,600.00	7,096.08	7,110.45	7,108.59	49.77	158.44	-90.35	-46.69	-1,065.73	10,879.28	10,671.06	208.21	52.251	
16,700.00	7,096.15	7,110.52	7,108.67	50.07	158.44	-90.35	-46.69	-1,065.73	10,978.45	10,769.93	208.51	52.651	
16,800.00	7,096.23	7,110.60	7,108.75	50.37	158.44	-90.35	-46.69	-1,065.73	11,077.63	10,868.82	208.82	53.050	
16,900.00	7,096.31	7,110.68	7,108.82	50.67	158.45	-90.36	-46.69	-1,065.73	11,176.83	10,967.72	209.12	53.447	
17,000.00	7,096.39	7,110.76	7,108.90	50.97	158.45	-90.36	-46.69	-1,065.73	11,276.05	11,066.63	209.42	53.844	
17,100.00	7,096.47	7,110.84	7,108.98	51.27	158.45	-90.36	-46.69	-1,065.73	11,375.28	11,165.55	209.72	54.239	
17,200.00	7,096.55	7,110.92	7,109.06	51.57	158.45	-90.36	-46.69	-1,065.73	11,474.52	11,264.49	210.03	54.634	
17,300.00	7,096.62	7,110.99	7,109.14	51.87	158.46	-90.37	-46.69	-1,065.73	11,573.78	11,363.45	210.33	55.027	
17,400.00	7,096.70	7,111.07	7,109.22	52.17	158.46	-90.37	-46.69	-1,065.73	11,673.04	11,462.41	210.63	55.419	
17,500.00	7,096.78	7,111.15	7,109.29	52.47	158.46	-90.37	-46.69	-1,065.73	11,772.32	11,561.39	210.93	55.810	
17,600.00	7,096.86	7,111.23	7,109.37	52.77	158.46	-90.38	-46.69	-1,065.73	11,871.62	11,660.38	211.24	56.200	
17,700.00	7,096.94	7,111.31	7,109.45	53.07	158.47	-90.38	-46.69	-1,065.73	11,970.92	11,759.38	211.54	56.589	
17,800.00	7,097.02	7,111.39	7,109.53	53.37	158.47	-90.38	-46.69	-1,065.73	12,070.24	11,858.39	211.84	56.977	
17,900.00	7,097.10	7,111.47	7,109.61	53.67	158.47	-90.39	-46.69	-1,065.73	12,169.56	11,957.42	212.15	57.364	
18,000.00	7,097.17	7,111.54	7,109.69	53.97	158.47	-90.39	-46.69	-1,065.73	12,268.90	12,056.45	212.45	57.750	
18,100.00	7,097.25	7,111.62	7,109.77	54.27	158.48	-90.39	-46.69	-1,065.73	12,368.25	12,155.50	212.75	58.135	
18,200.00	7,097.33	7,111.70	7,109.84	54.57	158.48	-90.40	-46.69	-1,065.73	12,467.61	12,254.56	213.05	58.519	
18,300.00	7,097.41	7,111.78	7,109.92	54.87	158.48	-90.40	-46.69	-1,065.73	12,566.98	12,353.62	213.36	58.902	
18,400.00	7,097.49	7,111.86	7,110.00	55.17	158.48	-90.40	-46.69	-1,065.73	12,666.36	12,452.70	213.66	59.283	
18,500.00	7,097.57	7,111.94	7,110.08	55.47	158.49	-90.41	-46.69	-1,065.73	12,765.75	12,551.78	213.96	59.664	
18,600.00	7,097.64	7,112.01	7,110.16	55.78	158.49	-90.41	-46.69	-1,065.73	12,865.14	12,650.88	214.26	60.044	
18,700.00	7,097.72	7,112.09	7,110.24	56.08	158.49	-90.41	-46.69	-1,065.73	12,964.55	12,749.98	214.57	60.422	
18,800.00	7,097.80	7,112.17	7,110.31	56.38	158.49	-90.42	-46.69	-1,065.73	13,063.97	12,849.10	214.87	60.800	
18,900.00	7,097.88	7,112.25	7,110.39	56.68	158.50	-90.42	-46.69	-1,065.73	13,163.39	12,948.22	215.17	61.176	
19,000.00	7,097.96	7,112.33	7,110.47	56.98	158.50	-90.42	-46.69	-1,065.73	13,262.83	13,047.35	215.47	61.552	
19,100.00	7,098.04	7,112.41	7,110.55	57.28	158.50	-90.43	-46.69	-1,065.73	13,362.27	13,146.49	215.78	61.926	
19,200.00	7,098.12	7,112.49	7,110.63	57.58	158.50	-90.43	-46.69	-1,065.73	13,461.72	13,245.64	216.08	62.300	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,098.19	7,112.56	7,110.71	57.88	158.51	-90.43	-46.69	-1,065.73	13,561.18	13,344.80	216.38	62.672	
19,400.00	7,098.27	7,112.64	7,110.79	58.18	158.51	-90.44	-46.69	-1,065.73	13,660.65	13,443.96	216.68	63.044	
19,500.00	7,098.35	7,112.72	7,110.86	58.48	158.51	-90.44	-46.69	-1,065.73	13,760.12	13,543.13	216.99	63.414	
19,600.00	7,098.43	7,112.80	7,110.94	58.78	158.51	-90.44	-46.69	-1,065.73	13,859.60	13,642.31	217.29	63.784	
19,700.00	7,098.51	7,112.88	7,111.02	59.08	158.52	-90.44	-46.69	-1,065.73	13,959.09	13,741.50	217.59	64.152	
19,800.00	7,098.59	7,112.96	7,111.10	59.38	158.52	-90.45	-46.69	-1,065.73	14,058.59	13,840.69	217.90	64.520	
19,900.00	7,098.66	7,113.03	7,111.18	59.68	158.52	-90.45	-46.69	-1,065.73	14,158.09	13,939.89	218.20	64.887	
20,000.00	7,098.74	7,113.11	7,111.26	59.98	158.52	-90.45	-46.69	-1,065.73	14,257.60	14,039.10	218.50	65.252	
20,100.00	7,098.82	7,113.19	7,111.33	60.28	158.53	-90.46	-46.69	-1,065.73	14,357.12	14,138.32	218.80	65.617	
20,200.00	7,098.90	7,113.27	7,111.41	60.58	158.53	-90.46	-46.69	-1,065.73	14,456.64	14,237.54	219.11	65.980	
20,300.00	7,098.98	7,113.35	7,111.49	60.88	158.53	-90.46	-46.69	-1,065.73	14,556.17	14,336.77	219.41	66.343	
20,328.16	7,099.00	7,113.37	7,111.51	60.96	158.53	-90.46	-46.69	-1,065.73	14,584.20	14,364.71	219.49	66.445	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	30.12	30.12	0.00	0.02	97.70	-1,141.21	8,441.07	8,517.87				
100.00	100.00	129.20	129.20	0.23	0.10	97.70	-1,141.20	8,441.08	8,517.88	8,517.56	0.31	N/A	
200.00	200.00	227.89	227.89	0.53	0.23	97.70	-1,141.20	8,441.10	8,517.90	8,517.16	0.73	N/A	
300.00	300.00	327.74	327.74	0.83	0.36	97.70	-1,141.18	8,441.14	8,517.93	8,516.77	1.15	7,378.436	
400.00	400.00	426.58	426.58	1.13	0.49	97.70	-1,141.17	8,441.18	8,517.97	8,516.40	1.57	5,411.979	
500.00	500.00	525.26	525.26	1.43	0.62	97.70	-1,141.15	8,441.24	8,518.03	8,516.03	1.99	4,273.531	
600.00	599.98	626.07	623.93	1.73	0.75	-76.89	-1,141.12	8,441.31	8,517.69	8,515.28	2.42	3,526.845	
700.00	699.84	723.79	723.79	2.03	0.88	-76.95	-1,141.09	8,441.39	8,516.59	8,513.75	2.83	3,005.780	
800.00	799.45	822.09	822.09	2.33	1.01	-77.04	-1,141.06	8,441.48	8,514.71	8,511.45	3.25	2,617.831	
900.00	898.70	920.02	920.02	2.63	1.14	-77.17	-1,141.02	8,441.59	8,512.07	8,508.40	3.67	2,318.388	
1,000.00	997.47	1,017.84	1,017.84	2.93	1.27	-77.34	-1,140.97	8,441.70	8,508.69	8,504.60	4.09	2,080.029	
1,100.00	1,095.62	1,115.62	1,115.62	3.23	1.40	-77.54	-1,140.93	8,441.83	8,504.59	8,500.08	4.51	1,885.703	
1,157.34	1,151.58	1,170.26	1,170.26	3.40	1.47	-77.67	-1,140.90	8,441.91	8,501.93	8,497.18	4.75	1,790.284	
1,200.00	1,193.13	1,211.80	1,211.80	3.53	1.52	-77.73	-1,140.88	8,441.97	8,499.87	8,494.94	4.93	1,724.872	
1,300.00	1,290.51	1,307.85	1,307.85	3.83	1.65	-77.88	-1,140.82	8,442.11	8,495.09	8,489.74	5.35	1,589.150	
1,400.00	1,387.89	1,404.96	1,404.96	4.13	1.78	-78.02	-1,140.76	8,442.27	8,490.37	8,484.61	5.77	1,472.742	
1,500.00	1,485.27	1,501.27	1,501.27	4.43	1.90	-78.17	-1,140.70	8,442.44	8,485.74	8,479.55	6.18	1,372.303	
1,600.00	1,582.65	1,597.32	1,597.32	4.73	2.03	-78.31	-1,140.63	8,442.63	8,481.17	8,474.56	6.60	1,284.634	
1,700.00	1,680.02	1,693.70	1,693.69	5.03	2.16	-78.46	-1,140.56	8,442.82	8,476.66	8,469.64	7.02	1,207.321	
1,800.00	1,777.40	1,790.73	1,790.73	5.33	2.29	-78.61	-1,140.48	8,443.02	8,472.23	8,464.79	7.44	1,138.575	
1,900.00	1,874.78	1,886.77	1,886.77	5.63	2.41	-78.75	-1,140.40	8,443.24	8,467.87	8,460.01	7.86	1,077.324	
2,000.00	1,972.16	1,982.81	1,982.81	5.93	2.54	-78.90	-1,140.32	8,443.46	8,463.58	8,455.30	8.28	1,022.257	
2,100.00	2,069.54	2,079.91	2,079.91	6.23	2.67	-79.05	-1,140.23	8,443.70	8,459.36	8,450.66	8.70	972.339	
2,200.00	2,166.92	2,176.21	2,176.21	6.53	2.79	-79.19	-1,140.14	8,443.95	8,455.21	8,446.09	9.12	927.115	
2,300.00	2,264.30	2,272.24	2,272.24	6.83	2.92	-79.34	-1,140.04	8,444.21	8,451.13	8,441.59	9.54	885.892	
2,400.00	2,361.68	2,368.62	2,368.61	7.13	3.05	-79.49	-1,139.94	8,444.48	8,447.12	8,437.16	9.96	848.099	
2,500.00	2,459.06	2,465.64	2,465.63	7.43	3.17	-79.64	-1,139.84	8,444.77	8,443.18	8,432.80	10.38	813.297	
2,600.00	2,556.44	2,561.67	2,561.66	7.73	3.30	-79.78	-1,139.73	8,445.06	8,439.32	8,428.51	10.80	781.291	
2,700.00	2,653.82	2,657.69	2,657.69	8.03	3.43	-79.93	-1,139.61	8,445.37	8,435.52	8,424.30	11.22	751.677	
2,800.00	2,751.19	2,754.80	2,754.79	8.33	3.55	-80.08	-1,139.50	8,445.69	8,431.79	8,420.15	11.64	724.115	
2,900.00	2,848.57	2,851.08	2,851.07	8.63	3.68	-80.23	-1,139.37	8,446.02	8,428.14	8,416.08	12.07	698.534	
3,000.00	2,945.95	2,947.10	2,947.09	8.93	3.81	-80.37	-1,139.25	8,446.36	8,424.56	8,412.07	12.49	674.693	
3,100.00	3,043.33	3,043.47	3,043.46	9.23	3.93	-80.52	-1,139.12	8,446.70	8,421.05	8,408.14	12.91	652.381	
3,200.00	3,140.71	3,140.47	3,140.46	9.53	4.06	-80.67	-1,138.98	8,447.07	8,417.61	8,404.28	13.33	631.441	
3,300.00	3,238.09	3,236.49	3,236.48	9.83	4.19	-80.82	-1,138.85	8,447.44	8,414.24	8,400.49	13.75	611.840	
3,400.00	3,335.47	3,332.50	3,332.49	10.13	4.31	-80.97	-1,138.70	8,447.83	8,410.94	8,396.77	14.17	593.402	
3,500.00	3,432.85	3,429.61	3,429.60	10.43	4.44	-81.12	-1,138.56	8,448.22	8,407.72	8,393.12	14.60	575.975	
3,600.00	3,530.23	3,525.87	3,525.85	10.73	4.57	-81.27	-1,138.40	8,448.63	8,404.57	8,389.55	15.02	559.567	
3,700.00	3,627.61	3,621.87	3,621.86	11.03	4.70	-81.41	-1,138.25	8,449.05	8,401.49	8,386.05	15.44	544.067	
3,800.00	3,724.99	3,717.88	3,717.87	11.33	4.82	-81.56	-1,138.09	8,449.48	8,398.48	8,382.62	15.86	529.390	
3,900.00	3,822.36	3,815.23	3,815.21	11.63	4.95	-81.71	-1,137.92	8,449.93	8,395.55	8,379.26	16.29	515.422	
4,000.00	3,919.74	3,911.23	3,911.22	11.93	5.08	-81.86	-1,137.76	8,450.38	8,392.69	8,375.97	16.71	502.212	
4,100.00	4,017.12	4,006.43	4,006.41	12.23	5.20	-82.01	-1,137.59	8,450.84	8,389.90	8,372.76	17.13	489.679	
4,200.00	4,114.50	4,103.68	4,103.67	12.53	5.33	-82.16	-1,137.37	8,451.38	8,387.24	8,369.69	17.56	477.715	
4,300.00	4,211.88	4,224.79	4,224.77	12.83	5.49	-82.35	-1,137.09	8,451.96	8,384.59	8,366.59	18.00	465.685	
4,400.00	4,309.26	4,314.09	4,314.07	13.13	5.60	-82.49	-1,137.06	8,452.29	8,381.87	8,363.45	18.42	454.986	
4,500.00	4,406.64	4,412.72	4,412.69	13.43	5.72	-82.64	-1,137.02	8,452.50	8,379.08	8,360.23	18.85	444.585	
4,600.00	4,504.02	4,533.27	4,533.25	13.73	5.84	-82.83	-1,137.10	8,452.74	8,376.34	8,357.05	19.29	434.278	
4,700.00	4,601.40	4,635.25	4,635.23	14.03	5.88	-82.98	-1,137.35	8,452.85	8,373.57	8,353.91	19.66	425.854	
4,800.00	4,698.78	4,733.11	4,733.09	14.33	5.89	-83.13	-1,137.64	8,452.85	8,370.75	8,350.75	20.01	418.393	
4,900.00	4,796.16	4,827.22	4,827.20	14.63	5.91	-83.27	-1,137.93	8,452.87	8,368.02	8,347.66	20.36	411.049	
5,000.00	4,893.53	4,935.09	4,935.06	14.93	5.91	-83.44	-1,138.30	8,452.82	8,365.28	8,344.58	20.69	404.226	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	5,035.73	5,035.70	15.23	5.91	-83.59	-1,138.72	8,452.68	8,362.51	8,341.49	21.01	397.953	
5,200.00	5,088.29	5,124.24	5,124.21	15.53	5.90	-83.73	-1,139.13	8,452.54	8,359.78	8,338.45	21.33	391.939	
5,300.00	5,185.67	5,244.62	5,244.59	15.83	5.90	-83.91	-1,139.69	8,452.33	8,357.10	8,335.45	21.65	386.019	
5,400.00	5,283.05	5,348.94	5,348.90	16.13	5.88	-84.07	-1,140.27	8,451.94	8,354.28	8,332.33	21.95	380.647	
5,500.00	5,380.43	5,439.51	5,439.48	16.43	5.87	-84.20	-1,140.80	8,451.61	8,351.53	8,329.28	22.25	375.341	
5,600.00	5,477.81	5,546.95	5,546.91	16.73	5.85	-84.37	-1,141.39	8,451.17	8,348.78	8,326.24	22.55	370.286	
5,700.00	5,575.19	5,641.10	5,641.06	17.03	5.84	-84.51	-1,141.86	8,450.71	8,346.03	8,323.19	22.84	365.451	
5,800.00	5,672.57	5,741.74	5,741.70	17.33	5.82	-84.66	-1,142.38	8,450.24	8,343.35	8,320.22	23.13	360.701	
5,900.00	5,769.95	5,861.18	5,861.13	17.63	5.81	-84.84	-1,143.16	8,449.54	8,340.62	8,317.19	23.43	356.038	
6,000.00	5,867.33	5,950.00	5,949.95	17.93	5.80	-84.98	-1,143.78	8,448.86	8,337.77	8,314.05	23.72	351.536	
6,100.00	5,964.70	6,037.98	6,037.93	18.23	5.79	-85.11	-1,144.38	8,448.32	8,335.12	8,311.11	24.02	347.053	
6,200.00	6,062.08	6,125.00	6,124.94	18.53	5.79	-85.24	-1,144.97	8,447.69	8,332.46	8,308.14	24.32	342.665	
6,300.00	6,159.46	6,225.00	6,224.94	18.83	5.80	-85.39	-1,145.71	8,446.99	8,329.83	8,305.21	24.62	338.307	
6,400.00	6,256.84	6,330.35	6,330.28	19.13	5.81	-85.55	-1,146.80	8,446.39	8,327.38	8,302.44	24.94	333.894	
6,500.00	6,354.22	6,433.60	6,433.52	19.43	5.84	-85.70	-1,147.92	8,445.89	8,325.09	8,299.83	25.26	329.536	
6,600.00	6,451.60	6,525.00	6,524.91	19.73	5.87	-85.84	-1,149.15	8,445.46	8,322.86	8,297.27	25.59	325.253	
6,694.27	6,543.40	6,609.08	6,608.98	20.02	5.90	-85.96	-1,150.33	8,445.13	8,320.88	8,294.98	25.90	321.274	
6,700.00	6,548.98	6,611.99	6,611.89	20.03	5.91	-83.54	-1,150.37	8,445.12	8,320.73	8,294.81	25.92	321.044	
6,750.00	6,597.52	6,649.43	6,649.33	20.18	5.92	-64.35	-1,150.93	8,445.03	8,317.09	8,291.01	26.08	318.876	
6,800.00	6,645.56	6,700.63	6,700.53	20.33	5.95	-50.16	-1,151.68	8,444.92	8,309.15	8,282.90	26.25	316.491	
6,850.00	6,692.73	6,756.30	6,756.19	20.48	5.98	-40.47	-1,152.46	8,444.81	8,296.98	8,270.55	26.43	313.944	
6,900.00	6,738.66	6,775.00	6,774.88	20.63	5.99	-33.82	-1,152.67	8,444.77	8,280.62	8,254.04	26.59	311.477	
6,950.00	6,783.02	6,806.06	6,805.94	20.78	6.01	-29.19	-1,153.05	8,444.79	8,260.35	8,233.60	26.75	308.781	
7,000.00	6,825.45	6,863.09	6,862.97	20.94	6.04	-25.94	-1,153.85	8,444.75	8,236.12	8,209.19	26.93	305.830	
7,050.00	6,865.65	6,910.06	6,909.93	21.09	6.07	-23.58	-1,154.61	8,444.73	8,208.21	8,181.11	27.10	302.842	
7,100.00	6,903.29	6,944.86	6,944.73	21.24	6.10	-21.85	-1,155.08	8,444.69	8,176.77	8,149.50	27.27	299.842	
7,150.00	6,938.11	6,964.78	6,964.65	21.39	6.11	-20.60	-1,155.36	8,444.69	8,142.12	8,114.69	27.43	296.823	
7,200.00	6,969.82	7,025.00	7,024.86	21.54	6.15	-19.87	-1,156.26	8,444.61	8,104.42	8,076.81	27.61	293.534	
7,250.00	6,998.19	7,038.99	7,038.85	21.69	6.16	-19.40	-1,156.47	8,444.58	8,064.01	8,036.25	27.77	290.420	
7,300.00	7,023.01	7,300.00	7,061.36	21.84	6.34	-19.35	-1,156.76	8,444.57	8,021.25	7,993.20	28.05	285.978	
7,350.00	7,044.08	7,100.00	7,099.85	21.99	6.19	-19.87	-1,157.23	8,444.48	7,976.35	7,948.25	28.09	283.916	
7,400.00	7,061.25	7,110.77	7,110.62	22.14	6.20	-20.94	-1,157.35	8,444.45	7,929.72	7,901.47	28.25	280.707	
7,450.00	7,074.38	7,115.62	7,115.47	22.29	6.20	-23.20	-1,157.41	8,444.44	7,881.72	7,853.32	28.40	277.512	
7,500.00	7,083.37	7,125.00	7,124.85	22.44	6.21	-28.55	-1,157.51	8,444.44	7,832.73	7,804.17	28.56	274.294	
7,550.00	7,088.16	7,125.00	7,124.85	22.59	6.21	-46.09	-1,157.51	8,444.44	7,783.07	7,754.37	28.71	271.129	
7,581.00	7,089.00	7,125.00	7,124.85	22.68	6.21	-89.87	-1,157.51	8,444.44	7,752.13	7,723.33	28.80	269.178	
7,600.00	7,089.02	7,125.00	7,124.85	22.74	6.21	-89.87	-1,157.51	8,444.44	7,733.14	7,704.28	28.86	267.987	
7,700.00	7,089.09	7,125.00	7,124.85	23.04	6.21	-89.87	-1,157.51	8,444.44	7,633.23	7,604.08	29.16	261.798	
7,800.00	7,089.17	7,125.00	7,124.85	23.34	6.21	-89.87	-1,157.51	8,444.44	7,533.33	7,503.87	29.46	255.736	
7,900.00	7,089.25	7,125.00	7,124.85	23.64	6.21	-89.87	-1,157.51	8,444.44	7,433.42	7,403.67	29.76	249.797	
8,000.00	7,089.33	7,125.00	7,124.85	23.94	6.21	-89.87	-1,157.51	8,444.44	7,333.52	7,303.47	30.06	243.976	
8,100.00	7,089.41	7,125.00	7,124.85	24.24	6.21	-89.87	-1,157.51	8,444.44	7,233.63	7,203.27	30.36	238.272	
8,200.00	7,089.49	7,125.00	7,124.85	24.54	6.21	-89.87	-1,157.51	8,444.44	7,133.73	7,103.07	30.66	232.679	
8,300.00	7,089.56	7,125.00	7,124.85	24.84	6.21	-89.87	-1,157.51	8,444.44	7,033.84	7,002.88	30.96	227.195	
8,400.00	7,089.64	7,125.00	7,124.85	25.14	6.21	-89.87	-1,157.51	8,444.44	6,933.95	6,902.69	31.26	221.817	
8,500.00	7,089.72	7,125.00	7,124.85	25.44	6.21	-89.87	-1,157.51	8,444.44	6,834.07	6,802.51	31.56	216.542	
8,600.00	7,089.80	7,125.00	7,124.85	25.75	6.21	-89.87	-1,157.51	8,444.44	6,734.19	6,702.33	31.86	211.366	
8,700.00	7,089.88	7,125.00	7,124.85	26.05	6.21	-89.87	-1,157.51	8,444.44	6,634.31	6,602.15	32.16	206.288	
8,800.00	7,089.96	7,125.00	7,124.85	26.35	6.21	-89.87	-1,157.51	8,444.44	6,534.43	6,501.97	32.46	201.303	
8,900.00	7,090.03	7,125.00	7,124.85	26.65	6.21	-89.87	-1,157.51	8,444.44	6,434.56	6,401.80	32.76	196.410	
9,000.00	7,090.11	7,125.00	7,124.85	26.95	6.21	-89.87	-1,157.51	8,444.44	6,334.70	6,301.64	33.06	191.607	
9,100.00	7,090.19	7,125.00	7,124.85	27.25	6.21	-89.87	-1,157.51	8,444.44	6,234.83	6,201.47	33.36	186.890	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	7,090.27	7,125.00	7,124.85	27.55	6.21	-89.87	-1,157.51	8,444.44	6,134.98	6,101.32	33.66	182.257	
9,300.00	7,090.35	7,125.00	7,124.85	27.85	6.21	-89.87	-1,157.51	8,444.44	6,035.12	6,001.16	33.96	177.707	
9,400.00	7,090.43	7,125.00	7,124.85	28.15	6.21	-89.87	-1,157.51	8,444.44	5,935.28	5,901.02	34.26	173.237	
9,500.00	7,090.51	7,125.00	7,124.85	28.45	6.21	-89.87	-1,157.51	8,444.44	5,835.43	5,800.87	34.56	168.844	
9,600.00	7,090.58	7,125.00	7,124.85	28.75	6.21	-89.87	-1,157.51	8,444.44	5,735.60	5,700.74	34.86	164.528	
9,700.00	7,090.66	7,125.00	7,124.85	29.05	6.21	-89.87	-1,157.51	8,444.44	5,635.77	5,600.60	35.16	160.285	
9,800.00	7,090.74	7,125.00	7,124.85	29.35	6.21	-89.87	-1,157.51	8,444.44	5,535.94	5,500.48	35.46	156.115	
9,900.00	7,090.82	7,125.00	7,124.85	29.65	6.21	-89.87	-1,157.51	8,444.44	5,436.12	5,400.36	35.76	152.015	
10,000.00	7,090.90	7,125.00	7,124.85	29.95	6.21	-89.87	-1,157.51	8,444.44	5,336.31	5,300.25	36.06	147.983	
10,100.00	7,090.98	7,125.00	7,124.85	30.25	6.21	-89.87	-1,157.51	8,444.44	5,236.50	5,200.14	36.36	144.019	
10,200.00	7,091.05	7,125.00	7,124.85	30.55	6.21	-89.87	-1,157.51	8,444.44	5,136.71	5,100.05	36.66	140.119	
10,300.00	7,091.13	7,125.00	7,124.85	30.85	6.21	-89.87	-1,157.51	8,444.44	5,036.92	4,999.96	36.96	136.283	
10,400.00	7,091.21	7,125.00	7,124.85	31.15	6.21	-89.87	-1,157.51	8,444.44	4,937.14	4,899.88	37.26	132.509	
10,500.00	7,091.29	7,125.00	7,124.85	31.45	6.21	-89.87	-1,157.51	8,444.44	4,837.37	4,799.81	37.56	128.796	
10,600.00	7,091.37	7,125.00	7,124.85	31.76	6.21	-89.87	-1,157.51	8,444.44	4,737.60	4,699.75	37.86	125.142	
10,700.00	7,091.45	7,125.00	7,124.85	32.06	6.21	-89.87	-1,157.51	8,444.44	4,637.85	4,599.69	38.16	121.546	
10,800.00	7,091.53	7,125.00	7,124.85	32.36	6.21	-89.87	-1,157.51	8,444.44	4,538.11	4,499.65	38.46	118.006	
10,900.00	7,091.60	7,125.00	7,124.85	32.66	6.21	-89.87	-1,157.51	8,444.44	4,438.38	4,399.62	38.76	114.521	
11,000.00	7,091.68	7,125.00	7,124.85	32.96	6.21	-89.87	-1,157.51	8,444.44	4,338.66	4,299.61	39.06	111.091	
11,100.00	7,091.76	7,125.00	7,124.85	33.26	6.21	-89.87	-1,157.51	8,444.44	4,238.96	4,199.61	39.35	107.713	
11,200.00	7,091.84	7,125.00	7,124.85	33.56	6.21	-89.87	-1,157.51	8,444.44	4,139.27	4,099.62	39.65	104.386	
11,300.00	7,091.92	7,125.00	7,124.85	33.86	6.21	-89.87	-1,157.51	8,444.44	4,039.60	3,999.65	39.95	101.110	
11,400.00	7,092.00	7,125.00	7,124.85	34.16	6.21	-89.87	-1,157.51	8,444.44	3,939.94	3,899.69	40.25	97.883	
11,500.00	7,092.07	7,125.00	7,124.85	34.46	6.21	-89.87	-1,157.51	8,444.44	3,840.30	3,799.75	40.55	94.705	
11,600.00	7,092.15	7,125.00	7,124.85	34.76	6.21	-89.87	-1,157.51	8,444.44	3,740.68	3,699.83	40.85	91.574	
11,700.00	7,092.23	7,125.00	7,124.85	35.06	6.21	-89.87	-1,157.51	8,444.44	3,641.08	3,599.93	41.15	88.488	
11,800.00	7,092.31	7,125.00	7,124.85	35.36	6.21	-89.87	-1,157.51	8,444.44	3,541.50	3,500.06	41.45	85.449	
11,900.00	7,092.39	7,125.00	7,124.85	35.66	6.21	-89.87	-1,157.51	8,444.44	3,441.95	3,400.21	41.74	82.453	
12,000.00	7,092.47	7,125.00	7,124.85	35.96	6.21	-89.87	-1,157.51	8,444.44	3,342.43	3,300.38	42.04	79.501	
12,100.00	7,092.55	7,125.00	7,124.85	36.26	6.21	-89.87	-1,157.51	8,444.44	3,242.93	3,200.59	42.34	76.591	
12,200.00	7,092.62	7,125.00	7,124.85	36.56	6.21	-89.87	-1,157.51	8,444.44	3,143.47	3,100.83	42.64	73.723	
12,300.00	7,092.70	7,125.00	7,124.85	36.86	6.21	-89.87	-1,157.51	8,444.44	3,044.04	3,001.10	42.94	70.896	
12,400.00	7,092.78	7,125.00	7,124.85	37.16	6.21	-89.87	-1,157.51	8,444.44	2,944.65	2,901.41	43.23	68.110	
12,500.00	7,092.86	7,125.00	7,124.85	37.46	6.21	-89.87	-1,157.51	8,444.44	2,845.30	2,801.77	43.53	65.362	
12,600.00	7,092.94	7,125.00	7,124.85	37.76	6.21	-89.87	-1,157.51	8,444.44	2,746.00	2,702.17	43.83	62.654	
12,700.00	7,093.02	7,125.00	7,124.85	38.06	6.21	-89.87	-1,157.51	8,444.44	2,646.75	2,602.62	44.12	59.983	
12,800.00	7,093.09	7,125.00	7,124.85	38.36	6.21	-89.87	-1,157.51	8,444.44	2,547.56	2,503.14	44.42	57.350	
12,900.00	7,093.17	7,125.00	7,124.85	38.66	6.21	-89.87	-1,157.51	8,444.44	2,448.44	2,403.72	44.72	54.754	
13,000.00	7,093.25	7,125.00	7,124.85	38.96	6.21	-89.87	-1,157.51	8,444.44	2,349.39	2,304.38	45.01	52.194	
13,100.00	7,093.33	7,125.08	7,124.93	39.26	6.21	-89.89	-1,157.51	8,444.44	2,250.42	2,205.12	45.31	49.669	
13,200.00	7,093.41	7,125.26	7,125.11	39.56	6.21	-89.92	-1,157.52	8,444.44	2,151.56	2,105.95	45.60	47.180	
13,300.00	7,093.49	7,125.44	7,125.29	39.86	6.21	-89.95	-1,157.52	8,444.44	2,052.80	2,006.90	45.90	44.726	
13,400.00	7,093.57	7,125.63	7,125.48	40.16	6.21	-89.98	-1,157.52	8,444.44	1,954.16	1,907.97	46.19	42.307	
13,500.00	7,093.64	7,125.81	7,125.66	40.47	6.21	-90.01	-1,157.52	8,444.44	1,855.68	1,809.19	46.48	39.922	
13,600.00	7,093.72	7,126.00	7,125.85	40.77	6.21	-90.04	-1,157.52	8,444.44	1,757.36	1,710.59	46.77	37.572	
13,700.00	7,093.80	7,126.18	7,126.03	41.07	6.21	-90.08	-1,157.53	8,444.44	1,659.25	1,612.18	47.06	35.255	
13,800.00	7,093.88	7,126.37	7,126.22	41.37	6.21	-90.11	-1,157.53	8,444.44	1,561.37	1,514.02	47.35	32.974	
13,900.00	7,093.96	7,126.56	7,126.41	41.67	6.21	-90.14	-1,157.53	8,444.44	1,463.78	1,416.14	47.64	30.727	
14,000.00	7,094.04	7,126.76	7,126.60	41.97	6.21	-90.18	-1,157.53	8,444.44	1,366.54	1,318.62	47.92	28.516	
14,100.00	7,094.11	7,126.95	7,126.80	42.27	6.21	-90.21	-1,157.54	8,444.44	1,269.73	1,221.53	48.20	26.341	
14,200.00	7,094.19	7,127.14	7,126.99	42.57	6.21	-90.24	-1,157.54	8,444.44	1,173.46	1,124.97	48.48	24.205	
14,300.00	7,094.27	7,127.34	7,127.19	42.87	6.21	-90.28	-1,157.54	8,444.44	1,077.86	1,029.11	48.75	22.109	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	7,094.35	7,127.54	7,127.39	43.17	6.21	-90.31	-1,157.54	8,444.44	983.14	934.12	49.02	20.057	
14,500.00	7,094.43	7,127.74	7,127.59	43.47	6.21	-90.35	-1,157.54	8,444.44	889.57	840.30	49.27	18.054	
14,600.00	7,094.51	7,127.94	7,127.79	43.77	6.21	-90.38	-1,157.55	8,444.44	797.57	748.05	49.52	16.107	
14,700.00	7,094.58	7,128.15	7,128.00	44.07	6.21	-90.42	-1,157.55	8,444.44	707.74	658.00	49.74	14.228	
14,800.00	7,094.66	7,128.36	7,128.21	44.37	6.21	-90.45	-1,157.55	8,444.45	621.03	571.08	49.95	12.434	
14,900.00	7,094.74	7,128.56	7,128.41	44.67	6.21	-90.49	-1,157.55	8,444.45	538.94	488.82	50.12	10.753	
15,000.00	7,094.82	7,128.77	7,128.62	44.97	6.21	-90.53	-1,157.56	8,444.45	463.94	413.69	50.25	9.233	
15,100.00	7,094.90	7,128.99	7,128.84	45.27	6.21	-90.56	-1,157.56	8,444.45	400.02	349.67	50.35	7.944	
15,200.00	7,094.98	7,129.20	7,129.05	45.57	6.21	-90.60	-1,157.56	8,444.45	353.26	302.77	50.49	6.997	
15,300.00	7,095.06	7,129.42	7,129.27	45.87	6.21	-90.64	-1,157.56	8,444.45	331.02	280.22	50.80	6.516	
15,326.10	7,095.08	7,129.47	7,129.32	45.95	6.21	-90.65	-1,157.56	8,444.45	329.99	279.07	50.92	6.480	CC, ES, SF
15,400.00	7,095.13	7,129.64	7,129.49	46.17	6.21	-90.68	-1,157.57	8,444.45	338.16	286.82	51.34	6.586	
15,500.00	7,095.21	7,129.86	7,129.71	46.47	6.21	-90.71	-1,157.57	8,444.45	373.01	321.03	51.97	7.177	
15,600.00	7,095.29	7,130.08	7,129.93	46.77	6.21	-90.75	-1,157.57	8,444.45	428.85	376.31	52.54	8.162	
15,700.00	7,095.37	7,130.30	7,130.15	47.07	6.21	-90.79	-1,157.57	8,444.45	498.69	445.67	53.02	9.406	
15,800.00	7,095.45	7,130.53	7,130.38	47.37	6.21	-90.83	-1,157.58	8,444.45	577.47	524.05	53.42	10.809	
15,900.00	7,095.53	7,130.76	7,130.61	47.67	6.21	-90.87	-1,157.58	8,444.45	662.00	608.22	53.79	12.308	
16,000.00	7,095.60	7,130.99	7,130.84	47.97	6.21	-90.91	-1,157.58	8,444.45	750.35	696.23	54.13	13.863	
16,100.00	7,095.68	7,131.22	7,131.07	48.27	6.21	-90.95	-1,157.58	8,444.45	841.31	786.86	54.45	15.451	
16,200.00	7,095.76	7,131.46	7,131.31	48.57	6.21	-90.99	-1,157.59	8,444.45	934.12	879.36	54.77	17.057	
16,300.00	7,095.84	7,131.70	7,131.55	48.87	6.21	-91.03	-1,157.59	8,444.45	1,028.28	973.21	55.08	18.670	
16,400.00	7,095.92	7,131.94	7,131.79	49.17	6.21	-91.08	-1,157.59	8,444.45	1,123.45	1,068.07	55.38	20.286	
16,500.00	7,096.00	7,132.18	7,132.03	49.47	6.21	-91.12	-1,157.59	8,444.45	1,219.39	1,163.71	55.68	21.898	
16,600.00	7,096.08	7,132.43	7,132.28	49.77	6.21	-91.16	-1,157.60	8,444.45	1,315.94	1,259.95	55.99	23.505	
16,700.00	7,096.15	7,132.67	7,132.52	50.07	6.22	-91.20	-1,157.60	8,444.45	1,412.97	1,356.68	56.29	25.103	
16,800.00	7,096.23	7,132.93	7,132.77	50.37	6.22	-91.25	-1,157.60	8,444.45	1,510.38	1,453.79	56.59	26.691	
16,900.00	7,096.31	7,133.18	7,133.03	50.67	6.22	-91.29	-1,157.61	8,444.45	1,608.11	1,551.23	56.89	28.269	
17,000.00	7,096.39	7,133.43	7,133.28	50.97	6.22	-91.34	-1,157.61	8,444.45	1,706.11	1,648.92	57.19	29.834	
17,100.00	7,096.47	7,133.69	7,133.54	51.27	6.22	-91.38	-1,157.61	8,444.45	1,804.32	1,746.84	57.49	31.387	
17,200.00	7,096.55	7,133.95	7,133.80	51.57	6.22	-91.43	-1,157.62	8,444.45	1,902.73	1,844.94	57.78	32.928	
17,300.00	7,096.62	7,134.22	7,134.06	51.87	6.22	-91.47	-1,157.62	8,444.45	2,001.29	1,943.20	58.08	34.455	
17,400.00	7,096.70	7,134.48	7,134.33	52.17	6.22	-91.52	-1,157.62	8,444.45	2,099.98	2,041.60	58.38	35.969	
17,500.00	7,096.78	7,134.75	7,134.60	52.47	6.22	-91.56	-1,157.62	8,444.45	2,198.79	2,140.11	58.68	37.470	
17,600.00	7,096.86	7,135.02	7,134.87	52.77	6.22	-91.61	-1,157.63	8,444.45	2,297.71	2,238.73	58.98	38.957	
17,700.00	7,096.94	7,135.30	7,135.15	53.07	6.22	-91.66	-1,157.63	8,444.45	2,396.72	2,337.44	59.28	40.430	
17,800.00	7,097.02	7,135.57	7,135.42	53.37	6.22	-91.71	-1,157.63	8,444.46	2,495.80	2,436.22	59.58	41.891	
17,900.00	7,097.10	7,135.85	7,135.70	53.67	6.22	-91.76	-1,157.64	8,444.46	2,594.96	2,535.08	59.88	43.337	
18,000.00	7,097.17	7,136.14	7,135.99	53.97	6.22	-91.81	-1,157.64	8,444.46	2,694.18	2,634.00	60.18	44.771	
18,100.00	7,097.25	7,136.43	7,136.27	54.27	6.22	-91.86	-1,157.64	8,444.46	2,793.45	2,732.97	60.48	46.191	
18,200.00	7,097.33	7,136.71	7,136.56	54.57	6.22	-91.91	-1,157.65	8,444.46	2,892.77	2,832.00	60.78	47.597	
18,300.00	7,097.41	7,137.01	7,136.86	54.87	6.22	-91.96	-1,157.65	8,444.46	2,992.14	2,931.07	61.08	48.991	
18,400.00	7,097.49	7,137.30	7,137.15	55.17	6.22	-92.01	-1,157.66	8,444.46	3,091.55	3,030.18	61.37	50.372	
18,500.00	7,097.57	7,137.60	7,137.45	55.47	6.22	-92.06	-1,157.66	8,444.46	3,191.00	3,129.32	61.67	51.740	
18,600.00	7,097.64	7,137.91	7,137.76	55.78	6.22	-92.11	-1,157.66	8,444.46	3,290.48	3,228.50	61.97	53.095	
18,700.00	7,097.72	7,138.21	7,138.06	56.08	6.22	-92.17	-1,157.67	8,444.46	3,389.99	3,327.71	62.27	54.438	
18,800.00	7,097.80	7,138.52	7,138.37	56.38	6.22	-92.22	-1,157.67	8,444.46	3,489.53	3,426.95	62.57	55.768	
18,900.00	7,097.88	7,138.83	7,138.68	56.68	6.22	-92.27	-1,157.67	8,444.46	3,589.09	3,526.22	62.87	57.086	
19,000.00	7,097.96	7,139.15	7,139.00	56.98	6.22	-92.33	-1,157.68	8,444.46	3,688.68	3,625.51	63.17	58.392	
19,100.00	7,098.04	7,139.47	7,139.32	57.28	6.22	-92.38	-1,157.68	8,444.46	3,788.29	3,724.82	63.47	59.686	
19,200.00	7,098.12	7,139.80	7,139.64	57.58	6.22	-92.44	-1,157.69	8,444.46	3,887.92	3,824.15	63.77	60.968	
19,300.00	7,098.19	7,140.12	7,139.97	57.88	6.22	-92.50	-1,157.69	8,444.46	3,987.56	3,923.49	64.07	62.238	
19,400.00	7,098.27	7,140.45	7,140.30	58.18	6.22	-92.55	-1,157.69	8,444.46	4,087.23	4,022.86	64.37	63.497	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	7,140.79	7,140.64	58.48	6.22	-92.61	-1,157.70	8,444.46	4,186.91	4,122.24	64.67	64.744	
19,600.00	7,098.43	7,141.13	7,140.98	58.78	6.22	-92.67	-1,157.70	8,444.46	4,286.60	4,221.64	64.97	65.980	
19,700.00	7,098.51	7,141.47	7,141.32	59.08	6.22	-92.73	-1,157.71	8,444.47	4,386.31	4,321.05	65.27	67.204	
19,800.00	7,098.59	7,141.82	7,141.67	59.38	6.22	-92.79	-1,157.71	8,444.47	4,486.04	4,420.47	65.57	68.418	
19,900.00	7,098.66	7,142.17	7,142.02	59.68	6.22	-92.85	-1,157.71	8,444.47	4,585.77	4,519.90	65.87	69.621	
20,000.00	7,098.74	7,142.53	7,142.38	59.98	6.22	-92.91	-1,157.72	8,444.47	4,685.52	4,619.35	66.17	70.813	
20,100.00	7,098.82	7,142.89	7,142.74	60.28	6.22	-92.98	-1,157.72	8,444.47	4,785.27	4,718.81	66.47	71.994	
20,200.00	7,098.90	7,143.25	7,143.10	60.58	6.22	-93.04	-1,157.73	8,444.47	4,885.04	4,818.27	66.77	73.165	
20,300.00	7,098.98	7,143.62	7,143.47	60.88	6.22	-93.10	-1,157.73	8,444.47	4,984.82	4,917.75	67.07	74.326	
20,328.16	7,099.00	7,143.73	7,143.57	60.96	6.22	-93.12	-1,157.73	8,444.47	5,012.91	4,945.76	67.15	74.651	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-170.78	-831.38	-134.94	842.35				
100.00	100.00	86.31	86.31	0.23	0.04	-170.78	-831.45	-134.93	842.32	842.05	0.27	3,083.716	
200.00	200.00	184.97	184.97	0.53	0.17	-170.79	-831.67	-134.89	842.54	841.86	0.69	1,223.581	
300.00	300.00	283.64	283.64	0.83	0.30	-170.80	-832.07	-134.83	842.93	841.82	1.11	756.689	
400.00	400.00	382.25	382.25	1.13	0.43	-170.81	-832.62	-134.75	843.47	841.93	1.54	547.990	
500.00	500.00	480.82	480.81	1.43	0.56	-170.82	-833.34	-134.64	844.17	842.21	1.96	429.763	
600.00	599.98	578.73	578.72	1.73	0.68	14.61	-834.33	-134.37	843.44	841.06	2.38	353.674	
700.00	699.84	677.34	677.32	2.03	0.81	14.67	-835.53	-133.87	839.49	836.69	2.80	299.807	
800.00	799.45	777.72	777.69	2.33	0.94	14.80	-836.86	-133.17	832.26	829.05	3.21	259.033	
900.00	898.70	876.92	876.87	2.63	1.07	15.00	-838.16	-132.28	821.61	817.99	3.62	227.136	
1,000.00	997.47	976.43	976.38	2.93	1.19	15.28	-839.43	-131.39	807.60	803.57	4.02	200.872	
1,100.00	1,095.62	1,077.70	1,077.64	3.23	1.32	15.67	-840.55	-130.46	790.11	785.69	4.42	178.776	
1,157.34	1,151.58	1,133.68	1,133.61	3.40	1.38	15.93	-841.04	-129.85	778.45	773.81	4.64	167.860	
1,200.00	1,193.13	1,174.77	1,174.69	3.53	1.43	16.08	-841.44	-129.32	769.41	764.61	4.80	160.358	
1,300.00	1,290.51	1,270.36	1,270.27	3.83	1.55	16.44	-842.56	-128.02	748.42	743.24	5.18	144.530	
1,400.00	1,387.89	1,370.41	1,370.31	4.13	1.68	16.87	-843.64	-127.08	727.45	721.88	5.57	130.569	
1,500.00	1,485.27	1,465.16	1,465.05	4.43	1.80	17.31	-844.61	-126.30	706.49	700.53	5.96	118.537	
1,600.00	1,582.65	1,562.98	1,562.87	4.73	1.93	17.82	-845.80	-125.91	685.83	679.46	6.37	107.674	
1,700.00	1,680.02	1,659.94	1,659.81	5.03	2.05	18.38	-846.93	-125.70	665.24	658.46	6.78	98.097	
1,800.00	1,777.40	1,760.98	1,760.85	5.33	2.16	19.03	-847.83	-125.87	644.52	637.32	7.20	89.472	
1,900.00	1,874.78	1,859.10	1,858.97	5.63	2.28	19.70	-848.39	-125.86	623.55	615.93	7.62	81.844	
2,000.00	1,972.16	1,956.16	1,956.03	5.93	2.41	20.40	-848.90	-125.76	602.59	594.56	8.03	75.073	
2,100.00	2,069.54	2,050.00	2,049.86	6.23	2.52	21.12	-849.45	-125.55	581.77	573.34	8.42	69.062	
2,200.00	2,166.92	2,152.69	2,152.55	6.53	2.64	21.98	-850.09	-125.51	561.11	552.27	8.84	63.470	
2,300.00	2,264.30	2,250.53	2,250.39	6.83	2.72	22.90	-850.33	-125.74	540.30	531.07	9.24	58.493	
2,400.00	2,361.68	2,347.82	2,347.68	7.13	2.75	23.93	-850.41	-126.33	519.59	510.00	9.60	54.130	
2,500.00	2,459.06	2,444.17	2,444.02	7.43	2.78	25.06	-850.51	-127.15	499.17	489.21	9.96	50.115	
2,600.00	2,556.44	2,542.43	2,542.28	7.73	2.81	26.32	-850.57	-128.15	478.97	468.65	10.32	46.410	
2,700.00	2,653.82	2,641.08	2,640.92	8.03	2.82	27.71	-850.39	-129.09	458.76	448.10	10.66	43.025	
2,800.00	2,751.19	2,738.34	2,738.18	8.33	2.84	29.17	-850.21	-129.69	438.71	427.70	11.00	39.876	
2,900.00	2,848.57	2,835.37	2,835.21	8.63	2.89	30.71	-850.24	-130.03	419.03	407.66	11.37	36.860	
3,000.00	2,945.95	2,933.16	2,933.00	8.93	2.93	32.41	-850.24	-130.35	399.65	387.92	11.73	34.070	
3,100.00	3,043.33	3,029.35	3,029.20	9.23	3.02	34.23	-850.38	-130.62	380.75	368.63	12.12	31.427	
3,200.00	3,140.71	3,126.79	3,126.63	9.53	3.13	36.24	-850.79	-130.84	362.48	349.97	12.52	28.960	
3,300.00	3,238.09	3,222.99	3,222.83	9.83	3.25	38.41	-851.31	-131.06	344.79	331.88	12.91	26.704	
3,400.00	3,335.47	3,321.23	3,321.06	10.13	3.38	40.76	-852.24	-130.91	327.78	314.49	13.28	24.673	
3,500.00	3,432.85	3,418.15	3,417.98	10.43	3.50	43.33	-853.24	-130.85	311.47	297.82	13.65	22.817	
3,600.00	3,530.23	3,515.30	3,515.12	10.73	3.63	46.18	-854.26	-130.87	295.94	281.93	14.01	21.126	
3,700.00	3,627.61	3,612.74	3,612.56	11.03	3.75	49.34	-855.30	-130.84	281.21	266.86	14.35	19.596	
3,800.00	3,724.99	3,710.80	3,710.61	11.33	3.88	52.82	-856.41	-130.78	267.45	252.77	14.68	18.224	
3,900.00	3,822.36	3,808.41	3,808.22	11.63	4.00	56.66	-857.54	-130.84	254.89	239.90	14.99	17.008	
4,000.00	3,919.74	3,905.54	3,905.34	11.93	4.13	60.85	-858.56	-130.84	243.50	228.23	15.28	15.941	
4,100.00	4,017.12	4,003.36	4,003.15	12.23	4.26	65.43	-859.62	-130.87	233.62	218.08	15.55	15.027	
4,200.00	4,114.50	4,100.79	4,100.57	12.53	4.38	70.36	-860.67	-130.96	225.46	209.65	15.81	14.265	
4,300.00	4,211.88	4,198.18	4,197.95	12.83	4.51	75.54	-861.95	-131.07	219.26	203.20	16.06	13.656	
4,400.00	4,309.26	4,295.42	4,295.18	13.13	4.63	80.86	-863.61	-131.28	215.21	198.90	16.31	13.196	
4,500.00	4,406.64	4,392.37	4,392.11	13.43	4.76	86.22	-865.66	-131.67	213.44	196.86	16.58	12.875	
4,526.97	4,432.91	4,418.71	4,418.44	13.51	4.79	87.66	-866.33	-131.83	213.37	196.72	16.66	12.811	CC, ES
4,600.00	4,504.02	4,490.31	4,490.01	13.73	4.89	91.56	-868.17	-132.24	213.88	197.00	16.87	12.675	
4,700.00	4,601.40	4,588.25	4,587.92	14.03	5.01	96.79	-870.86	-132.81	216.22	199.02	17.20	12.571	
4,800.00	4,698.78	4,686.19	4,685.82	14.33	5.14	101.86	-873.56	-133.34	220.36	202.80	17.56	12.548	SF
4,900.00	4,796.16	4,783.98	4,783.57	14.63	5.26	106.70	-876.32	-133.87	226.20	208.25	17.96	12.595	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	4,881.77	4,881.32	14.93	5.39	111.27	-879.04	-134.49	233.72	215.33	18.39	12.711	
5,100.00	4,990.91	4,979.85	4,979.36	15.23	5.52	115.54	-881.83	-135.13	242.68	223.84	18.84	12.880	
5,200.00	5,088.29	5,077.65	5,077.11	15.53	5.64	119.47	-884.68	-135.81	252.93	233.62	19.31	13.098	
5,300.00	5,185.67	5,175.71	5,175.13	15.83	5.77	123.09	-887.54	-136.52	264.31	244.52	19.79	13.355	
5,400.00	5,283.05	5,273.67	5,273.04	16.13	5.89	126.38	-890.48	-137.26	276.65	256.38	20.28	13.644	
5,500.00	5,380.43	5,372.13	5,371.45	16.43	6.02	129.39	-893.56	-138.00	289.76	269.00	20.76	13.956	
5,600.00	5,477.81	5,470.38	5,469.66	16.73	6.15	132.13	-896.65	-138.73	303.59	282.34	21.25	14.287	
5,700.00	5,575.19	5,568.32	5,567.54	17.03	6.27	134.61	-899.81	-139.46	318.00	296.27	21.73	14.632	
5,800.00	5,672.57	5,666.57	5,665.73	17.33	6.40	136.87	-903.01	-140.25	332.97	310.76	22.21	14.989	
5,900.00	5,769.95	5,765.13	5,764.23	17.63	6.53	138.92	-906.34	-141.05	348.34	325.65	22.69	15.352	
6,000.00	5,867.33	5,862.48	5,861.52	17.93	6.65	140.78	-909.69	-141.82	364.04	340.88	23.16	15.717	
6,100.00	5,964.70	5,960.11	5,959.09	18.23	6.78	142.49	-912.87	-142.70	380.31	356.68	23.63	16.095	
6,200.00	6,062.08	6,058.16	6,057.09	18.53	6.91	144.08	-916.04	-143.54	396.87	372.78	24.09	16.472	
6,300.00	6,159.46	6,156.29	6,155.17	18.83	7.03	145.52	-919.31	-144.49	413.70	389.15	24.55	16.850	
6,400.00	6,256.84	6,254.24	6,253.05	19.13	7.16	146.84	-922.60	-145.48	430.78	405.78	25.01	17.227	
6,500.00	6,354.22	6,351.73	6,350.48	19.43	7.28	148.05	-925.87	-146.54	448.12	422.66	25.46	17.603	
6,600.00	6,451.60	6,449.51	6,448.20	19.73	7.41	149.18	-929.02	-147.60	465.73	439.83	25.90	17.980	
6,694.27	6,543.40	6,541.51	6,540.17	20.02	7.53	150.22	-931.67	-148.29	482.58	456.25	26.33	18.328	
6,700.00	6,548.98	6,547.15	6,545.80	20.03	7.53	152.80	-931.83	-148.32	483.62	457.27	26.36	18.350	
6,750.00	6,597.52	6,595.63	6,594.27	20.18	7.60	173.23	-933.08	-148.56	494.16	467.59	26.57	18.598	
6,800.00	6,645.56	6,643.12	6,641.74	20.33	7.66	-171.50	-934.24	-148.73	507.09	480.33	26.76	18.946	
6,850.00	6,692.73	6,689.85	6,688.46	20.48	7.72	-160.86	-935.30	-148.91	522.40	495.46	26.94	19.392	
6,900.00	6,738.66	6,734.78	6,733.37	20.63	7.78	-153.40	-936.21	-149.05	540.05	512.96	27.09	19.934	
6,950.00	6,783.02	6,778.33	6,776.92	20.78	7.83	-147.96	-936.99	-149.23	560.09	532.86	27.23	20.572	
7,000.00	6,825.45	6,820.40	6,818.98	20.94	7.89	-143.80	-937.69	-149.36	582.44	555.09	27.34	21.300	
7,050.00	6,865.65	6,860.31	6,858.89	21.09	7.94	-140.41	-938.30	-149.50	607.17	579.72	27.45	22.121	
7,100.00	6,903.29	6,898.91	6,897.49	21.24	7.99	-137.50	-938.94	-149.65	634.20	606.66	27.54	23.029	
7,150.00	6,938.11	6,933.10	6,931.67	21.39	8.04	-134.65	-939.49	-149.75	663.54	635.91	27.62	24.023	
7,200.00	6,969.82	6,964.21	6,962.77	21.54	8.08	-131.72	-939.98	-149.87	695.16	667.47	27.69	25.102	
7,250.00	6,998.19	6,993.76	6,992.32	21.69	8.12	-128.66	-940.47	-150.01	728.95	701.19	27.76	26.257	
7,300.00	7,023.01	7,019.32	7,017.88	21.84	8.15	-125.13	-940.91	-150.08	764.72	736.89	27.83	27.478	
7,350.00	7,044.08	7,040.15	7,038.71	21.99	8.18	-120.91	-941.26	-150.12	802.32	774.42	27.90	28.761	
7,400.00	7,061.25	7,056.79	7,055.34	22.14	8.20	-115.90	-941.52	-150.15	841.54	813.58	27.96	30.096	
7,450.00	7,074.38	7,069.26	7,067.81	22.29	8.21	-109.99	-941.71	-150.17	882.13	854.10	28.03	31.471	
7,500.00	7,083.37	7,077.81	7,076.36	22.44	8.22	-103.19	-941.84	-150.20	923.78	895.68	28.10	32.875	
7,550.00	7,088.16	7,082.37	7,080.92	22.59	8.23	-95.62	-941.90	-150.21	966.17	938.00	28.17	34.294	
7,581.00	7,089.00	7,083.11	7,081.66	22.68	8.23	-90.65	-941.91	-150.21	992.67	964.45	28.22	35.176	
7,600.00	7,089.02	7,083.07	7,081.62	22.74	8.23	-90.65	-941.91	-150.21	1,009.00	980.75	28.25	35.717	
7,700.00	7,089.09	7,082.88	7,081.43	23.04	8.23	-90.62	-941.91	-150.21	1,096.33	1,067.91	28.43	38.567	
7,800.00	7,089.17	7,082.69	7,081.24	23.34	8.23	-90.60	-941.91	-150.21	1,185.67	1,157.04	28.63	41.413	
7,900.00	7,089.25	7,082.50	7,081.05	23.64	8.23	-90.58	-941.90	-150.21	1,276.59	1,247.73	28.86	44.241	
8,000.00	7,089.33	7,082.31	7,080.86	23.94	8.23	-90.56	-941.90	-150.21	1,368.77	1,339.68	29.10	47.044	
8,100.00	7,089.41	7,082.12	7,080.67	24.24	8.23	-90.54	-941.90	-150.21	1,461.99	1,432.64	29.35	49.815	
8,200.00	7,089.49	7,081.94	7,080.49	24.54	8.23	-90.52	-941.90	-150.21	1,556.04	1,526.43	29.61	52.550	
8,300.00	7,089.56	7,081.75	7,080.30	24.84	8.23	-90.50	-941.89	-150.21	1,650.80	1,620.92	29.88	55.246	
8,400.00	7,089.64	7,081.57	7,080.12	25.14	8.23	-90.48	-941.89	-150.21	1,746.14	1,715.98	30.16	57.902	
8,500.00	7,089.72	7,081.39	7,079.93	25.44	8.23	-90.46	-941.89	-150.21	1,841.97	1,811.54	30.44	60.517	
8,600.00	7,089.80	7,081.20	7,079.75	25.75	8.23	-90.44	-941.89	-150.20	1,938.23	1,907.51	30.72	63.090	
8,700.00	7,089.88	7,081.02	7,079.57	26.05	8.23	-90.42	-941.88	-150.20	2,034.85	2,003.84	31.01	65.621	
8,800.00	7,089.96	7,080.84	7,079.39	26.35	8.23	-90.40	-941.88	-150.20	2,131.77	2,100.48	31.30	68.111	
8,900.00	7,090.03	7,080.67	7,079.21	26.65	8.23	-90.38	-941.88	-150.20	2,228.97	2,197.38	31.59	70.559	
9,000.00	7,090.11	7,080.49	7,079.04	26.95	8.23	-90.36	-941.88	-150.20	2,326.41	2,294.53	31.88	72.966	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	7,080.31	7,078.86	27.25	8.23	-90.34	-941.87	-150.20	2,424.06	2,391.88	32.18	75.332	
9,200.00	7,090.27	7,080.14	7,078.69	27.55	8.23	-90.32	-941.87	-150.20	2,521.89	2,489.41	32.47	77.659	
9,300.00	7,090.35	7,079.96	7,078.51	27.85	8.23	-90.30	-941.87	-150.20	2,619.88	2,587.11	32.77	79.946	
9,400.00	7,090.43	7,079.79	7,078.34	28.15	8.23	-90.28	-941.87	-150.20	2,718.02	2,684.96	33.07	82.196	
9,500.00	7,090.51	7,079.62	7,078.17	28.45	8.23	-90.26	-941.86	-150.20	2,816.29	2,782.93	33.37	84.407	
9,600.00	7,090.58	7,079.45	7,078.00	28.75	8.23	-90.24	-941.86	-150.20	2,914.68	2,881.02	33.66	86.581	
9,700.00	7,090.66	7,079.28	7,077.83	29.05	8.23	-90.22	-941.86	-150.20	3,013.18	2,979.22	33.96	88.720	
9,800.00	7,090.74	7,079.11	7,077.66	29.35	8.23	-90.20	-941.86	-150.20	3,111.77	3,077.51	34.26	90.822	
9,900.00	7,090.82	7,078.94	7,077.49	29.65	8.23	-90.18	-941.85	-150.20	3,210.45	3,175.89	34.56	92.890	
10,000.00	7,090.90	7,078.77	7,077.32	29.95	8.23	-90.16	-941.85	-150.20	3,309.20	3,274.34	34.86	94.924	
10,100.00	7,090.98	7,078.61	7,077.16	30.25	8.23	-90.15	-941.85	-150.20	3,408.03	3,372.87	35.16	96.925	
10,200.00	7,091.05	7,078.44	7,076.99	30.55	8.23	-90.13	-941.85	-150.20	3,506.93	3,471.47	35.46	98.894	
10,300.00	7,091.13	7,078.28	7,076.83	30.85	8.23	-90.11	-941.84	-150.20	3,605.89	3,570.13	35.76	100.830	
10,400.00	7,091.21	7,078.11	7,076.66	31.15	8.23	-90.09	-941.84	-150.20	3,704.90	3,668.84	36.06	102.736	
10,500.00	7,091.29	7,077.95	7,076.50	31.45	8.23	-90.07	-941.84	-150.20	3,803.97	3,767.60	36.36	104.611	
10,600.00	7,091.37	7,077.79	7,076.34	31.76	8.22	-90.06	-941.84	-150.20	3,903.08	3,866.41	36.66	106.456	
10,700.00	7,091.45	7,077.63	7,076.18	32.06	8.22	-90.04	-941.83	-150.20	4,002.23	3,965.27	36.96	108.273	
10,800.00	7,091.53	7,077.47	7,076.02	32.36	8.22	-90.02	-941.83	-150.19	4,101.43	4,064.17	37.27	110.061	
10,900.00	7,091.60	7,077.31	7,075.86	32.66	8.22	-90.00	-941.83	-150.19	4,200.67	4,163.10	37.57	111.821	
11,000.00	7,091.68	7,077.15	7,075.70	32.96	8.22	-89.98	-941.83	-150.19	4,299.94	4,262.07	37.87	113.554	
11,100.00	7,091.76	7,077.00	7,075.54	33.26	8.22	-89.97	-941.82	-150.19	4,399.24	4,361.07	38.17	115.261	
11,200.00	7,091.84	7,076.84	7,075.39	33.56	8.22	-89.95	-941.82	-150.19	4,498.58	4,460.11	38.47	116.941	
11,300.00	7,091.92	7,076.68	7,075.23	33.86	8.22	-89.93	-941.82	-150.19	4,597.94	4,559.17	38.77	118.596	
11,400.00	7,092.00	7,076.53	7,075.08	34.16	8.22	-89.91	-941.82	-150.19	4,697.33	4,658.26	39.07	120.226	
11,500.00	7,092.07	7,076.38	7,074.93	34.46	8.22	-89.90	-941.82	-150.19	4,796.75	4,757.38	39.37	121.832	
11,600.00	7,092.15	7,076.22	7,074.77	34.76	8.22	-89.88	-941.81	-150.19	4,896.19	4,856.51	39.67	123.415	
11,700.00	7,092.23	7,076.07	7,074.62	35.06	8.22	-89.86	-941.81	-150.19	4,995.65	4,955.68	39.97	124.973	
11,800.00	7,092.31	7,075.92	7,074.47	35.36	8.22	-89.85	-941.81	-150.19	5,095.13	5,054.86	40.27	126.510	
11,900.00	7,092.39	7,075.77	7,074.32	35.66	8.22	-89.83	-941.81	-150.19	5,194.64	5,154.06	40.58	128.023	
12,000.00	7,092.47	7,075.62	7,074.17	35.96	8.22	-89.81	-941.80	-150.19	5,294.16	5,253.28	40.88	129.515	
12,100.00	7,092.55	7,075.47	7,074.02	36.26	8.22	-89.80	-941.80	-150.19	5,393.70	5,352.52	41.18	130.986	
12,200.00	7,092.62	7,075.33	7,073.88	36.56	8.22	-89.78	-941.80	-150.19	5,493.25	5,451.77	41.48	132.436	
12,300.00	7,092.70	7,075.18	7,073.73	36.86	8.22	-89.76	-941.80	-150.19	5,592.83	5,551.05	41.78	133.865	
12,400.00	7,092.78	7,075.03	7,073.58	37.16	8.22	-89.75	-941.80	-150.19	5,692.41	5,650.33	42.08	135.274	
12,500.00	7,092.86	7,075.00	7,073.55	37.46	8.22	-89.74	-941.80	-150.19	5,792.01	5,749.63	42.38	136.663	
12,600.00	7,092.94	7,075.00	7,073.55	37.76	8.22	-89.74	-941.80	-150.19	5,891.63	5,848.95	42.68	138.033	
12,700.00	7,093.02	7,075.00	7,073.55	38.06	8.22	-89.74	-941.80	-150.19	5,991.26	5,948.27	42.98	139.384	
12,800.00	7,093.09	7,075.00	7,073.55	38.36	8.22	-89.74	-941.80	-150.19	6,090.90	6,047.61	43.28	140.717	
12,900.00	7,093.17	7,075.00	7,073.55	38.66	8.22	-89.74	-941.80	-150.19	6,190.55	6,146.96	43.59	142.031	
13,000.00	7,093.25	7,074.22	7,072.77	38.96	8.22	-89.66	-941.78	-150.19	6,290.21	6,246.32	43.89	143.330	
13,100.00	7,093.33	7,074.09	7,072.64	39.26	8.22	-89.64	-941.78	-150.19	6,389.88	6,345.69	44.19	144.609	
13,200.00	7,093.41	7,073.96	7,072.50	39.56	8.22	-89.63	-941.78	-150.19	6,489.57	6,445.08	44.49	145.872	
13,300.00	7,093.49	7,073.82	7,072.37	39.86	8.22	-89.61	-941.78	-150.19	6,589.26	6,544.47	44.79	147.118	
13,400.00	7,093.57	7,073.69	7,072.24	40.16	8.22	-89.60	-941.78	-150.18	6,688.96	6,643.87	45.09	148.347	
13,500.00	7,093.64	7,073.57	7,072.11	40.47	8.22	-89.58	-941.77	-150.18	6,788.67	6,743.28	45.39	149.561	
13,600.00	7,093.72	7,073.44	7,071.99	40.77	8.22	-89.57	-941.77	-150.18	6,888.39	6,842.70	45.69	150.758	
13,700.00	7,093.80	7,073.31	7,071.86	41.07	8.22	-89.55	-941.77	-150.18	6,988.12	6,942.12	45.99	151.941	
13,800.00	7,093.88	7,073.18	7,071.73	41.37	8.22	-89.54	-941.77	-150.18	7,087.85	7,041.56	46.29	153.108	
13,900.00	7,093.96	7,073.06	7,071.61	41.67	8.22	-89.53	-941.77	-150.18	7,187.59	7,141.00	46.59	154.260	
14,000.00	7,094.04	7,072.93	7,071.48	41.97	8.22	-89.51	-941.76	-150.18	7,287.34	7,240.45	46.89	155.398	
14,100.00	7,094.11	7,072.81	7,071.36	42.27	8.22	-89.50	-941.76	-150.18	7,387.10	7,339.90	47.20	156.521	
14,200.00	7,094.19	7,072.68	7,071.23	42.57	8.22	-89.48	-941.76	-150.18	7,486.86	7,439.36	47.50	157.630	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	7,072.56	7,071.11	42.87	8.22	-89.47	-941.76	-150.18	7,586.63	7,538.83	47.80	158.726	
14,400.00	7,094.35	7,072.44	7,070.99	43.17	8.22	-89.46	-941.76	-150.18	7,686.40	7,638.31	48.10	159.807	
14,500.00	7,094.43	7,072.32	7,070.87	43.47	8.22	-89.44	-941.76	-150.18	7,786.18	7,737.79	48.40	160.876	
14,600.00	7,094.51	7,072.20	7,070.75	43.77	8.22	-89.43	-941.75	-150.18	7,885.97	7,837.27	48.70	161.932	
14,700.00	7,094.58	7,072.08	7,070.63	44.07	8.22	-89.42	-941.75	-150.18	7,985.76	7,936.76	49.00	162.974	
14,800.00	7,094.66	7,071.96	7,070.51	44.37	8.22	-89.40	-941.75	-150.18	8,085.56	8,036.26	49.30	164.005	
14,900.00	7,094.74	7,071.84	7,070.39	44.67	8.22	-89.39	-941.75	-150.18	8,185.36	8,135.76	49.60	165.023	
15,000.00	7,094.82	7,071.72	7,070.27	44.97	8.22	-89.38	-941.75	-150.18	8,285.17	8,235.26	49.90	166.028	
15,100.00	7,094.90	7,071.60	7,070.15	45.27	8.22	-89.36	-941.75	-150.18	8,384.98	8,334.77	50.20	167.022	
15,200.00	7,094.98	7,071.49	7,070.04	45.57	8.22	-89.35	-941.74	-150.18	8,484.79	8,434.29	50.50	168.004	
15,300.00	7,095.06	7,071.37	7,069.92	45.87	8.22	-89.34	-941.74	-150.18	8,584.61	8,533.81	50.80	168.975	
15,400.00	7,095.13	7,071.26	7,069.81	46.17	8.22	-89.32	-941.74	-150.18	8,684.44	8,633.33	51.10	169.934	
15,500.00	7,095.21	7,071.14	7,069.69	46.47	8.22	-89.31	-941.74	-150.18	8,784.26	8,732.86	51.41	170.882	
15,600.00	7,095.29	7,071.03	7,069.58	46.77	8.22	-89.30	-941.74	-150.18	8,884.09	8,832.39	51.71	171.819	
15,700.00	7,095.37	7,070.91	7,069.46	47.07	8.22	-89.29	-941.74	-150.18	8,983.93	8,931.92	52.01	172.746	
15,800.00	7,095.45	7,070.80	7,069.35	47.37	8.22	-89.27	-941.73	-150.18	9,083.77	9,031.46	52.31	173.662	
15,900.00	7,095.53	7,070.69	7,069.24	47.67	8.22	-89.26	-941.73	-150.18	9,183.61	9,131.00	52.61	174.567	
16,000.00	7,095.60	7,070.58	7,069.13	47.97	8.22	-89.25	-941.73	-150.18	9,283.46	9,230.55	52.91	175.463	
16,100.00	7,095.68	7,070.47	7,069.02	48.27	8.22	-89.24	-941.73	-150.18	9,383.31	9,330.10	53.21	176.348	
16,200.00	7,095.76	7,070.36	7,068.91	48.57	8.22	-89.22	-941.73	-150.18	9,483.16	9,429.65	53.51	177.224	
16,300.00	7,095.84	7,070.25	7,068.80	48.87	8.22	-89.21	-941.73	-150.18	9,583.01	9,529.20	53.81	178.089	
16,400.00	7,095.92	7,070.14	7,068.69	49.17	8.21	-89.20	-941.72	-150.18	9,682.87	9,628.76	54.11	178.946	
16,500.00	7,096.00	7,070.03	7,068.58	49.47	8.21	-89.19	-941.72	-150.18	9,782.73	9,728.32	54.41	179.793	
16,600.00	7,096.08	7,069.92	7,068.47	49.77	8.21	-89.18	-941.72	-150.18	9,882.60	9,827.89	54.71	180.630	
16,700.00	7,096.15	7,069.82	7,068.37	50.07	8.21	-89.16	-941.72	-150.18	9,982.47	9,927.45	55.01	181.459	
16,800.00	7,096.23	7,069.71	7,068.26	50.37	8.21	-89.15	-941.72	-150.18	10,082.33	10,027.02	55.31	182.279	
16,900.00	7,096.31	7,069.61	7,068.16	50.67	8.21	-89.14	-941.72	-150.17	10,182.21	10,126.59	55.61	183.089	
17,000.00	7,096.39	7,069.50	7,068.05	50.97	8.21	-89.13	-941.71	-150.17	10,282.08	10,226.17	55.91	183.892	
17,100.00	7,096.47	7,069.40	7,067.95	51.27	8.21	-89.12	-941.71	-150.17	10,381.96	10,325.74	56.21	184.685	
17,200.00	7,096.55	7,069.29	7,067.84	51.57	8.21	-89.10	-941.71	-150.17	10,481.84	10,425.32	56.51	185.471	
17,300.00	7,096.62	7,069.19	7,067.74	51.87	8.21	-89.09	-941.71	-150.17	10,581.72	10,524.90	56.82	186.248	
17,400.00	7,096.70	7,069.09	7,067.64	52.17	8.21	-89.08	-941.71	-150.17	10,681.60	10,624.49	57.12	187.017	
17,500.00	7,096.78	7,068.98	7,067.53	52.47	8.21	-89.07	-941.71	-150.17	10,781.49	10,724.07	57.42	187.778	
17,600.00	7,096.86	7,068.88	7,067.43	52.77	8.21	-89.06	-941.71	-150.17	10,881.38	10,823.66	57.72	188.531	
17,700.00	7,096.94	7,068.78	7,067.33	53.07	8.21	-89.05	-941.70	-150.17	10,981.27	10,923.25	58.02	189.276	
17,800.00	7,097.02	7,068.68	7,067.23	53.37	8.21	-89.04	-941.70	-150.17	11,081.16	11,022.84	58.32	190.014	
17,900.00	7,097.10	7,068.58	7,067.13	53.67	8.21	-89.03	-941.70	-150.17	11,181.05	11,122.43	58.62	190.744	
18,000.00	7,097.17	7,068.48	7,067.03	53.97	8.21	-89.01	-941.70	-150.17	11,280.95	11,222.03	58.92	191.467	
18,100.00	7,097.25	7,068.38	7,066.93	54.27	8.21	-89.00	-941.70	-150.17	11,380.85	11,321.63	59.22	192.183	
18,200.00	7,097.33	7,068.28	7,066.83	54.57	8.21	-88.99	-941.70	-150.17	11,480.75	11,421.23	59.52	192.891	
18,300.00	7,097.41	7,068.19	7,066.74	54.87	8.21	-88.98	-941.69	-150.17	11,580.65	11,520.83	59.82	193.593	
18,400.00	7,097.49	7,068.09	7,066.64	55.17	8.21	-88.97	-941.69	-150.17	11,680.55	11,620.43	60.12	194.287	
18,500.00	7,097.57	7,067.99	7,066.54	55.47	8.21	-88.96	-941.69	-150.17	11,780.45	11,720.03	60.42	194.975	
18,600.00	7,097.64	7,067.90	7,066.45	55.78	8.21	-88.95	-941.69	-150.17	11,880.36	11,819.64	60.72	195.655	
18,700.00	7,097.72	7,067.80	7,066.35	56.08	8.21	-88.94	-941.69	-150.17	11,980.27	11,919.25	61.02	196.329	
18,800.00	7,097.80	7,067.70	7,066.25	56.38	8.21	-88.93	-941.69	-150.17	12,080.18	12,018.86	61.32	196.997	
18,900.00	7,097.88	7,067.61	7,066.16	56.68	8.21	-88.92	-941.69	-150.17	12,180.09	12,118.47	61.62	197.658	
19,000.00	7,097.96	7,067.52	7,066.07	56.98	8.21	-88.91	-941.68	-150.17	12,280.00	12,218.08	61.92	198.313	
19,100.00	7,098.04	7,067.42	7,065.97	57.28	8.21	-88.90	-941.68	-150.17	12,379.91	12,317.69	62.22	198.961	
19,200.00	7,098.12	7,067.33	7,065.88	57.58	8.21	-88.89	-941.68	-150.17	12,479.83	12,417.31	62.52	199.603	
19,300.00	7,098.19	7,067.24	7,065.79	57.88	8.21	-88.88	-941.68	-150.17	12,579.75	12,516.92	62.82	200.239	
19,400.00	7,098.27	7,067.14	7,065.69	58.18	8.21	-88.86	-941.68	-150.17	12,679.66	12,616.54	63.12	200.869	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	7,067.05	7,065.60	58.48	8.21	-88.85	-941.68	-150.17	12,779.58	12,716.16	63.42	201.494	
19,600.00	7,098.43	7,066.96	7,065.51	58.78	8.21	-88.84	-941.68	-150.17	12,879.50	12,815.78	63.72	202.112	
19,700.00	7,098.51	7,066.87	7,065.42	59.08	8.21	-88.83	-941.68	-150.17	12,979.42	12,915.40	64.02	202.725	
19,800.00	7,098.59	7,066.78	7,065.33	59.38	8.21	-88.82	-941.67	-150.17	13,079.35	13,015.02	64.33	203.331	
19,900.00	7,098.66	7,066.69	7,065.24	59.68	8.21	-88.81	-941.67	-150.17	13,179.27	13,114.64	64.63	203.933	
20,000.00	7,098.74	7,066.60	7,065.15	59.98	8.21	-88.80	-941.67	-150.17	13,279.19	13,214.27	64.93	204.528	
20,100.00	7,098.82	7,066.51	7,065.06	60.28	8.21	-88.79	-941.67	-150.17	13,379.12	13,313.89	65.23	205.119	
20,200.00	7,098.90	7,066.42	7,064.97	60.58	8.21	-88.78	-941.67	-150.17	13,479.05	13,413.52	65.53	205.703	
20,300.00	7,098.98	7,066.33	7,064.88	60.88	8.21	-88.77	-941.67	-150.17	13,578.98	13,513.15	65.83	206.283	
20,328.16	7,099.00	7,066.31	7,064.86	60.96	8.21	-88.77	-941.67	-150.17	13,607.12	13,541.20	65.91	206.445	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 120-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	108.80	-1,077.02	3,164.19	3,342.93				
100.00	100.00	44.51	44.51	0.23	0.44	108.80	-1,077.02	3,164.19	3,342.47	3,341.80	0.67	5,025.704	
200.00	200.00	144.52	144.51	0.53	1.67	108.80	-1,077.02	3,164.19	3,342.47	3,340.28	2.19	1,525.231	
269.69	269.69	214.19	214.18	0.74	3.04	108.79	-1,076.72	3,164.19	3,342.37	3,338.60	3.77	885.863	
300.00	300.00	242.39	242.38	0.83	3.59	108.79	-1,076.74	3,164.19	3,342.38	3,337.96	4.42	756.279	
400.00	400.00	344.53	344.51	1.13	5.58	108.80	-1,077.02	3,164.19	3,342.47	3,335.76	6.71	498.375	
500.00	500.00	443.62	443.59	1.43	7.46	108.79	-1,076.64	3,164.19	3,342.34	3,333.45	8.89	375.926	
537.18	537.18	478.74	478.72	1.54	8.13	-65.78	-1,076.70	3,164.19	3,342.27	3,332.60	9.67	345.617	
600.00	599.98	538.07	538.04	1.73	9.26	-65.81	-1,076.96	3,164.19	3,341.74	3,330.75	10.99	304.150	
700.00	699.84	644.38	644.35	2.03	11.28	-65.94	-1,077.02	3,164.19	3,339.61	3,326.30	13.31	250.897	
800.00	799.45	744.00	743.97	2.33	13.18	-66.14	-1,077.02	3,164.19	3,336.06	3,320.55	15.51	215.134	
900.00	898.70	842.34	842.30	2.63	15.05	-66.42	-1,076.51	3,164.19	3,330.96	3,313.29	17.68	188.416	
1,000.00	997.47	939.34	939.30	2.93	16.90	-66.78	-1,076.68	3,164.19	3,324.74	3,304.91	19.83	167.702	
1,100.00	1,095.62	1,035.81	1,035.77	3.23	18.74	-67.20	-1,077.01	3,164.19	3,317.27	3,295.31	21.96	151.048	
1,157.34	1,151.58	1,096.16	1,096.10	3.40	19.96	-67.50	-1,077.02	3,164.19	3,312.37	3,289.01	23.36	141.808	
1,200.00	1,193.13	1,137.71	1,137.64	3.53	20.80	-67.65	-1,077.02	3,164.19	3,308.58	3,284.25	24.33	135.978	
1,300.00	1,290.51	1,235.08	1,235.02	3.83	22.79	-68.01	-1,077.02	3,164.19	3,299.80	3,273.19	26.61	123.987	
1,400.00	1,387.89	1,331.34	1,331.27	4.13	24.75	-68.38	-1,076.24	3,164.19	3,290.93	3,262.06	28.87	113.977	
1,500.00	1,485.27	1,426.44	1,426.36	4.43	26.68	-68.73	-1,076.47	3,164.19	3,282.49	3,251.38	31.11	105.514	
1,600.00	1,582.65	1,521.64	1,521.57	4.73	28.62	-69.07	-1,076.94	3,164.19	3,274.25	3,240.91	33.35	98.186	
1,700.00	1,680.02	1,624.66	1,624.54	5.03	30.72	-69.46	-1,077.02	3,164.19	3,266.03	3,230.28	35.75	91.360	
1,800.00	1,777.40	1,722.04	1,721.92	5.33	32.71	-69.82	-1,077.02	3,164.19	3,257.93	3,219.90	38.04	85.653	
1,900.00	1,874.78	1,818.58	1,818.44	5.63	34.68	-70.21	-1,075.93	3,164.19	3,249.69	3,209.39	40.31	80.625	
2,000.00	1,972.16	1,913.37	1,913.23	5.93	36.61	-70.56	-1,076.18	3,164.19	3,241.94	3,199.40	42.54	76.209	
2,100.00	2,069.54	2,008.31	2,008.16	6.23	38.55	-70.91	-1,076.73	3,164.19	3,234.41	3,189.63	44.78	72.233	
2,200.00	2,166.92	2,111.61	2,111.43	6.53	40.56	-71.30	-1,077.02	3,164.19	3,226.94	3,179.85	47.09	68.527	
2,300.00	2,264.30	2,208.99	2,208.81	6.83	42.41	-71.68	-1,077.02	3,164.19	3,219.54	3,170.30	49.24	65.385	
2,400.00	2,361.68	2,305.99	2,305.81	7.13	44.25	-72.07	-1,076.23	3,164.19	3,212.11	3,160.73	51.38	62.515	
2,500.00	2,459.06	2,401.59	2,401.41	7.43	46.07	-72.43	-1,076.41	3,164.19	3,205.05	3,151.55	53.50	59.911	
2,600.00	2,556.44	2,497.31	2,497.12	7.73	47.89	-72.80	-1,076.83	3,164.19	3,198.19	3,142.57	55.62	57.506	
2,700.00	2,653.82	2,598.54	2,598.33	8.03	49.81	-73.19	-1,077.02	3,164.19	3,191.41	3,133.57	57.84	55.178	
2,800.00	2,751.19	2,695.92	2,695.71	8.33	51.66	-73.57	-1,077.02	3,164.19	3,184.75	3,124.76	59.99	53.088	
2,900.00	2,848.57	2,793.19	2,792.97	8.63	53.51	-73.97	-1,076.47	3,164.19	3,178.13	3,115.99	62.14	51.146	
3,000.00	2,945.95	2,889.60	2,889.39	8.93	55.34	-74.35	-1,076.57	3,164.19	3,171.78	3,107.51	64.27	49.350	
3,100.00	3,043.33	2,986.10	2,985.88	9.23	57.18	-74.72	-1,076.83	3,164.19	3,165.62	3,099.21	66.41	47.671	
3,200.00	3,140.71	3,085.47	3,085.22	9.53	59.14	-75.12	-1,077.02	3,164.19	3,159.59	3,090.92	68.66	46.016	
3,300.00	3,238.09	3,182.84	3,182.60	9.83	61.12	-75.51	-1,077.02	3,164.19	3,153.67	3,082.73	70.95	44.451	
3,400.00	3,335.47	3,279.48	3,279.24	10.13	63.09	-75.91	-1,076.41	3,164.19	3,147.82	3,074.60	73.22	42.992	
3,500.00	3,432.85	3,375.41	3,375.16	10.43	65.05	-76.29	-1,076.71	3,164.19	3,142.26	3,066.79	75.47	41.634	
3,600.00	3,530.23	3,475.03	3,474.74	10.73	67.14	-76.68	-1,077.02	3,164.19	3,136.86	3,058.99	77.87	40.285	
3,700.00	3,627.61	3,572.41	3,572.12	11.03	69.27	-77.08	-1,077.02	3,164.19	3,131.57	3,051.27	80.29	39.002	
3,800.00	3,724.99	3,668.49	3,668.19	11.33	71.36	-77.48	-1,076.37	3,164.19	3,126.35	3,043.66	82.69	37.808	
3,900.00	3,822.36	3,764.12	3,763.82	11.63	73.45	-77.86	-1,076.92	3,164.19	3,121.44	3,036.36	85.08	36.689	
4,000.00	3,919.74	3,863.33	3,862.97	11.93	75.56	-78.27	-1,076.71	3,164.19	3,116.59	3,029.11	87.49	35.624	
4,100.00	4,017.12	3,962.01	3,961.64	12.23	77.49	-78.67	-1,077.02	3,164.19	3,111.96	3,022.25	89.71	34.688	
4,200.00	4,114.50	4,058.15	4,057.77	12.53	79.24	-79.07	-1,076.83	3,164.19	3,107.44	3,015.67	91.77	33.862	
4,300.00	4,211.88	4,156.78	4,156.39	12.83	80.96	-79.47	-1,077.02	3,164.19	3,103.12	3,009.34	93.78	33.089	
4,400.00	4,309.26	4,254.08	4,253.70	13.13	82.60	-79.88	-1,076.87	3,164.19	3,098.92	3,003.20	95.72	32.374	
4,500.00	4,406.64	4,351.10	4,350.71	13.43	84.23	-80.28	-1,076.97	3,164.19	3,094.91	2,997.25	97.66	31.691	
4,600.00	4,504.02	4,448.92	4,448.53	13.73	85.89	-80.68	-1,077.02	3,164.19	3,091.05	2,991.44	99.62	31.029	
4,700.00	4,601.40	4,546.14	4,545.75	14.03	87.54	-81.09	-1,076.90	3,164.19	3,087.35	2,985.78	101.57	30.398	
4,800.00	4,698.78	4,643.68	4,643.29	14.33	89.21	-81.50	-1,077.02	3,164.19	3,083.82	2,980.29	103.53	29.786	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 120-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	4,796.16	4,741.06	4,740.67	14.63	90.93	-81.91	-1,077.02	3,164.19	3,080.45	2,974.90	105.55	29.183	
5,000.00	4,893.53	4,838.26	4,837.87	14.93	92.65	-82.31	-1,076.93	3,164.19	3,077.25	2,969.67	107.57	28.606	
5,100.00	4,990.91	4,935.82	4,935.43	15.23	94.44	-82.72	-1,077.02	3,164.19	3,074.21	2,964.55	109.66	28.033	
5,200.00	5,088.29	5,033.14	5,032.74	15.53	96.29	-83.14	-1,076.76	3,164.19	3,071.33	2,959.51	111.82	27.468	
5,300.00	5,185.67	5,130.32	5,129.92	15.83	98.14	-83.54	-1,076.99	3,164.19	3,068.63	2,954.66	113.97	26.926	
5,400.00	5,283.05	5,227.97	5,227.56	16.13	100.06	-83.96	-1,077.02	3,164.19	3,066.09	2,949.90	116.18	26.390	
5,500.00	5,380.43	5,325.29	5,324.88	16.43	101.97	-84.37	-1,076.73	3,164.19	3,063.71	2,945.31	118.40	25.876	
5,600.00	5,477.81	5,422.75	5,422.32	16.73	103.94	-84.78	-1,077.02	3,164.19	3,061.50	2,940.83	120.67	25.371	
5,700.00	5,575.19	5,520.14	5,519.71	17.03	105.99	-85.20	-1,076.61	3,164.19	3,059.46	2,936.45	123.02	24.871	
5,800.00	5,672.57	5,654.45	5,617.08	17.33	108.84	-85.61	-1,077.02	3,164.19	3,057.59	2,931.42	126.16	24.235	
5,900.00	5,769.95	5,714.93	5,714.46	17.63	110.19	-86.02	-1,077.02	3,164.19	3,055.88	2,928.06	127.82	23.908	
6,000.00	5,867.33	5,812.79	5,812.31	17.93	112.39	-86.45	-1,076.50	3,164.19	3,054.36	2,924.05	130.31	23.439	
6,100.00	5,964.70	5,909.74	5,909.22	18.23	114.58	-86.85	-1,077.02	3,164.19	3,052.98	2,920.17	132.81	22.987	
6,200.00	6,062.08	6,007.15	6,006.62	18.53	116.84	-87.28	-1,076.34	3,164.19	3,051.81	2,916.44	135.37	22.544	
6,300.00	6,159.46	6,105.95	6,105.41	18.83	119.13	-87.69	-1,076.78	3,164.19	3,050.76	2,912.80	137.96	22.113	
6,400.00	6,256.84	6,201.95	6,201.35	19.13	121.32	-88.10	-1,077.02	3,164.19	3,049.89	2,909.45	140.44	21.716	
6,500.00	6,354.22	6,300.20	6,299.58	19.43	123.53	-88.53	-1,076.26	3,164.19	3,049.25	2,906.29	142.96	21.329	
6,600.00	6,451.60	6,400.06	6,399.43	19.73	125.79	-88.94	-1,077.17	3,164.19	3,048.67	2,903.15	145.51	20.951	
6,694.27	6,543.40	6,488.57	6,487.91	20.02	127.64	-89.32	-1,077.02	3,164.19	3,048.34	2,900.69	147.65	20.645	
6,700.00	6,548.98	6,494.15	6,493.49	20.03	127.76	-86.91	-1,077.02	3,164.19	3,048.30	2,900.51	147.79	20.626	
6,750.00	6,597.52	6,543.21	6,542.54	20.18	128.80	-67.91	-1,076.50	3,164.19	3,045.56	2,896.59	148.97	20.443	
6,800.00	6,645.56	6,592.21	6,591.54	20.33	129.83	-53.90	-1,076.67	3,164.19	3,038.49	2,888.33	150.16	20.235	
6,850.00	6,692.73	6,646.06	6,637.24	20.48	130.97	-44.42	-1,077.02	3,164.19	3,027.18	2,875.73	151.45	19.988	
6,900.00	6,738.66	6,683.88	6,683.18	20.63	131.77	-38.08	-1,077.02	3,164.19	3,011.77	2,859.37	152.40	19.762	
6,950.00	6,783.02	6,728.23	6,727.53	20.78	132.71	-33.81	-1,077.02	3,164.19	2,992.34	2,838.85	153.49	19.495	
7,000.00	6,825.45	6,770.73	6,770.02	20.94	133.61	-30.94	-1,076.47	3,164.19	2,969.11	2,814.57	154.54	19.213	
7,050.00	6,865.65	6,811.86	6,811.15	21.09	134.48	-29.05	-1,076.54	3,164.19	2,942.13	2,786.57	155.56	18.913	
7,100.00	6,903.29	6,850.44	6,849.73	21.24	135.30	-27.93	-1,076.71	3,164.19	2,911.66	2,755.13	156.53	18.602	
7,150.00	6,938.11	6,904.64	6,882.62	21.39	136.45	-27.41	-1,077.02	3,164.19	2,877.92	2,720.08	157.83	18.234	
7,200.00	6,969.82	6,918.74	6,918.02	21.54	136.74	-27.55	-1,077.26	3,164.19	2,841.18	2,682.91	158.27	17.951	
7,250.00	6,998.19	6,943.44	6,942.70	21.69	137.30	-28.24	-1,077.02	3,164.19	2,801.79	2,642.81	158.98	17.623	
7,300.00	7,023.01	6,968.26	6,967.52	21.84	137.85	-29.72	-1,077.02	3,164.19	2,759.94	2,600.26	159.68	17.285	
7,350.00	7,044.08	6,989.33	6,988.59	21.99	138.31	-32.19	-1,077.02	3,164.19	2,715.98	2,555.69	160.29	16.944	
7,400.00	7,061.25	7,006.50	7,005.76	22.14	138.69	-36.14	-1,077.02	3,164.19	2,670.24	2,509.43	160.81	16.604	
7,450.00	7,074.38	7,019.67	7,018.93	22.29	138.97	-42.57	-1,076.48	3,164.19	2,623.14	2,461.89	161.25	16.267	
7,500.00	7,083.37	7,028.91	7,028.17	22.44	139.18	-53.45	-1,076.49	3,164.19	2,574.88	2,413.27	161.61	15.933	
7,550.00	7,088.16	7,033.84	7,033.09	22.59	139.28	-72.50	-1,076.49	3,164.19	2,525.89	2,364.03	161.86	15.605	
7,581.00	7,089.00	7,034.70	7,033.96	22.68	139.30	-89.78	-1,076.49	3,164.19	2,495.32	2,333.34	161.98	15.405	
7,600.00	7,089.02	7,034.72	7,033.97	22.74	139.30	-89.78	-1,076.49	3,164.19	2,476.55	2,314.51	162.03	15.284	
7,700.00	7,089.09	7,034.80	7,034.05	23.04	139.31	-89.80	-1,076.49	3,164.19	2,377.85	2,215.51	162.34	14.648	
7,800.00	7,089.17	7,034.88	7,034.14	23.34	139.31	-89.81	-1,076.49	3,164.19	2,279.27	2,116.63	162.64	14.014	
7,900.00	7,089.25	7,034.96	7,034.22	23.64	139.31	-89.82	-1,076.49	3,164.19	2,180.81	2,017.87	162.94	13.384	
8,000.00	7,089.33	7,035.04	7,034.30	23.94	139.31	-89.83	-1,076.49	3,164.19	2,082.51	1,919.26	163.24	12.757	
8,100.00	7,089.41	7,035.12	7,034.38	24.24	139.31	-89.84	-1,076.49	3,164.19	1,984.37	1,820.82	163.55	12.133	
8,200.00	7,089.49	7,035.20	7,034.46	24.54	139.31	-89.86	-1,076.49	3,164.19	1,886.43	1,722.58	163.85	11.513	
8,300.00	7,089.56	7,035.29	7,034.54	24.84	139.32	-89.87	-1,076.49	3,164.19	1,788.71	1,624.56	164.15	10.897	
8,400.00	7,089.64	7,035.37	7,034.62	25.14	139.32	-89.88	-1,076.49	3,164.19	1,691.27	1,526.81	164.45	10.284	
8,500.00	7,089.72	7,035.45	7,034.70	25.44	139.32	-89.89	-1,076.49	3,164.19	1,594.14	1,429.38	164.76	9.676	
8,600.00	7,089.80	7,035.53	7,034.78	25.75	139.32	-89.90	-1,076.49	3,164.19	1,497.38	1,332.32	165.06	9.072	
8,700.00	7,089.88	7,035.61	7,034.87	26.05	139.32	-89.91	-1,076.49	3,164.19	1,401.09	1,235.73	165.36	8.473	
8,800.00	7,089.96	7,035.69	7,034.95	26.35	139.33	-89.93	-1,076.49	3,164.19	1,305.35	1,139.68	165.66	7.880	
8,900.00	7,090.03	7,035.77	7,035.03	26.65	139.33	-89.94	-1,076.49	3,164.19	1,210.29	1,044.33	165.96	7.293	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 120-A027Ua_INC-ONLY — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,090.11	7,035.85	7,035.11	26.95	139.33	-89.95	-1,076.49	3,164.19	1,116.11	949.84	166.27	6.713	
9,100.00	7,090.19	7,035.93	7,035.19	27.25	139.33	-89.96	-1,076.49	3,164.19	1,023.03	856.46	166.57	6.142	
9,200.00	7,090.27	7,036.02	7,035.27	27.55	139.33	-89.97	-1,076.49	3,164.19	931.38	764.51	166.87	5.582	
9,300.00	7,090.35	7,036.10	7,035.35	27.85	139.33	-89.99	-1,076.49	3,164.19	841.64	674.47	167.17	5.035	
9,400.00	7,090.43	7,036.18	7,035.43	28.15	139.34	-90.00	-1,076.49	3,164.19	754.48	587.01	167.47	4.505	
9,500.00	7,090.51	7,036.26	7,035.52	28.45	139.34	-90.01	-1,076.49	3,164.19	670.92	503.15	167.77	3.999	
9,600.00	7,090.58	7,036.34	7,035.60	28.75	139.34	-90.02	-1,076.49	3,164.19	592.46	424.39	168.07	3.525	
9,700.00	7,090.66	7,036.42	7,035.68	29.05	139.34	-90.03	-1,076.49	3,164.19	521.44	353.07	168.37	3.097	
9,800.00	7,090.74	7,036.50	7,035.76	29.35	139.34	-90.05	-1,076.49	3,164.19	461.29	292.62	168.67	2.735	
9,900.00	7,090.82	7,036.58	7,035.84	29.65	139.34	-90.06	-1,076.49	3,164.19	416.74	247.77	168.97	2.466	
10,000.00	7,090.90	7,036.67	7,035.92	29.95	139.35	-90.07	-1,076.49	3,164.19	393.14	223.86	169.27	2.323	
10,045.57	7,090.93	7,036.70	7,035.96	30.09	139.35	-90.08	-1,076.49	3,164.19	390.49	221.08	169.41	2.305	CC, ES, SF
10,100.00	7,090.98	7,036.75	7,036.00	30.25	139.35	-90.08	-1,076.49	3,164.19	394.26	224.68	169.58	2.325	
10,200.00	7,091.05	7,036.83	7,036.08	30.55	139.35	-90.09	-1,076.49	3,164.19	419.92	250.03	169.89	2.472	
10,300.00	7,091.13	7,036.91	7,036.17	30.85	139.35	-90.11	-1,076.49	3,164.19	466.06	295.87	170.19	2.738	
10,400.00	7,091.21	7,036.99	7,036.25	31.15	139.35	-90.12	-1,076.49	3,164.19	527.35	356.85	170.50	3.093	
10,500.00	7,091.29	7,037.07	7,036.33	31.45	139.36	-90.13	-1,076.49	3,164.19	599.16	428.35	170.81	3.508	
10,600.00	7,091.37	7,037.15	7,036.41	31.76	139.36	-90.14	-1,076.49	3,164.19	678.14	507.03	171.11	3.963	
10,700.00	7,091.45	7,037.23	7,036.49	32.06	139.36	-90.15	-1,076.49	3,164.19	762.08	590.66	171.41	4.446	
10,800.00	7,091.53	7,037.32	7,036.57	32.36	139.36	-90.17	-1,076.50	3,164.19	849.50	677.78	171.72	4.947	
10,900.00	7,091.60	7,037.40	7,036.65	32.66	139.36	-90.18	-1,076.50	3,164.19	939.43	767.41	172.02	5.461	
11,000.00	7,091.68	7,037.48	7,036.73	32.96	139.36	-90.19	-1,076.50	3,164.19	1,031.22	858.90	172.32	5.984	
11,100.00	7,091.76	7,037.56	7,036.82	33.26	139.37	-90.20	-1,076.50	3,164.19	1,124.41	951.79	172.62	6.514	
11,200.00	7,091.84	7,037.64	7,036.90	33.56	139.37	-90.21	-1,076.50	3,164.19	1,218.68	1,045.76	172.92	7.047	
11,300.00	7,091.92	7,037.72	7,036.98	33.86	139.37	-90.22	-1,076.50	3,164.19	1,313.80	1,140.57	173.23	7.584	
11,400.00	7,092.00	7,037.80	7,037.06	34.16	139.37	-90.24	-1,076.50	3,164.19	1,409.60	1,236.07	173.53	8.123	
11,500.00	7,092.07	7,037.88	7,037.14	34.46	139.37	-90.25	-1,076.50	3,164.19	1,505.94	1,332.10	173.83	8.663	
11,600.00	7,092.15	7,037.97	7,037.22	34.76	139.37	-90.26	-1,076.50	3,164.19	1,602.73	1,428.59	174.13	9.204	
11,700.00	7,092.23	7,038.05	7,037.30	35.06	139.38	-90.27	-1,076.50	3,164.19	1,699.89	1,525.45	174.44	9.745	
11,800.00	7,092.31	7,038.13	7,037.38	35.36	139.38	-90.28	-1,076.50	3,164.19	1,797.36	1,622.62	174.74	10.286	
11,900.00	7,092.39	7,038.21	7,037.47	35.66	139.38	-90.30	-1,076.50	3,164.19	1,895.10	1,720.06	175.04	10.827	
12,000.00	7,092.47	7,038.29	7,037.55	35.96	139.38	-90.31	-1,076.50	3,164.19	1,993.06	1,817.71	175.34	11.367	
12,100.00	7,092.55	7,038.37	7,037.63	36.26	139.38	-90.32	-1,076.50	3,164.19	2,091.21	1,915.57	175.64	11.906	
12,200.00	7,092.62	7,038.45	7,037.71	36.56	139.39	-90.33	-1,076.50	3,164.19	2,189.53	2,013.58	175.95	12.444	
12,300.00	7,092.70	7,038.53	7,037.79	36.86	139.39	-90.34	-1,076.50	3,164.19	2,288.00	2,111.75	176.25	12.982	
12,400.00	7,092.78	7,038.62	7,037.87	37.16	139.39	-90.36	-1,076.50	3,164.19	2,386.59	2,210.04	176.55	13.518	
12,500.00	7,092.86	7,038.70	7,037.95	37.46	139.39	-90.37	-1,076.50	3,164.19	2,485.30	2,308.44	176.85	14.053	
12,600.00	7,092.94	7,038.78	7,038.03	37.76	139.39	-90.38	-1,076.50	3,164.19	2,584.10	2,406.95	177.15	14.587	
12,700.00	7,093.02	7,038.86	7,038.12	38.06	139.39	-90.39	-1,076.50	3,164.19	2,683.00	2,505.54	177.46	15.119	
12,800.00	7,093.09	7,038.94	7,038.20	38.36	139.40	-90.40	-1,076.50	3,164.19	2,781.97	2,604.21	177.76	15.650	
12,900.00	7,093.17	7,039.02	7,038.28	38.66	139.40	-90.42	-1,076.50	3,164.19	2,881.01	2,702.95	178.06	16.180	
13,000.00	7,093.25	7,039.10	7,038.36	38.96	139.40	-90.43	-1,076.50	3,164.19	2,980.12	2,801.76	178.36	16.708	
13,100.00	7,093.33	7,039.19	7,038.44	39.26	139.40	-90.44	-1,076.50	3,164.19	3,079.29	2,900.62	178.66	17.235	
13,200.00	7,093.41	7,039.27	7,038.52	39.56	139.40	-90.45	-1,076.50	3,164.19	3,178.51	2,999.54	178.97	17.760	
13,300.00	7,093.49	7,039.35	7,038.60	39.86	139.41	-90.46	-1,076.50	3,164.19	3,277.77	3,098.50	179.27	18.284	
13,400.00	7,093.57	7,039.43	7,038.69	40.16	139.41	-90.48	-1,076.50	3,164.19	3,377.08	3,197.51	179.57	18.806	
13,500.00	7,093.64	7,039.51	7,038.77	40.47	139.41	-90.49	-1,076.50	3,164.19	3,476.43	3,296.56	179.87	19.327	
13,600.00	7,093.72	7,039.59	7,038.85	40.77	139.41	-90.50	-1,076.50	3,164.19	3,575.81	3,395.64	180.18	19.846	
13,700.00	7,093.80	7,039.67	7,038.93	41.07	139.41	-90.51	-1,076.50	3,164.19	3,675.23	3,494.75	180.48	20.364	
13,800.00	7,093.88	7,039.76	7,039.01	41.37	139.41	-90.52	-1,076.50	3,164.19	3,774.68	3,593.90	180.78	20.880	
13,900.00	7,093.96	7,039.84	7,039.09	41.67	139.42	-90.53	-1,076.50	3,164.19	3,874.16	3,693.08	181.08	21.395	
14,000.00	7,094.04	7,039.92	7,039.17	41.97	139.42	-90.55	-1,076.50	3,164.19	3,973.66	3,792.28	181.38	21.908	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 120-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,100.00	7,094.11	7,040.00	7,039.26	42.27	139.42	-90.56	-1,076.50	3,164.19	4,073.19	3,891.50	181.69	22.419	
14,200.00	7,094.19	7,040.08	7,039.34	42.57	139.42	-90.57	-1,076.50	3,164.19	4,172.74	3,990.75	181.99	22.929	
14,300.00	7,094.27	7,040.16	7,039.42	42.87	139.42	-90.58	-1,076.50	3,164.19	4,272.31	4,090.02	182.29	23.437	
14,400.00	7,094.35	7,040.24	7,039.50	43.17	139.42	-90.59	-1,076.50	3,164.19	4,371.90	4,189.31	182.59	23.944	
14,500.00	7,094.43	7,040.32	7,039.58	43.47	139.43	-90.61	-1,076.50	3,164.19	4,471.51	4,288.62	182.89	24.449	
14,600.00	7,094.51	7,040.41	7,039.66	43.77	139.43	-90.62	-1,076.50	3,164.19	4,571.14	4,387.94	183.20	24.952	
14,700.00	7,094.58	7,040.49	7,039.74	44.07	139.43	-90.63	-1,076.50	3,164.19	4,670.78	4,487.28	183.50	25.454	
14,800.00	7,094.66	7,040.57	7,039.83	44.37	139.43	-90.64	-1,076.50	3,164.19	4,770.44	4,586.64	183.80	25.955	
14,900.00	7,094.74	7,040.65	7,039.91	44.67	139.43	-90.65	-1,076.50	3,164.19	4,870.11	4,686.01	184.10	26.453	
15,000.00	7,094.82	7,040.73	7,039.99	44.97	139.44	-90.67	-1,076.50	3,164.19	4,969.79	4,785.39	184.40	26.951	
15,100.00	7,094.90	7,040.81	7,040.07	45.27	139.44	-90.68	-1,076.50	3,164.19	5,069.49	4,884.78	184.71	27.446	
15,200.00	7,094.98	7,040.90	7,040.15	45.57	139.44	-90.69	-1,076.50	3,164.19	5,169.20	4,984.19	185.01	27.941	
15,300.00	7,095.06	7,040.98	7,040.23	45.87	139.44	-90.70	-1,076.50	3,164.19	5,268.92	5,083.61	185.31	28.433	
15,400.00	7,095.13	7,041.06	7,040.31	46.17	139.44	-90.71	-1,076.50	3,164.19	5,368.65	5,183.04	185.61	28.924	
15,500.00	7,095.21	7,041.14	7,040.40	46.47	139.44	-90.73	-1,076.50	3,164.19	5,468.39	5,282.47	185.91	29.414	
15,600.00	7,095.29	7,041.22	7,040.48	46.77	139.45	-90.74	-1,076.50	3,164.19	5,568.14	5,381.92	186.22	29.902	
15,700.00	7,095.37	7,041.30	7,040.56	47.07	139.45	-90.75	-1,076.50	3,164.19	5,667.90	5,481.38	186.52	30.388	
15,800.00	7,095.45	7,041.38	7,040.64	47.37	139.45	-90.76	-1,076.50	3,164.19	5,767.66	5,580.84	186.82	30.873	
15,900.00	7,095.53	7,041.47	7,040.72	47.67	139.45	-90.77	-1,076.50	3,164.19	5,867.44	5,680.31	187.12	31.356	
16,000.00	7,095.60	7,041.55	7,040.80	47.97	139.45	-90.79	-1,076.50	3,164.19	5,967.22	5,779.79	187.42	31.838	
16,100.00	7,095.68	7,041.63	7,040.88	48.27	139.46	-90.80	-1,076.50	3,164.19	6,067.01	5,879.28	187.73	32.319	
16,200.00	7,095.76	7,041.71	7,040.97	48.57	139.46	-90.81	-1,076.50	3,164.19	6,166.80	5,978.78	188.03	32.797	
16,300.00	7,095.84	7,041.79	7,041.05	48.87	139.46	-90.82	-1,076.50	3,164.19	6,266.61	6,078.28	188.33	33.275	
16,400.00	7,095.92	7,041.87	7,041.13	49.17	139.46	-90.83	-1,076.50	3,164.19	6,366.41	6,177.78	188.63	33.751	
16,500.00	7,096.00	7,041.95	7,041.21	49.47	139.46	-90.85	-1,076.50	3,164.19	6,466.23	6,277.30	188.93	34.225	
16,600.00	7,096.08	7,042.04	7,041.29	49.77	139.46	-90.86	-1,076.50	3,164.19	6,566.05	6,376.81	189.23	34.698	
16,700.00	7,096.15	7,042.12	7,041.37	50.07	139.47	-90.87	-1,076.50	3,164.19	6,665.87	6,476.34	189.54	35.169	
16,800.00	7,096.23	7,042.20	7,041.45	50.37	139.47	-90.88	-1,076.50	3,164.19	6,765.71	6,575.87	189.84	35.639	
16,900.00	7,096.31	7,042.28	7,041.54	50.67	139.47	-90.89	-1,076.50	3,164.19	6,865.54	6,675.40	190.14	36.108	
17,000.00	7,096.39	7,042.36	7,041.62	50.97	139.47	-90.91	-1,076.50	3,164.19	6,965.38	6,774.94	190.44	36.575	
17,100.00	7,096.47	7,042.44	7,041.70	51.27	139.47	-90.92	-1,076.50	3,164.19	7,065.23	6,874.48	190.74	37.040	
17,200.00	7,096.55	7,042.53	7,041.78	51.57	139.47	-90.93	-1,076.50	3,164.19	7,165.08	6,974.03	191.05	37.504	
17,300.00	7,096.62	7,042.61	7,041.86	51.87	139.48	-90.94	-1,076.50	3,164.19	7,264.93	7,073.58	191.35	37.967	
17,400.00	7,096.70	7,042.69	7,041.94	52.17	139.48	-90.95	-1,076.50	3,164.19	7,364.79	7,173.14	191.65	38.428	
17,500.00	7,096.78	7,042.77	7,042.03	52.47	139.48	-90.97	-1,076.50	3,164.19	7,464.65	7,272.70	191.95	38.888	
17,600.00	7,096.86	7,042.85	7,042.11	52.77	139.48	-90.98	-1,076.50	3,164.19	7,564.51	7,372.26	192.25	39.346	
17,700.00	7,096.94	7,042.93	7,042.19	53.07	139.48	-90.99	-1,076.50	3,164.19	7,664.38	7,471.82	192.56	39.803	
17,800.00	7,097.02	7,043.01	7,042.27	53.37	139.49	-91.00	-1,076.50	3,164.19	7,764.25	7,571.39	192.86	40.259	
17,900.00	7,097.10	7,043.10	7,042.35	53.67	139.49	-91.01	-1,076.50	3,164.19	7,864.13	7,670.97	193.16	40.713	
18,000.00	7,097.17	7,043.18	7,042.43	53.97	139.49	-91.03	-1,076.50	3,164.19	7,964.01	7,770.54	193.46	41.166	
18,100.00	7,097.25	7,043.26	7,042.52	54.27	139.49	-91.04	-1,076.50	3,164.19	8,063.89	7,870.12	193.76	41.617	
18,200.00	7,097.33	7,043.34	7,042.60	54.57	139.49	-91.05	-1,076.50	3,164.19	8,163.77	7,969.71	194.07	42.067	
18,300.00	7,097.41	7,043.42	7,042.68	54.87	139.49	-91.06	-1,076.50	3,164.19	8,263.66	8,069.29	194.37	42.516	
18,400.00	7,097.49	7,043.50	7,042.76	55.17	139.50	-91.07	-1,076.50	3,164.19	8,363.55	8,168.88	194.67	42.963	
18,500.00	7,097.57	7,043.59	7,042.84	55.47	139.50	-91.08	-1,076.50	3,164.19	8,463.44	8,268.47	194.97	43.409	
18,600.00	7,097.64	7,043.67	7,042.92	55.78	139.50	-91.10	-1,076.51	3,164.19	8,563.33	8,368.06	195.27	43.853	
18,700.00	7,097.72	7,043.75	7,043.01	56.08	139.50	-91.11	-1,076.51	3,164.19	8,663.23	8,467.66	195.58	44.296	
18,800.00	7,097.80	7,043.83	7,043.09	56.38	139.50	-91.12	-1,076.51	3,164.19	8,763.13	8,567.25	195.88	44.738	
18,900.00	7,097.88	7,043.91	7,043.17	56.68	139.51	-91.13	-1,076.51	3,164.19	8,863.03	8,666.85	196.18	45.178	
19,000.00	7,097.96	7,043.99	7,043.25	56.98	139.51	-91.14	-1,076.51	3,164.19	8,962.94	8,766.46	196.48	45.617	
19,100.00	7,098.04	7,044.08	7,043.33	57.28	139.51	-91.16	-1,076.51	3,164.19	9,062.84	8,866.06	196.78	46.055	
19,200.00	7,098.12	7,044.16	7,043.41	57.58	139.51	-91.17	-1,076.51	3,164.19	9,162.75	8,965.67	197.09	46.491	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 120-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,098.19	7,044.24	7,043.49	57.88	139.51	-91.18	-1,076.51	3,164.19	9,262.66	9,065.27	197.39	46.926	
19,400.00	7,098.27	7,044.32	7,043.58	58.18	139.51	-91.19	-1,076.51	3,164.19	9,362.57	9,164.88	197.69	47.360	
19,500.00	7,098.35	7,044.40	7,043.66	58.48	139.52	-91.20	-1,076.51	3,164.19	9,462.49	9,264.50	197.99	47.792	
19,600.00	7,098.43	7,044.48	7,043.74	58.78	139.52	-91.22	-1,076.51	3,164.19	9,562.40	9,364.11	198.29	48.224	
19,700.00	7,098.51	7,044.57	7,043.82	59.08	139.52	-91.23	-1,076.51	3,164.19	9,662.32	9,463.73	198.59	48.653	
19,800.00	7,098.59	7,044.65	7,043.90	59.38	139.52	-91.24	-1,076.51	3,164.19	9,762.24	9,563.34	198.90	49.082	
19,900.00	7,098.66	7,044.73	7,043.98	59.68	139.52	-91.25	-1,076.51	3,164.19	9,862.16	9,662.96	199.20	49.509	
20,000.00	7,098.74	7,044.81	7,044.07	59.98	139.52	-91.26	-1,076.51	3,164.19	9,962.08	9,762.58	199.50	49.935	
20,100.00	7,098.82	7,044.89	7,044.15	60.28	139.53	-91.28	-1,076.51	3,164.19	10,062.01	9,862.20	199.80	50.360	
20,200.00	7,098.90	7,044.97	7,044.23	60.58	139.53	-91.29	-1,076.51	3,164.19	10,161.93	9,961.83	200.10	50.783	
20,300.00	7,098.98	7,045.06	7,044.31	60.88	139.53	-91.30	-1,076.51	3,164.19	10,261.86	10,061.45	200.41	51.205	
20,328.16	7,099.00	7,045.08	7,044.33	60.96	139.53	-91.30	-1,076.51	3,164.19	10,290.00	10,089.51	200.49	51.324	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #077B (Offset) - 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	0.00	0.00	138.03	-1,750.72	1,574.93	2,355.55				
100.00	100.00	43.51	43.51	0.23	0.39	138.03	-1,750.72	1,574.93	2,354.87	2,354.26	0.61	3,847.006	
200.00	200.00	143.51	143.51	0.53	1.27	138.03	-1,750.72	1,574.93	2,354.87	2,353.08	1.80	1,309.782	
300.00	300.00	243.51	243.51	0.83	2.16	138.03	-1,750.72	1,574.93	2,354.87	2,351.89	2.98	789.248	
400.00	400.00	343.51	343.51	1.13	3.51	138.03	-1,750.72	1,574.93	2,354.87	2,350.24	4.63	508.181	
500.00	500.00	443.51	443.51	1.43	5.35	138.03	-1,750.72	1,574.93	2,354.87	2,348.10	6.78	347.478	
600.00	599.98	543.49	543.49	1.73	7.19	-36.59	-1,750.72	1,574.93	2,353.47	2,344.55	8.92	263.848	
700.00	699.84	641.88	641.88	2.03	9.01	-36.72	-1,750.49	1,574.93	2,349.10	2,338.07	11.03	212.912	
800.00	799.45	740.02	740.01	2.33	10.82	-36.92	-1,750.61	1,574.93	2,342.21	2,329.07	13.14	178.221	
900.00	898.70	842.24	842.21	2.63	12.73	-37.22	-1,750.72	1,574.93	2,332.53	2,317.18	15.35	151.936	
1,000.00	997.47	941.00	940.98	2.93	14.60	-37.61	-1,750.72	1,574.93	2,320.05	2,302.53	17.53	132.374	
1,100.00	1,095.62	1,039.13	1,039.10	3.23	16.46	-38.10	-1,749.92	1,574.93	2,304.30	2,284.61	19.69	117.035	
1,157.34	1,151.58	1,092.68	1,092.65	3.40	17.48	-38.40	-1,749.96	1,574.93	2,294.44	2,273.56	20.88	109.901	
1,200.00	1,193.13	1,132.46	1,132.44	3.53	18.23	-38.55	-1,750.04	1,574.93	2,286.82	2,265.06	21.76	105.092	
1,300.00	1,290.51	1,225.79	1,225.76	3.83	20.00	-38.88	-1,750.39	1,574.93	2,269.17	2,245.34	23.83	95.218	
1,400.00	1,387.89	1,331.45	1,331.40	4.13	22.01	-39.26	-1,750.72	1,574.93	2,251.55	2,225.41	26.14	86.139	
1,500.00	1,485.27	1,428.83	1,428.78	4.43	23.86	-39.63	-1,750.72	1,574.93	2,233.80	2,205.51	28.29	78.960	
1,600.00	1,582.65	1,526.21	1,526.16	4.73	25.71	-40.00	-1,750.72	1,574.93	2,216.14	2,185.70	30.44	72.798	
1,700.00	1,680.02	1,621.16	1,621.10	5.03	27.52	-40.38	-1,750.24	1,574.93	2,198.24	2,165.69	32.55	67.539	
1,800.00	1,777.40	1,716.04	1,715.98	5.33	29.32	-40.75	-1,750.47	1,574.93	2,180.94	2,146.29	34.65	62.938	
1,900.00	1,874.78	1,818.38	1,818.30	5.63	31.29	-41.15	-1,750.72	1,574.93	2,163.73	2,126.81	36.92	58.606	
2,000.00	1,972.16	1,915.76	1,915.67	5.93	33.20	-41.54	-1,750.72	1,574.93	2,146.46	2,107.33	39.13	54.856	
2,100.00	2,069.54	2,013.13	2,013.05	6.23	35.11	-41.94	-1,750.72	1,574.93	2,129.29	2,087.96	41.34	51.509	
2,200.00	2,166.92	2,107.63	2,107.54	6.53	36.96	-42.35	-1,749.98	1,574.93	2,111.73	2,068.24	43.49	48.556	
2,300.00	2,264.30	2,201.58	2,201.49	6.83	38.80	-42.75	-1,750.28	1,574.93	2,094.99	2,049.36	45.63	45.910	
2,400.00	2,361.68	2,305.32	2,305.19	7.13	40.84	-43.19	-1,750.72	1,574.93	2,078.43	2,030.47	47.97	43.331	
2,500.00	2,459.06	2,402.69	2,402.57	7.43	42.75	-43.61	-1,750.72	1,574.93	2,061.70	2,011.52	50.18	41.087	
2,600.00	2,556.44	2,500.07	2,499.95	7.73	44.66	-44.05	-1,750.72	1,574.93	2,045.09	1,992.69	52.39	39.034	
2,700.00	2,653.82	2,595.21	2,595.08	8.03	46.53	-44.50	-1,749.96	1,574.93	2,028.09	1,973.53	54.56	37.172	
2,800.00	2,751.19	2,689.41	2,689.28	8.33	48.38	-44.92	-1,750.23	1,574.93	2,011.91	1,955.20	56.71	35.477	
2,900.00	2,848.57	2,792.25	2,792.09	8.63	50.41	-45.39	-1,750.72	1,574.93	1,995.97	1,936.93	59.04	33.808	
3,000.00	2,945.95	2,889.63	2,889.47	8.93	52.39	-45.85	-1,750.72	1,574.93	1,979.84	1,918.53	61.31	32.290	
3,100.00	3,043.33	2,987.01	2,986.84	9.23	54.36	-46.32	-1,750.72	1,574.93	1,963.85	1,900.26	63.59	30.883	
3,200.00	3,140.71	3,082.72	3,082.55	9.53	56.30	-46.81	-1,749.94	1,574.93	1,947.51	1,881.68	65.83	29.582	
3,300.00	3,238.09	3,177.20	3,177.02	9.83	58.22	-47.28	-1,750.18	1,574.93	1,931.96	1,863.91	68.05	28.390	
3,400.00	3,335.47	3,271.79	3,271.61	10.13	60.14	-47.74	-1,750.67	1,574.93	1,916.68	1,846.41	70.27	27.276	
3,500.00	3,432.85	3,376.59	3,376.36	10.43	62.34	-48.28	-1,750.72	1,574.93	1,901.27	1,828.50	72.77	26.126	
3,600.00	3,530.23	3,473.97	3,473.74	10.73	64.40	-48.79	-1,750.72	1,574.93	1,885.98	1,810.86	75.13	25.104	
3,700.00	3,627.61	3,571.34	3,571.12	11.03	66.45	-49.30	-1,750.72	1,574.93	1,870.85	1,793.37	77.48	24.146	
3,800.00	3,724.99	3,668.72	3,668.50	11.33	68.50	-49.83	-1,750.72	1,574.93	1,855.87	1,776.04	79.83	23.247	
3,900.00	3,822.36	3,766.10	3,765.88	11.63	70.56	-50.36	-1,750.72	1,574.93	1,841.05	1,758.87	82.19	22.401	
4,000.00	3,919.74	3,863.48	3,863.26	11.93	72.61	-50.90	-1,750.72	1,574.93	1,826.40	1,741.86	84.54	21.604	
4,100.00	4,017.12	3,960.86	3,960.64	12.23	74.66	-51.45	-1,750.72	1,574.93	1,811.91	1,725.02	86.89	20.852	
4,200.00	4,114.50	4,058.24	4,058.01	12.53	76.72	-52.01	-1,750.72	1,574.93	1,797.59	1,708.35	89.25	20.142	
4,300.00	4,211.88	4,155.57	4,155.31	12.83	78.77	-52.68	-1,746.92	1,574.93	1,781.40	1,689.80	91.60	19.448	
4,400.00	4,309.26	4,252.06	4,251.79	13.13	80.80	-53.25	-1,746.97	1,574.93	1,767.49	1,673.56	93.93	18.817	
4,500.00	4,406.64	4,348.59	4,348.32	13.43	82.84	-53.82	-1,747.12	1,574.93	1,753.82	1,657.56	96.27	18.218	
4,600.00	4,504.02	4,445.16	4,444.89	13.73	84.88	-54.40	-1,747.36	1,574.93	1,740.39	1,641.78	98.60	17.650	
4,700.00	4,601.40	4,541.79	4,541.51	14.03	86.91	-54.99	-1,747.69	1,574.93	1,727.19	1,626.25	100.94	17.111	
4,800.00	4,698.78	4,638.45	4,638.17	14.33	88.95	-55.59	-1,748.11	1,574.93	1,714.23	1,610.95	103.28	16.598	
4,900.00	4,796.16	4,735.17	4,734.88	14.63	90.99	-56.19	-1,748.63	1,574.93	1,701.50	1,595.89	105.62	16.110	
5,000.00	4,893.53	4,831.93	4,831.63	14.93	93.03	-56.79	-1,749.25	1,574.93	1,689.02	1,581.07	107.96	15.645	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #077B (Offset) - 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
5,100.00	4,990.91	4,928.73	4,928.43	15.23	95.07	-57.41	-1,749.96	1,574.93	1,676.79	1,566.49	110.30	15.202	
5,200.00	5,088.29	5,032.30	5,031.81	15.53	97.26	-58.07	-1,750.72	1,574.93	1,664.76	1,551.98	112.78	14.761	
5,300.00	5,185.67	5,129.68	5,129.18	15.83	99.32	-58.73	-1,750.72	1,574.93	1,652.61	1,537.47	115.15	14.352	
5,400.00	5,283.05	5,227.05	5,226.56	16.13	101.38	-59.39	-1,750.72	1,574.93	1,640.69	1,523.18	117.51	13.962	
5,500.00	5,380.43	5,324.43	5,323.94	16.43	103.45	-60.07	-1,750.72	1,574.93	1,629.00	1,509.13	119.87	13.589	
5,600.00	5,477.81	5,421.81	5,421.32	16.73	105.51	-60.75	-1,750.72	1,574.93	1,617.54	1,495.31	122.24	13.233	
5,700.00	5,575.19	5,519.19	5,518.70	17.03	107.57	-61.45	-1,750.72	1,574.93	1,606.33	1,481.73	124.60	12.892	
5,800.00	5,672.57	5,616.57	5,616.08	17.33	109.63	-62.15	-1,750.72	1,574.93	1,595.35	1,468.39	126.96	12.566	
5,900.00	5,769.95	5,713.95	5,713.46	17.63	111.70	-62.86	-1,750.72	1,574.93	1,584.63	1,455.31	129.32	12.253	
6,000.00	5,867.33	5,811.33	5,810.84	17.93	113.76	-63.58	-1,750.72	1,574.93	1,574.17	1,442.48	131.69	11.954	
6,100.00	5,964.70	5,908.71	5,908.22	18.23	115.82	-64.31	-1,750.72	1,574.93	1,563.96	1,429.91	134.05	11.667	
6,200.00	6,062.08	6,006.09	6,005.60	18.53	117.89	-65.05	-1,750.72	1,574.93	1,554.03	1,417.61	136.41	11.392	
6,300.00	6,159.46	6,103.47	6,102.98	18.83	119.95	-65.80	-1,750.72	1,574.93	1,544.36	1,405.58	138.78	11.128	
6,400.00	6,256.84	6,200.85	6,200.35	19.13	122.01	-66.56	-1,750.72	1,574.93	1,534.97	1,393.83	141.14	10.876	
6,500.00	6,354.22	6,298.22	6,297.73	19.43	124.08	-67.33	-1,750.72	1,574.93	1,525.86	1,382.36	143.50	10.633	
6,541.14	6,394.29	6,338.29	6,337.80	19.56	124.92	-67.64	-1,750.72	1,574.93	1,522.19	1,377.72	144.48	10.536	
6,600.00	6,451.60	6,219.00	6,218.33	19.73	122.40	-66.70	-1,750.72	1,574.93	1,527.30	1,385.98	141.32	10.807	
6,694.27	6,543.40	6,219.00	6,218.33	20.02	122.40	-66.70	-1,750.72	1,574.93	1,532.70	1,392.14	140.56	10.904	
6,700.00	6,548.98	6,219.00	6,218.33	20.03	122.40	-64.28	-1,750.72	1,574.93	1,533.19	1,392.68	140.50	10.912	
6,750.00	6,597.52	6,219.00	6,218.33	20.18	122.40	-45.12	-1,750.72	1,574.93	1,536.03	1,396.12	139.91	10.978	
6,800.00	6,645.56	6,219.00	6,218.33	20.33	122.40	-30.84	-1,750.72	1,574.93	1,536.35	1,397.15	139.20	11.037	
6,850.00	6,692.73	6,219.00	6,218.33	20.48	122.40	-20.96	-1,750.72	1,574.93	1,534.14	1,395.77	138.36	11.088	
6,900.00	6,738.66	6,219.00	6,218.33	20.63	122.40	-14.07	-1,750.72	1,574.93	1,529.40	1,392.00	137.41	11.130	
6,950.00	6,783.02	6,219.00	6,218.33	20.78	122.40	-9.09	-1,750.72	1,574.93	1,522.16	1,385.83	136.33	11.165	
7,000.00	6,825.45	6,219.00	6,218.33	20.94	122.40	-5.32	-1,750.72	1,574.93	1,512.42	1,377.28	135.14	11.192	
7,050.00	6,865.65	6,219.00	6,218.33	21.09	122.40	-2.33	-1,750.72	1,574.93	1,500.22	1,366.38	133.84	11.209	
7,100.00	6,903.29	6,219.00	6,218.33	21.24	122.40	0.14	-1,750.72	1,574.93	1,485.59	1,353.16	132.43	11.218	
7,150.00	6,938.11	6,219.00	6,218.33	21.39	122.40	2.29	-1,750.72	1,574.93	1,468.57	1,337.65	130.92	11.217	
7,200.00	6,969.82	6,219.00	6,218.33	21.54	122.40	4.22	-1,750.72	1,574.93	1,449.20	1,319.88	129.32	11.206	
7,250.00	6,998.19	6,219.00	6,218.33	21.69	122.40	6.04	-1,750.72	1,574.93	1,427.55	1,299.91	127.64	11.184	
7,300.00	7,023.01	6,219.00	6,218.33	21.84	122.40	7.81	-1,750.72	1,574.93	1,403.68	1,277.79	125.89	11.150	
7,350.00	7,044.08	6,219.00	6,218.33	21.99	122.40	9.59	-1,750.72	1,574.93	1,377.65	1,253.57	124.08	11.103	
7,400.00	7,061.25	6,219.00	6,218.33	22.14	122.40	11.44	-1,750.72	1,574.93	1,349.55	1,227.33	122.22	11.042	
7,450.00	7,074.38	6,219.00	6,218.33	22.29	122.40	13.41	-1,750.72	1,574.93	1,319.46	1,199.13	120.33	10.965	
7,500.00	7,083.37	6,219.00	6,218.33	22.44	122.40	15.56	-1,750.72	1,574.93	1,287.49	1,169.05	118.44	10.871	
7,550.00	7,088.16	6,219.00	6,218.33	22.59	122.40	17.95	-1,750.72	1,574.93	1,253.73	1,137.18	116.55	10.757	
7,581.00	7,089.00	6,219.00	6,218.33	22.68	122.40	19.58	-1,750.72	1,574.93	1,231.97	1,116.57	115.40	10.676	
7,600.00	7,089.02	6,219.00	6,218.33	22.74	122.40	19.58	-1,750.72	1,574.93	1,218.51	1,103.82	114.69	10.624	
7,700.00	7,089.09	6,219.00	6,218.33	23.04	122.40	19.58	-1,750.72	1,574.93	1,150.26	1,039.71	110.55	10.405	
7,800.00	7,089.17	6,219.00	6,218.33	23.34	122.40	19.58	-1,750.72	1,574.93	1,086.94	981.26	105.68	10.285	
7,900.00	7,089.25	6,219.00	6,218.33	23.64	122.40	19.58	-1,750.72	1,574.93	1,029.46	929.41	100.05	10.289	
8,000.00	7,089.33	6,219.00	6,218.33	23.94	122.40	19.58	-1,750.72	1,574.93	978.83	885.12	93.71	10.445	
8,100.00	7,089.41	6,219.00	6,218.33	24.24	122.40	19.58	-1,750.72	1,574.93	936.19	849.30	86.90	10.774	
8,200.00	7,089.49	6,219.00	6,218.33	24.54	122.40	19.58	-1,750.72	1,574.93	902.66	822.54	80.12	11.267	
8,300.00	7,089.56	6,219.00	6,218.33	24.84	122.40	19.58	-1,750.72	1,574.93	879.28	804.97	74.31	11.833	
8,400.00	7,089.64	6,219.00	6,218.33	25.14	122.40	19.58	-1,750.72	1,574.93	866.87	796.08	70.80	12.245	
8,458.31	7,089.69	6,219.00	6,218.33	25.32	122.40	19.58	-1,750.72	1,574.93	864.91	794.60	70.31	12.301	CC, ES
8,500.00	7,089.72	6,219.00	6,218.33	25.44	122.40	19.58	-1,750.72	1,574.93	865.92	795.15	70.76	12.237	
8,600.00	7,089.80	6,219.00	6,218.33	25.75	122.40	19.58	-1,750.72	1,574.93	876.44	802.12	74.32	11.792	
8,700.00	7,089.88	6,219.00	6,218.33	26.05	122.40	19.58	-1,750.72	1,574.93	898.05	817.62	80.42	11.166	
8,800.00	7,089.96	6,219.00	6,218.33	26.35	122.40	19.58	-1,750.72	1,574.93	929.96	842.25	87.71	10.603	
8,900.00	7,090.03	6,219.00	6,218.33	26.65	122.40	19.58	-1,750.72	1,574.93	971.17	876.00	95.17	10.205	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #077B (Offset) - 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
9,000.00	7,090.11	6,219.00	6,218.33	26.95	122.40	19.58	-1,750.72	1,574.93	1,020.54	918.33	102.21	9.985	
9,100.00	7,090.19	6,219.00	6,218.33	27.25	122.40	19.58	-1,750.72	1,574.93	1,076.96	968.39	108.57	9.920	SF
9,200.00	7,090.27	6,219.00	6,218.33	27.55	122.40	19.58	-1,750.72	1,574.93	1,139.38	1,025.21	114.17	9.980	
9,300.00	7,090.35	6,219.00	6,218.33	27.85	122.40	19.58	-1,750.72	1,574.93	1,206.86	1,087.83	119.03	10.139	
9,400.00	7,090.43	6,219.00	6,218.33	28.15	122.40	19.58	-1,750.72	1,574.93	1,278.61	1,155.38	123.23	10.376	
9,500.00	7,090.51	6,219.00	6,218.33	28.45	122.40	19.58	-1,750.72	1,574.93	1,353.96	1,227.11	126.85	10.674	
9,600.00	7,090.58	6,219.00	6,218.33	28.75	122.40	19.58	-1,750.72	1,574.93	1,432.32	1,302.35	129.97	11.020	
9,700.00	7,090.66	6,219.00	6,218.33	29.05	122.40	19.58	-1,750.72	1,574.93	1,513.23	1,380.56	132.67	11.406	
9,800.00	7,090.74	6,219.00	6,218.33	29.35	122.40	19.58	-1,750.72	1,574.93	1,596.31	1,461.29	135.02	11.822	
9,900.00	7,090.82	6,219.00	6,218.33	29.65	122.40	19.58	-1,750.72	1,574.93	1,681.23	1,544.15	137.08	12.264	
10,000.00	7,090.90	6,219.00	6,218.33	29.95	122.40	19.58	-1,750.72	1,574.93	1,767.73	1,628.84	138.90	12.727	
10,100.00	7,090.98	6,219.00	6,218.33	30.25	122.40	19.58	-1,750.72	1,574.93	1,855.59	1,715.08	140.51	13.206	
10,200.00	7,091.05	6,219.00	6,218.33	30.55	122.40	19.58	-1,750.72	1,574.93	1,944.62	1,802.68	141.95	13.700	
10,300.00	7,091.13	6,219.00	6,218.33	30.85	122.40	19.58	-1,750.72	1,574.93	2,034.67	1,891.43	143.24	14.205	
10,400.00	7,091.21	6,219.00	6,218.33	31.15	122.40	19.58	-1,750.72	1,574.93	2,125.62	1,981.20	144.41	14.719	
10,500.00	7,091.29	6,219.00	6,218.33	31.45	122.40	19.58	-1,750.72	1,574.93	2,217.34	2,071.86	145.48	15.242	
10,600.00	7,091.37	6,219.00	6,218.33	31.76	122.40	19.58	-1,750.72	1,574.93	2,309.74	2,163.29	146.46	15.771	
10,700.00	7,091.45	6,219.00	6,218.33	32.06	122.40	19.58	-1,750.72	1,574.93	2,402.76	2,255.40	147.36	16.306	
10,800.00	7,091.53	6,219.00	6,218.33	32.36	122.40	19.58	-1,750.72	1,574.93	2,496.32	2,348.12	148.19	16.845	
10,900.00	7,091.60	6,219.00	6,218.33	32.66	122.40	19.58	-1,750.72	1,574.93	2,590.35	2,441.38	148.97	17.388	
11,000.00	7,091.68	6,219.00	6,218.33	32.96	122.40	19.58	-1,750.72	1,574.93	2,684.82	2,535.12	149.70	17.935	
11,100.00	7,091.76	6,219.00	6,218.33	33.26	122.40	19.58	-1,750.72	1,574.93	2,779.68	2,629.29	150.39	18.483	
11,200.00	7,091.84	6,219.00	6,218.33	33.56	122.40	19.58	-1,750.72	1,574.93	2,874.88	2,723.85	151.04	19.034	
11,300.00	7,091.92	6,219.00	6,218.33	33.86	122.40	19.58	-1,750.72	1,574.93	2,970.40	2,818.75	151.65	19.587	
11,400.00	7,092.00	6,219.00	6,218.33	34.16	122.40	19.58	-1,750.72	1,574.93	3,066.21	2,913.97	152.24	20.140	
11,500.00	7,092.07	6,219.00	6,218.33	34.46	122.40	19.58	-1,750.72	1,574.93	3,162.27	3,009.47	152.80	20.695	
11,600.00	7,092.15	6,219.00	6,218.33	34.76	122.40	19.58	-1,750.72	1,574.93	3,258.57	3,105.23	153.34	21.250	
11,700.00	7,092.23	6,219.00	6,218.33	35.06	122.40	19.58	-1,750.72	1,574.93	3,355.09	3,201.23	153.86	21.806	
11,800.00	7,092.31	6,219.00	6,218.33	35.36	122.40	19.58	-1,750.72	1,574.93	3,451.81	3,297.45	154.36	22.362	
11,900.00	7,092.39	6,219.00	6,218.33	35.66	122.40	19.58	-1,750.72	1,574.93	3,548.71	3,393.86	154.85	22.918	
12,000.00	7,092.47	6,219.00	6,218.33	35.96	122.40	19.58	-1,750.72	1,574.93	3,645.77	3,490.46	155.32	23.473	
12,100.00	7,092.55	6,219.00	6,218.33	36.26	122.40	19.58	-1,750.72	1,574.93	3,742.99	3,587.22	155.77	24.028	
12,200.00	7,092.62	6,219.00	6,218.33	36.56	122.40	19.58	-1,750.72	1,574.93	3,840.36	3,684.14	156.22	24.583	
12,300.00	7,092.70	6,219.00	6,218.33	36.86	122.40	19.58	-1,750.72	1,574.93	3,937.85	3,781.20	156.66	25.137	
12,400.00	7,092.78	6,219.00	6,218.33	37.16	122.40	19.58	-1,750.72	1,574.93	4,035.47	3,878.39	157.08	25.690	
12,500.00	7,092.86	6,219.00	6,218.33	37.46	122.40	19.58	-1,750.72	1,574.93	4,133.20	3,975.70	157.50	26.243	
12,600.00	7,092.94	6,219.00	6,218.33	37.76	122.40	19.58	-1,750.72	1,574.93	4,231.04	4,073.13	157.91	26.795	
12,700.00	7,093.02	6,219.00	6,218.33	38.06	122.40	19.58	-1,750.72	1,574.93	4,328.98	4,170.67	158.31	27.345	
12,800.00	7,093.09	6,219.00	6,218.33	38.36	122.40	19.58	-1,750.72	1,574.93	4,427.00	4,268.30	158.70	27.895	
12,900.00	7,093.17	6,219.00	6,218.33	38.66	122.40	19.58	-1,750.72	1,574.93	4,525.12	4,366.03	159.09	28.444	
13,000.00	7,093.25	6,219.00	6,218.33	38.96	122.40	19.58	-1,750.72	1,574.93	4,623.31	4,463.84	159.47	28.991	
13,100.00	7,093.33	6,219.00	6,218.33	39.26	122.40	19.58	-1,750.72	1,574.93	4,721.59	4,561.73	159.85	29.537	
13,200.00	7,093.41	6,219.00	6,218.33	39.56	122.40	19.58	-1,750.72	1,574.93	4,819.93	4,659.70	160.23	30.082	
13,300.00	7,093.49	6,219.00	6,218.33	39.86	122.40	19.58	-1,750.72	1,574.93	4,918.34	4,757.74	160.59	30.626	
13,400.00	7,093.57	6,219.00	6,218.33	40.16	122.40	19.58	-1,750.72	1,574.93	5,016.81	4,855.85	160.96	31.168	
13,500.00	7,093.64	6,219.00	6,218.33	40.47	122.40	19.58	-1,750.72	1,574.93	5,115.34	4,954.02	161.32	31.709	
13,600.00	7,093.72	6,219.00	6,218.33	40.77	122.40	19.58	-1,750.72	1,574.93	5,213.93	5,052.25	161.68	32.249	
13,700.00	7,093.80	6,219.00	6,218.33	41.07	122.40	19.58	-1,750.72	1,574.93	5,312.57	5,150.54	162.03	32.787	
13,800.00	7,093.88	6,219.00	6,218.33	41.37	122.40	19.58	-1,750.72	1,574.93	5,411.26	5,248.88	162.39	33.324	
13,900.00	7,093.96	6,219.00	6,218.33	41.67	122.40	19.58	-1,750.72	1,574.93	5,510.00	5,347.26	162.73	33.859	
14,000.00	7,094.04	6,219.00	6,218.33	41.97	122.40	19.58	-1,750.72	1,574.93	5,608.78	5,445.70	163.08	34.393	
14,100.00	7,094.11	6,219.00	6,218.33	42.27	122.40	19.58	-1,750.72	1,574.93	5,707.61	5,544.18	163.42	34.925	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 295-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,094.19	6,219.00	6,218.33	42.57	122.40	19.58	-1,750.72	1,574.93	5,806.47	5,642.70	163.77	35.456	
14,300.00	7,094.27	6,219.00	6,218.33	42.87	122.40	19.58	-1,750.72	1,574.93	5,905.37	5,741.27	164.11	35.985	
14,400.00	7,094.35	6,219.00	6,218.33	43.17	122.40	19.58	-1,750.72	1,574.93	6,004.31	5,839.87	164.44	36.513	
14,500.00	7,094.43	6,219.00	6,218.33	43.47	122.40	19.58	-1,750.72	1,574.93	6,103.29	5,938.51	164.78	37.039	
14,600.00	7,094.51	6,219.00	6,218.33	43.77	122.40	19.58	-1,750.72	1,574.93	6,202.29	6,037.18	165.11	37.564	
14,700.00	7,094.58	6,219.00	6,218.33	44.07	122.40	19.58	-1,750.72	1,574.93	6,301.33	6,135.89	165.45	38.087	
14,800.00	7,094.66	6,219.00	6,218.33	44.37	122.40	19.58	-1,750.72	1,574.93	6,400.40	6,234.62	165.78	38.608	
14,900.00	7,094.74	6,219.00	6,218.33	44.67	122.40	19.58	-1,750.72	1,574.93	6,499.50	6,333.39	166.11	39.128	
15,000.00	7,094.82	6,219.00	6,218.33	44.97	122.40	19.58	-1,750.72	1,574.93	6,598.62	6,432.18	166.44	39.646	
15,100.00	7,094.90	6,219.00	6,218.33	45.27	122.40	19.58	-1,750.72	1,574.93	6,697.77	6,531.01	166.76	40.163	
15,200.00	7,094.98	6,219.00	6,218.33	45.57	122.40	19.58	-1,750.72	1,574.93	6,796.95	6,629.86	167.09	40.678	
15,300.00	7,095.06	6,219.00	6,218.33	45.87	122.40	19.58	-1,750.72	1,574.93	6,896.15	6,728.73	167.42	41.192	
15,400.00	7,095.13	6,219.00	6,218.33	46.17	122.40	19.58	-1,750.72	1,574.93	6,995.37	6,827.63	167.74	41.704	
15,500.00	7,095.21	6,219.00	6,218.33	46.47	122.40	19.58	-1,750.72	1,574.93	7,094.61	6,926.55	168.06	42.214	
15,600.00	7,095.29	6,219.00	6,218.33	46.77	122.40	19.58	-1,750.72	1,574.93	7,193.88	7,025.49	168.38	42.723	
15,700.00	7,095.37	6,219.00	6,218.33	47.07	122.40	19.58	-1,750.72	1,574.93	7,293.16	7,124.45	168.71	43.230	
15,800.00	7,095.45	6,219.00	6,218.33	47.37	122.40	19.58	-1,750.72	1,574.93	7,392.46	7,223.44	169.03	43.736	
15,900.00	7,095.53	6,219.00	6,218.33	47.67	122.40	19.58	-1,750.72	1,574.93	7,491.79	7,322.44	169.35	44.240	
16,000.00	7,095.60	6,219.00	6,218.33	47.97	122.40	19.58	-1,750.72	1,574.93	7,591.13	7,421.46	169.66	44.742	
16,100.00	7,095.68	6,219.00	6,218.33	48.27	122.40	19.58	-1,750.72	1,574.93	7,690.48	7,520.50	169.98	45.243	
16,200.00	7,095.76	6,219.00	6,218.33	48.57	122.40	19.58	-1,750.72	1,574.93	7,789.86	7,619.56	170.30	45.742	
16,300.00	7,095.84	6,219.00	6,218.33	48.87	122.40	19.58	-1,750.72	1,574.93	7,889.25	7,718.63	170.62	46.240	
16,400.00	7,095.92	6,219.00	6,218.33	49.17	122.40	19.58	-1,750.72	1,574.93	7,988.65	7,817.72	170.93	46.736	
16,500.00	7,096.00	6,219.00	6,218.33	49.47	122.40	19.58	-1,750.72	1,574.93	8,088.07	7,916.82	171.25	47.230	
16,600.00	7,096.08	6,219.00	6,218.33	49.77	122.40	19.58	-1,750.72	1,574.93	8,187.50	8,015.94	171.56	47.723	
16,700.00	7,096.15	6,219.00	6,218.33	50.07	122.40	19.58	-1,750.72	1,574.93	8,286.95	8,115.07	171.88	48.214	
16,800.00	7,096.23	6,219.00	6,218.33	50.37	122.40	19.58	-1,750.72	1,574.93	8,386.41	8,214.22	172.19	48.704	
16,900.00	7,096.31	6,219.00	6,218.33	50.67	122.40	19.58	-1,750.72	1,574.93	8,485.88	8,313.38	172.51	49.192	
17,000.00	7,096.39	6,219.00	6,218.33	50.97	122.40	19.58	-1,750.72	1,574.93	8,585.37	8,412.55	172.82	49.679	
17,100.00	7,096.47	6,219.00	6,218.33	51.27	122.40	19.58	-1,750.72	1,574.93	8,684.87	8,511.74	173.13	50.164	
17,200.00	7,096.55	6,219.00	6,218.33	51.57	122.40	19.58	-1,750.72	1,574.93	8,784.38	8,610.93	173.44	50.647	
17,300.00	7,096.62	6,219.00	6,218.33	51.87	122.40	19.58	-1,750.72	1,574.93	8,883.90	8,710.14	173.75	51.129	
17,400.00	7,096.70	6,219.00	6,218.33	52.17	122.40	19.58	-1,750.72	1,574.93	8,983.43	8,809.36	174.07	51.609	
17,500.00	7,096.78	6,219.00	6,218.33	52.47	122.40	19.58	-1,750.72	1,574.93	9,082.97	8,908.59	174.38	52.088	
17,600.00	7,096.86	6,219.00	6,218.33	52.77	122.40	19.58	-1,750.72	1,574.93	9,182.52	9,007.83	174.69	52.565	
17,700.00	7,096.94	6,219.00	6,218.33	53.07	122.40	19.58	-1,750.72	1,574.93	9,282.08	9,107.08	175.00	53.041	
17,800.00	7,097.02	6,219.00	6,218.33	53.37	122.40	19.58	-1,750.72	1,574.93	9,381.65	9,206.34	175.31	53.515	
17,900.00	7,097.10	6,219.00	6,218.33	53.67	122.40	19.58	-1,750.72	1,574.93	9,481.23	9,305.61	175.62	53.988	
18,000.00	7,097.17	6,219.00	6,218.33	53.97	122.40	19.58	-1,750.72	1,574.93	9,580.81	9,404.89	175.93	54.459	
18,100.00	7,097.25	6,219.00	6,218.33	54.27	122.40	19.58	-1,750.72	1,574.93	9,680.41	9,504.17	176.24	54.929	
18,200.00	7,097.33	6,219.00	6,218.33	54.57	122.40	19.58	-1,750.72	1,574.93	9,780.01	9,603.47	176.55	55.397	
18,300.00	7,097.41	6,219.00	6,218.33	54.87	122.40	19.58	-1,750.72	1,574.93	9,879.62	9,702.77	176.85	55.863	
18,400.00	7,097.49	6,219.00	6,218.33	55.17	122.40	19.58	-1,750.72	1,574.93	9,979.24	9,802.08	177.16	56.328	
18,500.00	7,097.57	6,219.00	6,218.33	55.47	122.40	19.58	-1,750.72	1,574.93	10,078.87	9,901.40	177.47	56.792	
18,600.00	7,097.64	6,219.00	6,218.33	55.78	122.40	19.58	-1,750.72	1,574.93	10,178.51	10,000.73	177.78	57.254	
18,700.00	7,097.72	6,219.00	6,218.33	56.08	122.40	19.58	-1,750.72	1,574.93	10,278.15	10,100.06	178.09	57.715	
18,800.00	7,097.80	6,219.00	6,218.33	56.38	122.40	19.58	-1,750.72	1,574.93	10,377.80	10,199.40	178.39	58.174	
18,900.00	7,097.88	6,219.00	6,218.33	56.68	122.40	19.58	-1,750.72	1,574.93	10,477.45	10,298.75	178.70	58.631	
19,000.00	7,097.96	6,219.00	6,218.33	56.98	122.40	19.58	-1,750.72	1,574.93	10,577.11	10,398.11	179.01	59.088	
19,100.00	7,098.04	6,219.00	6,218.33	57.28	122.40	19.58	-1,750.72	1,574.93	10,676.78	10,497.47	179.31	59.542	
19,200.00	7,098.12	6,219.00	6,218.33	57.58	122.40	19.58	-1,750.72	1,574.93	10,776.46	10,596.84	179.62	59.996	
19,300.00	7,098.19	6,219.00	6,218.33	57.88	122.40	19.58	-1,750.72	1,574.93	10,876.14	10,696.21	179.93	60.448	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 295-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,098.27	6,219.00	6,218.33	58.18	122.40	19.58	-1,750.72	1,574.93	10,975.82	10,795.59	180.23	60.898	
19,500.00	7,098.35	6,219.00	6,218.33	58.48	122.40	19.58	-1,750.72	1,574.93	11,075.52	10,894.98	180.54	61.347	
19,600.00	7,098.43	6,219.00	6,218.33	58.78	122.40	19.58	-1,750.72	1,574.93	11,175.21	10,994.37	180.85	61.794	
19,700.00	7,098.51	6,219.00	6,218.33	59.08	122.40	19.58	-1,750.72	1,574.93	11,274.92	11,093.76	181.15	62.240	
19,800.00	7,098.59	6,219.00	6,218.33	59.38	122.40	19.58	-1,750.72	1,574.93	11,374.62	11,193.17	181.46	62.685	
19,900.00	7,098.66	6,219.00	6,218.33	59.68	122.40	19.58	-1,750.72	1,574.93	11,474.34	11,292.57	181.76	63.128	
20,000.00	7,098.74	6,219.00	6,218.33	59.98	122.40	19.58	-1,750.72	1,574.93	11,574.05	11,391.99	182.07	63.570	
20,100.00	7,098.82	6,219.00	6,218.33	60.28	122.40	19.58	-1,750.72	1,574.93	11,673.78	11,491.40	182.37	64.010	
20,200.00	7,098.90	6,219.00	6,218.33	60.58	122.40	19.58	-1,750.72	1,574.93	11,773.50	11,590.83	182.68	64.450	
20,300.00	7,098.98	6,219.00	6,218.33	60.88	122.40	19.58	-1,750.72	1,574.93	11,873.24	11,690.25	182.98	64.887	
20,328.16	7,099.00	6,219.00	6,218.33	60.96	122.40	19.58	-1,750.72	1,574.93	11,901.32	11,718.25	183.07	65.010	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	153.74	153.74	0.00	0.13	117.64	-1,977.35	3,776.54	4,262.89				
100.00	100.00	250.42	250.42	0.23	0.25	117.64	-1,977.75	3,776.53	4,263.07	4,262.68	0.39	N/A	
200.00	200.00	346.80	346.80	0.53	0.38	117.65	-1,978.34	3,776.50	4,263.32	4,262.55	0.77	5,534.579	
300.00	300.00	443.17	443.17	0.83	0.51	117.66	-1,979.12	3,776.46	4,263.66	4,262.51	1.15	3,703.103	
400.00	400.00	545.79	545.78	1.13	0.62	117.66	-1,979.76	3,776.55	4,264.03	4,262.49	1.55	2,756.316	
500.00	500.00	651.66	651.65	1.43	0.62	117.66	-1,979.38	3,777.07	4,264.30	4,262.36	1.94	2,197.985	
600.00	599.98	794.73	794.71	1.73	0.61	-56.99	-1,977.55	3,777.35	4,262.89	4,260.59	2.30	1,850.869	
700.00	699.84	902.44	902.39	2.03	0.63	-57.14	-1,975.37	3,777.31	4,259.06	4,256.41	2.65	1,606.872	
800.00	799.45	991.84	991.78	2.33	0.67	-57.34	-1,973.63	3,777.33	4,253.46	4,250.46	3.00	1,418.673	
900.00	898.70	1,093.06	1,092.98	2.63	0.74	-57.64	-1,971.57	3,777.55	4,246.13	4,242.77	3.36	1,263.756	
1,000.00	997.47	1,194.55	1,194.44	2.93	0.82	-58.00	-1,969.37	3,777.62	4,236.79	4,233.06	3.72	1,137.519	
1,100.00	1,095.62	1,291.07	1,290.95	3.23	0.91	-58.43	-1,967.43	3,777.77	4,225.82	4,221.73	4.09	1,033.271	
1,157.34	1,151.58	1,352.17	1,352.02	3.40	0.97	-58.72	-1,966.13	3,777.79	4,218.66	4,214.35	4.30	980.151	
1,200.00	1,193.13	1,387.62	1,387.47	3.53	1.01	-58.83	-1,965.46	3,777.77	4,213.14	4,208.68	4.46	945.274	
1,300.00	1,290.51	1,494.40	1,494.23	3.83	1.12	-59.14	-1,963.39	3,777.74	4,200.30	4,195.47	4.83	868.902	
1,400.00	1,387.89	1,582.71	1,582.53	4.13	1.22	-59.39	-1,961.83	3,777.59	4,187.50	4,182.30	5.20	805.313	
1,500.00	1,485.27	1,688.48	1,688.28	4.43	1.34	-59.70	-1,959.77	3,777.37	4,174.69	4,169.11	5.58	748.022	
1,600.00	1,582.65	1,789.48	1,789.25	4.73	1.45	-60.00	-1,957.79	3,777.23	4,162.06	4,156.10	5.96	698.399	
1,700.00	1,680.02	1,877.19	1,876.95	5.03	1.56	-60.26	-1,955.98	3,777.03	4,149.42	4,143.09	6.33	655.666	
1,800.00	1,777.40	1,987.26	1,986.99	5.33	1.69	-60.59	-1,953.60	3,776.78	4,136.83	4,130.11	6.72	615.904	
1,900.00	1,874.78	2,100.09	2,099.79	5.63	1.82	-60.93	-1,951.24	3,776.19	4,124.14	4,117.03	7.11	579.925	
2,000.00	1,972.16	2,192.43	2,192.12	5.93	1.93	-61.21	-1,949.36	3,775.54	4,111.41	4,103.92	7.49	548.792	
2,100.00	2,069.54	2,256.43	2,256.10	6.23	2.01	-61.41	-1,948.06	3,775.36	4,099.17	4,091.33	7.84	522.627	
2,200.00	2,166.92	2,351.48	2,351.13	6.53	2.13	-61.70	-1,946.16	3,775.52	4,087.46	4,079.24	8.22	497.556	
2,300.00	2,264.30	2,449.40	2,449.03	6.83	2.25	-62.00	-1,944.40	3,775.65	4,075.90	4,067.31	8.59	474.547	
2,400.00	2,361.68	2,550.00	2,549.62	7.13	2.38	-62.31	-1,942.76	3,775.61	4,064.37	4,055.40	8.97	453.204	
2,500.00	2,459.06	2,649.36	2,648.97	7.43	2.51	-62.61	-1,941.09	3,775.44	4,052.81	4,043.46	9.35	433.534	
2,600.00	2,556.44	2,737.34	2,736.93	7.73	2.62	-62.89	-1,939.49	3,775.38	4,041.42	4,031.70	9.72	415.916	
2,700.00	2,653.82	2,831.12	2,830.70	8.03	2.74	-63.18	-1,937.56	3,775.74	4,030.46	4,020.38	10.08	399.749	
2,800.00	2,751.19	2,924.41	2,923.96	8.33	2.85	-63.48	-1,935.74	3,776.16	4,019.71	4,009.26	10.45	384.807	
2,900.00	2,848.57	3,021.86	3,021.40	8.63	2.98	-63.79	-1,934.03	3,776.62	4,009.18	3,998.37	10.81	370.838	
3,000.00	2,945.95	3,116.60	3,116.13	8.93	3.10	-64.09	-1,932.43	3,777.04	3,998.76	3,987.59	11.17	357.857	
3,100.00	3,043.33	3,206.93	3,206.45	9.23	3.21	-64.38	-1,931.09	3,777.40	3,988.50	3,976.97	11.53	345.807	
3,200.00	3,140.71	3,303.73	3,303.24	9.53	3.33	-64.69	-1,929.79	3,777.79	3,978.40	3,966.50	11.90	334.400	
3,300.00	3,238.09	3,403.01	3,402.50	9.83	3.46	-65.00	-1,928.53	3,778.22	3,968.49	3,956.23	12.26	323.674	
3,400.00	3,335.47	3,503.42	3,502.90	10.13	3.59	-65.32	-1,927.39	3,778.59	3,958.68	3,946.05	12.63	313.531	
3,500.00	3,432.85	3,593.41	3,592.89	10.43	3.70	-65.61	-1,926.25	3,778.96	3,948.98	3,935.99	12.98	304.144	
3,600.00	3,530.23	3,686.61	3,686.08	10.73	3.82	-65.90	-1,925.32	3,779.33	3,939.47	3,926.13	13.34	295.266	
3,700.00	3,627.61	3,781.82	3,781.29	11.03	3.94	-66.21	-1,924.43	3,779.86	3,930.26	3,916.56	13.70	286.915	
3,800.00	3,724.99	3,868.24	3,867.70	11.33	4.04	-66.48	-1,923.77	3,780.25	3,921.12	3,907.08	14.05	279.103	
3,900.00	3,822.36	3,950.00	3,949.46	11.63	4.08	-66.73	-1,923.84	3,780.74	3,912.51	3,898.12	14.39	271.937	
4,000.00	3,919.74	4,025.00	4,024.46	11.93	4.07	-66.96	-1,924.63	3,781.36	3,904.49	3,889.76	14.73	265.130	
4,100.00	4,017.12	4,107.50	4,106.94	12.23	4.07	-67.19	-1,926.13	3,782.35	3,897.15	3,882.07	15.07	258.537	
4,200.00	4,114.50	4,207.84	4,207.25	12.53	4.06	-67.48	-1,928.03	3,783.60	3,889.98	3,874.54	15.43	252.025	
4,300.00	4,211.88	4,307.74	4,307.12	12.83	4.06	-67.77	-1,929.96	3,784.87	3,882.94	3,867.14	15.80	245.764	
4,400.00	4,309.26	4,439.54	4,438.90	13.13	4.06	-68.16	-1,932.00	3,785.97	3,875.50	3,859.31	16.19	239.389	
4,500.00	4,406.64	4,554.12	4,553.47	13.43	4.05	-68.51	-1,933.20	3,786.22	3,867.42	3,850.85	16.57	233.396	
4,600.00	4,504.02	4,660.33	4,659.68	13.73	4.04	-68.83	-1,934.15	3,786.13	3,859.13	3,842.19	16.95	227.738	
4,700.00	4,601.40	4,759.41	4,758.76	14.03	4.03	-69.13	-1,934.90	3,786.02	3,850.88	3,833.57	17.32	222.393	
4,800.00	4,698.78	4,856.15	4,855.50	14.33	4.02	-69.43	-1,935.71	3,785.86	3,842.71	3,825.03	17.68	217.298	
4,900.00	4,796.16	4,949.05	4,948.39	14.63	4.03	-69.71	-1,936.52	3,785.78	3,834.75	3,816.70	18.05	212.446	
5,000.00	4,893.53	5,049.31	5,048.64	14.93	4.03	-70.02	-1,937.54	3,785.65	3,826.87	3,808.45	18.42	207.736	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	5,146.19	5,145.52	15.23	4.04	-70.31	-1,938.57	3,785.54	3,819.14	3,800.35	18.79	203.242	
5,200.00	5,088.29	5,239.55	5,238.87	15.53	4.05	-70.60	-1,939.56	3,785.50	3,811.57	3,792.42	19.16	198.950	
5,300.00	5,185.67	5,331.00	5,330.32	15.83	4.07	-70.88	-1,940.55	3,785.51	3,804.17	3,784.65	19.52	194.836	
5,400.00	5,283.05	5,424.43	5,423.74	16.13	4.10	-71.17	-1,941.54	3,785.76	3,797.12	3,777.22	19.90	190.854	
5,500.00	5,380.43	5,514.37	5,513.68	16.43	4.13	-71.45	-1,942.53	3,786.12	3,790.31	3,770.05	20.26	187.038	
5,600.00	5,477.81	5,613.11	5,612.41	16.73	4.17	-71.76	-1,943.67	3,786.55	3,783.68	3,763.03	20.64	183.300	
5,700.00	5,575.19	5,711.86	5,711.15	17.03	4.21	-72.07	-1,945.08	3,786.94	3,777.16	3,756.14	21.02	179.707	
5,800.00	5,672.57	5,830.29	5,829.56	17.33	4.25	-72.43	-1,946.95	3,786.89	3,770.36	3,748.96	21.40	176.148	
5,900.00	5,769.95	5,932.66	5,931.92	17.63	4.29	-72.75	-1,948.38	3,786.52	3,763.34	3,741.56	21.78	172.824	
6,000.00	5,867.33	6,032.04	6,031.30	17.93	4.33	-73.06	-1,949.37	3,786.21	3,756.39	3,734.24	22.14	169.640	
6,100.00	5,964.70	6,131.07	6,130.32	18.23	4.37	-73.38	-1,950.28	3,785.86	3,749.50	3,726.99	22.51	166.571	
6,200.00	6,062.08	6,228.47	6,227.71	18.53	4.41	-73.69	-1,951.25	3,785.49	3,742.71	3,719.84	22.88	163.612	
6,300.00	6,159.46	6,317.77	6,317.01	18.83	4.46	-73.97	-1,952.28	3,785.25	3,736.18	3,712.94	23.24	160.784	
6,400.00	6,256.84	6,410.53	6,409.76	19.13	4.51	-74.27	-1,953.35	3,785.12	3,729.89	3,706.28	23.60	158.027	
6,500.00	6,354.22	6,504.48	6,503.71	19.43	4.56	-74.57	-1,954.45	3,785.11	3,723.83	3,699.86	23.97	155.351	
6,600.00	6,451.60	6,608.76	6,607.98	19.73	4.63	-74.90	-1,955.53	3,785.10	3,717.88	3,693.53	24.35	152.713	
6,694.27	6,543.40	6,705.72	6,704.94	20.02	4.69	-75.22	-1,956.38	3,784.98	3,712.23	3,687.54	24.70	150.318	
6,700.00	6,548.98	6,712.85	6,712.07	20.03	4.69	-72.81	-1,956.44	3,784.96	3,711.86	3,687.14	24.72	150.169	
6,750.00	6,597.52	6,759.95	6,759.17	20.18	4.72	-53.61	-1,956.84	3,784.83	3,706.21	3,681.31	24.90	148.844	
6,800.00	6,645.56	6,811.29	6,810.51	20.33	4.76	-39.31	-1,957.25	3,784.72	3,696.35	3,671.26	25.08	147.353	
6,850.00	6,692.73	6,858.31	6,857.52	20.48	4.79	-29.40	-1,957.67	3,784.59	3,682.31	3,657.05	25.27	145.736	
6,900.00	6,738.66	6,905.00	6,904.21	20.63	4.82	-22.47	-1,958.08	3,784.45	3,664.21	3,638.76	25.45	143.984	
6,950.00	6,783.02	6,946.26	6,945.47	20.78	4.85	-17.41	-1,958.46	3,784.33	3,642.18	3,616.55	25.63	142.125	
7,000.00	6,825.45	6,988.41	6,987.62	20.94	4.88	-13.53	-1,958.85	3,784.23	3,616.42	3,590.61	25.81	140.140	
7,050.00	6,865.65	7,026.06	7,025.27	21.09	4.90	-10.36	-1,959.19	3,784.16	3,587.11	3,561.12	25.98	138.061	
7,100.00	6,903.29	7,062.02	7,061.22	21.24	4.93	-7.62	-1,959.49	3,784.12	3,554.46	3,528.31	26.16	135.886	
7,150.00	6,938.11	7,096.21	7,095.41	21.39	4.96	-5.07	-1,959.79	3,784.10	3,518.72	3,492.39	26.33	133.629	
7,200.00	6,969.82	7,126.72	7,125.92	21.54	4.98	-2.50	-1,960.03	3,784.08	3,480.15	3,453.64	26.50	131.305	
7,250.00	6,998.19	7,154.28	7,153.48	21.69	5.00	0.30	-1,960.27	3,784.08	3,439.03	3,412.35	26.67	128.926	
7,300.00	7,023.01	7,175.00	7,174.20	21.84	5.02	3.64	-1,960.45	3,784.09	3,395.69	3,368.85	26.84	126.516	
7,350.00	7,044.08	7,198.86	7,198.06	21.99	5.04	8.00	-1,960.66	3,784.10	3,350.45	3,323.44	27.01	124.055	
7,400.00	7,061.25	7,213.34	7,212.53	22.14	5.05	14.23	-1,960.80	3,784.11	3,303.64	3,276.47	27.17	121.596	
7,450.00	7,074.38	7,224.24	7,223.44	22.29	5.06	24.05	-1,960.90	3,784.13	3,255.64	3,228.31	27.33	119.133	
7,500.00	7,083.37	7,232.75	7,231.94	22.44	5.06	40.95	-1,960.97	3,784.14	3,206.80	3,179.32	27.48	116.676	
7,550.00	7,088.16	7,237.39	7,236.58	22.59	5.07	68.56	-1,961.01	3,784.15	3,157.51	3,129.87	27.64	114.242	
7,581.00	7,089.00	7,238.24	7,237.44	22.68	5.07	88.43	-1,961.02	3,784.15	3,126.88	3,099.15	27.73	112.751	
7,600.00	7,089.02	7,238.30	7,237.49	22.74	5.07	88.43	-1,961.02	3,784.16	3,108.12	3,080.33	27.79	111.843	
7,700.00	7,089.09	7,238.57	7,237.77	23.04	5.07	88.47	-1,961.02	3,784.16	3,009.42	2,981.33	28.09	107.130	
7,800.00	7,089.17	7,238.85	7,238.05	23.34	5.07	88.50	-1,961.02	3,784.16	2,910.81	2,882.41	28.39	102.519	
7,900.00	7,089.25	7,239.13	7,238.32	23.64	5.07	88.53	-1,961.03	3,784.16	2,812.30	2,783.60	28.69	98.009	
8,000.00	7,089.33	7,239.41	7,238.60	23.94	5.07	88.56	-1,961.03	3,784.16	2,713.89	2,684.90	29.00	93.597	
8,100.00	7,089.41	7,239.68	7,238.88	24.24	5.07	88.60	-1,961.03	3,784.16	2,615.61	2,586.31	29.30	89.279	
8,200.00	7,089.49	7,239.96	7,239.16	24.54	5.07	88.63	-1,961.03	3,784.16	2,517.46	2,487.87	29.60	85.054	
8,300.00	7,089.56	7,240.24	7,239.44	24.84	5.07	88.66	-1,961.04	3,784.16	2,419.47	2,389.57	29.90	80.920	
8,400.00	7,089.64	7,240.52	7,239.72	25.14	5.07	88.69	-1,961.04	3,784.16	2,321.65	2,291.44	30.20	76.873	
8,500.00	7,089.72	7,240.81	7,240.00	25.44	5.07	88.73	-1,961.04	3,784.16	2,224.02	2,193.51	30.50	72.912	
8,600.00	7,089.80	7,241.09	7,240.28	25.75	5.07	88.76	-1,961.05	3,784.16	2,126.61	2,095.80	30.80	69.037	
8,700.00	7,089.88	7,241.37	7,240.57	26.05	5.07	88.79	-1,961.05	3,784.16	2,029.45	1,998.34	31.11	65.244	
8,800.00	7,089.96	7,241.65	7,240.85	26.35	5.07	88.82	-1,961.05	3,784.16	1,932.58	1,901.17	31.41	61.534	
8,900.00	7,090.03	7,241.93	7,241.13	26.65	5.07	88.86	-1,961.05	3,784.16	1,836.05	1,804.34	31.71	57.904	
9,000.00	7,090.11	7,242.22	7,241.42	26.95	5.07	88.89	-1,961.06	3,784.16	1,739.91	1,707.90	32.01	54.355	
9,100.00	7,090.19	7,242.50	7,241.70	27.25	5.07	88.92	-1,961.06	3,784.16	1,644.23	1,611.92	32.31	50.887	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	7,090.27	7,242.79	7,241.98	27.55	5.07	88.96	-1,961.06	3,784.16	1,549.09	1,516.48	32.61	47.499	
9,300.00	7,090.35	7,243.07	7,242.27	27.85	5.07	88.99	-1,961.06	3,784.17	1,454.61	1,421.70	32.91	44.193	
9,400.00	7,090.43	7,243.36	7,242.56	28.15	5.07	89.02	-1,961.07	3,784.17	1,360.92	1,327.70	33.22	40.971	
9,500.00	7,090.51	7,243.65	7,242.84	28.45	5.07	89.06	-1,961.07	3,784.17	1,268.19	1,234.67	33.52	37.836	
9,600.00	7,090.58	7,243.93	7,243.13	28.75	5.07	89.09	-1,961.07	3,784.17	1,176.65	1,142.83	33.82	34.792	
9,700.00	7,090.66	7,244.22	7,243.42	29.05	5.07	89.12	-1,961.07	3,784.17	1,086.61	1,052.49	34.12	31.846	
9,800.00	7,090.74	7,244.51	7,243.71	29.35	5.07	89.16	-1,961.08	3,784.17	998.46	964.04	34.42	29.006	
9,900.00	7,090.82	7,244.80	7,244.00	29.65	5.07	89.19	-1,961.08	3,784.17	912.76	878.03	34.72	26.286	
10,000.00	7,090.90	7,245.09	7,244.29	29.95	5.07	89.23	-1,961.08	3,784.17	830.26	795.23	35.02	23.705	
10,100.00	7,090.98	7,245.38	7,244.58	30.25	5.07	89.26	-1,961.09	3,784.17	752.02	716.70	35.32	21.289	
10,200.00	7,091.05	7,245.67	7,244.87	30.55	5.07	89.29	-1,961.09	3,784.17	679.51	643.89	35.62	19.076	
10,300.00	7,091.13	7,245.96	7,245.16	30.85	5.07	89.33	-1,961.09	3,784.17	614.77	578.85	35.92	17.116	
10,400.00	7,091.21	7,246.26	7,245.45	31.15	5.07	89.36	-1,961.09	3,784.17	560.48	524.28	36.21	15.479	
10,500.00	7,091.29	7,246.55	7,245.74	31.45	5.07	89.40	-1,961.10	3,784.17	519.95	483.45	36.50	14.246	
10,600.00	7,091.37	7,246.84	7,246.04	31.76	5.08	89.43	-1,961.10	3,784.17	496.54	459.75	36.78	13.499	
10,668.99	7,091.42	7,247.04	7,246.24	31.96	5.08	89.45	-1,961.10	3,784.17	491.72	454.74	36.98	13.297	CC, ES
10,700.00	7,091.45	7,247.14	7,246.33	32.06	5.08	89.46	-1,961.10	3,784.17	492.70	455.63	37.07	13.292	SF
10,800.00	7,091.53	7,247.43	7,246.63	32.36	5.08	89.50	-1,961.10	3,784.17	508.88	471.52	37.36	13.622	
10,900.00	7,091.60	7,247.73	7,246.92	32.66	5.08	89.53	-1,961.11	3,784.18	543.28	505.63	37.65	14.429	
11,000.00	7,091.68	7,248.02	7,247.22	32.96	5.08	89.57	-1,961.11	3,784.18	592.76	554.81	37.95	15.619	
11,100.00	7,091.76	7,248.32	7,247.51	33.26	5.08	89.60	-1,961.11	3,784.18	653.88	615.63	38.25	17.094	
11,200.00	7,091.84	7,248.62	7,247.81	33.56	5.08	89.64	-1,961.12	3,784.18	723.72	685.16	38.56	18.770	
11,300.00	7,091.92	7,248.91	7,248.11	33.86	5.08	89.67	-1,961.12	3,784.18	799.98	761.12	38.86	20.586	
11,400.00	7,092.00	7,249.21	7,248.41	34.16	5.08	89.71	-1,961.12	3,784.18	881.00	841.84	39.17	22.494	
11,500.00	7,092.07	7,249.51	7,248.71	34.46	5.08	89.74	-1,961.13	3,784.18	965.59	926.12	39.47	24.464	
11,600.00	7,092.15	7,249.81	7,249.01	34.76	5.08	89.78	-1,961.13	3,784.18	1,052.89	1,013.11	39.77	26.472	
11,700.00	7,092.23	7,250.11	7,249.31	35.06	5.08	89.81	-1,961.13	3,784.18	1,142.27	1,102.19	40.08	28.502	
11,800.00	7,092.31	7,250.41	7,249.61	35.36	5.08	89.85	-1,961.13	3,784.18	1,233.28	1,192.90	40.38	30.542	
11,900.00	7,092.39	7,250.71	7,249.91	35.66	5.08	89.88	-1,961.14	3,784.18	1,325.58	1,284.90	40.68	32.583	
12,000.00	7,092.47	7,251.02	7,250.21	35.96	5.08	89.92	-1,961.14	3,784.18	1,418.93	1,377.95	40.99	34.620	
12,100.00	7,092.55	7,251.32	7,250.52	36.26	5.08	89.95	-1,961.14	3,784.18	1,513.13	1,471.85	41.29	36.648	
12,200.00	7,092.62	7,251.62	7,250.82	36.56	5.08	89.99	-1,961.15	3,784.18	1,608.03	1,566.44	41.59	38.664	
12,300.00	7,092.70	7,251.93	7,251.12	36.86	5.08	90.02	-1,961.15	3,784.18	1,703.52	1,661.63	41.89	40.665	
12,400.00	7,092.78	7,252.23	7,251.43	37.16	5.08	90.06	-1,961.15	3,784.19	1,799.49	1,757.30	42.19	42.648	
12,500.00	7,092.86	7,252.42	7,251.61	37.46	5.08	90.08	-1,961.15	3,784.19	1,895.88	1,853.39	42.50	44.614	
12,600.00	7,092.94	7,252.70	7,251.90	37.76	5.08	90.11	-1,961.16	3,784.19	1,992.63	1,949.83	42.80	46.560	
12,700.00	7,093.02	7,252.99	7,252.18	38.06	5.08	90.15	-1,961.16	3,784.19	2,089.68	2,046.58	43.10	48.486	
12,800.00	7,093.09	7,253.27	7,252.47	38.36	5.08	90.18	-1,961.16	3,784.19	2,187.00	2,143.60	43.40	50.392	
12,900.00	7,093.17	7,253.56	7,252.75	38.66	5.08	90.21	-1,961.16	3,784.19	2,284.55	2,240.85	43.70	52.277	
13,000.00	7,093.25	7,253.84	7,253.04	38.96	5.08	90.24	-1,961.17	3,784.19	2,382.30	2,338.30	44.00	54.140	
13,100.00	7,093.33	7,254.12	7,253.32	39.26	5.08	90.28	-1,961.17	3,784.19	2,480.24	2,435.93	44.30	55.983	
13,200.00	7,093.41	7,254.41	7,253.60	39.56	5.08	90.31	-1,961.17	3,784.19	2,578.33	2,533.72	44.60	57.804	
13,300.00	7,093.49	7,254.69	7,253.88	39.86	5.08	90.34	-1,961.18	3,784.19	2,676.56	2,631.65	44.91	59.604	
13,400.00	7,093.57	7,254.97	7,254.16	40.16	5.08	90.38	-1,961.18	3,784.19	2,774.92	2,729.71	45.21	61.383	
13,500.00	7,093.64	7,255.25	7,254.44	40.47	5.08	90.41	-1,961.18	3,784.19	2,873.39	2,827.88	45.51	63.141	
13,600.00	7,093.72	7,255.53	7,254.72	40.77	5.08	90.44	-1,961.18	3,784.19	2,971.96	2,926.15	45.81	64.878	
13,700.00	7,093.80	7,255.81	7,255.00	41.07	5.08	90.47	-1,961.19	3,784.19	3,070.63	3,024.52	46.11	66.594	
13,800.00	7,093.88	7,256.09	7,255.28	41.37	5.08	90.51	-1,961.19	3,784.19	3,169.38	3,122.97	46.41	68.290	
13,900.00	7,093.96	7,256.36	7,255.56	41.67	5.08	90.54	-1,961.19	3,784.19	3,268.20	3,221.49	46.71	69.966	
14,000.00	7,094.04	7,256.64	7,255.84	41.97	5.08	90.57	-1,961.20	3,784.19	3,367.10	3,320.09	47.01	71.622	
14,100.00	7,094.11	7,256.92	7,256.11	42.27	5.08	90.60	-1,961.20	3,784.20	3,466.06	3,418.74	47.31	73.258	
14,200.00	7,094.19	7,257.19	7,256.39	42.57	5.08	90.64	-1,961.20	3,784.20	3,565.07	3,517.46	47.61	74.875	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	7,257.47	7,256.67	42.87	5.08	90.67	-1,961.20	3,784.20	3,664.14	3,616.23	47.91	76.472	
14,400.00	7,094.35	7,257.74	7,256.94	43.17	5.08	90.70	-1,961.21	3,784.20	3,763.26	3,715.05	48.22	78.051	
14,500.00	7,094.43	7,258.02	7,257.21	43.47	5.08	90.73	-1,961.21	3,784.20	3,862.43	3,813.91	48.52	79.611	
14,600.00	7,094.51	7,258.29	7,257.49	43.77	5.08	90.76	-1,961.21	3,784.20	3,961.63	3,912.82	48.82	81.153	
14,700.00	7,094.58	7,258.57	7,257.76	44.07	5.08	90.80	-1,961.22	3,784.20	4,060.88	4,011.76	49.12	82.677	
14,800.00	7,094.66	7,258.84	7,258.03	44.37	5.09	90.83	-1,961.22	3,784.20	4,160.16	4,110.74	49.42	84.183	
14,900.00	7,094.74	7,259.11	7,258.31	44.67	5.09	90.86	-1,961.22	3,784.20	4,259.47	4,209.76	49.72	85.672	
15,000.00	7,094.82	7,259.38	7,258.58	44.97	5.09	90.89	-1,961.22	3,784.20	4,358.82	4,308.80	50.02	87.143	
15,100.00	7,094.90	7,259.65	7,258.85	45.27	5.09	90.92	-1,961.23	3,784.20	4,458.20	4,407.88	50.32	88.597	
15,200.00	7,094.98	7,259.92	7,259.12	45.57	5.09	90.95	-1,961.23	3,784.20	4,557.60	4,506.98	50.62	90.035	
15,300.00	7,095.06	7,260.19	7,259.39	45.87	5.09	90.98	-1,961.23	3,784.20	4,657.03	4,606.11	50.92	91.456	
15,400.00	7,095.13	7,260.46	7,259.66	46.17	5.09	91.02	-1,961.23	3,784.20	4,756.48	4,705.26	51.22	92.861	
15,500.00	7,095.21	7,260.73	7,259.93	46.47	5.09	91.05	-1,961.24	3,784.20	4,855.95	4,804.43	51.52	94.250	
15,600.00	7,095.29	7,261.00	7,260.20	46.77	5.09	91.08	-1,961.24	3,784.20	4,955.45	4,903.63	51.82	95.623	
15,700.00	7,095.37	7,261.27	7,260.46	47.07	5.09	91.11	-1,961.24	3,784.20	5,054.97	5,002.84	52.12	96.981	
15,800.00	7,095.45	7,261.53	7,260.73	47.37	5.09	91.14	-1,961.25	3,784.21	5,154.50	5,102.08	52.42	98.323	
15,900.00	7,095.53	7,261.80	7,261.00	47.67	5.09	91.17	-1,961.25	3,784.21	5,254.05	5,201.33	52.72	99.651	
16,000.00	7,095.60	7,262.07	7,261.26	47.97	5.09	91.20	-1,961.25	3,784.21	5,353.62	5,300.60	53.03	100.964	
16,100.00	7,095.68	7,262.33	7,261.53	48.27	5.09	91.23	-1,961.25	3,784.21	5,453.21	5,399.88	53.33	102.263	
16,200.00	7,095.76	7,262.60	7,261.79	48.57	5.09	91.26	-1,961.26	3,784.21	5,552.81	5,499.18	53.63	103.547	
16,300.00	7,095.84	7,262.86	7,262.06	48.87	5.09	91.30	-1,961.26	3,784.21	5,652.42	5,598.49	53.93	104.817	
16,400.00	7,095.92	7,263.13	7,262.32	49.17	5.09	91.33	-1,961.26	3,784.21	5,752.05	5,697.82	54.23	106.073	
16,500.00	7,096.00	7,263.39	7,262.58	49.47	5.09	91.36	-1,961.27	3,784.21	5,851.69	5,797.16	54.53	107.316	
16,600.00	7,096.08	7,263.65	7,262.85	49.77	5.09	91.39	-1,961.27	3,784.21	5,951.34	5,896.51	54.83	108.545	
16,700.00	7,096.15	7,263.91	7,263.11	50.07	5.09	91.42	-1,961.27	3,784.21	6,051.00	5,995.87	55.13	109.762	
16,800.00	7,096.23	7,264.17	7,263.37	50.37	5.09	91.45	-1,961.27	3,784.21	6,150.68	6,095.25	55.43	110.965	
16,900.00	7,096.31	7,264.44	7,263.63	50.67	5.09	91.48	-1,961.28	3,784.21	6,250.36	6,194.63	55.73	112.155	
17,000.00	7,096.39	7,264.70	7,263.89	50.97	5.09	91.51	-1,961.28	3,784.21	6,350.05	6,294.02	56.03	113.333	
17,100.00	7,096.47	7,264.96	7,264.15	51.27	5.09	91.54	-1,961.28	3,784.21	6,449.76	6,393.43	56.33	114.499	
17,200.00	7,096.55	7,265.22	7,264.41	51.57	5.09	91.57	-1,961.28	3,784.21	6,549.47	6,492.84	56.63	115.652	
17,300.00	7,096.62	7,265.47	7,264.67	51.87	5.09	91.60	-1,961.29	3,784.21	6,649.19	6,592.26	56.93	116.793	
17,400.00	7,096.70	7,265.73	7,264.93	52.17	5.09	91.63	-1,961.29	3,784.21	6,748.92	6,691.69	57.23	117.923	
17,500.00	7,096.78	7,265.99	7,265.19	52.47	5.09	91.66	-1,961.29	3,784.21	6,848.66	6,791.13	57.53	119.041	
17,600.00	7,096.86	7,266.25	7,265.44	52.77	5.09	91.69	-1,961.30	3,784.21	6,948.41	6,890.57	57.83	120.147	
17,700.00	7,096.94	7,266.50	7,265.70	53.07	5.09	91.72	-1,961.30	3,784.22	7,048.16	6,990.03	58.13	121.242	
17,800.00	7,097.02	7,266.76	7,265.96	53.37	5.09	91.75	-1,961.30	3,784.22	7,147.92	7,089.48	58.43	122.326	
17,900.00	7,097.10	7,267.02	7,266.21	53.67	5.09	91.78	-1,961.30	3,784.22	7,247.68	7,188.95	58.73	123.399	
18,000.00	7,097.17	7,267.27	7,266.47	53.97	5.09	91.81	-1,961.31	3,784.22	7,347.46	7,288.42	59.03	124.461	
18,100.00	7,097.25	7,267.53	7,266.72	54.27	5.09	91.84	-1,961.31	3,784.22	7,447.23	7,387.90	59.33	125.512	
18,200.00	7,097.33	7,267.78	7,266.97	54.57	5.09	91.87	-1,961.31	3,784.22	7,547.02	7,487.38	59.64	126.553	
18,300.00	7,097.41	7,268.03	7,267.23	54.87	5.09	91.90	-1,961.32	3,784.22	7,646.81	7,586.87	59.94	127.584	
18,400.00	7,097.49	7,268.29	7,267.48	55.17	5.09	91.93	-1,961.32	3,784.22	7,746.60	7,686.37	60.24	128.604	
18,500.00	7,097.57	7,268.54	7,267.73	55.47	5.09	91.96	-1,961.32	3,784.22	7,846.40	7,785.87	60.54	129.615	
18,600.00	7,097.64	7,268.79	7,267.99	55.78	5.09	91.99	-1,961.32	3,784.22	7,946.21	7,885.37	60.84	130.615	
18,700.00	7,097.72	7,269.04	7,268.24	56.08	5.09	92.01	-1,961.33	3,784.22	8,046.02	7,984.88	61.14	131.606	
18,800.00	7,097.80	7,269.29	7,268.49	56.38	5.09	92.04	-1,961.33	3,784.22	8,145.84	8,084.40	61.44	132.587	
18,900.00	7,097.88	7,269.54	7,268.74	56.68	5.09	92.07	-1,961.33	3,784.22	8,245.66	8,183.92	61.74	133.559	
19,000.00	7,097.96	7,269.79	7,268.99	56.98	5.09	92.10	-1,961.33	3,784.22	8,345.48	8,283.44	62.04	134.522	
19,100.00	7,098.04	7,270.04	7,269.24	57.28	5.09	92.13	-1,961.34	3,784.22	8,445.31	8,382.97	62.34	135.475	
19,200.00	7,098.12	7,270.29	7,269.49	57.58	5.09	92.16	-1,961.34	3,784.22	8,545.14	8,482.50	62.64	136.419	
19,300.00	7,098.19	7,270.54	7,269.74	57.88	5.09	92.19	-1,961.34	3,784.22	8,644.97	8,582.04	62.94	137.354	
19,400.00	7,098.27	7,270.79	7,269.98	58.18	5.09	92.22	-1,961.35	3,784.22	8,744.81	8,681.57	63.24	138.280	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	7,271.04	7,270.23	58.48	5.10	92.25	-1,961.35	3,784.22	8,844.66	8,781.12	63.54	139.198	
19,600.00	7,098.43	7,271.28	7,270.48	58.78	5.10	92.27	-1,961.35	3,784.22	8,944.50	8,880.66	63.84	140.107	
19,700.00	7,098.51	7,271.53	7,270.72	59.08	5.10	92.30	-1,961.35	3,784.23	9,044.35	8,980.21	64.14	141.008	
19,800.00	7,098.59	7,271.78	7,270.97	59.38	5.10	92.33	-1,961.36	3,784.23	9,144.21	9,079.77	64.44	141.900	
19,900.00	7,098.66	7,272.02	7,271.22	59.68	5.10	92.36	-1,961.36	3,784.23	9,244.06	9,179.32	64.74	142.784	
20,000.00	7,098.74	7,272.27	7,271.46	59.98	5.10	92.39	-1,961.36	3,784.23	9,343.92	9,278.88	65.04	143.660	
20,100.00	7,098.82	7,272.51	7,271.71	60.28	5.10	92.42	-1,961.36	3,784.23	9,443.79	9,378.44	65.34	144.528	
20,200.00	7,098.90	7,272.75	7,271.95	60.58	5.10	92.45	-1,961.37	3,784.23	9,543.65	9,478.01	65.64	145.388	
20,300.00	7,098.98	7,273.00	7,272.19	60.88	5.10	92.47	-1,961.37	3,784.23	9,643.52	9,577.58	65.94	146.241	
20,328.16	7,099.00	7,273.07	7,272.26	60.96	5.10	92.48	-1,961.37	3,784.23	9,671.64	9,605.61	66.03	146.479	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-94.91	-796.52	-9,275.57	9,309.72				
100.00	100.00	107.49	86.51	0.23	1.05	-94.91	-796.52	-9,275.57	9,309.71	9,308.43	1.27	7,302.715	
200.00	200.00	186.51	186.51	0.53	2.47	-94.91	-796.52	-9,275.57	9,309.71	9,306.71	3.00	3,103.705	
300.00	300.00	286.52	286.51	0.83	4.28	-94.91	-796.52	-9,275.57	9,309.71	9,304.60	5.11	1,823.241	
400.00	400.00	386.52	386.51	1.13	6.18	-94.91	-796.52	-9,275.57	9,309.71	9,302.40	7.30	1,274.463	
500.00	500.00	486.52	486.51	1.43	8.20	-94.91	-796.52	-9,275.57	9,309.71	9,300.08	9.62	967.282	
600.00	599.98	586.50	586.49	1.73	10.22	90.53	-796.52	-9,275.57	9,309.72	9,297.78	11.94	779.448	
636.52	636.47	622.99	622.97	1.84	10.95	90.54	-795.72	-9,275.57	9,309.67	9,296.88	12.79	727.859	CC
700.00	699.84	685.06	685.05	2.03	12.21	90.57	-795.77	-9,275.57	9,309.71	9,295.47	14.23	654.014	
800.00	799.45	782.68	782.66	2.33	14.18	90.61	-796.05	-9,275.57	9,309.82	9,293.32	16.51	564.015	
900.00	898.70	885.28	885.21	2.63	16.29	90.69	-796.52	-9,275.57	9,310.00	9,291.09	18.92	492.168	
1,000.00	997.47	984.05	983.98	2.93	18.53	90.78	-796.52	-9,275.57	9,310.20	9,288.75	21.45	433.963	
1,100.00	1,095.62	1,082.09	1,082.02	3.23	20.75	90.89	-795.62	-9,275.57	9,310.41	9,286.44	23.98	388.335	
1,157.34	1,151.58	1,136.42	1,136.34	3.40	21.98	90.96	-795.69	-9,275.57	9,310.63	9,285.25	25.38	366.879	
1,200.00	1,193.13	1,176.79	1,176.71	3.53	22.89	91.01	-795.82	-9,275.57	9,310.81	9,284.39	26.42	352.408	
1,300.00	1,290.51	1,271.54	1,271.45	3.83	25.04	91.14	-796.40	-9,275.57	9,311.30	9,282.43	28.87	322.555	
1,400.00	1,387.89	1,374.57	1,374.40	4.13	27.33	91.29	-796.52	-9,275.57	9,311.80	9,280.35	31.45	296.068	
1,500.00	1,485.27	1,471.95	1,471.78	4.43	29.48	91.42	-796.52	-9,275.57	9,312.35	9,278.45	33.90	274.683	
1,600.00	1,582.65	1,566.81	1,566.62	4.73	31.57	91.56	-795.26	-9,275.57	9,312.88	9,276.58	36.30	256.572	
1,700.00	1,680.02	1,660.87	1,660.66	5.03	33.65	91.69	-795.92	-9,275.57	9,313.59	9,274.91	38.67	240.819	
1,800.00	1,777.40	1,764.17	1,763.92	5.33	35.81	91.83	-796.52	-9,275.57	9,314.34	9,273.21	41.13	226.443	
1,900.00	1,874.78	1,861.55	1,861.30	5.63	37.72	91.97	-796.52	-9,275.57	9,315.12	9,271.77	43.35	214.905	
2,000.00	1,972.16	1,958.93	1,958.67	5.93	39.63	92.10	-796.52	-9,275.57	9,315.95	9,270.39	45.56	204.488	
2,100.00	2,069.54	2,056.31	2,056.05	6.23	41.54	92.24	-796.52	-9,275.57	9,316.83	9,269.06	47.77	195.037	
2,200.00	2,166.92	2,153.69	2,153.43	6.53	43.46	92.38	-796.52	-9,275.57	9,317.77	9,267.79	49.98	186.423	
2,300.00	2,264.30	2,250.95	2,250.68	6.83	45.37	92.52	-794.84	-9,275.57	9,318.69	9,266.49	52.19	178.547	
2,400.00	2,361.68	2,347.80	2,347.53	7.13	47.27	92.66	-794.92	-9,275.57	9,319.75	9,265.35	54.39	171.339	
2,500.00	2,459.06	2,444.71	2,444.44	7.43	49.17	92.79	-795.12	-9,275.57	9,320.87	9,264.27	56.60	164.690	
2,600.00	2,556.44	2,541.68	2,541.40	7.73	51.07	92.92	-795.44	-9,275.57	9,322.05	9,263.25	58.80	158.537	
2,700.00	2,653.82	2,638.70	2,638.42	8.03	52.98	93.06	-795.89	-9,275.57	9,323.28	9,262.28	61.01	152.826	
2,800.00	2,751.19	2,735.78	2,735.49	8.33	54.89	93.19	-796.45	-9,275.57	9,324.58	9,261.37	63.21	147.513	
2,900.00	2,848.57	2,835.43	2,835.09	8.63	56.91	93.33	-796.52	-9,275.57	9,325.91	9,260.37	65.54	142.294	
3,000.00	2,945.95	2,932.81	2,932.47	8.93	58.90	93.46	-796.52	-9,275.57	9,327.29	9,259.46	67.83	137.507	
3,100.00	3,043.33	3,030.19	3,029.84	9.23	60.90	93.60	-796.52	-9,275.57	9,328.73	9,258.61	70.12	133.034	
3,200.00	3,140.71	3,127.57	3,127.22	9.53	62.89	93.74	-796.52	-9,275.57	9,330.23	9,257.81	72.41	128.845	
3,300.00	3,238.09	3,224.95	3,224.60	9.83	64.88	93.87	-796.52	-9,275.57	9,331.78	9,257.07	74.71	124.914	
3,400.00	3,335.47	3,322.32	3,321.98	10.13	66.87	94.01	-796.52	-9,275.57	9,333.38	9,256.38	77.00	121.218	
3,500.00	3,432.85	3,419.70	3,419.36	10.43	68.86	94.14	-796.52	-9,275.57	9,335.04	9,255.75	79.29	117.735	
3,600.00	3,530.23	3,517.05	3,516.69	10.73	70.85	94.29	-794.08	-9,275.57	9,336.71	9,255.13	81.58	114.450	
3,700.00	3,627.61	3,614.32	3,613.96	11.03	72.84	94.43	-794.14	-9,275.57	9,338.49	9,254.62	83.87	111.347	
3,800.00	3,724.99	3,711.62	3,711.26	11.33	74.83	94.56	-794.29	-9,275.57	9,340.32	9,254.16	86.16	108.409	
3,900.00	3,822.36	3,808.97	3,808.60	11.63	76.82	94.70	-794.51	-9,275.57	9,342.21	9,253.76	88.45	105.623	
4,000.00	3,919.74	3,906.36	3,905.99	11.93	78.81	94.83	-794.82	-9,275.57	9,344.15	9,253.41	90.74	102.977	
4,100.00	4,017.12	4,003.78	4,003.41	12.23	80.81	94.96	-795.22	-9,275.57	9,346.15	9,253.11	93.03	100.461	
4,200.00	4,114.50	4,101.25	4,100.87	12.53	82.80	95.10	-795.69	-9,275.57	9,348.20	9,252.87	95.33	98.066	
4,300.00	4,211.88	4,198.75	4,198.37	12.83	84.79	95.23	-796.25	-9,275.57	9,350.30	9,252.68	97.62	95.783	
4,400.00	4,309.26	4,296.30	4,295.91	13.13	86.79	95.36	-796.89	-9,275.57	9,352.45	9,252.54	99.91	93.604	
4,500.00	4,406.64	4,393.67	4,393.15	13.43	88.78	95.50	-795.87	-9,275.57	9,354.66	9,252.46	102.21	91.527	
4,600.00	4,504.02	4,491.39	4,490.86	13.73	90.78	95.63	-796.16	-9,275.57	9,356.93	9,252.42	104.50	89.536	
4,700.00	4,601.40	4,588.46	4,587.91	14.03	92.88	95.77	-796.52	-9,275.57	9,359.24	9,252.34	106.90	87.548	
4,800.00	4,698.78	4,685.84	4,685.29	14.33	95.10	95.90	-796.52	-9,275.57	9,361.62	9,252.19	109.43	85.549	
4,900.00	4,796.16	4,783.29	4,782.73	14.63	97.33	96.04	-795.80	-9,275.57	9,364.06	9,252.10	111.96	83.640	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	4,881.11	4,880.55	14.93	99.57	96.17	-795.99	-9,275.57	9,366.54	9,252.04	114.49	81.809	
5,100.00	4,990.91	4,997.91	4,977.43	15.23	102.25	96.31	-796.52	-9,275.57	9,369.07	9,251.59	117.47	79.756	
5,200.00	5,088.29	5,075.47	5,074.81	15.53	104.09	96.44	-796.52	-9,275.57	9,371.66	9,252.05	119.61	78.351	
5,300.00	5,185.67	5,225.09	5,172.18	15.83	107.59	96.57	-796.52	-9,275.57	9,374.30	9,250.88	123.42	75.955 ES	
5,400.00	5,283.05	5,270.29	5,269.56	16.13	108.59	96.71	-796.52	-9,275.57	9,377.00	9,252.28	124.72	75.185	
5,500.00	5,380.43	5,367.67	5,366.94	16.43	110.75	96.84	-796.52	-9,275.57	9,379.76	9,252.59	127.17	73.756	
5,600.00	5,477.81	5,465.05	5,464.32	16.73	112.90	96.98	-796.52	-9,275.57	9,382.57	9,252.94	129.63	72.382	
5,700.00	5,575.19	5,562.43	5,561.70	17.03	115.05	97.11	-796.52	-9,275.57	9,385.43	9,253.35	132.08	71.059	
5,800.00	5,672.57	5,659.81	5,659.08	17.33	117.21	97.25	-796.52	-9,275.57	9,388.35	9,253.82	134.53	69.785	
5,900.00	5,769.95	5,757.19	5,756.46	17.63	119.36	97.38	-796.52	-9,275.57	9,391.32	9,254.34	136.99	68.557	
6,000.00	5,867.33	5,855.01	5,854.26	17.93	121.52	97.53	-794.04	-9,275.57	9,394.45	9,255.00	139.45	67.368	
6,100.00	5,964.70	5,953.01	5,952.26	18.23	123.69	97.66	-794.23	-9,275.57	9,397.52	9,255.61	141.92	66.219	
6,200.00	6,062.08	6,051.09	6,050.33	18.53	125.86	97.80	-794.56	-9,275.57	9,400.65	9,256.26	144.39	65.108	
6,300.00	6,159.46	6,149.24	6,148.47	18.83	128.03	97.93	-795.03	-9,275.57	9,403.82	9,256.96	146.86	64.034	
6,400.00	6,256.84	6,247.46	6,246.68	19.13	130.20	98.06	-795.65	-9,275.57	9,407.04	9,257.71	149.33	62.996	
6,500.00	6,354.22	6,374.31	6,340.73	19.43	133.05	98.18	-796.52	-9,275.57	9,410.29	9,257.81	152.48	61.717	
6,600.00	6,451.60	6,444.10	6,443.31	19.73	134.55	98.32	-797.33	-9,275.57	9,413.60	9,259.32	154.28	61.018	
6,694.27	6,543.40	6,530.86	6,529.91	20.02	136.92	98.44	-796.52	-9,275.57	9,416.84	9,259.92	156.93	60.007	
6,700.00	6,548.98	6,536.44	6,535.49	20.03	137.06	100.88	-796.52	-9,275.57	9,417.07	9,259.99	157.08	59.949	
6,750.00	6,597.52	6,584.99	6,584.04	20.18	138.26	120.23	-796.52	-9,275.57	9,421.46	9,263.03	158.43	59.466	
6,800.00	6,645.56	6,633.63	6,632.66	20.33	139.46	134.64	-795.17	-9,275.57	9,430.26	9,270.48	159.79	59.018	
6,850.00	6,692.73	6,682.01	6,681.03	20.48	140.66	144.59	-795.27	-9,275.57	9,443.24	9,282.11	161.13	58.605	
6,900.00	6,738.66	6,729.17	6,728.19	20.63	141.82	151.50	-795.47	-9,275.57	9,460.38	9,297.93	162.45	58.236	
6,950.00	6,783.02	6,774.76	6,773.78	20.78	142.95	156.46	-795.75	-9,275.57	9,481.54	9,317.81	163.73	57.910	
7,000.00	6,825.45	6,906.91	6,811.97	20.94	146.26	160.15	-796.52	-9,275.57	9,506.53	9,339.34	167.19	56.860 SF	
7,050.00	6,865.65	6,866.72	6,852.16	21.09	145.23	163.04	-796.52	-9,275.57	9,535.24	9,368.93	166.31	57.335	
7,100.00	6,903.29	6,898.59	6,897.60	21.24	146.01	165.40	-796.98	-9,275.57	9,567.38	9,400.14	167.24	57.207	
7,150.00	6,938.11	6,925.74	6,924.62	21.39	146.75	167.40	-796.52	-9,275.57	9,602.78	9,434.65	168.13	57.116	
7,200.00	6,969.82	6,957.46	6,956.33	21.54	147.56	169.22	-796.52	-9,275.57	9,641.09	9,471.99	169.09	57.017	
7,250.00	6,998.19	6,985.83	6,984.70	21.69	148.29	170.96	-796.52	-9,275.57	9,682.04	9,512.06	169.97	56.962	
7,300.00	7,023.01	7,010.65	7,009.52	21.84	148.93	172.81	-796.52	-9,275.57	9,725.32	9,554.55	170.76	56.953	
7,350.00	7,044.08	7,031.72	7,030.59	21.99	149.47	174.97	-796.52	-9,275.57	9,770.59	9,599.14	171.45	56.987	
7,400.00	7,061.25	7,048.88	7,047.76	22.14	149.91	177.90	-796.52	-9,275.57	9,817.53	9,645.48	172.05	57.064	
7,450.00	7,074.38	7,062.01	7,060.89	22.29	150.25	-177.39	-796.52	-9,275.57	9,865.76	9,693.22	172.53	57.182	
7,500.00	7,083.37	7,071.01	7,069.88	22.44	150.48	-167.56	-796.52	-9,275.57	9,914.91	9,742.00	172.91	57.340	
7,550.00	7,088.16	7,075.80	7,074.67	22.59	150.60	-136.78	-796.52	-9,275.57	9,964.63	9,791.44	173.19	57.536	
7,581.00	7,089.00	7,076.64	7,075.51	22.68	150.63	-90.72	-796.52	-9,275.57	9,995.56	9,822.25	173.30	57.677	
7,600.00	7,089.02	7,076.65	7,075.53	22.74	150.63	-90.72	-796.52	-9,275.57	10,014.53	9,841.17	173.36	57.767	
7,700.00	7,089.09	7,076.73	7,075.61	23.04	150.63	-90.73	-796.52	-9,275.57	10,114.34	9,940.67	173.66	58.241	
7,800.00	7,089.17	7,076.81	7,075.69	23.34	150.63	-90.74	-796.52	-9,275.57	10,214.15	10,040.18	173.97	58.713	
7,900.00	7,089.25	7,076.89	7,075.76	23.64	150.63	-90.74	-796.52	-9,275.57	10,313.96	10,139.69	174.27	59.184	
8,000.00	7,089.33	7,076.97	7,075.84	23.94	150.63	-90.75	-796.52	-9,275.57	10,413.78	10,239.21	174.57	59.653	
8,100.00	7,089.41	7,077.05	7,075.92	24.24	150.64	-90.76	-796.52	-9,275.57	10,513.61	10,338.73	174.88	60.121	
8,200.00	7,089.49	7,077.12	7,076.00	24.54	150.64	-90.77	-796.52	-9,275.57	10,613.43	10,438.26	175.18	60.587	
8,300.00	7,089.56	7,077.20	7,076.08	24.84	150.64	-90.77	-796.52	-9,275.57	10,713.26	10,537.78	175.48	61.051	
8,400.00	7,089.64	7,077.28	7,076.16	25.14	150.64	-90.78	-796.52	-9,275.57	10,813.10	10,637.31	175.78	61.514	
8,500.00	7,089.72	7,077.36	7,076.23	25.44	150.64	-90.79	-796.52	-9,275.57	10,912.93	10,736.85	176.09	61.975	
8,600.00	7,089.80	7,077.44	7,076.31	25.75	150.65	-90.79	-796.52	-9,275.57	11,012.77	10,836.38	176.39	62.435	
8,700.00	7,089.88	7,077.52	7,076.39	26.05	150.65	-90.80	-796.52	-9,275.57	11,112.61	10,935.92	176.69	62.893	
8,800.00	7,089.96	7,077.59	7,076.47	26.35	150.65	-90.81	-796.52	-9,275.57	11,212.46	11,035.46	176.99	63.349	
8,900.00	7,090.03	7,077.67	7,076.55	26.65	150.65	-90.82	-796.52	-9,275.57	11,312.30	11,135.01	177.30	63.804	
9,000.00	7,090.11	7,077.75	7,076.63	26.95	150.66	-90.82	-796.52	-9,275.57	11,412.15	11,234.55	177.60	64.258	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 97-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	7,077.83	7,076.70	27.25	150.66	-90.83	-796.52	-9,275.57	11,512.01	11,334.10	177.90	64.710	
9,200.00	7,090.27	7,077.91	7,076.78	27.55	150.66	-90.84	-796.52	-9,275.57	11,611.86	11,433.66	178.20	65.160	
9,300.00	7,090.35	7,077.99	7,076.86	27.85	150.66	-90.85	-796.52	-9,275.57	11,711.72	11,533.21	178.51	65.609	
9,400.00	7,090.43	7,078.07	7,076.94	28.15	150.66	-90.85	-796.52	-9,275.57	11,811.58	11,632.77	178.81	66.057	
9,500.00	7,090.51	7,078.14	7,077.02	28.45	150.67	-90.86	-796.52	-9,275.57	11,911.44	11,732.33	179.11	66.503	
9,600.00	7,090.58	7,078.22	7,077.10	28.75	150.67	-90.87	-796.52	-9,275.57	12,011.31	11,831.89	179.42	66.947	
9,700.00	7,090.66	7,078.30	7,077.18	29.05	150.67	-90.87	-796.52	-9,275.57	12,111.17	11,931.46	179.72	67.390	
9,800.00	7,090.74	7,078.38	7,077.25	29.35	150.67	-90.88	-796.52	-9,275.57	12,211.04	12,031.02	180.02	67.831	
9,900.00	7,090.82	7,078.46	7,077.33	29.65	150.67	-90.89	-796.52	-9,275.57	12,310.91	12,130.59	180.32	68.272	
10,000.00	7,090.90	7,078.54	7,077.41	29.95	150.68	-90.90	-796.52	-9,275.57	12,410.79	12,230.16	180.63	68.710	
10,100.00	7,090.98	7,078.61	7,077.49	30.25	150.68	-90.90	-796.52	-9,275.57	12,510.66	12,329.73	180.93	69.147	
10,200.00	7,091.05	7,078.69	7,077.57	30.55	150.68	-90.91	-796.52	-9,275.57	12,610.54	12,429.31	181.23	69.583	
10,300.00	7,091.13	7,078.77	7,077.65	30.85	150.68	-90.92	-796.52	-9,275.57	12,710.42	12,528.89	181.53	70.017	
10,400.00	7,091.21	7,078.85	7,077.72	31.15	150.68	-90.92	-796.52	-9,275.57	12,810.30	12,628.46	181.84	70.450	
10,500.00	7,091.29	7,078.93	7,077.80	31.45	150.69	-90.93	-796.52	-9,275.57	12,910.18	12,728.04	182.14	70.881	
10,600.00	7,091.37	7,079.01	7,077.88	31.76	150.69	-90.94	-796.52	-9,275.57	13,010.07	12,827.63	182.44	71.311	
10,700.00	7,091.45	7,079.09	7,077.96	32.06	150.69	-90.95	-796.52	-9,275.57	13,109.95	12,927.21	182.74	71.740	
10,800.00	7,091.53	7,079.16	7,078.04	32.36	150.69	-90.95	-796.52	-9,275.57	13,209.84	13,026.80	183.05	72.167	
10,900.00	7,091.60	7,079.24	7,078.12	32.66	150.69	-90.96	-796.52	-9,275.57	13,309.73	13,126.38	183.35	72.593	
11,000.00	7,091.68	7,079.32	7,078.20	32.96	150.70	-90.97	-796.52	-9,275.57	13,409.62	13,225.97	183.65	73.017	
11,100.00	7,091.76	7,079.40	7,078.27	33.26	150.70	-90.98	-796.52	-9,275.57	13,509.52	13,325.56	183.95	73.440	
11,200.00	7,091.84	7,079.48	7,078.35	33.56	150.70	-90.98	-796.52	-9,275.57	13,609.41	13,425.16	184.26	73.862	
11,300.00	7,091.92	7,079.56	7,078.43	33.86	150.70	-90.99	-796.52	-9,275.57	13,709.31	13,524.75	184.56	74.282	
11,400.00	7,092.00	7,079.63	7,078.51	34.16	150.70	-91.00	-796.52	-9,275.57	13,809.21	13,624.35	184.86	74.701	
11,500.00	7,092.07	7,079.71	7,078.59	34.46	150.71	-91.00	-796.52	-9,275.57	13,909.10	13,723.94	185.16	75.118	
11,600.00	7,092.15	7,079.79	7,078.67	34.76	150.71	-91.01	-796.52	-9,275.57	14,009.00	13,823.54	185.46	75.535	
11,700.00	7,092.23	7,079.87	7,078.74	35.06	150.71	-91.02	-796.52	-9,275.57	14,108.91	13,923.14	185.77	75.949	
11,800.00	7,092.31	7,079.95	7,078.82	35.36	150.71	-91.03	-796.52	-9,275.57	14,208.81	14,022.74	186.07	76.363	
11,900.00	7,092.39	7,080.03	7,078.90	35.66	150.71	-91.03	-796.52	-9,275.57	14,308.72	14,122.34	186.37	76.775	
12,000.00	7,092.47	7,080.11	7,078.98	35.96	150.72	-91.04	-796.52	-9,275.57	14,408.62	14,221.95	186.67	77.186	
12,100.00	7,092.55	7,080.18	7,079.06	36.26	150.72	-91.05	-796.52	-9,275.57	14,508.53	14,321.55	186.98	77.595	
12,200.00	7,092.62	7,080.26	7,079.14	36.56	150.72	-91.05	-796.52	-9,275.57	14,608.44	14,421.16	187.28	78.004	
12,300.00	7,092.70	7,080.34	7,079.22	36.86	150.72	-91.06	-796.52	-9,275.57	14,708.35	14,520.77	187.58	78.411	
12,400.00	7,092.78	7,080.42	7,079.29	37.16	150.72	-91.07	-796.52	-9,275.57	14,808.26	14,620.37	187.88	78.816	
12,500.00	7,092.86	7,080.50	7,079.37	37.46	150.73	-91.08	-796.52	-9,275.57	14,908.17	14,719.98	188.19	79.220	
12,600.00	7,092.94	7,080.58	7,079.45	37.76	150.73	-91.08	-796.52	-9,275.57	15,008.08	14,819.60	188.49	79.623	
12,700.00	7,093.02	7,080.65	7,079.53	38.06	150.73	-91.09	-796.52	-9,275.57	15,108.00	14,919.21	188.79	80.025	
12,800.00	7,093.09	7,080.73	7,079.61	38.36	150.73	-91.10	-796.52	-9,275.57	15,207.91	15,018.82	189.09	80.426	
12,900.00	7,093.17	7,080.81	7,079.69	38.66	150.73	-91.11	-796.52	-9,275.57	15,307.83	15,118.44	189.40	80.825	
13,000.00	7,093.25	7,080.89	7,079.76	38.96	150.74	-91.11	-796.52	-9,275.57	15,407.75	15,218.05	189.70	81.223	
13,100.00	7,093.33	7,080.97	7,079.84	39.26	150.74	-91.12	-796.52	-9,275.57	15,507.67	15,317.67	190.00	81.619	
13,200.00	7,093.41	7,081.05	7,079.92	39.56	150.74	-91.13	-796.52	-9,275.57	15,607.59	15,417.29	190.30	82.015	
13,300.00	7,093.49	7,081.13	7,080.00	39.86	150.74	-91.13	-796.52	-9,275.57	15,707.51	15,516.90	190.60	82.409	
13,400.00	7,093.57	7,081.20	7,080.08	40.16	150.74	-91.14	-796.52	-9,275.57	15,807.43	15,616.52	190.91	82.802	
13,500.00	7,093.64	7,081.28	7,080.16	40.47	150.75	-91.15	-796.52	-9,275.57	15,907.35	15,716.15	191.21	83.193	
13,600.00	7,093.72	7,081.36	7,080.24	40.77	150.75	-91.16	-796.52	-9,275.57	16,007.28	15,815.77	191.51	83.584	
13,700.00	7,093.80	7,081.44	7,080.31	41.07	150.75	-91.16	-796.52	-9,275.57	16,107.20	15,915.39	191.81	83.973	
13,800.00	7,093.88	7,081.52	7,080.39	41.37	150.75	-91.17	-796.52	-9,275.57	16,207.13	16,015.01	192.12	84.361	
13,900.00	7,093.96	7,081.60	7,080.47	41.67	150.75	-91.18	-796.52	-9,275.57	16,307.06	16,114.64	192.42	84.748	
14,000.00	7,094.04	7,081.67	7,080.55	41.97	150.76	-91.18	-796.52	-9,275.57	16,406.98	16,214.26	192.72	85.134	
14,100.00	7,094.11	7,081.75	7,080.63	42.27	150.76	-91.19	-796.52	-9,275.57	16,506.91	16,313.89	193.02	85.518	
14,200.00	7,094.19	7,081.83	7,080.71	42.57	150.76	-91.20	-796.52	-9,275.57	16,606.84	16,413.52	193.33	85.901	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 97-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	7,081.91	7,080.78	42.87	150.76	-91.21	-796.52	-9,275.57	16,706.77	16,513.14	193.63	86.283	
14,400.00	7,094.35	7,081.99	7,080.86	43.17	150.76	-91.21	-796.52	-9,275.57	16,806.70	16,612.77	193.93	86.664	
14,500.00	7,094.43	7,082.07	7,080.94	43.47	150.77	-91.22	-796.52	-9,275.57	16,906.63	16,712.40	194.23	87.044	
14,600.00	7,094.51	7,082.14	7,081.02	43.77	150.77	-91.23	-796.52	-9,275.57	17,006.57	16,812.03	194.53	87.422	
14,700.00	7,094.58	7,082.22	7,081.10	44.07	150.77	-91.24	-796.52	-9,275.57	17,106.50	16,911.66	194.84	87.799	
14,800.00	7,094.66	7,082.30	7,081.18	44.37	150.77	-91.24	-796.52	-9,275.57	17,206.43	17,011.30	195.14	88.175	
14,900.00	7,094.74	7,082.38	7,081.25	44.67	150.77	-91.25	-796.52	-9,275.57	17,306.37	17,110.93	195.44	88.550	
15,000.00	7,094.82	7,082.46	7,081.33	44.97	150.78	-91.26	-796.52	-9,275.57	17,406.31	17,210.56	195.74	88.924	
15,100.00	7,094.90	7,082.54	7,081.41	45.27	150.78	-91.26	-796.52	-9,275.57	17,506.24	17,310.20	196.05	89.297	
15,200.00	7,094.98	7,082.62	7,081.49	45.57	150.78	-91.27	-796.52	-9,275.57	17,606.18	17,409.83	196.35	89.668	
15,300.00	7,095.06	7,082.69	7,081.57	45.87	150.78	-91.28	-796.52	-9,275.57	17,706.12	17,509.47	196.65	90.039	
15,400.00	7,095.13	7,082.77	7,081.65	46.17	150.78	-91.29	-796.52	-9,275.57	17,806.06	17,609.10	196.95	90.408	
15,500.00	7,095.21	7,082.85	7,081.73	46.47	150.79	-91.29	-796.52	-9,275.57	17,905.99	17,708.74	197.25	90.776	
15,600.00	7,095.29	7,082.93	7,081.80	46.77	150.79	-91.30	-796.52	-9,275.57	18,005.93	17,808.38	197.56	91.143	
15,700.00	7,095.37	7,083.01	7,081.88	47.07	150.79	-91.31	-796.52	-9,275.57	18,105.88	17,908.02	197.86	91.509	
15,800.00	7,095.45	7,083.09	7,081.96	47.37	150.79	-91.31	-796.52	-9,275.57	18,205.82	18,007.66	198.16	91.874	
15,900.00	7,095.53	7,083.16	7,082.04	47.67	150.79	-91.32	-796.52	-9,275.57	18,305.76	18,107.30	198.46	92.238	
16,000.00	7,095.60	7,083.24	7,082.12	47.97	150.80	-91.33	-796.52	-9,275.57	18,405.70	18,206.94	198.77	92.600	
16,100.00	7,095.68	7,083.32	7,082.20	48.27	150.80	-91.34	-796.52	-9,275.57	18,505.64	18,306.58	199.07	92.962	
16,200.00	7,095.76	7,083.40	7,082.27	48.57	150.80	-91.34	-796.52	-9,275.57	18,605.59	18,406.22	199.37	93.322	
16,300.00	7,095.84	7,083.48	7,082.35	48.87	150.80	-91.35	-796.52	-9,275.57	18,705.53	18,505.86	199.67	93.681	
16,400.00	7,095.92	7,083.56	7,082.43	49.17	150.80	-91.36	-796.52	-9,275.57	18,805.48	18,605.50	199.97	94.040	
16,500.00	7,096.00	7,083.64	7,082.51	49.47	150.81	-91.37	-796.52	-9,275.57	18,905.42	18,705.15	200.28	94.397	
16,600.00	7,096.08	7,083.71	7,082.59	49.77	150.81	-91.37	-796.52	-9,275.57	19,005.37	18,804.79	200.58	94.753	
16,700.00	7,096.15	7,083.79	7,082.67	50.07	150.81	-91.38	-796.52	-9,275.57	19,105.32	18,904.43	200.88	95.108	
16,800.00	7,096.23	7,083.87	7,082.75	50.37	150.81	-91.39	-796.52	-9,275.57	19,205.26	19,004.08	201.18	95.462	
16,900.00	7,096.31	7,083.95	7,082.82	50.67	150.81	-91.39	-796.52	-9,275.57	19,305.21	19,103.73	201.49	95.815	
17,000.00	7,096.39	7,084.03	7,082.90	50.97	150.82	-91.40	-796.52	-9,275.57	19,405.16	19,203.37	201.79	96.166	
17,100.00	7,096.47	7,084.11	7,082.98	51.27	150.82	-91.41	-796.52	-9,275.57	19,505.11	19,303.02	202.09	96.517	
17,200.00	7,096.55	7,084.18	7,083.06	51.57	150.82	-91.42	-796.52	-9,275.57	19,605.06	19,402.67	202.39	96.867	
17,300.00	7,096.62	7,084.26	7,083.14	51.87	150.82	-91.42	-796.52	-9,275.57	19,705.01	19,502.31	202.69	97.216	
17,400.00	7,096.70	7,084.34	7,083.22	52.17	150.82	-91.43	-796.52	-9,275.57	19,804.96	19,601.96	203.00	97.563	
17,500.00	7,096.78	7,084.42	7,083.29	52.47	150.83	-91.44	-796.52	-9,275.57	19,904.91	19,701.61	203.30	97.910	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #137 (Offset) - 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
0.00	0.00	10.49	-10.49	0.00	0.11	-98.16	-1,325.67	-9,244.50	9,339.07				
100.00	100.00	89.51	89.51	0.23	0.95	-98.16	-1,325.67	-9,244.50	9,339.07	9,337.89	1.18	7,920.364	
192.05	192.05	181.56	181.55	0.50	2.47	-98.16	-1,325.41	-9,244.50	9,339.03	9,336.06	2.97	3,143.532	
200.00	200.00	188.21	188.20	0.53	2.60	-98.16	-1,325.41	-9,244.50	9,339.03	9,335.90	3.13	2,988.154	
300.00	300.00	289.53	289.51	0.83	4.67	-98.16	-1,325.67	-9,244.50	9,339.07	9,333.57	5.49	1,699.964	
380.00	380.00	369.35	369.33	1.07	6.36	-98.16	-1,325.40	-9,244.50	9,339.03	9,331.60	7.43	1,256.915	
400.00	400.00	388.46	388.44	1.13	6.77	-98.16	-1,325.41	-9,244.50	9,339.03	9,331.13	7.90	1,182.710	
500.00	500.00	484.02	484.00	1.43	8.80	-98.16	-1,325.64	-9,244.50	9,339.06	9,328.84	10.23	913.160	
600.00	599.98	589.55	589.49	1.73	11.13	87.28	-1,325.67	-9,244.50	9,338.98	9,326.12	12.86	726.318	
700.00	699.84	682.03	681.96	2.03	13.18	87.32	-1,324.95	-9,244.50	9,338.64	9,323.43	15.21	614.177	
800.00	799.45	789.08	788.97	2.33	15.55	87.38	-1,325.67	-9,244.50	9,338.33	9,320.46	17.88	522.404	
900.00	898.70	888.33	888.21	2.63	17.75	87.46	-1,325.67	-9,244.50	9,337.78	9,317.40	20.38	458.270	
1,000.00	997.47	987.09	986.98	2.93	19.94	87.57	-1,325.67	-9,244.50	9,337.09	9,314.23	22.87	408.343	
1,100.00	1,095.62	1,082.79	1,082.67	3.23	22.06	87.70	-1,324.93	-9,244.50	9,336.19	9,310.90	25.29	369.202	
1,157.34	1,151.58	1,136.99	1,136.87	3.40	23.26	87.79	-1,325.07	-9,244.50	9,335.71	9,309.05	26.66	350.160	
1,200.00	1,193.13	1,177.26	1,177.14	3.53	24.16	87.84	-1,325.23	-9,244.50	9,335.35	9,307.67	27.68	337.234	
1,300.00	1,290.51	1,280.23	1,280.02	3.83	26.50	87.98	-1,325.67	-9,244.50	9,334.56	9,304.23	30.33	307.788	
1,400.00	1,387.89	1,377.61	1,377.40	4.13	28.94	88.12	-1,325.67	-9,244.50	9,333.76	9,300.70	33.06	282.311	
1,500.00	1,485.27	1,474.44	1,474.21	4.43	31.36	88.26	-1,324.30	-9,244.50	9,332.85	9,297.07	35.78	260.823	
1,600.00	1,582.65	1,565.31	1,565.07	4.73	33.63	88.39	-1,324.61	-9,244.50	9,332.21	9,293.86	38.35	243.321	
1,700.00	1,680.02	1,656.43	1,656.18	5.03	35.90	88.51	-1,325.43	-9,244.50	9,331.69	9,290.76	40.93	227.984	
1,800.00	1,777.40	1,767.27	1,766.92	5.33	38.69	88.66	-1,325.67	-9,244.50	9,331.14	9,287.12	44.01	212.013	
1,900.00	1,874.78	1,860.99	1,860.62	5.63	41.04	88.80	-1,324.77	-9,244.50	9,330.51	9,283.85	46.66	199.947	
2,000.00	1,972.16	1,950.07	1,949.68	5.93	43.28	88.92	-1,325.43	-9,244.50	9,330.14	9,280.93	49.20	189.632	
2,100.00	2,069.54	2,059.51	2,059.05	6.23	45.76	89.07	-1,325.67	-9,244.50	9,329.75	9,277.76	51.99	179.464	
2,200.00	2,166.92	2,156.89	2,156.43	6.53	47.92	89.20	-1,325.67	-9,244.50	9,329.40	9,274.95	54.45	171.351	
2,300.00	2,264.30	2,253.54	2,253.06	6.83	50.06	89.35	-1,323.92	-9,244.50	9,328.91	9,272.02	56.89	163.983	
2,400.00	2,361.68	2,346.57	2,346.08	7.13	52.13	89.48	-1,324.20	-9,244.50	9,328.71	9,269.46	59.25	157.441	
2,500.00	2,459.06	2,439.81	2,439.30	7.43	54.19	89.60	-1,324.90	-9,244.50	9,328.60	9,266.98	61.62	151.390	
2,600.00	2,556.44	2,546.51	2,545.95	7.73	56.45	89.75	-1,325.67	-9,244.50	9,328.54	9,264.37	64.17	145.366	
2,700.00	2,653.82	2,643.89	2,643.33	8.03	58.33	89.89	-1,325.67	-9,244.50	9,328.47	9,262.12	66.35	140.587	
2,800.00	2,751.19	2,741.27	2,740.71	8.33	60.21	90.02	-1,325.67	-9,244.50	9,328.45	9,259.92	68.53	136.114	
2,811.00	2,761.91	2,751.98	2,751.41	8.36	60.41	90.04	-1,324.87	-9,244.50	9,328.38	9,259.60	68.77	135.638	CC
2,825.07	2,775.61	2,765.37	2,764.80	8.41	60.67	90.06	-1,324.87	-9,244.50	9,328.38	9,259.30	69.07	135.048	
2,900.00	2,848.57	2,836.71	2,836.14	8.63	62.05	90.16	-1,324.96	-9,244.50	9,328.42	9,257.74	70.68	131.986	
3,000.00	2,945.95	2,932.03	2,931.45	8.93	63.89	90.29	-1,325.30	-9,244.50	9,328.55	9,255.73	72.82	128.108	
3,100.00	3,043.33	3,033.45	3,032.84	9.23	65.89	90.43	-1,325.67	-9,244.50	9,328.73	9,253.61	75.11	124.195	
3,200.00	3,140.71	3,130.83	3,130.22	9.53	67.87	90.57	-1,325.67	-9,244.50	9,328.93	9,251.53	77.39	120.539	
3,300.00	3,238.09	3,228.21	3,227.60	9.83	69.85	90.70	-1,325.67	-9,244.50	9,329.19	9,249.51	79.67	117.094	
3,400.00	3,335.47	3,324.23	3,323.62	10.13	71.80	90.84	-1,324.90	-9,244.50	9,329.44	9,247.51	81.93	113.878	
3,500.00	3,432.85	3,419.90	3,419.28	10.43	73.74	90.97	-1,325.19	-9,244.50	9,329.83	9,245.66	84.17	110.845	
3,600.00	3,530.23	3,520.41	3,519.74	10.73	75.78	91.11	-1,325.67	-9,244.50	9,330.29	9,243.79	86.50	107.861	
3,700.00	3,627.61	3,617.78	3,617.12	11.03	77.67	91.25	-1,325.67	-9,244.50	9,330.77	9,242.08	88.70	105.199	
3,800.00	3,724.99	3,712.34	3,711.67	11.33	79.51	91.38	-1,325.22	-9,244.50	9,331.28	9,240.44	90.83	102.728	
3,900.00	3,822.36	3,812.57	3,811.88	11.63	81.43	91.52	-1,325.67	-9,244.50	9,331.90	9,238.84	93.06	100.283	
4,000.00	3,919.74	3,909.95	3,909.26	11.93	83.24	91.65	-1,325.67	-9,244.50	9,332.54	9,237.38	95.17	98.066	
4,100.00	4,017.12	4,005.73	4,005.04	12.23	85.02	91.79	-1,325.48	-9,244.50	9,333.23	9,235.99	97.25	95.976	
4,200.00	4,114.50	4,104.72	4,104.01	12.53	87.28	91.92	-1,325.67	-9,244.50	9,334.00	9,234.19	99.81	93.518	
4,300.00	4,211.88	4,202.10	4,201.39	12.83	89.98	92.06	-1,325.67	-9,244.50	9,334.82	9,232.01	102.81	90.801	
4,400.00	4,309.26	4,299.48	4,298.77	13.13	92.67	92.20	-1,325.67	-9,244.50	9,335.68	9,229.88	105.80	88.239	
4,500.00	4,406.64	4,395.74	4,395.03	13.43	95.34	92.34	-1,324.95	-9,244.50	9,336.57	9,227.80	108.76	85.842	
4,600.00	4,504.02	4,491.99	4,491.28	13.73	98.00	92.47	-1,325.29	-9,244.50	9,337.56	9,225.84	111.73	83.573	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #137 (Offset) - 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	4,601.40	4,591.65	4,590.64	14.03	101.04	92.61	-1,325.26	-9,244.50	9,338.60	9,223.53	115.06	81.161	
4,800.00	4,698.78	4,689.45	4,688.29	14.33	104.48	92.74	-1,325.67	-9,244.50	9,339.71	9,220.90	118.81	78.614	
4,900.00	4,796.16	4,781.85	4,780.66	14.63	107.70	92.87	-1,325.21	-9,244.50	9,340.83	9,218.51	122.32	76.361	
5,000.00	4,893.53	4,879.12	4,877.79	14.93	111.10	93.01	-1,325.23	-9,244.50	9,342.03	9,216.00	126.03	74.127	
5,100.00	4,990.91	4,979.72	4,978.29	15.23	114.56	93.15	-1,325.04	-9,244.50	9,343.28	9,213.49	129.79	71.989	
5,200.00	5,088.29	5,079.35	5,077.81	15.53	118.04	93.28	-1,325.67	-9,244.50	9,344.61	9,211.05	133.56	69.965	
5,300.00	5,185.67	5,176.86	5,175.18	15.83	121.46	93.42	-1,325.67	-9,244.50	9,345.98	9,208.69	137.28	68.078	
5,400.00	5,283.05	5,270.57	5,268.85	16.13	124.70	93.55	-1,324.95	-9,244.50	9,347.38	9,206.55	140.82	66.377	
5,500.00	5,380.43	5,371.80	5,369.94	16.43	128.14	93.69	-1,325.67	-9,244.50	9,348.87	9,204.31	144.56	64.670	
5,600.00	5,477.81	5,469.31	5,467.32	16.73	131.44	93.82	-1,325.67	-9,244.50	9,350.40	9,202.24	148.17	63.108	
5,700.00	5,575.19	5,565.18	5,563.16	17.03	134.78	93.96	-1,324.81	-9,244.50	9,351.97	9,200.16	151.81	61.605	
5,800.00	5,672.57	5,664.25	5,662.08	17.33	138.28	94.10	-1,325.67	-9,244.50	9,353.63	9,198.02	155.60	60.112	
5,900.00	5,769.95	5,758.68	5,756.47	17.63	141.68	94.23	-1,325.20	-9,244.50	9,355.31	9,196.01	159.31	58.725	
6,000.00	5,867.33	5,859.19	5,856.84	17.93	145.23	94.37	-1,325.67	-9,244.50	9,357.07	9,193.92	163.16	57.350	
6,100.00	5,964.70	5,954.02	5,951.61	18.23	148.56	94.50	-1,325.32	-9,244.50	9,358.87	9,192.09	166.79	56.113	
6,200.00	6,062.08	6,054.11	6,051.54	18.53	152.08	94.64	-1,324.77	-9,244.50	9,360.73	9,190.12	170.61	54.867	
6,300.00	6,159.46	6,151.70	6,148.98	18.83	155.54	94.77	-1,325.67	-9,244.50	9,362.65	9,188.29	174.36	53.697 ES	
6,400.00	6,256.84	6,170.00	6,167.24	19.13	156.20	94.80	-1,325.67	-9,244.50	9,364.96	9,189.64	175.32	53.416	
6,500.00	6,354.22	6,170.00	6,167.24	19.43	156.20	94.80	-1,325.67	-9,244.50	9,368.31	9,192.71	175.60	53.350	
6,600.00	6,451.60	6,170.00	6,167.24	19.73	156.20	94.80	-1,325.67	-9,244.50	9,372.73	9,196.87	175.86	53.296	
6,694.27	6,543.40	6,170.00	6,167.24	20.02	156.20	94.80	-1,325.67	-9,244.50	9,377.87	9,201.78	176.09	53.255	
6,700.00	6,548.98	6,170.00	6,167.24	20.03	156.20	97.23	-1,325.67	-9,244.50	9,378.24	9,202.13	176.11	53.253	
6,750.00	6,597.52	6,170.00	6,167.24	20.18	156.20	116.47	-1,325.67	-9,244.50	9,384.05	9,207.83	176.22	53.251 SF	
6,800.00	6,645.56	6,170.00	6,167.24	20.33	156.20	130.75	-1,325.67	-9,244.50	9,394.42	9,218.08	176.34	53.275	
6,850.00	6,692.73	6,170.00	6,167.24	20.48	156.20	140.54	-1,325.67	-9,244.50	9,409.26	9,232.81	176.45	53.326	
6,900.00	6,738.66	6,170.00	6,167.24	20.63	156.20	147.25	-1,325.67	-9,244.50	9,428.43	9,251.87	176.56	53.401	
6,950.00	6,783.02	6,170.00	6,167.24	20.78	156.20	151.97	-1,325.67	-9,244.50	9,451.76	9,275.10	176.67	53.501	
7,000.00	6,825.45	6,170.00	6,167.24	20.94	156.20	155.38	-1,325.67	-9,244.50	9,479.05	9,302.28	176.77	53.623	
7,050.00	6,865.65	6,170.00	6,167.24	21.09	156.20	157.91	-1,325.67	-9,244.50	9,510.05	9,333.17	176.88	53.766	
7,100.00	6,903.29	6,170.00	6,167.24	21.24	156.20	159.81	-1,325.67	-9,244.50	9,544.49	9,367.50	176.99	53.927	
7,150.00	6,938.11	6,170.00	6,167.24	21.39	156.20	161.24	-1,325.67	-9,244.50	9,582.08	9,404.98	177.10	54.106	
7,200.00	6,969.82	6,170.00	6,167.24	21.54	156.20	162.30	-1,325.67	-9,244.50	9,622.50	9,445.28	177.21	54.299	
7,250.00	6,998.19	6,170.00	6,167.24	21.69	156.20	163.06	-1,325.67	-9,244.50	9,665.39	9,488.06	177.33	54.505	
7,300.00	7,023.01	6,170.00	6,167.24	21.84	156.20	163.52	-1,325.67	-9,244.50	9,710.41	9,532.96	177.45	54.721	
7,350.00	7,044.08	6,170.00	6,167.24	21.99	156.20	163.66	-1,325.67	-9,244.50	9,757.19	9,579.61	177.58	54.945	
7,400.00	7,061.25	6,170.00	6,167.24	22.14	156.20	163.30	-1,325.67	-9,244.50	9,805.35	9,627.63	177.71	55.175	
7,450.00	7,074.38	6,170.00	6,167.24	22.29	156.20	161.79	-1,325.67	-9,244.50	9,854.50	9,676.64	177.85	55.409	
7,500.00	7,083.37	6,170.00	6,167.24	22.44	156.20	154.03	-1,325.67	-9,244.50	9,904.25	9,726.26	178.00	55.643	
7,550.00	7,088.16	6,170.00	6,167.24	22.59	156.20	4.33	-1,325.67	-9,244.50	9,954.23	9,776.09	178.15	55.877	
7,581.00	7,089.00	6,170.00	6,167.24	22.68	156.20	-5.88	-1,325.67	-9,244.50	9,985.16	9,806.92	178.24	56.020	
7,600.00	7,089.02	6,170.00	6,167.24	22.74	156.20	-5.88	-1,325.67	-9,244.50	10,004.09	9,825.78	178.30	56.108	
7,700.00	7,089.09	6,170.00	6,167.24	23.04	156.20	-5.88	-1,325.67	-9,244.50	10,103.68	9,925.06	178.61	56.567	
7,800.00	7,089.17	6,170.00	6,167.24	23.34	156.20	-5.88	-1,325.67	-9,244.50	10,203.28	10,024.35	178.93	57.025	
7,900.00	7,089.25	6,170.00	6,167.24	23.64	156.20	-5.88	-1,325.67	-9,244.50	10,302.88	10,123.64	179.24	57.481	
8,000.00	7,089.33	6,170.00	6,167.24	23.94	156.20	-5.88	-1,325.67	-9,244.50	10,402.50	10,222.95	179.55	57.936	
8,100.00	7,089.41	6,170.00	6,167.24	24.24	156.20	-5.88	-1,325.67	-9,244.50	10,502.12	10,322.26	179.86	58.390	
8,200.00	7,089.49	6,170.00	6,167.24	24.54	156.20	-5.88	-1,325.67	-9,244.50	10,601.75	10,421.57	180.17	58.842	
8,300.00	7,089.56	6,170.00	6,167.24	24.84	156.20	-5.88	-1,325.67	-9,244.50	10,701.38	10,520.90	180.49	59.292	
8,400.00	7,089.64	6,170.00	6,167.24	25.14	156.20	-5.88	-1,325.67	-9,244.50	10,801.03	10,620.23	180.80	59.741	
8,500.00	7,089.72	6,170.00	6,167.24	25.44	156.20	-5.88	-1,325.67	-9,244.50	10,900.67	10,719.57	181.11	60.189	
8,600.00	7,089.80	6,170.00	6,167.24	25.75	156.20	-5.88	-1,325.67	-9,244.50	11,000.33	10,818.91	181.42	60.636	
8,700.00	7,089.88	6,170.00	6,167.24	26.05	156.20	-5.88	-1,325.67	-9,244.50	11,099.99	10,918.26	181.73	61.081	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #137 (Offset) - 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
8,800.00	7,089.96	6,170.00	6,167.24	26.35	156.20	-5.88	-1,325.67	-9,244.50	11,199.66	11,017.62	182.04	61.524	
8,900.00	7,090.03	6,170.00	6,167.24	26.65	156.20	-5.88	-1,325.67	-9,244.50	11,299.33	11,116.99	182.35	61.966	
9,000.00	7,090.11	6,170.00	6,167.24	26.95	156.20	-5.88	-1,325.67	-9,244.50	11,399.01	11,216.36	182.66	62.407	
9,100.00	7,090.19	6,170.00	6,167.24	27.25	156.20	-5.88	-1,325.67	-9,244.50	11,498.70	11,315.73	182.96	62.847	
9,200.00	7,090.27	6,170.00	6,167.24	27.55	156.20	-5.88	-1,325.67	-9,244.50	11,598.39	11,415.11	183.27	63.285	
9,300.00	7,090.35	6,170.00	6,167.24	27.85	156.20	-5.88	-1,325.67	-9,244.50	11,698.08	11,514.50	183.58	63.722	
9,400.00	7,090.43	6,170.00	6,167.24	28.15	156.20	-5.88	-1,325.67	-9,244.50	11,797.78	11,613.89	183.89	64.157	
9,500.00	7,090.51	6,170.00	6,167.24	28.45	156.20	-5.88	-1,325.67	-9,244.50	11,897.49	11,713.29	184.20	64.591	
9,600.00	7,090.58	6,170.00	6,167.24	28.75	156.20	-5.88	-1,325.67	-9,244.50	11,997.20	11,812.69	184.51	65.024	
9,700.00	7,090.66	6,170.00	6,167.24	29.05	156.20	-5.88	-1,325.67	-9,244.50	12,096.92	11,912.10	184.81	65.455	
9,800.00	7,090.74	6,170.00	6,167.24	29.35	156.20	-5.88	-1,325.67	-9,244.50	12,196.64	12,011.51	185.12	65.885	
9,900.00	7,090.82	6,170.00	6,167.24	29.65	156.20	-5.88	-1,325.67	-9,244.50	12,296.36	12,110.93	185.43	66.313	
10,000.00	7,090.90	6,170.00	6,167.24	29.95	156.20	-5.88	-1,325.67	-9,244.50	12,396.09	12,210.35	185.74	66.741	
10,100.00	7,090.98	6,170.00	6,167.24	30.25	156.20	-5.88	-1,325.67	-9,244.50	12,495.82	12,309.78	186.04	67.167	
10,200.00	7,091.05	6,170.00	6,167.24	30.55	156.20	-5.88	-1,325.67	-9,244.50	12,595.56	12,409.21	186.35	67.591	
10,300.00	7,091.13	6,170.00	6,167.24	30.85	156.20	-5.88	-1,325.67	-9,244.50	12,695.30	12,508.65	186.66	68.015	
10,400.00	7,091.21	6,170.00	6,167.24	31.15	156.20	-5.88	-1,325.67	-9,244.50	12,795.05	12,608.08	186.96	68.437	
10,500.00	7,091.29	6,170.00	6,167.24	31.45	156.20	-5.88	-1,325.67	-9,244.50	12,894.80	12,707.53	187.27	68.857	
10,600.00	7,091.37	6,170.00	6,167.24	31.76	156.20	-5.88	-1,325.67	-9,244.50	12,994.55	12,806.98	187.57	69.277	
10,700.00	7,091.45	6,170.00	6,167.24	32.06	156.20	-5.88	-1,325.67	-9,244.50	13,094.31	12,906.43	187.88	69.695	
10,800.00	7,091.53	6,170.00	6,167.24	32.36	156.20	-5.88	-1,325.67	-9,244.50	13,194.07	13,005.88	188.19	70.111	
10,900.00	7,091.60	6,170.00	6,167.24	32.66	156.20	-5.88	-1,325.67	-9,244.50	13,293.83	13,105.34	188.49	70.527	
11,000.00	7,091.68	6,170.00	6,167.24	32.96	156.20	-5.88	-1,325.67	-9,244.50	13,393.60	13,204.80	188.80	70.941	
11,100.00	7,091.76	6,170.00	6,167.24	33.26	156.20	-5.88	-1,325.67	-9,244.50	13,493.37	13,304.27	189.10	71.354	
11,200.00	7,091.84	6,170.00	6,167.24	33.56	156.20	-5.88	-1,325.67	-9,244.50	13,593.15	13,403.74	189.41	71.766	
11,300.00	7,091.92	6,170.00	6,167.24	33.86	156.20	-5.88	-1,325.67	-9,244.50	13,692.93	13,503.21	189.71	72.176	
11,400.00	7,092.00	6,170.00	6,167.24	34.16	156.20	-5.88	-1,325.67	-9,244.50	13,792.71	13,602.69	190.02	72.585	
11,500.00	7,092.07	6,170.00	6,167.24	34.46	156.20	-5.88	-1,325.67	-9,244.50	13,892.49	13,702.17	190.33	72.993	
11,600.00	7,092.15	6,170.00	6,167.24	34.76	156.20	-5.88	-1,325.67	-9,244.50	13,992.28	13,801.65	190.63	73.400	
11,700.00	7,092.23	6,170.00	6,167.24	35.06	156.20	-5.88	-1,325.67	-9,244.50	14,092.07	13,901.13	190.94	73.806	
11,800.00	7,092.31	6,170.00	6,167.24	35.36	156.20	-5.88	-1,325.67	-9,244.50	14,191.86	14,000.62	191.24	74.210	
11,900.00	7,092.39	6,170.00	6,167.24	35.66	156.20	-5.88	-1,325.67	-9,244.50	14,291.66	14,100.12	191.54	74.613	
12,000.00	7,092.47	6,170.00	6,167.24	35.96	156.20	-5.88	-1,325.67	-9,244.50	14,391.46	14,199.61	191.85	75.014	
12,100.00	7,092.55	6,170.00	6,167.24	36.26	156.20	-5.88	-1,325.67	-9,244.50	14,491.26	14,299.11	192.15	75.415	
12,200.00	7,092.62	6,170.00	6,167.24	36.56	156.20	-5.88	-1,325.67	-9,244.50	14,591.07	14,398.61	192.46	75.814	
12,300.00	7,092.70	6,170.00	6,167.24	36.86	156.20	-5.88	-1,325.67	-9,244.50	14,690.87	14,498.11	192.76	76.212	
12,400.00	7,092.78	6,170.00	6,167.24	37.16	156.20	-5.88	-1,325.67	-9,244.50	14,790.68	14,597.62	193.07	76.609	
12,500.00	7,092.86	6,170.00	6,167.24	37.46	156.20	-5.88	-1,325.67	-9,244.50	14,890.50	14,697.12	193.37	77.005	
12,600.00	7,092.94	6,170.00	6,167.24	37.76	156.20	-5.88	-1,325.67	-9,244.50	14,990.31	14,796.64	193.68	77.399	
12,700.00	7,093.02	6,170.00	6,167.24	38.06	156.20	-5.88	-1,325.67	-9,244.50	15,090.13	14,896.15	193.98	77.792	
12,800.00	7,093.09	6,170.00	6,167.24	38.36	156.20	-5.88	-1,325.67	-9,244.50	15,189.95	14,995.67	194.28	78.185	
12,900.00	7,093.17	6,170.00	6,167.24	38.66	156.20	-5.88	-1,325.67	-9,244.50	15,289.77	15,095.18	194.59	78.575	
13,000.00	7,093.25	6,170.00	6,167.24	38.96	156.20	-5.88	-1,325.67	-9,244.50	15,389.60	15,194.70	194.89	78.965	
13,100.00	7,093.33	6,170.00	6,167.24	39.26	156.20	-5.88	-1,325.67	-9,244.50	15,489.42	15,294.23	195.19	79.354	
13,200.00	7,093.41	6,170.00	6,167.24	39.56	156.20	-5.88	-1,325.67	-9,244.50	15,589.25	15,393.75	195.50	79.741	
13,300.00	7,093.49	6,170.00	6,167.24	39.86	156.20	-5.88	-1,325.67	-9,244.50	15,689.08	15,493.28	195.80	80.127	
13,400.00	7,093.57	6,170.00	6,167.24	40.16	156.20	-5.88	-1,325.67	-9,244.50	15,788.92	15,592.81	196.11	80.512	
13,500.00	7,093.64	6,170.00	6,167.24	40.47	156.20	-5.88	-1,325.67	-9,244.50	15,888.75	15,692.34	196.41	80.896	
13,600.00	7,093.72	6,170.00	6,167.24	40.77	156.20	-5.88	-1,325.67	-9,244.50	15,988.59	15,791.88	196.71	81.279	
13,700.00	7,093.80	6,170.00	6,167.24	41.07	156.20	-5.88	-1,325.67	-9,244.50	16,088.43	15,891.41	197.02	81.661	
13,800.00	7,093.88	6,170.00	6,167.24	41.37	156.20	-5.88	-1,325.67	-9,244.50	16,188.27	15,990.95	197.32	82.041	
13,900.00	7,093.96	6,170.00	6,167.24	41.67	156.20	-5.88	-1,325.67	-9,244.50	16,288.11	16,090.49	197.62	82.421	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 122-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,094.04	6,170.00	6,167.24	41.97	156.20	-5.88	-1,325.67	-9,244.50	16,387.96	16,190.03	197.93	82.799	
14,100.00	7,094.11	6,170.00	6,167.24	42.27	156.20	-5.88	-1,325.67	-9,244.50	16,487.81	16,289.58	198.23	83.176	
14,200.00	7,094.19	6,170.00	6,167.24	42.57	156.20	-5.88	-1,325.67	-9,244.50	16,587.65	16,389.12	198.53	83.552	
14,300.00	7,094.27	6,170.00	6,167.24	42.87	156.20	-5.88	-1,325.67	-9,244.50	16,687.51	16,488.67	198.83	83.927	
14,400.00	7,094.35	6,170.00	6,167.24	43.17	156.20	-5.88	-1,325.67	-9,244.50	16,787.36	16,588.22	199.14	84.300	
14,500.00	7,094.43	6,170.00	6,167.24	43.47	156.20	-5.88	-1,325.67	-9,244.50	16,887.21	16,687.77	199.44	84.673	
14,600.00	7,094.51	6,170.00	6,167.24	43.77	156.20	-5.88	-1,325.67	-9,244.50	16,987.07	16,787.33	199.74	85.045	
14,700.00	7,094.58	6,170.00	6,167.24	44.07	156.20	-5.88	-1,325.67	-9,244.50	17,086.93	16,886.88	200.05	85.415	
14,800.00	7,094.66	6,170.00	6,167.24	44.37	156.20	-5.88	-1,325.67	-9,244.50	17,186.79	16,986.44	200.35	85.784	
14,900.00	7,094.74	6,170.00	6,167.24	44.67	156.20	-5.88	-1,325.67	-9,244.50	17,286.65	17,086.00	200.65	86.153	
15,000.00	7,094.82	6,170.00	6,167.24	44.97	156.20	-5.88	-1,325.67	-9,244.50	17,386.51	17,185.56	200.95	86.520	
15,100.00	7,094.90	6,170.00	6,167.24	45.27	156.20	-5.88	-1,325.67	-9,244.50	17,486.37	17,285.12	201.26	86.886	
15,200.00	7,094.98	6,170.00	6,167.24	45.57	156.20	-5.88	-1,325.67	-9,244.50	17,586.24	17,384.68	201.56	87.251	
15,300.00	7,095.06	6,170.00	6,167.24	45.87	156.20	-5.88	-1,325.67	-9,244.50	17,686.11	17,484.25	201.86	87.615	
15,400.00	7,095.13	6,170.00	6,167.24	46.17	156.20	-5.88	-1,325.67	-9,244.50	17,785.98	17,583.81	202.16	87.978	
15,500.00	7,095.21	6,170.00	6,167.24	46.47	156.20	-5.88	-1,325.67	-9,244.50	17,885.85	17,683.38	202.47	88.340	
15,600.00	7,095.29	6,170.00	6,167.24	46.77	156.20	-5.88	-1,325.67	-9,244.50	17,985.72	17,782.95	202.77	88.701	
15,700.00	7,095.37	6,170.00	6,167.24	47.07	156.20	-5.88	-1,325.67	-9,244.50	18,085.59	17,882.52	203.07	89.060	
15,800.00	7,095.45	6,170.00	6,167.24	47.37	156.20	-5.88	-1,325.67	-9,244.50	18,185.47	17,982.09	203.37	89.419	
15,900.00	7,095.53	6,170.00	6,167.24	47.67	156.20	-5.88	-1,325.67	-9,244.50	18,285.34	18,081.67	203.68	89.777	
16,000.00	7,095.60	6,170.00	6,167.24	47.97	156.20	-5.88	-1,325.67	-9,244.50	18,385.22	18,181.24	203.98	90.133	
16,100.00	7,095.68	6,170.00	6,167.24	48.27	156.20	-5.88	-1,325.67	-9,244.50	18,485.10	18,280.82	204.28	90.489	
16,200.00	7,095.76	6,170.00	6,167.24	48.57	156.20	-5.88	-1,325.67	-9,244.50	18,584.98	18,380.39	204.58	90.843	
16,300.00	7,095.84	6,170.00	6,167.24	48.87	156.20	-5.88	-1,325.67	-9,244.50	18,684.86	18,479.97	204.88	91.197	
16,400.00	7,095.92	6,170.00	6,167.24	49.17	156.20	-5.88	-1,325.67	-9,244.50	18,784.74	18,579.55	205.19	91.549	
16,500.00	7,096.00	6,170.00	6,167.24	49.47	156.20	-5.88	-1,325.67	-9,244.50	18,884.62	18,679.14	205.49	91.901	
16,600.00	7,096.08	6,170.00	6,167.24	49.77	156.20	-5.88	-1,325.67	-9,244.50	18,984.51	18,778.72	205.79	92.251	
16,700.00	7,096.15	6,170.00	6,167.24	50.07	156.20	-5.88	-1,325.67	-9,244.50	19,084.40	18,878.30	206.09	92.601	
16,800.00	7,096.23	6,170.00	6,167.24	50.37	156.20	-5.88	-1,325.67	-9,244.50	19,184.28	18,977.89	206.39	92.949	
16,900.00	7,096.31	6,170.00	6,167.24	50.67	156.20	-5.88	-1,325.67	-9,244.50	19,284.17	19,077.47	206.70	93.297	
17,000.00	7,096.39	6,170.00	6,167.24	50.97	156.20	-5.88	-1,325.67	-9,244.50	19,384.06	19,177.06	207.00	93.643	
17,100.00	7,096.47	6,170.00	6,167.24	51.27	156.20	-5.88	-1,325.67	-9,244.50	19,483.95	19,276.65	207.30	93.989	
17,200.00	7,096.55	6,170.00	6,167.24	51.57	156.20	-5.88	-1,325.67	-9,244.50	19,583.84	19,376.24	207.60	94.333	
17,300.00	7,096.62	6,170.00	6,167.24	51.87	156.20	-5.88	-1,325.67	-9,244.50	19,683.74	19,475.83	207.90	94.677	
17,400.00	7,096.70	6,170.00	6,167.24	52.17	156.20	-5.88	-1,325.67	-9,244.50	19,783.63	19,575.42	208.21	95.019	
17,500.00	7,096.78	6,170.00	6,167.24	52.47	156.20	-5.88	-1,325.67	-9,244.50	19,883.53	19,675.02	208.51	95.361	
17,600.00	7,096.86	6,170.00	6,167.24	52.77	156.20	-5.88	-1,325.67	-9,244.50	19,983.42	19,774.61	208.81	95.702	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-96.34	-802.66	-7,226.46	7,271.11				
100.00	100.00	45.51	45.51	0.23	0.42	-96.34	-802.66	-7,226.46	7,270.90	7,270.26	0.65	N/A	
200.00	200.00	145.51	145.51	0.53	1.35	-96.34	-802.66	-7,226.46	7,270.90	7,269.03	1.87	3,884.993	
300.00	300.00	340.48	245.51	0.83	3.61	-96.34	-802.66	-7,226.46	7,270.90	7,266.46	4.44	1,638.263	
400.00	400.00	345.52	345.51	1.13	3.71	-96.34	-802.66	-7,226.46	7,270.90	7,266.07	4.83	1,504.128	
500.00	500.00	445.52	445.51	1.43	5.61	-96.34	-802.66	-7,226.46	7,270.90	7,263.87	7.04	1,033.256	
600.00	599.98	545.43	545.42	1.73	7.51	89.11	-802.13	-7,226.46	7,270.82	7,261.58	9.24	787.048	
700.00	699.84	643.91	643.90	2.03	9.39	89.15	-802.22	-7,226.46	7,270.75	7,259.33	11.41	637.111	
800.00	799.45	742.18	742.17	2.33	11.26	89.22	-802.48	-7,226.46	7,270.65	7,257.07	13.58	535.313	
900.00	898.70	844.25	844.21	2.63	13.27	89.32	-802.66	-7,226.46	7,270.51	7,254.62	15.90	457.354	
1,000.00	997.47	943.01	942.98	2.93	15.28	89.44	-802.66	-7,226.46	7,270.34	7,252.14	18.20	399.390	
1,100.00	1,095.62	1,041.04	1,041.00	3.23	17.27	89.60	-801.86	-7,226.46	7,270.10	7,249.60	20.50	354.719	
1,157.34	1,151.58	1,095.94	1,095.90	3.40	18.38	89.69	-801.91	-7,226.46	7,270.02	7,248.24	21.78	333.749	
1,200.00	1,193.13	1,136.73	1,136.69	3.53	19.21	89.77	-802.00	-7,226.46	7,269.98	7,247.25	22.74	319.706	
1,272.56	1,263.79	1,206.15	1,206.11	3.75	20.62	89.89	-802.25	-7,226.46	7,269.96	7,245.59	24.37	298.343	CC
1,300.00	1,290.51	1,232.42	1,232.37	3.83	21.16	89.94	-802.38	-7,226.46	7,269.96	7,244.98	24.98	290.988	
1,400.00	1,387.89	1,333.49	1,333.40	4.13	23.25	90.11	-802.66	-7,226.46	7,270.00	7,242.62	27.38	265.521	
1,500.00	1,485.27	1,430.87	1,430.78	4.43	25.31	90.29	-802.66	-7,226.46	7,270.08	7,240.35	29.74	244.472	
1,600.00	1,582.65	1,528.25	1,528.16	4.73	27.37	90.46	-802.66	-7,226.46	7,270.24	7,238.14	32.10	226.517	
1,700.00	1,680.02	1,623.68	1,623.58	5.03	29.39	90.64	-801.72	-7,226.46	7,270.38	7,235.97	34.41	211.272	
1,800.00	1,777.40	1,719.21	1,719.10	5.33	31.40	90.81	-802.19	-7,226.46	7,270.72	7,233.99	36.73	197.944	
1,900.00	1,874.78	1,820.46	1,820.30	5.63	33.55	90.99	-802.66	-7,226.46	7,271.12	7,231.95	39.17	185.612	
2,000.00	1,972.16	1,917.84	1,917.67	5.93	35.61	91.16	-802.66	-7,226.46	7,271.56	7,230.02	41.54	175.055	
2,100.00	2,069.54	2,015.22	2,015.05	6.23	37.68	91.34	-802.66	-7,226.46	7,272.07	7,228.17	43.90	165.636	
2,200.00	2,166.92	2,111.41	2,111.23	6.53	39.72	91.52	-801.62	-7,226.46	7,272.58	7,226.34	46.24	157.266	
2,300.00	2,264.30	2,207.35	2,207.16	6.83	41.75	91.68	-802.01	-7,226.46	7,273.26	7,224.68	48.58	149.723	
2,400.00	2,361.68	2,307.44	2,307.19	7.13	43.87	91.86	-802.66	-7,226.46	7,274.02	7,223.02	51.00	142.625	
2,500.00	2,459.06	2,404.82	2,404.57	7.43	45.94	92.03	-802.66	-7,226.46	7,274.82	7,221.45	53.37	136.311	
2,600.00	2,556.44	2,502.20	2,501.95	7.73	48.01	92.21	-802.66	-7,226.46	7,275.68	7,219.94	55.74	130.535	
2,700.00	2,653.82	2,598.92	2,598.66	8.03	50.07	92.39	-801.61	-7,226.46	7,276.56	7,218.47	58.09	125.260	
2,800.00	2,751.19	2,695.17	2,694.90	8.33	52.11	92.56	-801.94	-7,226.46	7,277.59	7,217.15	60.44	120.419	
2,900.00	2,848.57	2,791.57	2,791.30	8.63	54.16	92.73	-802.59	-7,226.46	7,278.70	7,215.91	62.78	115.935	
3,000.00	2,945.95	2,891.79	2,891.47	8.93	56.36	92.90	-802.66	-7,226.46	7,279.85	7,214.56	65.29	111.505	
3,100.00	3,043.33	2,989.17	2,988.84	9.23	58.51	93.08	-802.66	-7,226.46	7,281.06	7,213.33	67.74	107.492	
3,200.00	3,140.71	3,086.17	3,085.84	9.53	60.65	93.26	-801.62	-7,226.46	7,282.32	7,212.14	70.18	103.771	
3,300.00	3,238.09	3,182.77	3,182.43	9.83	62.78	93.43	-801.92	-7,226.46	7,283.69	7,211.08	72.61	100.315	
3,400.00	3,335.47	3,279.52	3,279.18	10.13	64.92	93.60	-802.56	-7,226.46	7,285.14	7,210.10	75.04	97.079	
3,500.00	3,432.85	3,378.78	3,378.36	10.43	67.11	93.77	-802.66	-7,226.46	7,286.65	7,209.11	77.54	93.977	
3,600.00	3,530.23	3,476.16	3,475.74	10.73	69.26	93.95	-802.66	-7,226.46	7,288.22	7,208.23	79.99	91.115	
3,700.00	3,627.61	3,573.35	3,572.91	11.03	71.41	94.13	-801.31	-7,226.46	7,289.84	7,207.40	82.44	88.429	
3,800.00	3,724.99	3,670.24	3,669.79	11.33	73.55	94.30	-801.64	-7,226.46	7,291.56	7,206.68	84.88	85.906	
3,900.00	3,822.36	3,767.33	3,766.87	11.63	75.70	94.47	-802.38	-7,226.46	7,293.36	7,206.03	87.32	83.520	
4,000.00	3,919.74	3,865.77	3,865.26	11.93	77.70	94.64	-802.66	-7,226.46	7,295.22	7,205.59	89.62	81.398	
4,100.00	4,017.12	3,963.15	3,962.64	12.23	79.61	94.82	-802.66	-7,226.46	7,297.14	7,205.31	91.83	79.461	
4,200.00	4,114.50	4,060.51	4,059.98	12.53	81.52	95.00	-801.59	-7,226.46	7,299.13	7,205.09	94.04	77.615	
4,300.00	4,211.88	4,157.86	4,157.33	12.83	83.43	95.17	-801.82	-7,226.46	7,301.20	7,204.95	96.25	75.855	
4,400.00	4,309.26	4,324.67	4,254.77	13.13	86.75	95.34	-802.66	-7,226.46	7,303.34	7,203.46	99.88	73.121	ES
4,500.00	4,406.64	4,352.71	4,352.15	13.43	87.35	95.51	-802.66	-7,226.46	7,305.55	7,204.77	100.78	72.492	
4,600.00	4,504.02	4,450.09	4,449.53	13.73	89.42	95.68	-802.66	-7,226.46	7,307.82	7,204.67	103.15	70.848	
4,700.00	4,601.40	4,547.47	4,546.91	14.03	91.49	95.85	-802.66	-7,226.46	7,310.17	7,204.65	105.52	69.278	
4,800.00	4,698.78	4,644.98	4,644.42	14.33	93.57	96.03	-802.13	-7,226.46	7,312.59	7,204.70	107.89	67.776	
4,900.00	4,796.16	4,742.59	4,742.02	14.63	95.64	96.20	-802.35	-7,226.46	7,315.08	7,204.81	110.27	66.338	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	4,840.26	4,839.69	14.93	97.72	96.37	-802.71	-7,226.46	7,317.63	7,204.98	112.65	64.961	
5,100.00	4,990.91	4,937.08	4,936.43	15.23	100.24	96.54	-802.66	-7,226.46	7,320.25	7,204.79	115.46	63.400	
5,200.00	5,088.29	5,034.45	5,033.81	15.53	102.72	96.72	-802.66	-7,226.46	7,322.95	7,204.70	118.25	61.929	
5,300.00	5,185.67	5,132.59	5,131.91	15.83	105.23	96.90	-801.21	-7,226.46	7,325.76	7,204.70	121.05	60.517	
5,400.00	5,283.05	5,231.35	5,230.66	16.13	107.75	97.07	-801.82	-7,226.46	7,328.58	7,204.70	123.87	59.161	
5,500.00	5,380.43	5,330.37	5,329.67	16.43	110.28	97.24	-802.97	-7,226.46	7,331.44	7,204.74	126.70	57.863	
5,600.00	5,477.81	5,424.16	5,423.32	16.73	113.11	97.40	-802.66	-7,226.46	7,334.43	7,204.59	129.84	56.488	
5,700.00	5,575.19	5,521.54	5,520.70	17.03	115.97	97.58	-802.66	-7,226.46	7,337.47	7,204.47	133.00	55.169	
5,800.00	5,672.57	5,620.30	5,619.42	17.33	118.87	97.76	-800.93	-7,226.46	7,340.66	7,204.46	136.20	53.897	
5,900.00	5,769.95	5,719.98	5,719.09	17.63	121.80	97.93	-801.66	-7,226.46	7,343.81	7,204.39	139.42	52.673	
6,000.00	5,867.33	5,819.97	5,819.05	17.93	124.73	98.10	-803.00	-7,226.46	7,347.00	7,204.34	142.66	51.501	
6,100.00	5,964.70	5,911.40	5,910.22	18.23	127.78	98.26	-802.66	-7,226.46	7,350.33	7,204.33	146.01	50.342	
6,200.00	6,062.08	6,008.78	6,007.60	18.53	130.96	98.43	-802.66	-7,226.46	7,353.72	7,204.24	149.48	49.194	
6,300.00	6,159.46	6,106.16	6,104.98	18.83	134.14	98.60	-802.66	-7,226.46	7,357.18	7,204.22	152.96	48.098	
6,400.00	6,256.84	6,203.54	6,202.35	19.13	137.31	98.77	-802.66	-7,226.46	7,360.70	7,204.27	156.44	47.052	
6,500.00	6,354.22	6,210.00	6,208.43	19.43	137.52	98.78	-802.66	-7,226.46	7,364.86	7,207.93	156.94	46.928	
6,600.00	6,451.60	6,210.00	6,208.43	19.73	137.52	98.78	-802.66	-7,226.46	7,370.38	7,213.17	157.20	46.884	
6,694.27	6,543.40	6,210.00	6,208.43	20.02	137.52	98.78	-802.66	-7,226.46	7,376.81	7,219.38	157.43	46.857	
6,700.00	6,548.98	6,210.00	6,208.43	20.03	137.52	101.22	-802.66	-7,226.46	7,377.27	7,219.82	157.45	46.856	SF
6,750.00	6,597.52	6,210.00	6,208.43	20.18	137.52	120.51	-802.66	-7,226.46	7,383.87	7,226.31	157.56	46.864	
6,800.00	6,645.56	6,210.00	6,208.43	20.33	137.52	134.87	-802.66	-7,226.46	7,395.07	7,237.40	157.67	46.902	
6,850.00	6,692.73	6,210.00	6,208.43	20.48	137.52	144.78	-802.66	-7,226.46	7,410.78	7,253.01	157.77	46.971	
6,900.00	6,738.66	6,210.00	6,208.43	20.63	137.52	151.65	-802.66	-7,226.46	7,430.85	7,272.98	157.87	47.068	
6,950.00	6,783.02	6,210.00	6,208.43	20.78	137.52	156.59	-802.66	-7,226.46	7,455.09	7,297.12	157.97	47.192	
7,000.00	6,825.45	6,210.00	6,208.43	20.94	137.52	160.28	-802.66	-7,226.46	7,483.27	7,325.20	158.07	47.341	
7,050.00	6,865.65	6,210.00	6,208.43	21.09	137.52	163.17	-802.66	-7,226.46	7,515.14	7,356.97	158.17	47.513	
7,100.00	6,903.29	6,210.00	6,208.43	21.24	137.52	165.54	-802.66	-7,226.46	7,550.42	7,392.15	158.27	47.706	
7,150.00	6,938.11	6,210.00	6,208.43	21.39	137.52	167.60	-802.66	-7,226.46	7,588.77	7,430.40	158.37	47.917	
7,200.00	6,969.82	6,210.00	6,208.43	21.54	137.52	169.51	-802.66	-7,226.46	7,629.88	7,471.40	158.48	48.145	
7,250.00	6,998.19	6,210.00	6,208.43	21.69	137.52	171.46	-802.66	-7,226.46	7,673.38	7,514.80	158.59	48.386	
7,300.00	7,023.01	6,210.00	6,208.43	21.84	137.52	173.69	-802.66	-7,226.46	7,718.92	7,560.21	158.70	48.637	
7,350.00	7,044.08	6,210.00	6,208.43	21.99	137.52	176.67	-802.66	-7,226.46	7,766.09	7,607.27	158.83	48.897	
7,400.00	7,061.25	6,210.00	6,208.43	22.14	137.52	-178.43	-802.66	-7,226.46	7,814.54	7,655.58	158.96	49.162	
7,450.00	7,074.38	6,210.00	6,208.43	22.29	137.52	-167.45	-802.66	-7,226.46	7,863.85	7,704.76	159.09	49.430	
7,500.00	7,083.37	6,210.00	6,208.43	22.44	137.52	-126.40	-802.66	-7,226.46	7,913.65	7,754.42	159.24	49.698	
7,550.00	7,088.16	6,210.00	6,208.43	22.59	137.52	-52.68	-802.66	-7,226.46	7,963.56	7,804.17	159.39	49.964	
7,581.00	7,089.00	6,210.00	6,208.43	22.68	137.52	-37.27	-802.66	-7,226.46	7,994.38	7,834.89	159.48	50.127	
7,600.00	7,089.02	6,210.00	6,208.43	22.74	137.52	-37.27	-802.66	-7,226.46	8,013.22	7,853.68	159.54	50.226	
7,700.00	7,089.09	6,210.00	6,208.43	23.04	137.52	-37.27	-802.66	-7,226.46	8,112.40	7,952.54	159.86	50.746	
7,800.00	7,089.17	6,210.00	6,208.43	23.34	137.52	-37.27	-802.66	-7,226.46	8,211.60	8,051.42	160.18	51.265	
7,900.00	7,089.25	6,210.00	6,208.43	23.64	137.52	-37.27	-802.66	-7,226.46	8,310.82	8,150.33	160.50	51.782	
8,000.00	7,089.33	6,210.00	6,208.43	23.94	137.52	-37.27	-802.66	-7,226.46	8,410.06	8,249.25	160.81	52.297	
8,100.00	7,089.41	6,210.00	6,208.43	24.24	137.52	-37.27	-802.66	-7,226.46	8,509.32	8,348.19	161.13	52.811	
8,200.00	7,089.49	6,210.00	6,208.43	24.54	137.52	-37.27	-802.66	-7,226.46	8,608.59	8,447.15	161.44	53.323	
8,300.00	7,089.56	6,210.00	6,208.43	24.84	137.52	-37.27	-802.66	-7,226.46	8,707.88	8,546.12	161.76	53.833	
8,400.00	7,089.64	6,210.00	6,208.43	25.14	137.52	-37.27	-802.66	-7,226.46	8,807.18	8,645.11	162.07	54.341	
8,500.00	7,089.72	6,210.00	6,208.43	25.44	137.52	-37.27	-802.66	-7,226.46	8,906.51	8,744.12	162.39	54.848	
8,600.00	7,089.80	6,210.00	6,208.43	25.75	137.52	-37.27	-802.66	-7,226.46	9,005.84	8,843.14	162.70	55.353	
8,700.00	7,089.88	6,210.00	6,208.43	26.05	137.52	-37.27	-802.66	-7,226.46	9,105.19	8,942.18	163.01	55.856	
8,800.00	7,089.96	6,210.00	6,208.43	26.35	137.52	-37.27	-802.66	-7,226.46	9,204.56	9,041.23	163.32	56.358	
8,900.00	7,090.03	6,210.00	6,208.43	26.65	137.52	-37.27	-802.66	-7,226.46	9,303.94	9,140.30	163.64	56.858	
9,000.00	7,090.11	6,210.00	6,208.43	26.95	137.52	-37.27	-802.66	-7,226.46	9,403.33	9,239.38	163.95	57.356	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	6,210.00	6,208.43	27.25	137.52	-37.27	-802.66	-7,226.46	9,502.73	9,338.47	164.26	57.852	
9,200.00	7,090.27	6,210.00	6,208.43	27.55	137.52	-37.27	-802.66	-7,226.46	9,602.15	9,437.58	164.57	58.347	
9,300.00	7,090.35	6,210.00	6,208.43	27.85	137.52	-37.27	-802.66	-7,226.46	9,701.58	9,536.70	164.88	58.840	
9,400.00	7,090.43	6,210.00	6,208.43	28.15	137.52	-37.27	-802.66	-7,226.46	9,801.02	9,635.83	165.19	59.332	
9,500.00	7,090.51	6,210.00	6,208.43	28.45	137.52	-37.27	-802.66	-7,226.46	9,900.47	9,734.97	165.50	59.821	
9,600.00	7,090.58	6,210.00	6,208.43	28.75	137.52	-37.27	-802.66	-7,226.46	9,999.93	9,834.12	165.81	60.309	
9,700.00	7,090.66	6,210.00	6,208.43	29.05	137.52	-37.27	-802.66	-7,226.46	10,099.40	9,933.28	166.12	60.796	
9,800.00	7,090.74	6,210.00	6,208.43	29.35	137.52	-37.27	-802.66	-7,226.46	10,198.89	10,032.46	166.43	61.281	
9,900.00	7,090.82	6,210.00	6,208.43	29.65	137.52	-37.27	-802.66	-7,226.46	10,298.38	10,131.64	166.74	61.764	
10,000.00	7,090.90	6,210.00	6,208.43	29.95	137.52	-37.27	-802.66	-7,226.46	10,397.88	10,230.84	167.05	62.245	
10,100.00	7,090.98	6,210.00	6,208.43	30.25	137.52	-37.27	-802.66	-7,226.46	10,497.40	10,330.04	167.35	62.725	
10,200.00	7,091.05	6,210.00	6,208.43	30.55	137.52	-37.27	-802.66	-7,226.46	10,596.92	10,429.26	167.66	63.204	
10,300.00	7,091.13	6,210.00	6,208.43	30.85	137.52	-37.27	-802.66	-7,226.46	10,696.45	10,528.48	167.97	63.680	
10,400.00	7,091.21	6,210.00	6,208.43	31.15	137.52	-37.27	-802.66	-7,226.46	10,795.99	10,627.71	168.28	64.155	
10,500.00	7,091.29	6,210.00	6,208.43	31.45	137.52	-37.27	-802.66	-7,226.46	10,895.54	10,726.95	168.59	64.629	
10,600.00	7,091.37	6,210.00	6,208.43	31.76	137.52	-37.27	-802.66	-7,226.46	10,995.09	10,826.20	168.89	65.101	
10,700.00	7,091.45	6,210.00	6,208.43	32.06	137.52	-37.27	-802.66	-7,226.46	11,094.66	10,925.46	169.20	65.571	
10,800.00	7,091.53	6,210.00	6,208.43	32.36	137.52	-37.27	-802.66	-7,226.46	11,194.23	11,024.72	169.51	66.040	
10,900.00	7,091.60	6,210.00	6,208.43	32.66	137.52	-37.27	-802.66	-7,226.46	11,293.81	11,123.99	169.81	66.507	
11,000.00	7,091.68	6,210.00	6,208.43	32.96	137.52	-37.27	-802.66	-7,226.46	11,393.39	11,223.27	170.12	66.972	
11,100.00	7,091.76	6,210.00	6,208.43	33.26	137.52	-37.27	-802.66	-7,226.46	11,492.99	11,322.56	170.43	67.436	
11,200.00	7,091.84	6,210.00	6,208.43	33.56	137.52	-37.27	-802.66	-7,226.46	11,592.59	11,421.85	170.73	67.899	
11,300.00	7,091.92	6,210.00	6,208.43	33.86	137.52	-37.27	-802.66	-7,226.46	11,692.20	11,521.16	171.04	68.359	
11,400.00	7,092.00	6,210.00	6,208.43	34.16	137.52	-37.27	-802.66	-7,226.46	11,791.81	11,620.46	171.35	68.819	
11,500.00	7,092.07	6,210.00	6,208.43	34.46	137.52	-37.27	-802.66	-7,226.46	11,891.43	11,719.78	171.65	69.276	
11,600.00	7,092.15	6,210.00	6,208.43	34.76	137.52	-37.27	-802.66	-7,226.46	11,991.06	11,819.10	171.96	69.733	
11,700.00	7,092.23	6,210.00	6,208.43	35.06	137.52	-37.27	-802.66	-7,226.46	12,090.69	11,918.43	172.26	70.187	
11,800.00	7,092.31	6,210.00	6,208.43	35.36	137.52	-37.27	-802.66	-7,226.46	12,190.33	12,017.76	172.57	70.641	
11,900.00	7,092.39	6,210.00	6,208.43	35.66	137.52	-37.27	-802.66	-7,226.46	12,289.98	12,117.10	172.87	71.092	
12,000.00	7,092.47	6,210.00	6,208.43	35.96	137.52	-37.27	-802.66	-7,226.46	12,389.63	12,216.45	173.18	71.542	
12,100.00	7,092.55	6,210.00	6,208.43	36.26	137.52	-37.27	-802.66	-7,226.46	12,489.28	12,315.80	173.48	71.991	
12,200.00	7,092.62	6,210.00	6,208.43	36.56	137.52	-37.27	-802.66	-7,226.46	12,588.95	12,415.16	173.79	72.438	
12,300.00	7,092.70	6,210.00	6,208.43	36.86	137.52	-37.27	-802.66	-7,226.46	12,688.61	12,514.52	174.09	72.884	
12,400.00	7,092.78	6,210.00	6,208.43	37.16	137.52	-37.27	-802.66	-7,226.46	12,788.29	12,613.89	174.40	73.328	
12,500.00	7,092.86	6,210.00	6,208.43	37.46	137.52	-37.27	-802.66	-7,226.46	12,887.96	12,713.26	174.70	73.771	
12,600.00	7,092.94	6,210.00	6,208.43	37.76	137.52	-37.27	-802.66	-7,226.46	12,987.65	12,812.64	175.01	74.212	
12,700.00	7,093.02	6,210.00	6,208.43	38.06	137.52	-37.27	-802.66	-7,226.46	13,087.33	12,912.02	175.31	74.652	
12,800.00	7,093.09	6,210.00	6,208.43	38.36	137.52	-37.27	-802.66	-7,226.46	13,187.02	13,011.41	175.62	75.090	
12,900.00	7,093.17	6,210.00	6,208.43	38.66	137.52	-37.27	-802.66	-7,226.46	13,286.72	13,110.80	175.92	75.527	
13,000.00	7,093.25	6,210.00	6,208.43	38.96	137.52	-37.27	-802.66	-7,226.46	13,386.42	13,210.20	176.22	75.962	
13,100.00	7,093.33	6,210.00	6,208.43	39.26	137.52	-37.27	-802.66	-7,226.46	13,486.13	13,309.60	176.53	76.396	
13,200.00	7,093.41	6,210.00	6,208.43	39.56	137.52	-37.27	-802.66	-7,226.46	13,585.84	13,409.01	176.83	76.829	
13,300.00	7,093.49	6,210.00	6,208.43	39.86	137.52	-37.27	-802.66	-7,226.46	13,685.55	13,508.42	177.14	77.260	
13,400.00	7,093.57	6,210.00	6,208.43	40.16	137.52	-37.27	-802.66	-7,226.46	13,785.27	13,607.83	177.44	77.690	
13,500.00	7,093.64	6,210.00	6,208.43	40.47	137.52	-37.27	-802.66	-7,226.46	13,884.99	13,707.25	177.74	78.118	
13,600.00	7,093.72	6,210.00	6,208.43	40.77	137.52	-37.27	-802.66	-7,226.46	13,984.72	13,806.67	178.05	78.545	
13,700.00	7,093.80	6,210.00	6,208.43	41.07	137.52	-37.27	-802.66	-7,226.46	14,084.45	13,906.10	178.35	78.970	
13,800.00	7,093.88	6,210.00	6,208.43	41.37	137.52	-37.27	-802.66	-7,226.46	14,184.18	14,005.53	178.65	79.394	
13,900.00	7,093.96	6,210.00	6,208.43	41.67	137.52	-37.27	-802.66	-7,226.46	14,283.92	14,104.96	178.96	79.817	
14,000.00	7,094.04	6,210.00	6,208.43	41.97	137.52	-37.27	-802.66	-7,226.46	14,383.66	14,204.40	179.26	80.238	
14,100.00	7,094.11	6,210.00	6,208.43	42.27	137.52	-37.27	-802.66	-7,226.46	14,483.41	14,303.84	179.56	80.658	
14,200.00	7,094.19	6,210.00	6,208.43	42.57	137.52	-37.27	-802.66	-7,226.46	14,583.16	14,403.29	179.87	81.077	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #137A (Offset) - 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
14,300.00	7,094.27	6,210.00	6,208.43	42.87	137.52	-37.27	-802.66	-7,226.46	14,682.91	14,502.74	180.17	81.494	
14,400.00	7,094.35	6,210.00	6,208.43	43.17	137.52	-37.27	-802.66	-7,226.46	14,782.66	14,602.19	180.47	81.910	
14,500.00	7,094.43	6,210.00	6,208.43	43.47	137.52	-37.27	-802.66	-7,226.46	14,882.42	14,701.64	180.78	82.325	
14,600.00	7,094.51	6,210.00	6,208.43	43.77	137.52	-37.27	-802.66	-7,226.46	14,982.18	14,801.10	181.08	82.738	
14,700.00	7,094.58	6,210.00	6,208.43	44.07	137.52	-37.27	-802.66	-7,226.46	15,081.95	14,900.56	181.38	83.150	
14,800.00	7,094.66	6,210.00	6,208.43	44.37	137.52	-37.27	-802.66	-7,226.46	15,181.72	15,000.03	181.69	83.560	
14,900.00	7,094.74	6,210.00	6,208.43	44.67	137.52	-37.27	-802.66	-7,226.46	15,281.49	15,099.50	181.99	83.969	
15,000.00	7,094.82	6,210.00	6,208.43	44.97	137.52	-37.27	-802.66	-7,226.46	15,381.26	15,198.97	182.29	84.377	
15,100.00	7,094.90	6,210.00	6,208.43	45.27	137.52	-37.27	-802.66	-7,226.46	15,481.04	15,298.44	182.59	84.784	
15,200.00	7,094.98	6,210.00	6,208.43	45.57	137.52	-37.27	-802.66	-7,226.46	15,580.82	15,397.92	182.90	85.189	
15,300.00	7,095.06	6,210.00	6,208.43	45.87	137.52	-37.27	-802.66	-7,226.46	15,680.60	15,497.40	183.20	85.593	
15,400.00	7,095.13	6,210.00	6,208.43	46.17	137.52	-37.27	-802.66	-7,226.46	15,780.39	15,596.88	183.50	85.996	
15,500.00	7,095.21	6,210.00	6,208.43	46.47	137.52	-37.27	-802.66	-7,226.46	15,880.17	15,696.37	183.80	86.397	
15,600.00	7,095.29	6,210.00	6,208.43	46.77	137.52	-37.27	-802.66	-7,226.46	15,979.96	15,795.86	184.11	86.797	
15,700.00	7,095.37	6,210.00	6,208.43	47.07	137.52	-37.27	-802.66	-7,226.46	16,079.76	15,895.35	184.41	87.196	
15,800.00	7,095.45	6,210.00	6,208.43	47.37	137.52	-37.27	-802.66	-7,226.46	16,179.55	15,994.84	184.71	87.593	
15,900.00	7,095.53	6,210.00	6,208.43	47.67	137.52	-37.27	-802.66	-7,226.46	16,279.35	16,094.34	185.01	87.990	
16,000.00	7,095.60	6,210.00	6,208.43	47.97	137.52	-37.27	-802.66	-7,226.46	16,379.15	16,193.84	185.32	88.385	
16,100.00	7,095.68	6,210.00	6,208.43	48.27	137.52	-37.27	-802.66	-7,226.46	16,478.96	16,293.34	185.62	88.778	
16,200.00	7,095.76	6,210.00	6,208.43	48.57	137.52	-37.27	-802.66	-7,226.46	16,578.76	16,392.84	185.92	89.171	
16,300.00	7,095.84	6,210.00	6,208.43	48.87	137.52	-37.27	-802.66	-7,226.46	16,678.57	16,492.35	186.22	89.562	
16,400.00	7,095.92	6,210.00	6,208.43	49.17	137.52	-37.27	-802.66	-7,226.46	16,778.38	16,591.85	186.53	89.952	
16,500.00	7,096.00	6,210.00	6,208.43	49.47	137.52	-37.27	-802.66	-7,226.46	16,878.19	16,691.36	186.83	90.341	
16,600.00	7,096.08	6,210.00	6,208.43	49.77	137.52	-37.27	-802.66	-7,226.46	16,978.01	16,790.88	187.13	90.729	
16,700.00	7,096.15	6,210.00	6,208.43	50.07	137.52	-37.27	-802.66	-7,226.46	17,077.82	16,890.39	187.43	91.115	
16,800.00	7,096.23	6,210.00	6,208.43	50.37	137.52	-37.27	-802.66	-7,226.46	17,177.64	16,989.91	187.73	91.500	
16,900.00	7,096.31	6,210.00	6,208.43	50.67	137.52	-37.27	-802.66	-7,226.46	17,277.46	17,089.43	188.04	91.884	
17,000.00	7,096.39	6,210.00	6,208.43	50.97	137.52	-37.27	-802.66	-7,226.46	17,377.29	17,188.95	188.34	92.267	
17,100.00	7,096.47	6,210.00	6,208.43	51.27	137.52	-37.27	-802.66	-7,226.46	17,477.11	17,288.47	188.64	92.648	
17,200.00	7,096.55	6,210.00	6,208.43	51.57	137.52	-37.27	-802.66	-7,226.46	17,576.94	17,388.00	188.94	93.029	
17,300.00	7,096.62	6,210.00	6,208.43	51.87	137.52	-37.27	-802.66	-7,226.46	17,676.77	17,487.52	189.24	93.408	
17,400.00	7,096.70	6,210.00	6,208.43	52.17	137.52	-37.27	-802.66	-7,226.46	17,776.60	17,587.05	189.54	93.786	
17,500.00	7,096.78	6,210.00	6,208.43	52.47	137.52	-37.27	-802.66	-7,226.46	17,876.43	17,686.58	189.85	94.162	
17,600.00	7,096.86	6,210.00	6,208.43	52.77	137.52	-37.27	-802.66	-7,226.46	17,976.27	17,786.12	190.15	94.538	
17,700.00	7,096.94	6,210.00	6,208.43	53.07	137.52	-37.27	-802.66	-7,226.46	18,076.10	17,885.65	190.45	94.913	
17,800.00	7,097.02	6,210.00	6,208.43	53.37	137.52	-37.27	-802.66	-7,226.46	18,175.94	17,985.19	190.75	95.286	
17,900.00	7,097.10	6,210.00	6,208.43	53.67	137.52	-37.27	-802.66	-7,226.46	18,275.78	18,084.73	191.05	95.658	
18,000.00	7,097.17	6,210.00	6,208.43	53.97	137.52	-37.27	-802.66	-7,226.46	18,375.62	18,184.27	191.36	96.029	
18,100.00	7,097.25	6,210.00	6,208.43	54.27	137.52	-37.27	-802.66	-7,226.46	18,475.47	18,283.81	191.66	96.399	
18,200.00	7,097.33	6,210.00	6,208.43	54.57	137.52	-37.27	-802.66	-7,226.46	18,575.31	18,383.35	191.96	96.767	
18,300.00	7,097.41	6,210.00	6,208.43	54.87	137.52	-37.27	-802.66	-7,226.46	18,675.16	18,482.90	192.26	97.135	
18,400.00	7,097.49	6,210.00	6,208.43	55.17	137.52	-37.27	-802.66	-7,226.46	18,775.01	18,582.44	192.56	97.501	
18,500.00	7,097.57	6,210.00	6,208.43	55.47	137.52	-37.27	-802.66	-7,226.46	18,874.86	18,681.99	192.86	97.867	
18,600.00	7,097.64	6,210.00	6,208.43	55.78	137.52	-37.27	-802.66	-7,226.46	18,974.71	18,781.54	193.16	98.231	
18,700.00	7,097.72	6,210.00	6,208.43	56.08	137.52	-37.27	-802.66	-7,226.46	19,074.56	18,881.10	193.47	98.594	
18,800.00	7,097.80	6,210.00	6,208.43	56.38	137.52	-37.27	-802.66	-7,226.46	19,174.42	18,980.65	193.77	98.956	
18,900.00	7,097.88	6,210.00	6,208.43	56.68	137.52	-37.27	-802.66	-7,226.46	19,274.27	19,080.20	194.07	99.317	
19,000.00	7,097.96	6,210.00	6,208.43	56.98	137.52	-37.27	-802.66	-7,226.46	19,374.13	19,179.76	194.37	99.676	
19,100.00	7,098.04	6,210.00	6,208.43	57.28	137.52	-37.27	-802.66	-7,226.46	19,473.99	19,279.32	194.67	100.035	
19,200.00	7,098.12	6,210.00	6,208.43	57.58	137.52	-37.27	-802.66	-7,226.46	19,573.85	19,378.88	194.97	100.393	
19,300.00	7,098.19	6,210.00	6,208.43	57.88	137.52	-37.27	-802.66	-7,226.46	19,673.71	19,478.44	195.27	100.749	
19,400.00	7,098.27	6,210.00	6,208.43	58.18	137.52	-37.27	-802.66	-7,226.46	19,773.58	19,578.00	195.58	101.104	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 293-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	6,210.00	6,208.43	58.48	137.52	-37.27	-802.66	-7,226.46	19,873.44	19,677.56	195.88	101.459	
19,600.00	7,098.43	6,210.00	6,208.43	58.78	137.52	-37.27	-802.66	-7,226.46	19,973.31	19,777.13	196.18	101.812	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 300-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-107.03	-1,987.52	-6,487.91	6,786.27				
100.00	100.00	1.49	-1.49	0.23	0.01	-107.03	-1,987.52	-6,487.91	6,785.51	6,785.27	0.24	N/A	
200.00	200.00	98.51	98.51	0.53	0.91	-107.03	-1,987.52	-6,487.91	6,785.51	6,784.08	1.44	4,721.465	
300.00	300.00	198.51	198.51	0.83	1.83	-107.03	-1,987.52	-6,487.91	6,785.51	6,782.85	2.66	2,549.635	
400.00	400.00	301.48	298.51	1.13	2.80	-107.03	-1,987.52	-6,487.91	6,785.51	6,781.59	3.93	1,728.032	
500.00	500.00	398.52	398.51	1.43	4.59	-107.03	-1,987.52	-6,487.91	6,785.51	6,779.49	6.02	1,127.080	
600.00	599.98	498.50	498.49	1.73	6.44	78.42	-1,987.52	-6,487.91	6,785.16	6,776.99	8.17	830.639	
700.00	699.84	595.59	595.59	2.03	8.24	78.48	-1,987.08	-6,487.91	6,783.98	6,773.72	10.26	660.983	
800.00	799.45	691.54	691.53	2.33	10.01	78.58	-1,987.30	-6,487.91	6,782.31	6,769.98	12.34	549.751	
900.00	898.70	797.24	797.21	2.63	11.99	78.73	-1,987.52	-6,487.91	6,779.96	6,765.34	14.62	463.845	
1,000.00	997.47	896.00	895.98	2.93	13.87	78.92	-1,987.52	-6,487.91	6,776.89	6,760.10	16.79	403.517	
1,100.00	1,095.62	994.15	994.13	3.23	15.73	79.16	-1,986.98	-6,487.91	6,773.05	6,754.08	18.96	357.216	
1,157.34	1,151.58	1,048.28	1,048.25	3.40	16.76	79.30	-1,987.01	-6,487.91	6,770.67	6,750.50	20.16	335.819	
1,200.00	1,193.13	1,088.48	1,088.45	3.53	17.53	79.38	-1,987.06	-6,487.91	6,768.84	6,747.79	21.05	321.500	
1,300.00	1,290.51	1,182.75	1,182.73	3.83	19.32	79.55	-1,987.30	-6,487.91	6,764.65	6,741.50	23.15	292.256	
1,400.00	1,387.89	1,286.45	1,286.40	4.13	21.32	79.75	-1,987.52	-6,487.91	6,760.51	6,735.07	25.45	265.681	
1,500.00	1,485.27	1,383.83	1,383.78	4.43	23.23	79.93	-1,987.52	-6,487.91	6,756.40	6,728.74	27.66	244.299	
1,600.00	1,582.65	1,481.21	1,481.16	4.73	25.14	80.12	-1,987.52	-6,487.91	6,752.35	6,722.49	29.87	226.084	
1,700.00	1,680.02	1,574.89	1,574.83	5.03	26.98	80.30	-1,986.77	-6,487.91	6,748.19	6,716.18	32.00	210.853	
1,800.00	1,777.40	1,668.09	1,668.03	5.33	28.81	80.48	-1,987.07	-6,487.91	6,744.38	6,710.25	34.13	197.594	
1,900.00	1,874.78	1,773.39	1,773.30	5.63	30.87	80.67	-1,987.52	-6,487.91	6,740.67	6,704.17	36.50	184.680	
2,000.00	1,972.16	1,870.77	1,870.67	5.93	32.79	80.86	-1,987.52	-6,487.91	6,736.93	6,698.22	38.71	174.020	
2,100.00	2,069.54	1,968.15	1,968.05	6.23	34.70	81.05	-1,987.52	-6,487.91	6,733.26	6,692.33	40.93	164.516	
2,200.00	2,166.92	2,062.73	2,062.63	6.53	36.56	81.23	-1,986.75	-6,487.91	6,729.47	6,686.39	43.09	156.183	
2,300.00	2,264.30	2,156.12	2,156.01	6.83	38.40	81.41	-1,987.02	-6,487.91	6,726.03	6,680.80	45.22	148.731	
2,400.00	2,361.68	2,260.33	2,260.19	7.13	40.45	81.61	-1,987.52	-6,487.91	6,722.70	6,675.12	47.58	141.296	
2,500.00	2,459.06	2,357.71	2,357.57	7.43	42.43	81.79	-1,987.52	-6,487.91	6,719.33	6,669.47	49.86	134.768	
2,600.00	2,556.44	2,455.09	2,454.95	7.73	44.41	81.98	-1,987.52	-6,487.91	6,716.03	6,663.90	52.14	128.812	
2,700.00	2,653.82	2,551.08	2,550.93	8.03	46.36	82.17	-1,986.66	-6,487.91	6,712.62	6,658.23	54.39	123.417	
2,800.00	2,751.19	2,644.93	2,644.78	8.33	48.27	82.35	-1,986.86	-6,487.91	6,709.52	6,652.92	56.60	118.548	
2,900.00	2,848.57	2,738.88	2,738.73	8.63	50.18	82.53	-1,987.27	-6,487.91	6,706.55	6,647.75	58.81	114.043	
3,000.00	2,945.95	2,844.67	2,844.47	8.93	52.47	82.73	-1,987.52	-6,487.91	6,703.61	6,642.22	61.40	109.188	
3,100.00	3,043.33	2,942.04	2,941.84	9.23	54.66	82.92	-1,987.52	-6,487.91	6,700.70	6,636.81	63.89	104.886	
3,200.00	3,140.71	3,038.31	3,038.10	9.53	56.82	83.11	-1,986.50	-6,487.91	6,697.63	6,631.28	66.35	100.944	
3,300.00	3,238.09	3,130.85	3,130.63	9.83	58.90	83.29	-1,986.72	-6,487.91	6,694.93	6,626.19	68.73	97.407	
3,400.00	3,335.47	3,223.54	3,223.31	10.13	60.99	83.46	-1,987.27	-6,487.91	6,692.36	6,621.25	71.12	94.105	
3,500.00	3,432.85	3,331.67	3,331.36	10.43	63.38	83.67	-1,987.52	-6,487.91	6,689.79	6,615.99	73.80	90.643	
3,600.00	3,530.23	3,429.05	3,428.74	10.73	65.51	83.86	-1,987.52	-6,487.91	6,687.26	6,611.02	76.24	87.715	
3,700.00	3,627.61	3,523.84	3,523.51	11.03	67.59	84.06	-1,986.02	-6,487.91	6,684.50	6,605.88	78.62	85.026	
3,800.00	3,724.99	3,614.66	3,614.31	11.33	69.58	84.23	-1,986.42	-6,487.91	6,682.21	6,601.30	80.91	82.590	
3,900.00	3,822.36	3,705.70	3,705.34	11.63	71.58	84.40	-1,987.29	-6,487.91	6,680.08	6,596.88	83.20	80.286	
4,000.00	3,919.74	3,818.66	3,818.26	11.93	73.99	84.62	-1,987.52	-6,487.91	6,677.88	6,591.97	85.91	77.727	
4,100.00	4,017.12	3,916.04	3,915.64	12.23	76.05	84.81	-1,987.52	-6,487.91	6,675.73	6,587.45	88.28	75.619	
4,200.00	4,114.50	4,013.42	4,013.01	12.53	78.12	85.00	-1,987.52	-6,487.91	6,673.65	6,583.01	90.65	73.622	
4,300.00	4,211.88	4,110.80	4,110.39	12.83	80.19	85.19	-1,987.52	-6,487.91	6,671.66	6,578.64	93.01	71.727	
4,400.00	4,309.26	4,208.18	4,207.77	13.13	82.25	85.37	-1,987.52	-6,487.91	6,669.73	6,574.35	95.38	69.927	
4,500.00	4,406.64	4,305.56	4,305.15	13.43	84.32	85.56	-1,987.52	-6,487.91	6,667.89	6,570.14	97.75	68.215	
4,600.00	4,504.02	4,401.78	4,401.36	13.73	86.36	85.77	-1,985.65	-6,487.91	6,665.80	6,565.71	100.09	66.598	
4,700.00	4,601.40	4,498.00	4,497.58	14.03	88.41	85.95	-1,985.80	-6,487.91	6,664.14	6,561.71	102.43	65.059	
4,800.00	4,698.78	4,594.27	4,593.84	14.33	90.45	86.14	-1,986.05	-6,487.91	6,662.58	6,557.80	104.78	63.589	
4,900.00	4,796.16	4,690.59	4,690.16	14.63	92.49	86.32	-1,986.41	-6,487.91	6,661.11	6,553.99	107.12	62.184	
5,000.00	4,893.53	4,786.96	4,786.52	14.93	94.54	86.51	-1,986.87	-6,487.91	6,659.72	6,550.26	109.46	60.839	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	4,883.37	4,882.93	15.23	96.58	86.69	-1,987.44	-6,487.91	6,658.43	6,546.62	111.81	59.551	
5,200.00	5,088.29	4,987.40	4,986.81	15.53	98.87	86.89	-1,987.52	-6,487.91	6,657.14	6,542.74	114.40	58.194	
5,300.00	5,185.67	5,084.77	5,084.18	15.83	101.02	87.09	-1,987.52	-6,487.91	6,655.91	6,539.07	116.84	56.964	
5,400.00	5,283.05	5,182.15	5,181.56	16.13	103.17	87.28	-1,987.52	-6,487.91	6,654.76	6,535.47	119.29	55.785	
5,500.00	5,380.43	5,279.53	5,278.94	16.43	105.31	87.47	-1,987.52	-6,487.91	6,653.69	6,531.95	121.74	54.654	
5,600.00	5,477.81	5,376.91	5,376.32	16.73	107.46	87.66	-1,987.52	-6,487.91	6,652.70	6,528.51	124.19	53.569	
5,700.00	5,575.19	5,474.29	5,473.70	17.03	109.61	87.85	-1,987.52	-6,487.91	6,651.78	6,525.14	126.64	52.526	
5,800.00	5,672.57	5,571.67	5,571.08	17.33	111.76	88.04	-1,987.52	-6,487.91	6,650.94	6,521.86	129.09	51.523	
5,900.00	5,769.95	5,669.05	5,668.46	17.63	113.91	88.23	-1,987.52	-6,487.91	6,650.18	6,518.65	131.54	50.558	
6,000.00	5,867.33	5,766.43	5,765.84	17.93	116.06	88.42	-1,987.52	-6,487.91	6,649.50	6,515.52	133.98	49.629	
6,100.00	5,964.70	5,863.81	5,863.22	18.23	118.21	88.61	-1,987.52	-6,487.91	6,648.90	6,512.46	136.43	48.734	
6,200.00	6,062.08	5,961.19	5,960.60	18.53	120.36	88.80	-1,987.52	-6,487.91	6,648.37	6,509.49	138.88	47.871	
6,300.00	6,159.46	6,058.57	6,057.98	18.83	122.50	88.99	-1,987.52	-6,487.91	6,647.92	6,506.59	141.33	47.038	
6,400.00	6,256.84	6,155.94	6,155.35	19.13	124.65	89.18	-1,987.52	-6,487.91	6,647.55	6,503.77	143.78	46.235	
6,500.00	6,354.22	6,253.32	6,252.73	19.43	126.80	89.37	-1,987.52	-6,487.91	6,647.25	6,501.02	146.23	45.458	
6,537.59	6,390.83	6,289.93	6,289.34	19.55	127.61	89.45	-1,987.52	-6,487.91	6,647.16	6,500.01	147.15	45.173	CC, ES, SF
6,600.00	6,451.60	6,165.00	6,164.16	19.73	124.85	89.20	-1,987.52	-6,487.91	6,649.64	6,505.11	144.53	46.008	
6,694.27	6,543.40	6,165.00	6,164.16	20.02	124.85	89.20	-1,987.52	-6,487.91	6,652.70	6,507.95	144.75	45.958	
6,700.00	6,548.98	6,165.00	6,164.16	20.03	124.85	91.63	-1,987.52	-6,487.91	6,652.96	6,508.19	144.77	45.956	
6,750.00	6,597.52	6,165.00	6,164.16	20.18	124.85	110.83	-1,987.52	-6,487.91	6,657.83	6,512.95	144.88	45.955	
6,800.00	6,645.56	6,165.00	6,164.16	20.33	124.85	125.01	-1,987.52	-6,487.91	6,667.35	6,522.37	144.98	45.988	
6,850.00	6,692.73	6,165.00	6,164.16	20.48	124.85	134.66	-1,987.52	-6,487.91	6,681.44	6,536.36	145.08	46.053	
6,900.00	6,738.66	6,165.00	6,164.16	20.63	124.85	141.16	-1,987.52	-6,487.91	6,699.95	6,554.77	145.18	46.150	
6,950.00	6,783.02	6,165.00	6,164.16	20.78	124.85	145.60	-1,987.52	-6,487.91	6,722.72	6,577.45	145.27	46.277	
7,000.00	6,825.45	6,165.00	6,164.16	20.94	124.85	148.65	-1,987.52	-6,487.91	6,749.51	6,604.15	145.36	46.432	
7,050.00	6,865.65	6,165.00	6,164.16	21.09	124.85	150.71	-1,987.52	-6,487.91	6,780.10	6,634.64	145.45	46.613	
7,100.00	6,903.29	6,165.00	6,164.16	21.24	124.85	152.00	-1,987.52	-6,487.91	6,814.19	6,668.64	145.55	46.817	
7,150.00	6,938.11	6,165.00	6,164.16	21.39	124.85	152.63	-1,987.52	-6,487.91	6,851.47	6,705.82	145.65	47.042	
7,200.00	6,969.82	6,165.00	6,164.16	21.54	124.85	152.63	-1,987.52	-6,487.91	6,891.61	6,745.86	145.75	47.284	
7,250.00	6,998.19	6,165.00	6,164.16	21.69	124.85	151.92	-1,987.52	-6,487.91	6,934.26	6,788.40	145.85	47.542	
7,300.00	7,023.01	6,165.00	6,164.16	21.84	124.85	150.26	-1,987.52	-6,487.91	6,979.04	6,833.08	145.97	47.812	
7,350.00	7,044.08	6,165.00	6,164.16	21.99	124.85	147.14	-1,987.52	-6,487.91	7,025.59	6,879.51	146.09	48.091	
7,400.00	7,061.25	6,165.00	6,164.16	22.14	124.85	141.31	-1,987.52	-6,487.91	7,073.52	6,927.30	146.22	48.377	
7,450.00	7,074.38	6,165.00	6,164.16	22.29	124.85	129.39	-1,987.52	-6,487.91	7,122.44	6,976.08	146.35	48.667	
7,500.00	7,083.37	6,165.00	6,164.16	22.44	124.85	102.00	-1,987.52	-6,487.91	7,171.95	7,025.45	146.50	48.957	
7,550.00	7,088.16	6,165.00	6,164.16	22.59	124.85	55.77	-1,987.52	-6,487.91	7,221.67	7,075.03	146.65	49.245	
7,581.00	7,089.00	6,165.00	6,164.16	22.68	124.85	34.31	-1,987.52	-6,487.91	7,252.44	7,105.70	146.75	49.422	
7,600.00	7,089.02	6,165.00	6,164.16	22.74	124.85	34.31	-1,987.52	-6,487.91	7,271.27	7,124.46	146.81	49.529	
7,700.00	7,089.09	6,165.00	6,164.16	23.04	124.85	34.31	-1,987.52	-6,487.91	7,370.35	7,223.22	147.13	50.095	
7,800.00	7,089.17	6,165.00	6,164.16	23.34	124.85	34.31	-1,987.52	-6,487.91	7,469.46	7,322.01	147.45	50.658	
7,900.00	7,089.25	6,165.00	6,164.16	23.64	124.85	34.31	-1,987.52	-6,487.91	7,568.59	7,420.82	147.77	51.219	
8,000.00	7,089.33	6,165.00	6,164.16	23.94	124.85	34.31	-1,987.52	-6,487.91	7,667.74	7,519.65	148.09	51.778	
8,100.00	7,089.41	6,165.00	6,164.16	24.24	124.85	34.31	-1,987.52	-6,487.91	7,766.91	7,618.50	148.41	52.335	
8,200.00	7,089.49	6,165.00	6,164.16	24.54	124.85	34.31	-1,987.52	-6,487.91	7,866.11	7,717.38	148.72	52.891	
8,300.00	7,089.56	6,165.00	6,164.16	24.84	124.85	34.31	-1,987.52	-6,487.91	7,965.32	7,816.28	149.04	53.444	
8,400.00	7,089.64	6,165.00	6,164.16	25.14	124.85	34.31	-1,987.52	-6,487.91	8,064.55	7,915.20	149.36	53.995	
8,500.00	7,089.72	6,165.00	6,164.16	25.44	124.85	34.31	-1,987.52	-6,487.91	8,163.81	8,014.13	149.67	54.544	
8,600.00	7,089.80	6,165.00	6,164.16	25.75	124.85	34.31	-1,987.52	-6,487.91	8,263.08	8,113.09	149.99	55.091	
8,700.00	7,089.88	6,165.00	6,164.16	26.05	124.85	34.31	-1,987.52	-6,487.91	8,362.37	8,212.06	150.30	55.636	
8,800.00	7,089.96	6,165.00	6,164.16	26.35	124.85	34.31	-1,987.52	-6,487.91	8,461.67	8,311.05	150.62	56.180	
8,900.00	7,090.03	6,165.00	6,164.16	26.65	124.85	34.31	-1,987.52	-6,487.91	8,560.99	8,410.06	150.93	56.721	
9,000.00	7,090.11	6,165.00	6,164.16	26.95	124.85	34.31	-1,987.52	-6,487.91	8,660.33	8,509.08	151.25	57.260	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 300-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	6,165.00	6,164.16	27.25	124.85	34.31	-1,987.52	-6,487.91	8,759.68	8,608.12	151.56	57.798	
9,200.00	7,090.27	6,165.00	6,164.16	27.55	124.85	34.31	-1,987.52	-6,487.91	8,859.05	8,707.18	151.87	58.333	
9,300.00	7,090.35	6,165.00	6,164.16	27.85	124.85	34.31	-1,987.52	-6,487.91	8,958.43	8,806.25	152.18	58.866	
9,400.00	7,090.43	6,165.00	6,164.16	28.15	124.85	34.31	-1,987.52	-6,487.91	9,057.82	8,905.33	152.49	59.398	
9,500.00	7,090.51	6,165.00	6,164.16	28.45	124.85	34.31	-1,987.52	-6,487.91	9,157.23	9,004.42	152.81	59.927	
9,600.00	7,090.58	6,165.00	6,164.16	28.75	124.85	34.31	-1,987.52	-6,487.91	9,256.65	9,103.53	153.12	60.455	
9,700.00	7,090.66	6,165.00	6,164.16	29.05	124.85	34.31	-1,987.52	-6,487.91	9,356.08	9,202.66	153.43	60.981	
9,800.00	7,090.74	6,165.00	6,164.16	29.35	124.85	34.31	-1,987.52	-6,487.91	9,455.53	9,301.79	153.74	61.504	
9,900.00	7,090.82	6,165.00	6,164.16	29.65	124.85	34.31	-1,987.52	-6,487.91	9,554.98	9,400.94	154.05	62.026	
10,000.00	7,090.90	6,165.00	6,164.16	29.95	124.85	34.31	-1,987.52	-6,487.91	9,654.45	9,500.09	154.36	62.546	
10,100.00	7,090.98	6,165.00	6,164.16	30.25	124.85	34.31	-1,987.52	-6,487.91	9,753.93	9,599.26	154.67	63.064	
10,200.00	7,091.05	6,165.00	6,164.16	30.55	124.85	34.31	-1,987.52	-6,487.91	9,853.42	9,698.44	154.98	63.580	
10,300.00	7,091.13	6,165.00	6,164.16	30.85	124.85	34.31	-1,987.52	-6,487.91	9,952.92	9,797.63	155.28	64.095	
10,400.00	7,091.21	6,165.00	6,164.16	31.15	124.85	34.31	-1,987.52	-6,487.91	10,052.43	9,896.83	155.59	64.607	
10,500.00	7,091.29	6,165.00	6,164.16	31.45	124.85	34.31	-1,987.52	-6,487.91	10,151.94	9,996.04	155.90	65.118	
10,600.00	7,091.37	6,165.00	6,164.16	31.76	124.85	34.31	-1,987.52	-6,487.91	10,251.47	10,095.26	156.21	65.626	
10,700.00	7,091.45	6,165.00	6,164.16	32.06	124.85	34.31	-1,987.52	-6,487.91	10,351.01	10,194.49	156.52	66.133	
10,800.00	7,091.53	6,165.00	6,164.16	32.36	124.85	34.31	-1,987.52	-6,487.91	10,450.56	10,293.73	156.82	66.638	
10,900.00	7,091.60	6,165.00	6,164.16	32.66	124.85	34.31	-1,987.52	-6,487.91	10,550.11	10,392.98	157.13	67.142	
11,000.00	7,091.68	6,165.00	6,164.16	32.96	124.85	34.31	-1,987.52	-6,487.91	10,649.67	10,492.23	157.44	67.643	
11,100.00	7,091.76	6,165.00	6,164.16	33.26	124.85	34.31	-1,987.52	-6,487.91	10,749.24	10,591.50	157.75	68.142	
11,200.00	7,091.84	6,165.00	6,164.16	33.56	124.85	34.31	-1,987.52	-6,487.91	10,848.82	10,690.77	158.05	68.640	
11,300.00	7,091.92	6,165.00	6,164.16	33.86	124.85	34.31	-1,987.52	-6,487.91	10,948.41	10,790.05	158.36	69.136	
11,400.00	7,092.00	6,165.00	6,164.16	34.16	124.85	34.31	-1,987.52	-6,487.91	11,048.00	10,889.34	158.67	69.630	
11,500.00	7,092.07	6,165.00	6,164.16	34.46	124.85	34.31	-1,987.52	-6,487.91	11,147.60	10,988.63	158.97	70.123	
11,600.00	7,092.15	6,165.00	6,164.16	34.76	124.85	34.31	-1,987.52	-6,487.91	11,247.21	11,087.93	159.28	70.613	
11,700.00	7,092.23	6,165.00	6,164.16	35.06	124.85	34.31	-1,987.52	-6,487.91	11,346.83	11,187.24	159.59	71.102	
11,800.00	7,092.31	6,165.00	6,164.16	35.36	124.85	34.31	-1,987.52	-6,487.91	11,446.45	11,286.56	159.89	71.589	
11,900.00	7,092.39	6,165.00	6,164.16	35.66	124.85	34.31	-1,987.52	-6,487.91	11,546.08	11,385.88	160.20	72.074	
12,000.00	7,092.47	6,165.00	6,164.16	35.96	124.85	34.31	-1,987.52	-6,487.91	11,645.71	11,485.21	160.50	72.558	
12,100.00	7,092.55	6,165.00	6,164.16	36.26	124.85	34.31	-1,987.52	-6,487.91	11,745.35	11,584.55	160.81	73.040	
12,200.00	7,092.62	6,165.00	6,164.16	36.56	124.85	34.31	-1,987.52	-6,487.91	11,845.00	11,683.89	161.11	73.520	
12,300.00	7,092.70	6,165.00	6,164.16	36.86	124.85	34.31	-1,987.52	-6,487.91	11,944.66	11,783.24	161.42	73.998	
12,400.00	7,092.78	6,165.00	6,164.16	37.16	124.85	34.31	-1,987.52	-6,487.91	12,044.31	11,882.59	161.72	74.475	
12,500.00	7,092.86	6,165.00	6,164.16	37.46	124.85	34.31	-1,987.52	-6,487.91	12,143.98	11,981.95	162.03	74.950	
12,600.00	7,092.94	6,165.00	6,164.16	37.76	124.85	34.31	-1,987.52	-6,487.91	12,243.65	12,081.31	162.33	75.423	
12,700.00	7,093.02	6,165.00	6,164.16	38.06	124.85	34.31	-1,987.52	-6,487.91	12,343.32	12,180.69	162.64	75.894	
12,800.00	7,093.09	6,165.00	6,164.16	38.36	124.85	34.31	-1,987.52	-6,487.91	12,443.00	12,280.06	162.94	76.364	
12,900.00	7,093.17	6,165.00	6,164.16	38.66	124.85	34.31	-1,987.52	-6,487.91	12,542.69	12,379.44	163.25	76.832	
13,000.00	7,093.25	6,165.00	6,164.16	38.96	124.85	34.31	-1,987.52	-6,487.91	12,642.38	12,478.83	163.55	77.299	
13,100.00	7,093.33	6,165.00	6,164.16	39.26	124.85	34.31	-1,987.52	-6,487.91	12,742.07	12,578.22	163.86	77.764	
13,200.00	7,093.41	6,165.00	6,164.16	39.56	124.85	34.31	-1,987.52	-6,487.91	12,841.78	12,677.61	164.16	78.227	
13,300.00	7,093.49	6,165.00	6,164.16	39.86	124.85	34.31	-1,987.52	-6,487.91	12,941.48	12,777.02	164.46	78.689	
13,400.00	7,093.57	6,165.00	6,164.16	40.16	124.85	34.31	-1,987.52	-6,487.91	13,041.19	12,876.42	164.77	79.149	
13,500.00	7,093.64	6,165.00	6,164.16	40.47	124.85	34.31	-1,987.52	-6,487.91	13,140.90	12,975.83	165.07	79.607	
13,600.00	7,093.72	6,165.00	6,164.16	40.77	124.85	34.31	-1,987.52	-6,487.91	13,240.62	13,075.24	165.38	80.064	
13,700.00	7,093.80	6,165.00	6,164.16	41.07	124.85	34.31	-1,987.52	-6,487.91	13,340.34	13,174.66	165.68	80.519	
13,800.00	7,093.88	6,165.00	6,164.16	41.37	124.85	34.31	-1,987.52	-6,487.91	13,440.07	13,274.09	165.98	80.972	
13,900.00	7,093.96	6,165.00	6,164.16	41.67	124.85	34.31	-1,987.52	-6,487.91	13,539.80	13,373.51	166.29	81.424	
14,000.00	7,094.04	6,165.00	6,164.16	41.97	124.85	34.31	-1,987.52	-6,487.91	13,639.53	13,472.94	166.59	81.875	
14,100.00	7,094.11	6,165.00	6,164.16	42.27	124.85	34.31	-1,987.52	-6,487.91	13,739.27	13,572.38	166.89	82.323	
14,200.00	7,094.19	6,165.00	6,164.16	42.57	124.85	34.31	-1,987.52	-6,487.91	13,839.01	13,671.82	167.20	82.771	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 300-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	6,165.00	6,164.16	42.87	124.85	34.31	-1,987.52	-6,487.91	13,938.76	13,771.26	167.50	83.216	
14,400.00	7,094.35	6,165.00	6,164.16	43.17	124.85	34.31	-1,987.52	-6,487.91	14,038.51	13,870.70	167.80	83.660	
14,500.00	7,094.43	6,165.00	6,164.16	43.47	124.85	34.31	-1,987.52	-6,487.91	14,138.26	13,970.15	168.11	84.103	
14,600.00	7,094.51	6,165.00	6,164.16	43.77	124.85	34.31	-1,987.52	-6,487.91	14,238.02	14,069.61	168.41	84.544	
14,700.00	7,094.58	6,165.00	6,164.16	44.07	124.85	34.31	-1,987.52	-6,487.91	14,337.78	14,169.06	168.71	84.983	
14,800.00	7,094.66	6,165.00	6,164.16	44.37	124.85	34.31	-1,987.52	-6,487.91	14,437.54	14,268.52	169.02	85.421	
14,900.00	7,094.74	6,165.00	6,164.16	44.67	124.85	34.31	-1,987.52	-6,487.91	14,537.31	14,367.99	169.32	85.857	
15,000.00	7,094.82	6,165.00	6,164.16	44.97	124.85	34.31	-1,987.52	-6,487.91	14,637.08	14,467.45	169.62	86.292	
15,100.00	7,094.90	6,165.00	6,164.16	45.27	124.85	34.31	-1,987.52	-6,487.91	14,736.85	14,566.92	169.92	86.726	
15,200.00	7,094.98	6,165.00	6,164.16	45.57	124.85	34.31	-1,987.52	-6,487.91	14,836.62	14,666.40	170.23	87.158	
15,300.00	7,095.06	6,165.00	6,164.16	45.87	124.85	34.31	-1,987.52	-6,487.91	14,936.40	14,765.87	170.53	87.588	
15,400.00	7,095.13	6,165.00	6,164.16	46.17	124.85	34.31	-1,987.52	-6,487.91	15,036.18	14,865.35	170.83	88.017	
15,500.00	7,095.21	6,165.00	6,164.16	46.47	124.85	34.31	-1,987.52	-6,487.91	15,135.97	14,964.83	171.14	88.444	
15,600.00	7,095.29	6,165.00	6,164.16	46.77	124.85	34.31	-1,987.52	-6,487.91	15,235.76	15,064.32	171.44	88.870	
15,700.00	7,095.37	6,165.00	6,164.16	47.07	124.85	34.31	-1,987.52	-6,487.91	15,335.55	15,163.81	171.74	89.295	
15,800.00	7,095.45	6,165.00	6,164.16	47.37	124.85	34.31	-1,987.52	-6,487.91	15,435.34	15,263.30	172.04	89.718	
15,900.00	7,095.53	6,165.00	6,164.16	47.67	124.85	34.31	-1,987.52	-6,487.91	15,535.13	15,362.79	172.35	90.139	
16,000.00	7,095.60	6,165.00	6,164.16	47.97	124.85	34.31	-1,987.52	-6,487.91	15,634.93	15,462.28	172.65	90.560	
16,100.00	7,095.68	6,165.00	6,164.16	48.27	124.85	34.31	-1,987.52	-6,487.91	15,734.73	15,561.78	172.95	90.978	
16,200.00	7,095.76	6,165.00	6,164.16	48.57	124.85	34.31	-1,987.52	-6,487.91	15,834.54	15,661.28	173.25	91.396	
16,300.00	7,095.84	6,165.00	6,164.16	48.87	124.85	34.31	-1,987.52	-6,487.91	15,934.34	15,760.79	173.55	91.812	
16,400.00	7,095.92	6,165.00	6,164.16	49.17	124.85	34.31	-1,987.52	-6,487.91	16,034.15	15,860.29	173.86	92.226	
16,500.00	7,096.00	6,165.00	6,164.16	49.47	124.85	34.31	-1,987.52	-6,487.91	16,133.96	15,959.80	174.16	92.639	
16,600.00	7,096.08	6,165.00	6,164.16	49.77	124.85	34.31	-1,987.52	-6,487.91	16,233.77	16,059.31	174.46	93.051	
16,700.00	7,096.15	6,165.00	6,164.16	50.07	124.85	34.31	-1,987.52	-6,487.91	16,333.59	16,158.82	174.76	93.461	
16,800.00	7,096.23	6,165.00	6,164.16	50.37	124.85	34.31	-1,987.52	-6,487.91	16,433.40	16,258.34	175.07	93.870	
16,900.00	7,096.31	6,165.00	6,164.16	50.67	124.85	34.31	-1,987.52	-6,487.91	16,533.22	16,357.86	175.37	94.278	
17,000.00	7,096.39	6,165.00	6,164.16	50.97	124.85	34.31	-1,987.52	-6,487.91	16,633.05	16,457.38	175.67	94.684	
17,100.00	7,096.47	6,165.00	6,164.16	51.27	124.85	34.31	-1,987.52	-6,487.91	16,732.87	16,556.90	175.97	95.089	
17,200.00	7,096.55	6,165.00	6,164.16	51.57	124.85	34.31	-1,987.52	-6,487.91	16,832.70	16,656.42	176.27	95.492	
17,300.00	7,096.62	6,165.00	6,164.16	51.87	124.85	34.31	-1,987.52	-6,487.91	16,932.52	16,755.95	176.58	95.894	
17,400.00	7,096.70	6,165.00	6,164.16	52.17	124.85	34.31	-1,987.52	-6,487.91	17,032.35	16,855.48	176.88	96.295	
17,500.00	7,096.78	6,165.00	6,164.16	52.47	124.85	34.31	-1,987.52	-6,487.91	17,132.19	16,955.01	177.18	96.694	
17,600.00	7,096.86	6,165.00	6,164.16	52.77	124.85	34.31	-1,987.52	-6,487.91	17,232.02	17,054.54	177.48	97.092	
17,700.00	7,096.94	6,165.00	6,164.16	53.07	124.85	34.31	-1,987.52	-6,487.91	17,331.86	17,154.07	177.78	97.489	
17,800.00	7,097.02	6,165.00	6,164.16	53.37	124.85	34.31	-1,987.52	-6,487.91	17,431.69	17,253.61	178.08	97.885	
17,900.00	7,097.10	6,165.00	6,164.16	53.67	124.85	34.31	-1,987.52	-6,487.91	17,531.53	17,353.15	178.39	98.279	
18,000.00	7,097.17	6,165.00	6,164.16	53.97	124.85	34.31	-1,987.52	-6,487.91	17,631.37	17,452.69	178.69	98.672	
18,100.00	7,097.25	6,165.00	6,164.16	54.27	124.85	34.31	-1,987.52	-6,487.91	17,731.22	17,552.23	178.99	99.063	
18,200.00	7,097.33	6,165.00	6,164.16	54.57	124.85	34.31	-1,987.52	-6,487.91	17,831.06	17,651.77	179.29	99.453	
18,300.00	7,097.41	6,165.00	6,164.16	54.87	124.85	34.31	-1,987.52	-6,487.91	17,930.91	17,751.32	179.59	99.842	
18,400.00	7,097.49	6,165.00	6,164.16	55.17	124.85	34.31	-1,987.52	-6,487.91	18,030.76	17,850.86	179.89	100.230	
18,500.00	7,097.57	6,165.00	6,164.16	55.47	124.85	34.31	-1,987.52	-6,487.91	18,130.61	17,950.41	180.20	100.616	
18,600.00	7,097.64	6,165.00	6,164.16	55.78	124.85	34.31	-1,987.52	-6,487.91	18,230.46	18,049.96	180.50	101.001	
18,700.00	7,097.72	6,165.00	6,164.16	56.08	124.85	34.31	-1,987.52	-6,487.91	18,330.31	18,149.51	180.80	101.385	
18,800.00	7,097.80	6,165.00	6,164.16	56.38	124.85	34.31	-1,987.52	-6,487.91	18,430.17	18,249.07	181.10	101.768	
18,900.00	7,097.88	6,165.00	6,164.16	56.68	124.85	34.31	-1,987.52	-6,487.91	18,530.02	18,348.62	181.40	102.149	
19,000.00	7,097.96	6,165.00	6,164.16	56.98	124.85	34.31	-1,987.52	-6,487.91	18,629.88	18,448.18	181.70	102.529	
19,100.00	7,098.04	6,165.00	6,164.16	57.28	124.85	34.31	-1,987.52	-6,487.91	18,729.74	18,547.74	182.00	102.908	
19,200.00	7,098.12	6,165.00	6,164.16	57.58	124.85	34.31	-1,987.52	-6,487.91	18,829.60	18,647.30	182.31	103.286	
19,300.00	7,098.19	6,165.00	6,164.16	57.88	124.85	34.31	-1,987.52	-6,487.91	18,929.46	18,746.86	182.61	103.662	
19,400.00	7,098.27	6,165.00	6,164.16	58.18	124.85	34.31	-1,987.52	-6,487.91	19,029.33	18,846.42	182.91	104.038	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 300-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	6,165.00	6,164.16	58.48	124.85	34.31	-1,987.52	-6,487.91	19,129.19	18,945.98	183.21	104.411	
19,600.00	7,098.43	6,165.00	6,164.16	58.78	124.85	34.31	-1,987.52	-6,487.91	19,229.06	19,045.55	183.51	104.784	
19,700.00	7,098.51	6,165.00	6,164.16	59.08	124.85	34.31	-1,987.52	-6,487.91	19,328.93	19,145.12	183.81	105.156	
19,800.00	7,098.59	6,165.00	6,164.16	59.38	124.85	34.31	-1,987.52	-6,487.91	19,428.80	19,244.68	184.11	105.526	
19,900.00	7,098.66	6,165.00	6,164.16	59.68	124.85	34.31	-1,987.52	-6,487.91	19,528.67	19,344.25	184.41	105.895	
20,000.00	7,098.74	6,165.00	6,164.16	59.98	124.85	34.31	-1,987.52	-6,487.91	19,628.54	19,443.82	184.72	106.263	
20,100.00	7,098.82	6,165.00	6,164.16	60.28	124.85	34.31	-1,987.52	-6,487.91	19,728.41	19,543.40	185.02	106.630	
20,200.00	7,098.90	6,165.00	6,164.16	60.58	124.85	34.31	-1,987.52	-6,487.91	19,828.29	19,642.97	185.32	106.996	
20,300.00	7,098.98	6,165.00	6,164.16	60.88	124.85	34.31	-1,987.52	-6,487.91	19,928.16	19,742.54	185.62	107.360	
20,328.16	7,099.00	6,165.00	6,164.16	60.96	124.85	34.31	-1,987.52	-6,487.91	19,956.29	19,770.58	185.70	107.463	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-102.88	-1,920.02	-8,397.26	8,614.51				
100.00	100.00	4.27	4.27	0.23	0.00	-102.88	-1,920.02	-8,397.26	8,613.97	8,613.74	0.23	N/A	
200.00	200.00	125.12	125.12	0.53	0.09	-102.88	-1,920.17	-8,397.06	8,613.83	8,613.24	0.60	N/A	
296.49	296.49	200.00	200.00	0.82	0.19	-102.88	-1,920.40	-8,396.81	8,613.61	8,612.66	0.95	9,031.830	
300.00	300.00	200.00	200.00	0.83	0.19	-102.88	-1,920.40	-8,396.81	8,613.61	8,612.65	0.96	8,933.069	
400.00	400.00	400.00	237.47	1.13	0.33	-102.88	-1,920.56	-8,396.99	8,614.08	8,612.79	1.29	6,684.102	
500.00	500.00	300.00	299.99	1.43	0.23	-102.88	-1,920.80	-8,397.53	8,615.03	8,613.44	1.60	5,397.229	
600.00	599.98	350.00	349.99	1.73	0.27	82.52	-1,921.08	-8,398.22	8,616.28	8,614.35	1.94	4,445.818	
700.00	699.84	436.08	436.05	2.03	0.36	82.53	-1,922.00	-8,399.73	8,617.54	8,615.21	2.33	3,701.985	
800.00	799.45	540.17	540.12	2.33	0.49	82.57	-1,923.18	-8,401.49	8,618.31	8,615.57	2.75	3,137.353	
900.00	898.70	627.97	627.90	2.63	0.59	82.62	-1,924.35	-8,403.02	8,618.73	8,615.58	3.15	2,736.426	
1,000.00	997.47	705.73	705.64	2.93	0.69	82.70	-1,925.47	-8,404.50	8,618.90	8,615.36	3.54	2,433.579	
1,100.00	1,095.62	777.79	777.67	3.23	0.78	82.78	-1,926.60	-8,406.00	8,618.88	8,614.95	3.93	2,194.491	
1,157.34	1,151.58	822.73	822.59	3.40	0.84	82.84	-1,927.46	-8,407.03	8,618.83	8,614.67	4.15	2,075.723	
1,200.00	1,193.13	866.45	866.29	3.53	0.90	82.90	-1,928.35	-8,408.04	8,618.77	8,614.44	4.33	1,989.883	
1,300.00	1,290.51	968.30	968.10	3.83	1.03	83.05	-1,930.50	-8,410.29	8,618.60	8,613.85	4.75	1,814.898	
1,357.66	1,346.66	1,015.31	1,015.08	4.00	1.09	83.11	-1,931.55	-8,411.34	8,618.55	8,613.58	4.98	1,732.214	
1,400.00	1,387.89	1,055.79	1,055.54	4.13	1.14	83.17	-1,932.44	-8,412.29	8,618.57	8,613.42	5.15	1,673.781	
1,461.43	1,447.71	1,121.43	1,121.15	4.31	1.23	83.26	-1,933.90	-8,413.75	8,618.53	8,613.13	5.41	1,593.527	
1,500.00	1,485.27	1,147.69	1,147.39	4.43	1.26	83.30	-1,934.52	-8,414.35	8,618.56	8,613.01	5.55	1,551.804	
1,600.00	1,582.65	1,241.18	1,240.83	4.73	1.38	83.43	-1,936.70	-8,416.62	8,618.79	8,612.83	5.96	1,445.828	
1,700.00	1,680.02	1,354.99	1,354.58	5.03	1.53	83.58	-1,939.29	-8,419.22	8,618.92	8,612.53	6.39	1,348.587	
1,800.00	1,777.40	1,444.64	1,444.18	5.33	1.65	83.71	-1,941.31	-8,421.28	8,619.11	8,612.31	6.79	1,268.778	
1,900.00	1,874.78	1,600.00	1,599.47	5.63	1.85	83.92	-1,944.86	-8,424.52	8,619.20	8,611.93	7.27	1,186.241	
2,000.00	1,972.16	1,681.68	1,681.11	5.93	1.96	84.04	-1,946.55	-8,426.07	8,619.06	8,611.40	7.66	1,125.709	
2,035.10	2,006.35	1,708.06	1,707.48	6.04	1.99	84.07	-1,947.09	-8,426.56	8,619.01	8,611.22	7.79	1,106.268	
2,100.00	2,069.54	2,100.00	1,744.51	6.23	2.50	84.13	-1,947.88	-8,427.39	8,619.16	8,610.72	8.44	1,021.316	
2,200.00	2,166.92	1,845.21	1,844.57	6.53	2.17	84.27	-1,950.03	-8,429.66	8,619.52	8,611.08	8.44	1,021.060	
2,300.00	2,264.30	2,300.00	1,990.53	6.83	2.76	84.47	-1,952.57	-8,432.69	8,619.67	8,610.39	9.27	929.538	
2,400.00	2,361.68	2,117.32	2,116.60	7.13	2.52	84.65	-1,954.63	-8,434.66	8,619.33	8,609.97	9.35	921.487	
2,500.00	2,459.06	2,206.41	2,205.66	7.43	2.64	84.78	-1,956.12	-8,436.07	8,619.08	8,609.33	9.75	883.783	
2,600.00	2,556.44	2,296.98	2,296.21	7.73	2.76	84.91	-1,957.65	-8,437.50	8,618.89	8,608.74	10.15	848.953	
2,700.00	2,653.82	2,400.79	2,399.99	8.03	2.89	85.06	-1,959.15	-8,439.18	8,618.75	8,608.18	10.57	815.303	
2,747.58	2,700.15	2,437.43	2,436.62	8.17	2.94	85.11	-1,959.72	-8,439.79	8,618.72	8,607.97	10.76	801.351	
2,800.00	2,751.19	2,488.17	2,487.34	8.33	3.00	85.18	-1,960.47	-8,440.65	8,618.73	8,607.76	10.97	785.615	
2,900.00	2,848.57	2,593.34	2,592.49	8.63	3.14	85.33	-1,961.74	-8,442.48	8,618.77	8,607.38	11.40	756.310	
3,000.00	2,945.95	3,000.00	2,744.79	8.93	3.67	85.55	-1,963.46	-8,444.64	8,618.58	8,606.42	12.17	708.219	
3,100.00	3,043.33	2,852.69	2,851.81	9.23	3.48	85.71	-1,964.45	-8,445.73	8,618.00	8,605.70	12.30	700.892	
3,200.00	3,140.71	2,951.83	2,950.95	9.53	3.61	85.86	-1,965.36	-8,446.68	8,617.41	8,604.70	12.71	678.177	
3,300.00	3,238.09	3,048.25	3,047.36	9.83	3.74	86.00	-1,966.26	-8,447.59	8,616.86	8,603.75	13.11	657.098	
3,400.00	3,335.47	3,135.65	3,134.75	10.13	3.85	86.12	-1,967.28	-8,448.39	8,616.39	8,602.88	13.50	638.058	
3,488.85	3,421.99	3,196.88	3,195.96	10.40	3.93	86.21	-1,968.13	-8,449.10	8,616.24	8,602.41	13.83	622.832	
3,500.00	3,432.85	3,206.79	3,205.87	10.43	3.94	86.22	-1,968.27	-8,449.23	8,616.25	8,602.37	13.88	620.856	
3,600.00	3,530.23	3,292.06	3,291.12	10.73	4.05	86.35	-1,969.50	-8,450.40	8,616.36	8,602.09	14.27	603.815	
3,700.00	3,627.61	3,385.92	3,384.96	11.03	4.18	86.48	-1,970.99	-8,451.77	8,616.63	8,601.96	14.67	587.349	
3,800.00	3,724.99	3,516.06	3,515.07	11.33	4.35	86.66	-1,972.98	-8,453.43	8,616.76	8,601.65	15.11	570.364	
3,803.24	3,728.14	3,518.76	3,517.77	11.34	4.35	86.67	-1,973.01	-8,453.46	8,616.76	8,601.64	15.12	569.891	
3,900.00	3,822.36	3,609.24	3,608.24	11.63	4.47	86.80	-1,974.24	-8,454.59	8,616.89	8,601.39	15.51	555.694	
4,000.00	3,919.74	4,000.00	3,742.34	11.93	4.97	86.99	-1,975.99	-8,455.92	8,616.84	8,600.65	16.19	532.189	
4,100.00	4,017.12	3,911.57	3,910.54	12.23	4.83	87.23	-1,978.28	-8,456.35	8,616.07	8,599.71	16.36	526.662	
4,200.00	4,114.50	4,031.49	4,030.43	12.53	4.95	87.40	-1,980.65	-8,455.87	8,614.84	8,598.13	16.71	515.690	
4,300.00	4,211.88	4,135.35	4,134.26	12.83	5.04	87.54	-1,983.16	-8,455.27	8,613.56	8,596.52	17.04	505.449	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,400.00	4,309.26	4,234.31	4,233.18	13.13	5.13	87.67	-1,985.70	-8,454.66	8,612.33	8,594.95	17.38	495.637	
4,500.00	4,406.64	4,317.52	4,316.36	13.43	5.22	87.78	-1,987.78	-8,454.24	8,611.23	8,593.53	17.71	486.315	
4,600.00	4,504.02	4,391.42	4,390.25	13.73	5.29	87.88	-1,989.32	-8,454.06	8,610.40	8,592.36	18.04	477.311	
4,700.00	4,601.40	4,487.47	4,486.28	14.03	5.40	88.02	-1,991.21	-8,453.98	8,609.74	8,591.35	18.39	468.234	
4,800.00	4,698.78	4,581.07	4,579.86	14.33	5.50	88.15	-1,993.09	-8,453.91	8,609.16	8,590.42	18.74	459.504	
4,900.00	4,796.16	4,900.00	4,674.27	14.63	5.87	88.28	-1,994.92	-8,453.99	8,608.76	8,589.53	19.23	447.688	
5,000.00	4,893.53	4,771.05	4,769.81	14.93	5.72	88.41	-1,996.74	-8,454.06	8,608.40	8,588.95	19.44	442.723	
5,100.00	4,990.91	4,867.62	4,866.36	15.23	5.84	88.54	-1,998.62	-8,454.14	8,608.11	8,588.31	19.80	434.761	
5,200.00	5,088.29	4,978.28	4,977.00	15.53	5.97	88.70	-2,000.81	-8,454.17	8,607.81	8,587.65	20.16	426.938	
5,300.00	5,185.67	5,070.66	5,069.35	15.83	6.07	88.83	-2,002.67	-8,454.11	8,607.49	8,586.98	20.51	419.681	
5,400.00	5,283.05	5,168.29	5,166.97	16.13	6.19	88.96	-2,004.58	-8,454.15	8,607.31	8,586.44	20.86	412.540	
5,500.00	5,380.43	5,289.23	5,287.89	16.43	6.33	89.13	-2,006.92	-8,454.02	8,607.03	8,585.80	21.23	405.481	
5,600.00	5,477.81	5,383.27	5,381.91	16.73	6.43	89.26	-2,008.71	-8,453.81	8,606.69	8,585.12	21.57	399.010	
5,700.00	5,575.19	5,484.75	5,483.36	17.03	6.54	89.40	-2,010.75	-8,453.52	8,606.34	8,584.43	21.92	392.699	
5,800.00	5,672.57	5,606.75	5,605.33	17.33	6.68	89.57	-2,013.57	-8,452.96	8,605.91	8,583.64	22.27	386.455	
5,900.00	5,769.95	5,705.81	5,704.36	17.63	6.79	89.70	-2,016.37	-8,452.34	8,605.41	8,582.80	22.61	380.615	
6,000.00	5,867.33	5,785.50	5,784.01	17.93	6.87	89.80	-2,018.58	-8,451.90	8,605.03	8,582.09	22.94	375.081	
6,066.43	5,932.01	5,832.47	5,830.97	18.13	6.93	89.87	-2,019.75	-8,451.73	8,604.92	8,581.76	23.16	371.516 CC	
6,100.00	5,964.70	5,850.00	5,848.49	18.23	6.95	89.89	-2,020.17	-8,451.72	8,604.96	8,581.69	23.27	369.781	
6,200.00	6,062.08	5,937.58	5,936.05	18.53	7.06	90.01	-2,022.17	-8,451.84	8,605.29	8,581.67	23.62	364.295 ES	
6,300.00	6,159.46	6,017.59	6,016.04	18.83	7.16	90.12	-2,023.82	-8,452.04	8,605.77	8,581.80	23.97	359.007	
6,400.00	6,256.84	6,107.97	6,106.40	19.13	7.27	90.25	-2,025.68	-8,452.37	8,606.41	8,582.08	24.33	353.732	
6,500.00	6,354.22	6,200.00	6,198.41	19.43	7.39	90.37	-2,027.64	-8,452.75	8,607.16	8,582.47	24.69	348.582	
6,600.00	6,451.60	6,291.66	6,290.05	19.73	7.51	90.50	-2,029.38	-8,453.30	8,608.11	8,583.05	25.06	343.509	
6,694.27	6,543.40	6,694.27	6,379.86	20.02	8.03	90.63	-2,030.76	-8,453.81	8,609.00	8,583.31	25.69	335.148	
6,700.00	6,548.98	6,700.00	6,385.46	20.03	8.04	93.07	-2,030.84	-8,453.84	8,609.09	8,583.38	25.71	334.867	
6,750.00	6,597.52	6,450.00	6,448.37	20.18	7.71	112.39	-2,031.64	-8,454.13	8,612.17	8,586.54	25.63	336.025	
6,800.00	6,645.56	6,486.90	6,485.27	20.33	7.76	126.67	-2,032.07	-8,454.36	8,619.67	8,593.87	25.81	333.976	
6,850.00	6,692.73	6,531.50	6,529.87	20.48	7.82	136.45	-2,032.53	-8,454.64	8,631.46	8,605.46	26.00	332.011	
6,900.00	6,738.66	6,576.23	6,574.59	20.63	7.88	143.12	-2,032.89	-8,454.99	8,647.50	8,621.31	26.19	330.181	
6,950.00	6,783.02	6,610.29	6,608.65	20.78	7.92	147.75	-2,033.12	-8,455.27	8,667.61	8,641.24	26.37	328.649	
7,000.00	6,825.45	6,650.10	6,648.46	20.94	7.97	151.04	-2,033.37	-8,455.60	8,691.65	8,665.08	26.56	327.201	
7,050.00	6,865.65	6,686.51	6,684.87	21.09	8.01	153.40	-2,033.61	-8,455.93	8,719.43	8,692.68	26.75	325.954	
7,100.00	6,903.29	6,726.00	6,724.36	21.24	8.06	155.08	-2,033.84	-8,456.30	8,750.75	8,723.80	26.94	324.807	
7,150.00	6,938.11	6,763.64	6,761.99	21.39	8.10	156.22	-2,034.07	-8,456.61	8,785.29	8,758.16	27.13	323.825	
7,200.00	6,969.82	6,798.93	6,797.28	21.54	8.14	156.89	-2,034.28	-8,456.93	8,822.87	8,795.56	27.32	322.993	
7,250.00	6,998.19	6,827.07	6,825.41	21.69	8.18	157.11	-2,034.44	-8,457.16	8,863.16	8,835.66	27.49	322.361	
7,300.00	7,023.01	6,847.96	6,846.31	21.84	8.20	156.82	-2,034.56	-8,457.33	8,905.86	8,878.19	27.67	321.911	
7,350.00	7,044.08	6,875.66	6,874.00	21.99	8.23	155.94	-2,034.72	-8,457.56	8,950.65	8,922.80	27.84	321.456	
7,400.00	7,061.25	6,900.13	6,898.47	22.14	8.26	154.11	-2,034.85	-8,457.75	8,997.17	8,969.15	28.02	321.108	
7,450.00	7,074.38	6,919.18	6,917.53	22.29	8.29	150.53	-2,034.95	-8,457.87	9,045.07	9,016.88	28.19	320.883	
7,500.00	7,083.37	7,500.00	6,924.02	22.44	9.01	142.62	-2,034.99	-8,457.91	9,094.00	9,065.03	28.97	313.910	
7,550.00	7,088.16	6,930.74	6,929.08	22.59	8.30	120.35	-2,035.02	-8,457.95	9,143.58	9,115.09	28.50	320.849	
7,581.00	7,089.00	6,931.14	6,929.48	22.68	8.30	84.80	-2,035.02	-8,457.95	9,174.49	9,145.89	28.59	320.888	
7,600.00	7,089.02	6,931.07	6,929.41	22.74	8.30	84.79	-2,035.02	-8,457.95	9,193.45	9,164.80	28.65	320.915	
7,700.00	7,089.09	6,930.72	6,929.06	23.04	8.30	84.76	-2,035.02	-8,457.95	9,293.23	9,264.28	28.95	321.058	
7,800.00	7,089.17	6,930.37	6,928.72	23.34	8.30	84.73	-2,035.02	-8,457.94	9,393.01	9,363.76	29.24	321.197	
7,900.00	7,089.25	6,930.03	6,928.37	23.64	8.30	84.69	-2,035.01	-8,457.94	9,492.79	9,463.25	29.54	321.334	
8,000.00	7,089.33	6,929.69	6,928.03	23.94	8.30	84.66	-2,035.01	-8,457.94	9,592.59	9,562.75	29.84	321.467	
8,100.00	7,089.41	6,929.35	6,927.69	24.24	8.30	84.63	-2,035.01	-8,457.94	9,692.38	9,662.24	30.14	321.598	
8,200.00	7,089.49	6,929.01	6,927.36	24.54	8.30	84.60	-2,035.01	-8,457.93	9,792.18	9,761.75	30.44	321.726	
8,300.00	7,089.56	6,928.68	6,927.02	24.84	8.30	84.57	-2,035.01	-8,457.93	9,891.99	9,861.25	30.73	321.851	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,400.00	7,089.64	8,400.00	6,924.39	25.14	10.14	84.33	-2,034.99	-8,457.92	9,991.79	9,959.16	32.63	306.195	
8,500.00	7,089.72	8,500.00	6,923.82	25.44	10.27	84.27	-2,034.99	-8,457.91	10,091.61	10,058.57	33.04	305.446	
8,600.00	7,089.80	8,600.00	6,923.24	25.75	10.39	84.22	-2,034.98	-8,457.91	10,191.42	10,157.98	33.45	304.717	
8,700.00	7,089.88	8,700.00	6,922.66	26.05	10.52	84.16	-2,034.98	-8,457.91	10,291.24	10,257.39	33.85	304.005	
8,800.00	7,089.96	8,800.00	6,922.08	26.35	10.65	84.11	-2,034.98	-8,457.90	10,391.06	10,356.80	34.26	303.311	SF
8,900.00	7,090.03	6,929.85	6,928.20	26.65	8.30	84.68	-2,035.01	-8,457.94	10,490.89	10,458.36	32.53	322.518	
9,000.00	7,090.11	6,929.02	6,927.36	26.95	8.30	84.60	-2,035.01	-8,457.93	10,590.72	10,557.89	32.83	322.633	
9,100.00	7,090.19	6,928.17	6,926.52	27.25	8.30	84.52	-2,035.00	-8,457.93	10,690.55	10,657.42	33.12	322.745	
9,200.00	7,090.27	6,927.32	6,925.66	27.55	8.30	84.44	-2,035.00	-8,457.92	10,790.38	10,756.96	33.42	322.856	
9,300.00	7,090.35	6,926.45	6,924.80	27.85	8.30	84.36	-2,034.99	-8,457.92	10,890.22	10,856.50	33.72	322.964	
9,400.00	7,090.43	6,925.57	6,923.92	28.15	8.30	84.28	-2,034.99	-8,457.91	10,990.06	10,956.05	34.02	323.071	
9,500.00	7,090.51	6,924.68	6,923.03	28.45	8.29	84.20	-2,034.98	-8,457.91	11,089.91	11,055.59	34.32	323.176	
9,600.00	7,090.58	6,923.78	6,922.12	28.75	8.29	84.12	-2,034.98	-8,457.90	11,189.75	11,155.14	34.61	323.279	
9,700.00	7,090.66	6,922.87	6,921.21	29.05	8.29	84.03	-2,034.97	-8,457.90	11,289.60	11,254.69	34.91	323.380	
9,800.00	7,090.74	6,921.94	6,920.28	29.35	8.29	83.94	-2,034.97	-8,457.89	11,389.46	11,354.25	35.21	323.479	
9,900.00	7,090.82	6,921.00	6,919.34	29.65	8.29	83.86	-2,034.96	-8,457.89	11,489.31	11,453.80	35.51	323.577	
10,000.00	7,090.90	6,920.05	6,918.39	29.95	8.29	83.77	-2,034.95	-8,457.88	11,589.17	11,553.36	35.81	323.674	
10,100.00	7,090.98	6,919.08	6,917.42	30.25	8.29	83.68	-2,034.95	-8,457.87	11,689.03	11,652.92	36.10	323.768	
10,200.00	7,091.05	6,918.10	6,916.45	30.55	8.29	83.59	-2,034.94	-8,457.87	11,788.89	11,752.49	36.40	323.862	
10,300.00	7,091.13	6,917.11	6,915.45	30.85	8.29	83.50	-2,034.94	-8,457.86	11,888.75	11,852.05	36.70	323.954	
10,400.00	7,091.21	6,916.10	6,914.44	31.15	8.28	83.41	-2,034.93	-8,457.85	11,988.62	11,951.62	37.00	324.044	
10,500.00	7,091.29	6,915.08	6,913.42	31.45	8.28	83.31	-2,034.93	-8,457.85	12,088.49	12,051.19	37.29	324.133	
10,600.00	7,091.37	6,914.04	6,912.38	31.76	8.28	83.22	-2,034.92	-8,457.84	12,188.36	12,150.77	37.59	324.221	
10,700.00	7,091.45	6,912.99	6,911.33	32.06	8.28	83.12	-2,034.92	-8,457.83	12,288.23	12,250.34	37.89	324.307	
10,800.00	7,091.53	6,911.92	6,910.26	32.36	8.28	83.02	-2,034.91	-8,457.83	12,388.11	12,349.92	38.19	324.392	
10,900.00	7,091.60	6,910.84	6,909.18	32.66	8.28	82.92	-2,034.90	-8,457.82	12,487.98	12,449.50	38.49	324.476	
11,000.00	7,091.68	6,909.74	6,908.08	32.96	8.28	82.82	-2,034.90	-8,457.81	12,587.86	12,549.08	38.78	324.558	
11,100.00	7,091.76	6,908.62	6,906.97	33.26	8.27	82.72	-2,034.89	-8,457.80	12,687.74	12,648.66	39.08	324.640	
11,200.00	7,091.84	6,907.49	6,905.83	33.56	8.27	82.61	-2,034.89	-8,457.80	12,787.62	12,748.24	39.38	324.720	
11,300.00	7,091.92	6,906.34	6,904.68	33.86	8.27	82.51	-2,034.88	-8,457.79	12,887.51	12,847.83	39.68	324.799	
11,400.00	7,092.00	6,905.17	6,903.51	34.16	8.27	82.40	-2,034.87	-8,457.78	12,987.39	12,947.42	39.98	324.877	
11,500.00	7,092.07	6,903.98	6,902.33	34.46	8.27	82.29	-2,034.87	-8,457.77	13,087.28	13,047.01	40.27	324.954	
11,600.00	7,092.15	6,902.78	6,901.12	34.76	8.27	82.18	-2,034.86	-8,457.76	13,187.17	13,146.60	40.57	325.030	
11,700.00	7,092.23	6,901.56	6,899.90	35.06	8.27	82.07	-2,034.86	-8,457.76	13,287.06	13,246.19	40.87	325.105	
11,800.00	7,092.31	6,900.31	6,898.66	35.36	8.26	81.95	-2,034.85	-8,457.75	13,386.95	13,345.78	41.17	325.179	
11,900.00	7,092.39	6,899.14	6,897.48	35.66	8.26	81.85	-2,034.84	-8,457.74	13,486.85	13,445.38	41.47	325.252	
12,000.00	7,092.47	6,897.98	6,896.33	35.96	8.26	81.74	-2,034.84	-8,457.73	13,586.74	13,544.98	41.76	325.323	
12,100.00	7,092.55	6,896.81	6,895.16	36.26	8.26	81.63	-2,034.83	-8,457.72	13,686.64	13,644.58	42.06	325.394	
12,200.00	7,092.62	6,895.63	6,893.97	36.56	8.26	81.52	-2,034.83	-8,457.71	13,786.54	13,744.18	42.36	325.463	
12,300.00	7,092.70	6,894.43	6,892.78	36.86	8.26	81.41	-2,034.82	-8,457.71	13,886.44	13,843.78	42.66	325.531	
12,400.00	7,092.78	6,893.22	6,891.56	37.16	8.26	81.30	-2,034.81	-8,457.70	13,986.34	13,943.38	42.96	325.599	
12,500.00	7,092.86	6,891.99	6,890.34	37.46	8.25	81.19	-2,034.81	-8,457.69	14,086.24	14,042.98	43.25	325.666	
12,600.00	7,092.94	6,890.75	6,889.10	37.76	8.25	81.08	-2,034.80	-8,457.68	14,186.14	14,142.59	43.55	325.732	
12,700.00	7,093.02	6,889.50	6,887.84	38.06	8.25	80.96	-2,034.80	-8,457.67	14,286.05	14,242.20	43.85	325.797	
12,800.00	7,093.09	6,888.23	6,886.57	38.36	8.25	80.85	-2,034.79	-8,457.66	14,385.95	14,341.81	44.15	325.861	
12,900.00	7,093.17	6,886.94	6,885.29	38.66	8.25	80.73	-2,034.78	-8,457.65	14,485.86	14,441.42	44.45	325.925	
13,000.00	7,093.25	6,885.64	6,883.98	38.96	8.25	80.61	-2,034.77	-8,457.64	14,585.77	14,541.03	44.74	325.988	
13,100.00	7,093.33	6,884.32	6,882.67	39.26	8.25	80.49	-2,034.77	-8,457.63	14,685.68	14,640.64	45.04	326.050	
13,200.00	7,093.41	6,882.99	6,881.33	39.56	8.24	80.37	-2,034.76	-8,457.62	14,785.59	14,740.25	45.34	326.111	
13,300.00	7,093.49	6,881.64	6,879.98	39.86	8.24	80.25	-2,034.75	-8,457.61	14,885.50	14,839.87	45.64	326.172	
13,400.00	7,093.57	6,880.27	6,878.61	40.16	8.24	80.12	-2,034.74	-8,457.60	14,985.42	14,939.48	45.93	326.232	
13,500.00	7,093.64	6,878.88	6,877.23	40.47	8.24	80.00	-2,034.74	-8,457.59	15,085.33	15,039.10	46.23	326.291	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,600.00	7,093.72	6,877.48	6,875.83	40.77	8.24	79.87	-2,034.73	-8,457.58	15,185.25	15,138.71	46.53	326.349	
13,700.00	7,093.80	6,876.06	6,874.41	41.07	8.24	79.74	-2,034.72	-8,457.57	15,285.16	15,238.33	46.83	326.407	
13,800.00	7,093.88	6,874.63	6,872.98	41.37	8.23	79.61	-2,034.71	-8,457.56	15,385.08	15,337.95	47.13	326.465	
13,900.00	7,093.96	6,873.21	6,871.56	41.67	8.23	79.48	-2,034.70	-8,457.54	15,485.00	15,437.57	47.42	326.521	
14,000.00	7,094.04	6,871.77	6,870.12	41.97	8.23	79.35	-2,034.69	-8,457.53	15,584.92	15,537.19	47.72	326.577	
14,100.00	7,094.11	6,870.31	6,868.66	42.27	8.23	79.22	-2,034.68	-8,457.52	15,684.84	15,636.82	48.02	326.632	
14,200.00	7,094.19	6,868.83	6,867.17	42.57	8.23	79.09	-2,034.68	-8,457.51	15,784.76	15,736.44	48.32	326.687	
14,300.00	7,094.27	6,867.33	6,865.67	42.87	8.22	78.95	-2,034.67	-8,457.50	15,884.68	15,836.07	48.62	326.741	
14,400.00	7,094.35	6,865.80	6,864.15	43.17	8.22	78.82	-2,034.66	-8,457.48	15,984.60	15,935.69	48.91	326.795	
14,500.00	7,094.43	6,864.26	6,862.61	43.47	8.22	78.68	-2,034.65	-8,457.47	16,084.53	16,035.32	49.21	326.848	
14,600.00	7,094.51	6,862.69	6,861.04	43.77	8.22	78.54	-2,034.64	-8,457.46	16,184.45	16,134.94	49.51	326.901	
14,700.00	7,094.58	6,861.11	6,859.45	44.07	8.22	78.39	-2,034.63	-8,457.45	16,284.38	16,234.57	49.81	326.953	
14,800.00	7,094.66	6,859.50	6,857.84	44.37	8.22	78.25	-2,034.62	-8,457.43	16,384.31	16,334.20	50.10	327.004	
14,900.00	7,094.74	6,857.86	6,856.21	44.67	8.21	78.10	-2,034.61	-8,457.42	16,484.23	16,433.83	50.40	327.056	
15,000.00	7,094.82	6,856.20	6,854.55	44.97	8.21	77.95	-2,034.60	-8,457.40	16,584.16	16,533.46	50.70	327.106	
15,100.00	7,094.90	6,854.52	6,852.87	45.27	8.21	77.80	-2,034.59	-8,457.39	16,684.09	16,633.09	51.00	327.157	
15,200.00	7,094.98	6,852.82	6,851.16	45.57	8.21	77.65	-2,034.58	-8,457.38	16,784.02	16,732.72	51.29	327.206	
15,300.00	7,095.06	6,851.08	6,849.43	45.87	8.21	77.50	-2,034.57	-8,457.36	16,883.95	16,832.36	51.59	327.256	
15,400.00	7,095.13	6,850.00	6,848.35	46.17	8.20	77.40	-2,034.57	-8,457.35	16,983.88	16,931.99	51.89	327.300	
15,500.00	7,095.21	6,850.00	6,848.35	46.47	8.20	77.40	-2,034.57	-8,457.35	17,083.81	17,031.62	52.19	327.337	
15,600.00	7,095.29	6,848.55	6,846.90	46.77	8.20	77.27	-2,034.56	-8,457.34	17,183.75	17,131.26	52.49	327.382	
15,700.00	7,095.37	6,847.95	6,846.30	47.07	8.20	77.22	-2,034.56	-8,457.33	17,283.68	17,230.89	52.79	327.422	
15,800.00	7,095.45	6,847.35	6,845.69	47.37	8.20	77.16	-2,034.55	-8,457.33	17,383.61	17,330.53	53.09	327.461	
15,900.00	7,095.53	6,846.74	6,845.09	47.67	8.20	77.11	-2,034.55	-8,457.32	17,483.55	17,430.16	53.38	327.500	
16,000.00	7,095.60	6,846.14	6,844.49	47.97	8.20	77.06	-2,034.55	-8,457.32	17,583.48	17,529.80	53.68	327.538	
16,100.00	7,095.68	6,845.55	6,843.89	48.27	8.20	77.00	-2,034.54	-8,457.31	17,683.42	17,629.44	53.98	327.576	
16,200.00	7,095.76	6,844.95	6,843.30	48.57	8.20	76.95	-2,034.54	-8,457.31	17,783.36	17,729.08	54.28	327.613	
16,300.00	7,095.84	6,844.35	6,842.70	48.87	8.20	76.90	-2,034.54	-8,457.30	17,883.30	17,828.72	54.58	327.650	
16,400.00	7,095.92	6,843.76	6,842.11	49.17	8.20	76.84	-2,034.53	-8,457.30	17,983.23	17,928.35	54.88	327.687	
16,500.00	7,096.00	6,843.17	6,841.51	49.47	8.20	76.79	-2,034.53	-8,457.29	18,083.17	18,027.99	55.18	327.723	
16,600.00	7,096.08	6,842.58	6,840.92	49.77	8.19	76.74	-2,034.53	-8,457.29	18,183.11	18,127.64	55.48	327.758	
16,700.00	7,096.15	6,841.99	6,840.33	50.07	8.19	76.69	-2,034.52	-8,457.28	18,283.05	18,227.28	55.78	327.794	
16,800.00	7,096.23	6,841.40	6,839.75	50.37	8.19	76.63	-2,034.52	-8,457.28	18,382.99	18,326.92	56.08	327.828	
16,900.00	7,096.31	6,840.81	6,839.16	50.67	8.19	76.58	-2,034.52	-8,457.27	18,482.94	18,426.56	56.37	327.863	
17,000.00	7,096.39	6,840.23	6,838.58	50.97	8.19	76.53	-2,034.51	-8,457.27	18,582.88	18,526.21	56.67	327.897	
17,100.00	7,096.47	6,839.64	6,837.99	51.27	8.19	76.48	-2,034.51	-8,457.26	18,682.82	18,625.85	56.97	327.930	
17,200.00	7,096.55	6,839.06	6,837.41	51.57	8.19	76.43	-2,034.51	-8,457.26	18,782.76	18,725.49	57.27	327.964	
17,300.00	7,096.62	6,838.48	6,836.83	51.87	8.19	76.38	-2,034.50	-8,457.25	18,882.71	18,825.14	57.57	327.997	
17,400.00	7,096.70	6,837.90	6,836.25	52.17	8.19	76.33	-2,034.50	-8,457.25	18,982.65	18,924.78	57.87	328.029	
17,500.00	7,096.78	6,837.33	6,835.67	52.47	8.19	76.27	-2,034.50	-8,457.24	19,082.60	19,024.43	58.17	328.061	
17,600.00	7,096.86	6,836.75	6,835.10	52.77	8.19	76.22	-2,034.50	-8,457.24	19,182.54	19,124.08	58.47	328.093	
17,700.00	7,096.94	6,836.18	6,834.52	53.07	8.19	76.17	-2,034.49	-8,457.23	19,282.49	19,223.72	58.77	328.125	
17,800.00	7,097.02	6,835.60	6,833.95	53.37	8.19	76.12	-2,034.49	-8,457.23	19,382.44	19,323.37	59.06	328.156	
17,900.00	7,097.10	6,835.03	6,833.38	53.67	8.19	76.07	-2,034.49	-8,457.22	19,482.38	19,423.02	59.36	328.187	
18,000.00	7,097.17	6,834.46	6,832.81	53.97	8.19	76.02	-2,034.48	-8,457.22	19,582.33	19,522.67	59.66	328.217	
18,100.00	7,097.25	6,833.89	6,832.24	54.27	8.18	75.97	-2,034.48	-8,457.21	19,682.28	19,622.32	59.96	328.247	
18,200.00	7,097.33	6,833.33	6,831.67	54.57	8.18	75.92	-2,034.48	-8,457.21	19,782.23	19,721.97	60.26	328.277	
18,300.00	7,097.41	6,832.76	6,831.11	54.87	8.18	75.87	-2,034.47	-8,457.20	19,882.18	19,821.62	60.56	328.307	
18,400.00	7,097.49	6,832.19	6,830.54	55.17	8.18	75.82	-2,034.47	-8,457.20	19,982.13	19,921.27	60.86	328.336	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	20.51	20.51	0.00	0.19	97.70	-1,130.13	8,360.70	8,436.73				
100.00	100.00	120.51	120.51	0.23	1.11	97.70	-1,130.13	8,360.70	8,436.73	8,435.39	1.34	6,293.791	
200.00	200.00	220.51	220.51	0.53	2.04	97.70	-1,130.13	8,360.70	8,436.73	8,434.17	2.56	3,289.576	
300.00	300.00	320.52	320.51	0.83	3.22	97.70	-1,130.13	8,360.70	8,436.73	8,432.69	4.04	2,086.610	
400.00	400.00	420.52	420.51	1.13	5.07	97.70	-1,130.13	8,360.70	8,436.73	8,430.54	6.19	1,362.563	
500.00	500.00	520.52	520.51	1.43	6.91	97.70	-1,130.13	8,360.70	8,436.73	8,428.39	8.34	1,011.556	
600.00	599.98	619.00	618.99	1.73	8.73	-76.90	-1,129.63	8,360.70	8,436.27	8,425.81	10.46	806.461	
700.00	699.84	716.95	716.94	2.03	10.54	-76.95	-1,129.85	8,360.70	8,435.11	8,422.54	12.57	670.974	
800.00	799.45	819.99	819.97	2.33	12.48	-77.05	-1,130.13	8,360.70	8,433.18	8,418.38	14.81	569.583	
900.00	898.70	919.24	919.21	2.63	14.42	-77.18	-1,130.13	8,360.70	8,430.44	8,413.39	17.05	494.463	
1,000.00	997.47	1,018.00	1,017.98	2.93	16.36	-77.35	-1,130.13	8,360.70	8,426.95	8,407.67	19.28	436.993	
1,100.00	1,095.62	1,114.96	1,114.93	3.23	18.26	-77.56	-1,129.61	8,360.70	8,422.67	8,401.19	21.48	392.064	
1,157.34	1,151.58	1,169.94	1,169.92	3.40	19.33	-77.69	-1,129.69	8,360.70	8,419.94	8,397.21	22.73	370.404	
1,200.00	1,193.13	1,210.78	1,210.76	3.53	20.13	-77.75	-1,129.79	8,360.70	8,417.84	8,394.18	23.66	355.790	
1,300.00	1,290.51	1,311.09	1,311.02	3.83	22.11	-77.90	-1,130.13	8,360.70	8,412.96	8,387.03	25.94	324.361	
1,400.00	1,387.89	1,408.47	1,408.40	4.13	24.22	-78.05	-1,130.13	8,360.70	8,408.10	8,379.75	28.35	296.575	
1,500.00	1,485.27	1,505.85	1,505.78	4.43	26.34	-78.20	-1,130.13	8,360.70	8,403.30	8,372.54	30.76	273.150	
1,600.00	1,582.65	1,602.95	1,602.87	4.73	28.45	-78.35	-1,128.87	8,360.70	8,398.42	8,365.24	33.17	253.177	
1,700.00	1,680.02	1,697.68	1,697.59	5.03	30.50	-78.50	-1,129.03	8,360.70	8,393.76	8,358.23	35.53	236.256	
1,800.00	1,777.40	1,792.54	1,792.45	5.33	32.56	-78.64	-1,129.47	8,360.70	8,389.18	8,351.30	37.89	221.425	
1,900.00	1,874.78	1,895.48	1,895.30	5.63	34.78	-78.79	-1,130.13	8,360.70	8,384.69	8,344.28	40.40	207.519	
2,000.00	1,972.16	1,992.85	1,992.67	5.93	36.77	-78.94	-1,130.13	8,360.70	8,380.18	8,337.49	42.69	196.285	
2,100.00	2,069.54	2,090.23	2,090.05	6.23	38.76	-79.09	-1,130.13	8,360.70	8,375.73	8,330.75	44.98	186.196	
2,200.00	2,166.92	2,185.44	2,185.25	6.53	40.70	-79.24	-1,128.88	8,360.70	8,371.23	8,324.00	47.23	177.249	
2,300.00	2,264.30	2,279.56	2,279.35	6.83	42.62	-79.38	-1,129.32	8,360.70	8,366.95	8,317.49	49.45	169.195	
2,400.00	2,361.68	2,382.43	2,382.19	7.13	44.74	-79.54	-1,130.13	8,360.70	8,362.75	8,310.89	51.86	161.247	
2,500.00	2,459.06	2,479.81	2,479.57	7.43	46.80	-79.69	-1,130.13	8,360.70	8,358.54	8,304.32	54.23	154.137	
2,600.00	2,556.44	2,577.19	2,576.95	7.73	48.87	-79.84	-1,130.13	8,360.70	8,354.40	8,297.80	56.59	147.622	
2,700.00	2,653.82	2,674.57	2,674.33	8.03	50.93	-79.98	-1,130.13	8,360.70	8,350.31	8,291.35	58.96	141.631	
2,800.00	2,751.19	2,771.85	2,771.60	8.33	52.99	-80.14	-1,129.28	8,360.70	8,346.21	8,284.89	61.32	136.107	
2,900.00	2,848.57	2,868.52	2,868.27	8.63	55.04	-80.29	-1,129.35	8,360.70	8,342.25	8,278.58	63.67	131.021	
3,000.00	2,945.95	2,965.23	2,964.99	8.93	57.10	-80.44	-1,129.52	8,360.70	8,338.35	8,272.33	66.02	126.297	
3,100.00	3,043.33	3,062.00	3,061.75	9.23	59.15	-80.58	-1,129.79	8,360.70	8,334.53	8,266.15	68.37	121.896	
3,200.00	3,140.71	3,161.59	3,161.22	9.53	61.30	-80.74	-1,130.13	8,360.70	8,330.77	8,259.93	70.83	117.615	
3,300.00	3,238.09	3,258.97	3,258.60	9.83	63.69	-80.89	-1,130.13	8,360.70	8,327.04	8,253.52	73.52	113.268	
3,400.00	3,335.47	3,356.35	3,355.98	10.13	66.08	-81.04	-1,130.13	8,360.70	8,323.37	8,247.17	76.20	109.228	
3,500.00	3,432.85	3,452.12	3,451.72	10.43	68.42	-81.20	-1,128.61	8,360.70	8,319.67	8,240.82	78.85	105.516	
3,600.00	3,530.23	3,547.07	3,546.66	10.73	70.75	-81.34	-1,129.14	8,360.70	8,316.16	8,234.69	81.47	102.072	
3,700.00	3,627.61	3,648.66	3,648.12	11.03	73.22	-81.49	-1,130.13	8,360.70	8,312.73	8,228.49	84.25	98.668	
3,800.00	3,724.99	3,746.04	3,745.50	11.33	75.46	-81.64	-1,130.13	8,360.70	8,309.31	8,222.52	86.79	95.745	
3,900.00	3,822.36	3,840.29	3,839.73	11.63	77.62	-81.79	-1,129.54	8,360.70	8,305.92	8,216.67	89.25	93.063	
4,000.00	3,919.74	3,940.86	3,940.26	11.93	79.86	-81.94	-1,130.13	8,360.70	8,302.64	8,210.86	91.79	90.455	
4,100.00	4,017.12	4,038.24	4,037.64	12.23	81.93	-82.09	-1,130.13	8,360.70	8,299.40	8,205.24	94.16	88.141	
4,200.00	4,114.50	4,135.61	4,135.01	12.53	84.01	-82.25	-1,130.13	8,360.70	8,296.22	8,199.69	96.53	85.942	
4,300.00	4,211.88	4,232.99	4,232.39	12.83	86.08	-82.40	-1,130.13	8,360.70	8,293.10	8,194.20	98.90	83.849	
4,400.00	4,309.26	4,330.37	4,329.77	13.13	88.15	-82.55	-1,130.13	8,360.70	8,290.05	8,188.77	101.28	81.855	
4,500.00	4,406.64	4,427.75	4,427.15	13.43	90.22	-82.70	-1,130.13	8,360.70	8,287.05	8,183.40	103.65	79.953	
4,600.00	4,504.02	4,525.05	4,524.43	13.73	92.29	-82.87	-1,127.49	8,360.70	8,284.03	8,178.01	106.02	78.136	
4,700.00	4,601.40	4,622.10	4,621.47	14.03	94.36	-83.02	-1,127.58	8,360.70	8,281.16	8,172.78	108.39	76.405	
4,800.00	4,698.78	4,719.21	4,718.58	14.33	96.43	-83.17	-1,127.81	8,360.70	8,278.36	8,167.61	110.75	74.747	
4,900.00	4,796.16	4,816.39	4,815.75	14.63	98.49	-83.32	-1,128.18	8,360.70	8,275.63	8,162.51	113.12	73.158	
5,000.00	4,893.53	4,913.63	4,912.99	14.93	100.56	-83.47	-1,128.69	8,360.70	8,272.96	8,157.47	115.49	71.634	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	5,010.94	5,010.29	15.23	102.63	-83.62	-1,129.33	8,360.70	8,270.34	8,152.48	117.86	70.171	
5,200.00	5,088.29	5,108.32	5,107.66	15.53	104.71	-83.77	-1,130.11	8,360.70	8,267.79	8,147.56	120.23	68.765	
5,300.00	5,185.67	5,206.97	5,206.18	15.83	106.72	-83.92	-1,130.13	8,360.70	8,265.29	8,142.74	122.55	67.444	
5,400.00	5,283.05	5,304.35	5,303.56	16.13	108.71	-84.07	-1,130.13	8,360.70	8,262.85	8,138.01	124.84	66.188	
5,500.00	5,380.43	5,401.73	5,400.94	16.43	110.70	-84.23	-1,130.13	8,360.70	8,260.47	8,133.34	127.13	64.977	
5,600.00	5,477.81	5,499.11	5,498.32	16.73	112.69	-84.38	-1,130.13	8,360.70	8,258.15	8,128.73	129.42	63.810	
5,700.00	5,575.19	5,596.49	5,595.70	17.03	114.68	-84.53	-1,130.13	8,360.70	8,255.89	8,124.19	131.71	62.683	
5,800.00	5,672.57	5,693.86	5,693.08	17.33	116.67	-84.68	-1,130.13	8,360.70	8,253.70	8,119.70	134.00	61.596	
5,900.00	5,769.95	5,791.28	5,790.47	17.63	118.66	-84.86	-1,127.59	8,360.70	8,251.57	8,115.29	136.29	60.545	
6,000.00	5,867.33	5,888.76	5,887.95	17.93	120.65	-85.01	-1,127.78	8,360.70	8,249.51	8,110.93	138.58	59.529	
6,100.00	5,964.70	5,986.31	5,985.49	18.23	122.65	-85.16	-1,128.11	8,360.70	8,247.51	8,106.63	140.87	58.546	
6,200.00	6,062.08	6,083.93	6,083.11	18.53	124.64	-85.31	-1,128.59	8,360.70	8,245.56	8,102.39	143.17	57.594	
6,300.00	6,159.46	6,181.62	6,180.78	18.83	126.64	-85.46	-1,129.20	8,360.70	8,243.67	8,098.21	145.46	56.672	
6,400.00	6,256.84	6,279.37	6,278.53	19.13	128.63	-85.61	-1,129.95	8,360.70	8,241.84	8,094.08	147.76	55.779	
6,500.00	6,354.22	6,377.19	6,376.34	19.43	130.63	-85.76	-1,130.85	8,360.70	8,240.07	8,090.01	150.06	54.912	
6,542.53	6,395.64	6,418.82	6,417.96	19.56	131.48	-85.82	-1,131.27	8,360.70	8,239.33	8,088.30	151.04	54.552	
6,600.00	6,451.60	6,308.00	6,307.08	19.73	129.21	-85.65	-1,130.13	8,360.70	8,240.04	8,091.13	148.91	55.335	
6,694.27	6,543.40	6,308.00	6,307.08	20.02	129.21	-85.65	-1,130.13	8,360.70	8,240.85	8,091.69	149.16	55.249	
6,700.00	6,548.98	6,308.00	6,307.08	20.03	129.21	-83.22	-1,130.13	8,360.70	8,240.90	8,091.73	149.17	55.244	
6,750.00	6,597.52	6,308.00	6,307.08	20.18	129.21	-63.97	-1,130.13	8,360.70	8,239.12	8,089.83	149.30	55.186	
6,800.00	6,645.56	6,308.00	6,307.08	20.33	129.21	-49.69	-1,130.13	8,360.70	8,233.30	8,083.88	149.42	55.103	
6,850.00	6,692.73	6,308.00	6,307.08	20.48	129.21	-39.90	-1,130.13	8,360.70	8,223.46	8,073.93	149.53	54.994	
6,900.00	6,738.66	6,308.00	6,307.08	20.63	129.21	-33.19	-1,130.13	8,360.70	8,209.68	8,060.03	149.65	54.861	
6,950.00	6,783.02	6,308.00	6,307.08	20.78	129.21	-28.48	-1,130.13	8,360.70	8,192.03	8,042.27	149.75	54.703	
7,000.00	6,825.45	6,308.00	6,307.08	20.94	129.21	-25.07	-1,130.13	8,360.70	8,170.63	8,020.76	149.86	54.521	
7,050.00	6,865.65	6,308.00	6,307.08	21.09	129.21	-22.56	-1,130.13	8,360.70	8,145.60	7,995.63	149.97	54.316	
7,100.00	6,903.29	6,308.00	6,307.08	21.24	129.21	-20.66	-1,130.13	8,360.70	8,117.11	7,967.04	150.07	54.088	
7,150.00	6,938.11	6,308.00	6,307.08	21.39	129.21	-19.24	-1,130.13	8,360.70	8,085.35	7,935.17	150.18	53.839	
7,200.00	6,969.82	6,308.00	6,307.08	21.54	129.21	-18.17	-1,130.13	8,360.70	8,050.50	7,900.22	150.28	53.570	
7,250.00	6,998.19	6,308.00	6,307.08	21.69	129.21	-17.40	-1,130.13	8,360.70	8,012.81	7,862.42	150.39	53.281	
7,300.00	7,023.01	6,308.00	6,307.08	21.84	129.21	-16.89	-1,130.13	8,360.70	7,972.51	7,822.01	150.50	52.975	
7,350.00	7,044.08	6,308.00	6,307.08	21.99	129.21	-16.64	-1,130.13	8,360.70	7,929.88	7,779.27	150.61	52.652	
7,400.00	7,061.25	6,308.00	6,307.08	22.14	129.21	-16.66	-1,130.13	8,360.70	7,885.21	7,734.49	150.73	52.315	
7,450.00	7,074.38	6,308.00	6,307.08	22.29	129.21	-17.06	-1,130.13	8,360.70	7,838.81	7,687.96	150.85	51.965	
7,500.00	7,083.37	6,308.00	6,307.08	22.44	129.21	-18.06	-1,130.13	8,360.70	7,790.99	7,640.02	150.97	51.605	
7,550.00	7,088.16	6,308.00	6,307.08	22.59	129.21	-20.43	-1,130.13	8,360.70	7,742.11	7,591.00	151.11	51.235	
7,581.00	7,089.00	6,308.00	6,307.08	22.68	129.21	-23.83	-1,130.13	8,360.70	7,711.43	7,560.23	151.20	51.003	
7,600.00	7,089.02	6,308.00	6,307.08	22.74	129.21	-23.83	-1,130.13	8,360.70	7,692.55	7,541.30	151.25	50.860	
7,700.00	7,089.09	6,308.00	6,307.08	23.04	129.21	-23.83	-1,130.13	8,360.70	7,593.22	7,441.69	151.53	50.110	
7,800.00	7,089.17	6,308.00	6,307.08	23.34	129.21	-23.83	-1,130.13	8,360.70	7,493.91	7,342.09	151.81	49.363	
7,900.00	7,089.25	6,308.00	6,307.08	23.64	129.21	-23.83	-1,130.13	8,360.70	7,394.62	7,242.52	152.09	48.619	
8,000.00	7,089.33	6,308.00	6,307.08	23.94	129.21	-23.83	-1,130.13	8,360.70	7,295.34	7,142.97	152.37	47.878	
8,100.00	7,089.41	6,308.00	6,307.08	24.24	129.21	-23.83	-1,130.13	8,360.70	7,196.09	7,043.43	152.65	47.140	
8,200.00	7,089.49	6,308.00	6,307.08	24.54	129.21	-23.83	-1,130.13	8,360.70	7,096.86	6,943.92	152.93	46.405	
8,300.00	7,089.56	6,308.00	6,307.08	24.84	129.21	-23.83	-1,130.13	8,360.70	6,997.65	6,844.44	153.21	45.674	
8,400.00	7,089.64	6,308.00	6,307.08	25.14	129.21	-23.83	-1,130.13	8,360.70	6,898.46	6,744.97	153.49	44.945	
8,500.00	7,089.72	6,308.00	6,307.08	25.44	129.21	-23.83	-1,130.13	8,360.70	6,799.29	6,645.53	153.76	44.220	
8,600.00	7,089.80	6,308.00	6,307.08	25.75	129.21	-23.83	-1,130.13	8,360.70	6,700.16	6,546.12	154.04	43.497	
8,700.00	7,089.88	6,308.00	6,307.08	26.05	129.21	-23.83	-1,130.13	8,360.70	6,601.04	6,446.73	154.31	42.778	
8,800.00	7,089.96	6,308.00	6,307.08	26.35	129.21	-23.83	-1,130.13	8,360.70	6,501.96	6,347.38	154.58	42.062	
8,900.00	7,090.03	6,308.00	6,307.08	26.65	129.21	-23.83	-1,130.13	8,360.70	6,402.90	6,248.05	154.85	41.349	
9,000.00	7,090.11	6,308.00	6,307.08	26.95	129.21	-23.83	-1,130.13	8,360.70	6,303.87	6,148.75	155.12	40.639	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 293-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	6,308.00	6,307.08	27.25	129.21	-23.83	-1,130.13	8,360.70	6,204.87	6,049.49	155.39	39.932	
9,200.00	7,090.27	6,308.00	6,307.08	27.55	129.21	-23.83	-1,130.13	8,360.70	6,105.91	5,950.26	155.65	39.228	
9,300.00	7,090.35	6,308.00	6,307.08	27.85	129.21	-23.83	-1,130.13	8,360.70	6,006.98	5,851.07	155.92	38.527	
9,400.00	7,090.43	6,308.00	6,307.08	28.15	129.21	-23.83	-1,130.13	8,360.70	5,908.09	5,751.91	156.18	37.829	
9,500.00	7,090.51	6,308.00	6,307.08	28.45	129.21	-23.83	-1,130.13	8,360.70	5,809.23	5,652.80	156.44	37.134	
9,600.00	7,090.58	6,308.00	6,307.08	28.75	129.21	-23.83	-1,130.13	8,360.70	5,710.42	5,553.72	156.70	36.443	
9,700.00	7,090.66	6,308.00	6,307.08	29.05	129.21	-23.83	-1,130.13	8,360.70	5,611.64	5,454.69	156.95	35.754	
9,800.00	7,090.74	6,308.00	6,307.08	29.35	129.21	-23.83	-1,130.13	8,360.70	5,512.91	5,355.71	157.20	35.069	
9,900.00	7,090.82	6,308.00	6,307.08	29.65	129.21	-23.83	-1,130.13	8,360.70	5,414.23	5,256.78	157.45	34.386	
10,000.00	7,090.90	6,308.00	6,307.08	29.95	129.21	-23.83	-1,130.13	8,360.70	5,315.60	5,157.90	157.70	33.707	
10,100.00	7,090.98	6,308.00	6,307.08	30.25	129.21	-23.83	-1,130.13	8,360.70	5,217.02	5,059.07	157.95	33.030	
10,200.00	7,091.05	6,308.00	6,307.08	30.55	129.21	-23.83	-1,130.13	8,360.70	5,118.49	4,960.30	158.19	32.357	
10,300.00	7,091.13	6,308.00	6,307.08	30.85	129.21	-23.83	-1,130.13	8,360.70	5,020.02	4,861.60	158.43	31.687	
10,400.00	7,091.21	6,308.00	6,307.08	31.15	129.21	-23.83	-1,130.13	8,360.70	4,921.61	4,762.96	158.66	31.020	
10,500.00	7,091.29	6,308.00	6,307.08	31.45	129.21	-23.83	-1,130.13	8,360.70	4,823.27	4,664.38	158.89	30.356	
10,600.00	7,091.37	6,308.00	6,307.08	31.76	129.21	-23.83	-1,130.13	8,360.70	4,725.00	4,565.89	159.11	29.696	
10,700.00	7,091.45	6,308.00	6,307.08	32.06	129.21	-23.83	-1,130.13	8,360.70	4,626.80	4,467.47	159.33	29.038	
10,800.00	7,091.53	6,308.00	6,307.08	32.36	129.21	-23.83	-1,130.13	8,360.70	4,528.69	4,369.14	159.55	28.384	
10,900.00	7,091.60	6,308.00	6,307.08	32.66	129.21	-23.83	-1,130.13	8,360.70	4,430.65	4,270.89	159.76	27.733	
11,000.00	7,091.68	6,308.00	6,307.08	32.96	129.21	-23.83	-1,130.13	8,360.70	4,332.71	4,172.75	159.96	27.086	
11,100.00	7,091.76	6,308.00	6,307.08	33.26	129.21	-23.83	-1,130.13	8,360.70	4,234.86	4,074.70	160.16	26.442	
11,200.00	7,091.84	6,308.00	6,307.08	33.56	129.21	-23.83	-1,130.13	8,360.70	4,137.11	3,976.77	160.35	25.801	
11,300.00	7,091.92	6,308.00	6,307.08	33.86	129.21	-23.83	-1,130.13	8,360.70	4,039.48	3,878.95	160.53	25.164	
11,400.00	7,092.00	6,308.00	6,307.08	34.16	129.21	-23.83	-1,130.13	8,360.70	3,941.96	3,781.26	160.70	24.530	
11,500.00	7,092.07	6,308.00	6,307.08	34.46	129.21	-23.83	-1,130.13	8,360.70	3,844.57	3,683.71	160.86	23.900	
11,600.00	7,092.15	6,308.00	6,307.08	34.76	129.21	-23.83	-1,130.13	8,360.70	3,747.32	3,586.31	161.01	23.274	
11,700.00	7,092.23	6,308.00	6,307.08	35.06	129.21	-23.83	-1,130.13	8,360.70	3,650.22	3,489.07	161.15	22.651	
11,800.00	7,092.31	6,308.00	6,307.08	35.36	129.21	-23.83	-1,130.13	8,360.70	3,553.28	3,392.00	161.28	22.032	
11,900.00	7,092.39	6,308.00	6,307.08	35.66	129.21	-23.83	-1,130.13	8,360.70	3,456.51	3,295.12	161.39	21.418	
12,000.00	7,092.47	6,308.00	6,307.08	35.96	129.21	-23.83	-1,130.13	8,360.70	3,359.93	3,198.45	161.48	20.807	
12,100.00	7,092.55	6,308.00	6,307.08	36.26	129.21	-23.83	-1,130.13	8,360.70	3,263.56	3,102.00	161.55	20.201	
12,200.00	7,092.62	6,308.00	6,307.08	36.56	129.21	-23.83	-1,130.13	8,360.70	3,167.41	3,005.80	161.61	19.599	
12,300.00	7,092.70	6,308.00	6,307.08	36.86	129.21	-23.83	-1,130.13	8,360.70	3,071.51	2,909.87	161.64	19.002	
12,400.00	7,092.78	6,308.00	6,307.08	37.16	129.21	-23.83	-1,130.13	8,360.70	2,975.88	2,814.23	161.65	18.410	
12,500.00	7,092.86	6,308.00	6,307.08	37.46	129.21	-23.83	-1,130.13	8,360.70	2,880.54	2,718.92	161.62	17.823	
12,600.00	7,092.94	6,308.00	6,307.08	37.76	129.21	-23.83	-1,130.13	8,360.70	2,785.53	2,623.97	161.56	17.241	
12,700.00	7,093.02	6,308.00	6,307.08	38.06	129.21	-23.83	-1,130.13	8,360.70	2,690.89	2,529.42	161.47	16.665	
12,800.00	7,093.09	6,308.00	6,307.08	38.36	129.21	-23.83	-1,130.13	8,360.70	2,596.64	2,435.32	161.32	16.096	
12,900.00	7,093.17	6,308.00	6,307.08	38.66	129.21	-23.83	-1,130.13	8,360.70	2,502.84	2,341.71	161.13	15.533	
13,000.00	7,093.25	6,308.00	6,307.08	38.96	129.21	-23.83	-1,130.13	8,360.70	2,409.55	2,248.66	160.89	14.977	
13,100.00	7,093.33	6,308.00	6,307.08	39.26	129.21	-23.83	-1,130.13	8,360.70	2,316.81	2,156.24	160.57	14.429	
13,200.00	7,093.41	6,308.00	6,307.08	39.56	129.21	-23.83	-1,130.13	8,360.70	2,224.69	2,064.52	160.18	13.889	
13,300.00	7,093.49	6,308.00	6,307.08	39.86	129.21	-23.83	-1,130.13	8,360.70	2,133.29	1,973.60	159.69	13.359	
13,400.00	7,093.57	6,308.00	6,307.08	40.16	129.21	-23.83	-1,130.13	8,360.70	2,042.70	1,883.59	159.11	12.839	
13,500.00	7,093.64	6,308.00	6,307.08	40.47	129.21	-23.83	-1,130.13	8,360.70	1,953.02	1,794.63	158.39	12.330	
13,600.00	7,093.72	6,308.00	6,307.08	40.77	129.21	-23.83	-1,130.13	8,360.70	1,864.40	1,706.86	157.54	11.835	
13,700.00	7,093.80	6,308.00	6,307.08	41.07	129.21	-23.83	-1,130.13	8,360.70	1,776.98	1,620.47	156.51	11.354	
13,800.00	7,093.88	6,308.00	6,307.08	41.37	129.21	-23.83	-1,130.13	8,360.70	1,690.96	1,535.68	155.27	10.890	
13,900.00	7,093.96	6,308.00	6,307.08	41.67	129.21	-23.83	-1,130.13	8,360.70	1,606.55	1,452.76	153.79	10.446	
14,000.00	7,094.04	6,308.00	6,307.08	41.97	129.21	-23.83	-1,130.13	8,360.70	1,524.04	1,372.01	152.03	10.025	
14,100.00	7,094.11	6,308.00	6,307.08	42.27	129.21	-23.83	-1,130.13	8,360.70	1,443.73	1,293.82	149.92	9.630	
14,200.00	7,094.19	6,308.00	6,307.08	42.57	129.21	-23.83	-1,130.13	8,360.70	1,366.03	1,218.63	147.40	9.267	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #184 (Offset) - 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
14,300.00	7,094.27	6,308.00	6,307.08	42.87	129.21	-23.83	-1,130.13	8,360.70	1,291.40	1,146.99	144.41	8.943	
14,400.00	7,094.35	6,308.00	6,307.08	43.17	129.21	-23.83	-1,130.13	8,360.70	1,220.41	1,079.54	140.87	8.663	
14,500.00	7,094.43	6,308.00	6,307.08	43.47	129.21	-23.83	-1,130.13	8,360.70	1,153.72	1,017.01	136.71	8.439	
14,600.00	7,094.51	6,308.00	6,307.08	43.77	129.21	-23.83	-1,130.13	8,360.70	1,092.13	960.24	131.89	8.281	
14,700.00	7,094.58	6,308.00	6,307.08	44.07	129.21	-23.83	-1,130.13	8,360.70	1,036.55	910.13	126.41	8.200	
14,800.00	7,094.66	6,308.00	6,307.08	44.37	129.21	-23.83	-1,130.13	8,360.70	987.98	867.58	120.40	8.206	
14,900.00	7,094.74	6,308.00	6,307.08	44.67	129.21	-23.83	-1,130.13	8,360.70	947.52	833.37	114.15	8.301	
15,000.00	7,094.82	6,308.00	6,307.08	44.97	129.21	-23.83	-1,130.13	8,360.70	916.23	808.00	108.22	8.466	
15,100.00	7,094.90	6,308.00	6,307.08	45.27	129.21	-23.83	-1,130.13	8,360.70	895.07	791.56	103.51	8.647	
15,200.00	7,094.98	6,308.00	6,307.08	45.57	129.21	-23.83	-1,130.13	8,360.70	884.77	783.72	101.05	8.755	
15,241.61	7,095.01	6,308.00	6,307.08	45.69	129.21	-23.83	-1,130.13	8,360.70	883.79	782.90	100.90	8.759	CC, ES
15,300.00	7,095.06	6,308.00	6,307.08	45.87	129.21	-23.83	-1,130.13	8,360.70	885.72	784.13	101.59	8.718	
15,400.00	7,095.13	6,308.00	6,307.08	46.17	129.21	-23.83	-1,130.13	8,360.70	897.88	792.82	105.05	8.547	
15,500.00	7,095.21	6,308.00	6,307.08	46.47	129.21	-23.83	-1,130.13	8,360.70	920.79	810.18	110.61	8.324	
15,600.00	7,095.29	6,308.00	6,307.08	46.77	129.21	-23.83	-1,130.13	8,360.70	953.70	836.47	117.23	8.135	
15,700.00	7,095.37	6,308.00	6,307.08	47.07	129.21	-23.83	-1,130.13	8,360.70	995.60	871.53	124.07	8.025	
15,800.00	7,095.45	6,308.00	6,307.08	47.37	129.21	-23.83	-1,130.13	8,360.70	1,045.41	914.81	130.60	8.005	SF
15,900.00	7,095.53	6,308.00	6,307.08	47.67	129.21	-23.83	-1,130.13	8,360.70	1,102.08	965.50	136.57	8.069	
16,000.00	7,095.60	6,308.00	6,307.08	47.97	129.21	-23.83	-1,130.13	8,360.70	1,164.58	1,022.69	141.89	8.208	
16,100.00	7,095.68	6,308.00	6,307.08	48.27	129.21	-23.83	-1,130.13	8,360.70	1,232.04	1,085.50	146.54	8.407	
16,200.00	7,095.76	6,308.00	6,307.08	48.57	129.21	-23.83	-1,130.13	8,360.70	1,303.69	1,153.10	150.59	8.657	
16,300.00	7,095.84	6,308.00	6,307.08	48.87	129.21	-23.83	-1,130.13	8,360.70	1,378.87	1,224.77	154.10	8.948	
16,400.00	7,095.92	6,308.00	6,307.08	49.17	129.21	-23.83	-1,130.13	8,360.70	1,457.04	1,299.89	157.15	9.272	
16,500.00	7,096.00	6,308.00	6,307.08	49.47	129.21	-23.83	-1,130.13	8,360.70	1,537.74	1,377.94	159.80	9.623	
16,600.00	7,096.08	6,308.00	6,307.08	49.77	129.21	-23.83	-1,130.13	8,360.70	1,620.59	1,458.47	162.12	9.996	
16,700.00	7,096.15	6,308.00	6,307.08	50.07	129.21	-23.83	-1,130.13	8,360.70	1,705.28	1,541.12	164.16	10.388	
16,800.00	7,096.23	6,308.00	6,307.08	50.37	129.21	-23.83	-1,130.13	8,360.70	1,791.56	1,625.59	165.96	10.795	
16,900.00	7,096.31	6,308.00	6,307.08	50.67	129.21	-23.83	-1,130.13	8,360.70	1,879.19	1,711.62	167.57	11.215	
17,000.00	7,096.39	6,308.00	6,307.08	50.97	129.21	-23.83	-1,130.13	8,360.70	1,968.00	1,799.00	169.00	11.645	
17,100.00	7,096.47	6,308.00	6,307.08	51.27	129.21	-23.83	-1,130.13	8,360.70	2,057.84	1,887.54	170.30	12.084	
17,200.00	7,096.55	6,308.00	6,307.08	51.57	129.21	-23.83	-1,130.13	8,360.70	2,148.58	1,977.11	171.47	12.530	
17,300.00	7,096.62	6,308.00	6,307.08	51.87	129.21	-23.83	-1,130.13	8,360.70	2,240.10	2,067.56	172.54	12.983	
17,400.00	7,096.70	6,308.00	6,307.08	52.17	129.21	-23.83	-1,130.13	8,360.70	2,332.32	2,158.80	173.52	13.441	
17,500.00	7,096.78	6,308.00	6,307.08	52.47	129.21	-23.83	-1,130.13	8,360.70	2,425.16	2,250.74	174.43	13.904	
17,600.00	7,096.86	6,308.00	6,307.08	52.77	129.21	-23.83	-1,130.13	8,360.70	2,518.55	2,343.28	175.27	14.370	
17,700.00	7,096.94	6,308.00	6,307.08	53.07	129.21	-23.83	-1,130.13	8,360.70	2,612.43	2,436.37	176.05	14.839	
17,800.00	7,097.02	6,308.00	6,307.08	53.37	129.21	-23.83	-1,130.13	8,360.70	2,706.74	2,529.95	176.79	15.311	
17,900.00	7,097.10	6,308.00	6,307.08	53.67	129.21	-23.83	-1,130.13	8,360.70	2,801.45	2,623.97	177.48	15.785	
18,000.00	7,097.17	6,308.00	6,307.08	53.97	129.21	-23.83	-1,130.13	8,360.70	2,896.52	2,718.38	178.14	16.260	
18,100.00	7,097.25	6,308.00	6,307.08	54.27	129.21	-23.83	-1,130.13	8,360.70	2,991.90	2,813.15	178.76	16.737	
18,200.00	7,097.33	6,308.00	6,307.08	54.57	129.21	-23.83	-1,130.13	8,360.70	3,087.58	2,908.23	179.35	17.215	
18,300.00	7,097.41	6,308.00	6,307.08	54.87	129.21	-23.83	-1,130.13	8,360.70	3,183.53	3,003.61	179.92	17.694	
18,400.00	7,097.49	6,308.00	6,307.08	55.17	129.21	-23.83	-1,130.13	8,360.70	3,279.71	3,099.25	180.46	18.174	
18,500.00	7,097.57	6,308.00	6,307.08	55.47	129.21	-23.83	-1,130.13	8,360.70	3,376.12	3,195.14	180.98	18.654	
18,600.00	7,097.64	6,308.00	6,307.08	55.78	129.21	-23.83	-1,130.13	8,360.70	3,472.73	3,291.24	181.49	19.135	
18,700.00	7,097.72	6,308.00	6,307.08	56.08	129.21	-23.83	-1,130.13	8,360.70	3,569.53	3,387.55	181.98	19.615	
18,800.00	7,097.80	6,308.00	6,307.08	56.38	129.21	-23.83	-1,130.13	8,360.70	3,666.50	3,484.05	182.45	20.096	
18,900.00	7,097.88	6,308.00	6,307.08	56.68	129.21	-23.83	-1,130.13	8,360.70	3,763.63	3,580.72	182.91	20.576	
19,000.00	7,097.96	6,308.00	6,307.08	56.98	129.21	-23.83	-1,130.13	8,360.70	3,860.90	3,677.54	183.36	21.056	
19,100.00	7,098.04	6,308.00	6,307.08	57.28	129.21	-23.83	-1,130.13	8,360.70	3,958.32	3,774.52	183.80	21.536	
19,200.00	7,098.12	6,308.00	6,307.08	57.58	129.21	-23.83	-1,130.13	8,360.70	4,055.85	3,871.62	184.23	22.015	
19,300.00	7,098.19	6,308.00	6,307.08	57.88	129.21	-23.83	-1,130.13	8,360.70	4,153.51	3,968.86	184.65	22.494	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 293-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,098.27	6,308.00	6,307.08	58.18	129.21	-23.83	-1,130.13	8,360.70	4,251.27	4,066.21	185.06	22.972	
19,500.00	7,098.35	6,308.00	6,307.08	58.48	129.21	-23.83	-1,130.13	8,360.70	4,349.13	4,163.67	185.46	23.450	
19,600.00	7,098.43	6,308.00	6,307.08	58.78	129.21	-23.83	-1,130.13	8,360.70	4,447.09	4,261.23	185.86	23.927	
19,700.00	7,098.51	6,308.00	6,307.08	59.08	129.21	-23.83	-1,130.13	8,360.70	4,545.14	4,358.89	186.25	24.403	
19,800.00	7,098.59	6,308.00	6,307.08	59.38	129.21	-23.83	-1,130.13	8,360.70	4,643.28	4,456.64	186.64	24.879	
19,900.00	7,098.66	6,308.00	6,307.08	59.68	129.21	-23.83	-1,130.13	8,360.70	4,741.49	4,554.47	187.02	25.353	
20,000.00	7,098.74	6,308.00	6,307.08	59.98	129.21	-23.83	-1,130.13	8,360.70	4,839.77	4,652.38	187.39	25.827	
20,100.00	7,098.82	6,308.00	6,307.08	60.28	129.21	-23.83	-1,130.13	8,360.70	4,938.12	4,750.36	187.76	26.300	
20,200.00	7,098.90	6,308.00	6,307.08	60.58	129.21	-23.83	-1,130.13	8,360.70	5,036.54	4,848.41	188.13	26.771	
20,300.00	7,098.98	6,308.00	6,307.08	60.88	129.21	-23.83	-1,130.13	8,360.70	5,135.02	4,946.52	188.49	27.242	
20,328.16	7,099.00	6,308.00	6,307.08	60.96	129.21	-23.83	-1,130.13	8,360.70	5,162.76	4,974.16	188.60	27.375	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	10.51	10.51	0.00	0.11	102.01	-1,990.87	9,361.01	9,570.37				
100.00	100.00	110.51	110.51	0.23	1.18	102.01	-1,990.87	9,361.01	9,570.37	9,568.97	1.40	6,822.935	
200.00	200.00	210.51	210.51	0.53	2.24	102.01	-1,990.87	9,361.01	9,570.37	9,567.61	2.77	3,459.026	
300.00	300.00	389.47	310.51	0.83	4.53	102.01	-1,990.87	9,361.01	9,570.37	9,565.02	5.36	1,786.222	
400.00	400.00	410.53	410.51	1.13	4.96	102.01	-1,990.87	9,361.01	9,570.37	9,564.29	6.09	1,571.896	
500.00	500.00	510.53	510.51	1.43	7.01	102.01	-1,990.87	9,361.01	9,570.37	9,561.94	8.43	1,134.926	
600.00	599.98	610.51	610.49	1.73	9.05	-72.58	-1,990.87	9,361.01	9,569.85	9,559.08	10.78	888.041	
700.00	699.84	708.58	708.55	2.03	11.05	-72.65	-1,989.47	9,361.01	9,567.99	9,554.91	13.08	731.438	
800.00	799.45	803.20	803.16	2.33	12.99	-72.75	-1,989.67	9,361.01	9,565.44	9,550.12	15.32	624.571	
900.00	898.70	897.53	897.49	2.63	14.92	-72.88	-1,990.12	9,361.01	9,561.91	9,544.37	17.54	545.036	
1,000.00	997.47	991.50	991.45	2.93	16.84	-73.04	-1,990.80	9,361.01	9,557.42	9,537.66	19.76	483.566	
1,100.00	1,095.62	1,106.23	1,106.14	3.23	20.18	-73.28	-1,990.87	9,361.01	9,551.80	9,528.40	23.40	408.125	
1,157.34	1,151.58	1,162.19	1,162.10	3.40	21.85	-73.42	-1,990.87	9,361.01	9,548.15	9,522.90	25.24	378.238	
1,200.00	1,193.13	1,203.74	1,203.64	3.53	23.08	-73.47	-1,990.87	9,361.01	9,545.31	9,518.70	26.61	358.713	
1,300.00	1,290.51	1,298.70	1,298.60	3.83	25.91	-73.60	-1,990.08	9,361.01	9,538.55	9,508.81	29.74	320.731	
1,400.00	1,387.89	1,391.59	1,391.48	4.13	28.68	-73.72	-1,990.32	9,361.01	9,532.05	9,499.24	32.81	290.540	
1,500.00	1,485.27	1,484.58	1,484.47	4.43	31.45	-73.84	-1,990.77	9,361.01	9,525.63	9,489.75	35.88	265.491	
1,600.00	1,582.65	1,593.93	1,593.16	4.73	37.22	-73.98	-1,990.87	9,361.01	9,519.19	9,477.24	41.94	226.951	
1,700.00	1,680.02	1,691.30	1,690.54	5.03	44.42	-74.11	-1,990.87	9,361.01	9,512.78	9,463.33	49.45	192.376	
1,800.00	1,777.40	1,760.29	1,759.27	5.33	49.53	-74.22	-1,987.62	9,361.01	9,505.86	9,451.01	54.85	173.296	
1,900.00	1,874.78	1,887.85	1,885.30	5.63	59.27	-74.37	-1,990.87	9,361.01	9,500.12	9,435.22	64.90	146.387	
2,000.00	1,972.16	1,985.23	1,982.67	5.93	67.44	-74.50	-1,990.87	9,361.01	9,493.86	9,420.50	73.37	129.401	
2,100.00	2,069.54	2,082.61	2,080.05	6.23	75.61	-74.63	-1,990.87	9,361.01	9,487.66	9,405.82	81.84	115.931	
2,200.00	2,166.92	2,155.45	2,152.33	6.53	81.73	-74.76	-1,984.00	9,361.01	9,480.32	9,392.07	88.25	107.425	
2,300.00	2,264.30	2,224.86	2,221.55	6.83	87.55	-74.84	-1,985.63	9,361.01	9,474.63	9,380.26	94.37	100.396	
2,400.00	2,361.68	2,295.00	2,291.45	7.13	93.43	-74.92	-1,988.52	9,361.01	9,469.28	9,368.73	100.56	94.169	
2,500.00	2,459.06	2,475.72	2,469.57	7.43	105.75	-75.14	-1,990.87	9,361.01	9,463.34	9,350.17	113.17	83.618	
2,600.00	2,556.44	2,573.10	2,566.95	7.73	111.88	-75.27	-1,990.87	9,361.01	9,457.39	9,337.79	119.60	79.075	
2,700.00	2,653.82	2,659.52	2,652.77	8.03	117.31	-75.44	-1,982.27	9,361.01	9,450.07	9,324.73	125.34	75.397	
2,800.00	2,751.19	2,733.52	2,726.60	8.33	121.97	-75.53	-1,983.38	9,361.01	9,444.48	9,314.19	130.29	72.487	
2,900.00	2,848.57	2,808.25	2,801.11	8.63	126.67	-75.62	-1,985.67	9,361.01	9,439.18	9,303.89	135.29	69.769	
3,000.00	2,945.95	2,964.92	2,956.47	8.93	135.23	-75.80	-1,990.87	9,361.01	9,434.09	9,289.93	144.16	65.442	
3,100.00	3,043.33	3,062.30	3,053.84	9.23	138.89	-75.93	-1,990.87	9,361.01	9,428.40	9,280.28	148.12	63.656	
3,200.00	3,140.71	3,159.68	3,151.22	9.53	142.55	-76.06	-1,990.87	9,361.01	9,422.75	9,270.68	152.07	61.963	
3,300.00	3,238.09	3,247.35	3,238.78	9.83	145.84	-76.19	-1,987.65	9,361.01	9,416.67	9,261.01	155.66	60.494	
3,400.00	3,335.47	3,333.10	3,324.49	10.13	149.06	-76.30	-1,988.60	9,361.01	9,411.30	9,252.12	159.18	59.123	
3,500.00	3,432.85	3,419.23	3,410.56	10.43	152.29	-76.41	-1,990.29	9,361.01	9,406.10	9,243.38	162.72	57.807	
3,600.00	3,530.23	3,549.80	3,540.74	10.73	156.60	-76.58	-1,990.87	9,361.01	9,400.69	9,233.37	167.32	56.182	
3,700.00	3,627.61	3,647.18	3,638.12	11.03	159.71	-76.71	-1,990.87	9,361.01	9,395.30	9,224.57	170.74	55.028	
3,800.00	3,724.99	3,738.76	3,729.63	11.33	162.64	-76.85	-1,988.30	9,361.01	9,389.61	9,215.64	173.97	53.974	
3,900.00	3,822.36	3,826.30	3,817.14	11.63	165.44	-76.97	-1,989.03	9,361.01	9,384.45	9,207.38	177.07	53.000	
4,000.00	3,919.74	3,914.18	3,904.98	11.93	168.25	-77.08	-1,990.44	9,361.01	9,379.43	9,199.26	180.18	52.057	
4,100.00	4,017.12	4,037.08	4,027.64	12.23	171.91	-77.24	-1,990.87	9,361.01	9,374.28	9,190.15	184.13	50.910	
4,200.00	4,114.50	4,134.46	4,125.01	12.53	174.77	-77.37	-1,990.87	9,361.01	9,369.16	9,181.87	187.29	50.025	
4,300.00	4,211.88	4,231.84	4,222.39	12.83	177.62	-77.51	-1,990.87	9,361.01	9,364.08	9,173.64	190.45	49.169	
4,400.00	4,309.26	4,329.22	4,319.77	13.13	180.48	-77.64	-1,990.87	9,361.01	9,359.06	9,165.46	193.60	48.342	
4,500.00	4,406.64	4,425.20	4,415.68	13.43	183.29	-77.79	-1,986.89	9,361.01	9,353.60	9,156.89	196.72	47.549	
4,600.00	4,504.02	4,518.63	4,509.09	13.73	186.03	-77.92	-1,987.17	9,361.01	9,348.73	9,148.98	199.76	46.801	
4,700.00	4,601.40	4,612.22	4,602.67	14.03	188.77	-78.04	-1,987.78	9,361.01	9,343.96	9,141.16	202.80	46.075	
4,800.00	4,698.78	4,705.99	4,696.41	14.33	191.52	-78.17	-1,988.73	9,361.01	9,339.27	9,133.42	205.85	45.369	
4,900.00	4,796.16	4,799.92	4,790.31	14.63	194.28	-78.29	-1,990.02	9,361.01	9,334.67	9,125.77	208.90	44.684	
5,000.00	4,893.53	4,914.05	4,904.05	14.93	197.22	-78.44	-1,990.87	9,361.01	9,330.05	9,117.91	212.14	43.980	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	5,011.43	5,001.43	15.23	199.43	-78.57	-1,990.87	9,361.01	9,325.40	9,110.74	214.66	43.444	
5,200.00	5,088.29	5,108.81	5,098.81	15.53	201.64	-78.70	-1,990.87	9,361.01	9,320.80	9,103.63	217.17	42.919	
5,300.00	5,185.67	5,206.19	5,196.18	15.83	203.86	-78.84	-1,990.87	9,361.01	9,316.26	9,096.58	219.68	42.408	
5,400.00	5,283.05	5,303.57	5,293.56	16.13	206.07	-78.97	-1,990.87	9,361.01	9,311.77	9,089.57	222.20	41.908	
5,500.00	5,380.43	5,400.95	5,390.94	16.43	208.29	-79.11	-1,990.87	9,361.01	9,307.33	9,082.62	224.71	41.419	
5,600.00	5,477.81	5,498.32	5,488.32	16.73	210.50	-79.24	-1,990.87	9,361.01	9,302.95	9,075.72	227.23	40.941	
5,700.00	5,575.19	5,594.92	5,584.81	17.03	212.70	-79.41	-1,984.72	9,361.01	9,298.03	9,068.31	229.72	40.475	
5,800.00	5,672.57	5,690.34	5,680.21	17.33	214.87	-79.54	-1,984.92	9,361.01	9,293.79	9,061.60	232.19	40.026	
5,900.00	5,769.95	5,785.88	5,775.73	17.63	217.04	-79.67	-1,985.35	9,361.01	9,289.62	9,054.96	234.66	39.587	
6,000.00	5,867.33	5,881.54	5,871.37	17.93	219.21	-79.80	-1,986.00	9,361.01	9,285.52	9,048.38	237.14	39.156	
6,100.00	5,964.70	5,977.31	5,967.11	18.23	221.39	-79.92	-1,986.87	9,361.01	9,281.50	9,041.88	239.62	38.735	
6,200.00	6,062.08	6,073.19	6,062.97	18.53	223.57	-80.05	-1,987.98	9,361.01	9,277.54	9,035.44	242.10	38.322	
6,300.00	6,159.46	6,169.19	6,158.93	18.83	225.75	-80.18	-1,989.31	9,361.01	9,273.65	9,029.07	244.58	37.917	
6,400.00	6,256.84	6,277.79	6,267.35	19.13	228.14	-80.32	-1,990.87	9,361.01	9,269.82	9,022.55	247.26	37.489	
6,500.00	6,354.22	6,361.51	6,351.18	19.43	230.13	-80.42	-1,992.67	9,361.01	9,266.07	9,016.51	249.55	37.131	
6,600.00	6,451.60	6,298.00	6,287.56	19.73	228.47	-80.34	-1,990.87	9,361.01	9,263.72	9,015.56	248.15	37.331	
6,694.27	6,543.40	6,298.00	6,287.56	20.02	228.47	-80.34	-1,990.87	9,361.01	9,262.33	9,013.95	248.38	37.291	
6,700.00	6,548.98	6,298.00	6,287.56	20.03	228.47	-77.91	-1,990.87	9,361.01	9,262.25	9,013.85	248.39	37.288	
6,750.00	6,597.52	6,298.00	6,287.56	20.18	228.47	-58.64	-1,990.87	9,361.01	9,259.26	9,010.75	248.51	37.260	
6,800.00	6,645.56	6,298.00	6,287.56	20.33	228.47	-44.29	-1,990.87	9,361.01	9,252.21	9,003.60	248.61	37.215	
6,850.00	6,692.73	6,298.00	6,287.56	20.48	228.47	-34.40	-1,990.87	9,361.01	9,241.14	8,992.43	248.71	37.156	
6,900.00	6,738.66	6,298.00	6,287.56	20.63	228.47	-27.54	-1,990.87	9,361.01	9,226.13	8,977.32	248.81	37.081	
6,950.00	6,783.02	6,298.00	6,287.56	20.78	228.47	-22.63	-1,990.87	9,361.01	9,207.27	8,958.37	248.90	36.992	
7,000.00	6,825.45	6,298.00	6,287.56	20.94	228.47	-18.96	-1,990.87	9,361.01	9,184.68	8,935.69	248.99	36.888	
7,050.00	6,865.65	6,298.00	6,287.56	21.09	228.47	-16.11	-1,990.87	9,361.01	9,158.50	8,909.43	249.07	36.770	
7,100.00	6,903.29	6,298.00	6,287.56	21.24	228.47	-13.80	-1,990.87	9,361.01	9,128.91	8,879.75	249.16	36.639	
7,150.00	6,938.11	6,298.00	6,287.56	21.39	228.47	-11.83	-1,990.87	9,361.01	9,096.10	8,846.85	249.24	36.495	
7,200.00	6,969.82	6,298.00	6,287.56	21.54	228.47	-10.08	-1,990.87	9,361.01	9,060.27	8,810.95	249.33	36.339	
7,250.00	6,998.19	6,298.00	6,287.56	21.69	228.47	-8.42	-1,990.87	9,361.01	9,021.68	8,772.27	249.42	36.171	
7,300.00	7,023.01	6,298.00	6,287.56	21.84	228.47	-6.72	-1,990.87	9,361.01	8,980.58	8,731.08	249.51	35.993	
7,350.00	7,044.08	6,298.00	6,287.56	21.99	228.47	-4.82	-1,990.87	9,361.01	8,937.26	8,687.65	249.61	35.805	
7,400.00	7,061.25	6,298.00	6,287.56	22.14	228.47	-2.47	-1,990.87	9,361.01	8,892.00	8,642.29	249.71	35.609	
7,450.00	7,074.38	6,298.00	6,287.56	22.29	228.47	0.83	-1,990.87	9,361.01	8,845.14	8,595.32	249.82	35.406	
7,500.00	7,083.37	6,298.00	6,287.56	22.44	228.47	6.23	-1,990.87	9,361.01	8,797.00	8,547.06	249.94	35.197	
7,550.00	7,088.16	6,298.00	6,287.56	22.59	228.47	17.14	-1,990.87	9,361.01	8,747.93	8,497.86	250.07	34.982	
7,581.00	7,089.00	6,298.00	6,287.56	22.68	228.47	31.40	-1,990.87	9,361.01	8,717.20	8,467.05	250.15	34.848	
7,600.00	7,089.02	6,298.00	6,287.56	22.74	228.47	31.40	-1,990.87	9,361.01	8,698.31	8,448.11	250.20	34.765	
7,700.00	7,089.09	6,298.00	6,287.56	23.04	228.47	31.40	-1,990.87	9,361.01	8,598.93	8,348.44	250.48	34.329	
7,800.00	7,089.17	6,298.00	6,287.56	23.34	228.47	31.40	-1,990.87	9,361.01	8,499.56	8,248.80	250.76	33.895	
7,900.00	7,089.25	6,298.00	6,287.56	23.64	228.47	31.40	-1,990.87	9,361.01	8,400.21	8,149.17	251.04	33.462	
8,000.00	7,089.33	6,298.00	6,287.56	23.94	228.47	31.40	-1,990.87	9,361.01	8,300.87	8,049.56	251.31	33.030	
8,100.00	7,089.41	6,298.00	6,287.56	24.24	228.47	31.40	-1,990.87	9,361.01	8,201.55	7,949.96	251.58	32.600	
8,200.00	7,089.49	6,298.00	6,287.56	24.54	228.47	31.40	-1,990.87	9,361.01	8,102.24	7,850.38	251.86	32.170	
8,300.00	7,089.56	6,298.00	6,287.56	24.84	228.47	31.40	-1,990.87	9,361.01	8,002.95	7,750.82	252.13	31.741	
8,400.00	7,089.64	6,298.00	6,287.56	25.14	228.47	31.40	-1,990.87	9,361.01	7,903.68	7,651.28	252.40	31.314	
8,500.00	7,089.72	6,298.00	6,287.56	25.44	228.47	31.40	-1,990.87	9,361.01	7,804.43	7,551.76	252.67	30.888	
8,600.00	7,089.80	6,298.00	6,287.56	25.75	228.47	31.40	-1,990.87	9,361.01	7,705.20	7,452.26	252.94	30.463	
8,700.00	7,089.88	6,298.00	6,287.56	26.05	228.47	31.40	-1,990.87	9,361.01	7,605.99	7,352.78	253.21	30.039	
8,800.00	7,089.96	6,298.00	6,287.56	26.35	228.47	31.40	-1,990.87	9,361.01	7,506.80	7,253.32	253.47	29.616	
8,900.00	7,090.03	6,298.00	6,287.56	26.65	228.47	31.40	-1,990.87	9,361.01	7,407.63	7,153.89	253.74	29.194	
9,000.00	7,090.11	6,298.00	6,287.56	26.95	228.47	31.40	-1,990.87	9,361.01	7,308.48	7,054.48	254.00	28.774	
9,100.00	7,090.19	6,298.00	6,287.56	27.25	228.47	31.40	-1,990.87	9,361.01	7,209.36	6,955.10	254.26	28.354	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	7,090.27	6,298.00	6,287.56	27.55	228.47	31.40	-1,990.87	9,361.01	7,110.26	6,855.74	254.52	27.936	
9,300.00	7,090.35	6,298.00	6,287.56	27.85	228.47	31.40	-1,990.87	9,361.01	7,011.19	6,756.41	254.78	27.519	
9,400.00	7,090.43	6,298.00	6,287.56	28.15	228.47	31.40	-1,990.87	9,361.01	6,912.14	6,657.11	255.03	27.103	
9,500.00	7,090.51	6,298.00	6,287.56	28.45	228.47	31.40	-1,990.87	9,361.01	6,813.12	6,557.83	255.29	26.688	
9,600.00	7,090.58	6,298.00	6,287.56	28.75	228.47	31.40	-1,990.87	9,361.01	6,714.13	6,458.59	255.54	26.274	
9,700.00	7,090.66	6,298.00	6,287.56	29.05	228.47	31.40	-1,990.87	9,361.01	6,615.17	6,359.38	255.79	25.862	
9,800.00	7,090.74	6,298.00	6,287.56	29.35	228.47	31.40	-1,990.87	9,361.01	6,516.25	6,260.21	256.04	25.450	
9,900.00	7,090.82	6,298.00	6,287.56	29.65	228.47	31.40	-1,990.87	9,361.01	6,417.35	6,161.07	256.28	25.040	
10,000.00	7,090.90	6,298.00	6,287.56	29.95	228.47	31.40	-1,990.87	9,361.01	6,318.49	6,061.97	256.52	24.631	
10,100.00	7,090.98	6,298.00	6,287.56	30.25	228.47	31.40	-1,990.87	9,361.01	6,219.67	5,962.91	256.76	24.223	
10,200.00	7,091.05	6,298.00	6,287.56	30.55	228.47	31.40	-1,990.87	9,361.01	6,120.89	5,863.89	257.00	23.817	
10,300.00	7,091.13	6,298.00	6,287.56	30.85	228.47	31.40	-1,990.87	9,361.01	6,022.14	5,764.91	257.23	23.411	
10,400.00	7,091.21	6,298.00	6,287.56	31.15	228.47	31.40	-1,990.87	9,361.01	5,923.44	5,665.98	257.46	23.007	
10,500.00	7,091.29	6,298.00	6,287.56	31.45	228.47	31.40	-1,990.87	9,361.01	5,824.78	5,567.09	257.69	22.604	
10,600.00	7,091.37	6,298.00	6,287.56	31.76	228.47	31.40	-1,990.87	9,361.01	5,726.17	5,468.26	257.91	22.202	
10,700.00	7,091.45	6,298.00	6,287.56	32.06	228.47	31.40	-1,990.87	9,361.01	5,627.61	5,369.48	258.13	21.801	
10,800.00	7,091.53	6,298.00	6,287.56	32.36	228.47	31.40	-1,990.87	9,361.01	5,529.10	5,270.76	258.34	21.402	
10,900.00	7,091.60	6,298.00	6,287.56	32.66	228.47	31.40	-1,990.87	9,361.01	5,430.64	5,172.09	258.55	21.004	
11,000.00	7,091.68	6,298.00	6,287.56	32.96	228.47	31.40	-1,990.87	9,361.01	5,332.25	5,073.49	258.76	20.607	
11,100.00	7,091.76	6,298.00	6,287.56	33.26	228.47	31.40	-1,990.87	9,361.01	5,233.91	4,974.95	258.96	20.212	
11,200.00	7,091.84	6,298.00	6,287.56	33.56	228.47	31.40	-1,990.87	9,361.01	5,135.63	4,876.49	259.15	19.817	
11,300.00	7,091.92	6,298.00	6,287.56	33.86	228.47	31.40	-1,990.87	9,361.01	5,037.43	4,778.10	259.33	19.424	
11,400.00	7,092.00	6,298.00	6,287.56	34.16	228.47	31.40	-1,990.87	9,361.01	4,939.30	4,679.78	259.51	19.033	
11,500.00	7,092.07	6,298.00	6,287.56	34.46	228.47	31.40	-1,990.87	9,361.01	4,841.24	4,581.55	259.68	18.643	
11,600.00	7,092.15	6,298.00	6,287.56	34.76	228.47	31.40	-1,990.87	9,361.01	4,743.26	4,483.41	259.85	18.254	
11,700.00	7,092.23	6,298.00	6,287.56	35.06	228.47	31.40	-1,990.87	9,361.01	4,645.37	4,385.37	260.00	17.867	
11,800.00	7,092.31	6,298.00	6,287.56	35.36	228.47	31.40	-1,990.87	9,361.01	4,547.57	4,287.43	260.15	17.481	
11,900.00	7,092.39	6,298.00	6,287.56	35.66	228.47	31.40	-1,990.87	9,361.01	4,449.87	4,189.59	260.28	17.096	
12,000.00	7,092.47	6,298.00	6,287.56	35.96	228.47	31.40	-1,990.87	9,361.01	4,352.28	4,091.87	260.41	16.713	
12,100.00	7,092.55	6,298.00	6,287.56	36.26	228.47	31.40	-1,990.87	9,361.01	4,254.79	3,994.27	260.52	16.332	
12,200.00	7,092.62	6,298.00	6,287.56	36.56	228.47	31.40	-1,990.87	9,361.01	4,157.43	3,896.81	260.62	15.952	
12,300.00	7,092.70	6,298.00	6,287.56	36.86	228.47	31.40	-1,990.87	9,361.01	4,060.19	3,799.49	260.70	15.574	
12,400.00	7,092.78	6,298.00	6,287.56	37.16	228.47	31.40	-1,990.87	9,361.01	3,963.10	3,702.33	260.77	15.198	
12,500.00	7,092.86	6,298.00	6,287.56	37.46	228.47	31.40	-1,990.87	9,361.01	3,866.14	3,605.32	260.82	14.823	
12,600.00	7,092.94	6,298.00	6,287.56	37.76	228.47	31.40	-1,990.87	9,361.01	3,769.35	3,508.50	260.85	14.450	
12,700.00	7,093.02	6,298.00	6,287.56	38.06	228.47	31.40	-1,990.87	9,361.01	3,672.73	3,411.87	260.86	14.079	
12,800.00	7,093.09	6,298.00	6,287.56	38.36	228.47	31.40	-1,990.87	9,361.01	3,576.30	3,315.45	260.85	13.710	
12,900.00	7,093.17	6,298.00	6,287.56	38.66	228.47	31.40	-1,990.87	9,361.01	3,480.07	3,219.26	260.80	13.344	
13,000.00	7,093.25	6,298.00	6,287.56	38.96	228.47	31.40	-1,990.87	9,361.01	3,384.05	3,123.32	260.73	12.979	
13,100.00	7,093.33	6,298.00	6,287.56	39.26	228.47	31.40	-1,990.87	9,361.01	3,288.28	3,027.65	260.63	12.617	
13,200.00	7,093.41	6,298.00	6,287.56	39.56	228.47	31.40	-1,990.87	9,361.01	3,192.76	2,932.27	260.49	12.257	
13,300.00	7,093.49	6,298.00	6,287.56	39.86	228.47	31.40	-1,990.87	9,361.01	3,097.52	2,837.21	260.31	11.899	
13,400.00	7,093.57	6,298.00	6,287.56	40.16	228.47	31.40	-1,990.87	9,361.01	3,002.60	2,742.51	260.09	11.545	
13,500.00	7,093.64	6,298.00	6,287.56	40.47	228.47	31.40	-1,990.87	9,361.01	2,908.02	2,648.21	259.81	11.193	
13,600.00	7,093.72	6,298.00	6,287.56	40.77	228.47	31.40	-1,990.87	9,361.01	2,813.81	2,554.34	259.47	10.844	
13,700.00	7,093.80	6,298.00	6,287.56	41.07	228.47	31.40	-1,990.87	9,361.01	2,720.01	2,460.94	259.07	10.499	
13,800.00	7,093.88	6,298.00	6,287.56	41.37	228.47	31.40	-1,990.87	9,361.01	2,626.67	2,368.08	258.59	10.158	
13,900.00	7,093.96	6,298.00	6,287.56	41.67	228.47	31.40	-1,990.87	9,361.01	2,533.84	2,275.82	258.03	9.820	
14,000.00	7,094.04	6,298.00	6,287.56	41.97	228.47	31.40	-1,990.87	9,361.01	2,441.58	2,184.21	257.36	9.487	
14,100.00	7,094.11	6,298.00	6,287.56	42.27	228.47	31.40	-1,990.87	9,361.01	2,349.95	2,093.36	256.59	9.158	
14,200.00	7,094.19	6,298.00	6,287.56	42.57	228.47	31.40	-1,990.87	9,361.01	2,259.03	2,003.34	255.68	8.835	
14,300.00	7,094.27	6,298.00	6,287.56	42.87	228.47	31.40	-1,990.87	9,361.01	2,168.90	1,914.28	254.63	8.518	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 350-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,400.00	7,094.35	6,298.00	6,287.56	43.17	228.47	31.40	-1,990.87	9,361.01	2,079.69	1,826.29	253.39	8.207	
14,500.00	7,094.43	6,298.00	6,287.56	43.47	228.47	31.40	-1,990.87	9,361.01	1,991.49	1,739.53	251.96	7.904	
14,600.00	7,094.51	6,298.00	6,287.56	43.77	228.47	31.40	-1,990.87	9,361.01	1,904.47	1,654.17	250.29	7.609	
14,700.00	7,094.58	6,298.00	6,287.56	44.07	228.47	31.40	-1,990.87	9,361.01	1,818.77	1,570.43	248.35	7.324	
14,800.00	7,094.66	6,298.00	6,287.56	44.37	228.47	31.40	-1,990.87	9,361.01	1,734.61	1,488.54	246.08	7.049	
14,900.00	7,094.74	6,298.00	6,287.56	44.67	228.47	31.40	-1,990.87	9,361.01	1,652.22	1,408.79	243.43	6.787	
15,000.00	7,094.82	6,298.00	6,287.56	44.97	228.47	31.40	-1,990.87	9,361.01	1,571.87	1,331.52	240.35	6.540	
15,100.00	7,094.90	6,298.00	6,287.56	45.27	228.47	31.40	-1,990.87	9,361.01	1,493.90	1,257.13	236.76	6.310	
15,200.00	7,094.98	6,298.00	6,287.56	45.57	228.47	31.40	-1,990.87	9,361.01	1,418.69	1,186.10	232.59	6.100	
15,300.00	7,095.06	6,298.00	6,287.56	45.87	228.47	31.40	-1,990.87	9,361.01	1,346.71	1,118.95	227.76	5.913	
15,400.00	7,095.13	6,298.00	6,287.56	46.17	228.47	31.40	-1,990.87	9,361.01	1,278.51	1,056.31	222.20	5.754	
15,500.00	7,095.21	6,298.00	6,287.56	46.47	228.47	31.40	-1,990.87	9,361.01	1,214.71	998.85	215.87	5.627	
15,600.00	7,095.29	6,298.00	6,287.56	46.77	228.47	31.40	-1,990.87	9,361.01	1,156.06	947.28	208.77	5.537	
15,700.00	7,095.37	6,298.00	6,287.56	47.07	228.47	31.40	-1,990.87	9,361.01	1,103.37	902.34	201.03	5.489	
15,800.00	7,095.45	6,298.00	6,287.56	47.37	228.47	31.40	-1,990.87	9,361.01	1,057.53	864.65	192.88	5.483	
15,900.00	7,095.53	6,298.00	6,287.56	47.67	228.47	31.40	-1,990.87	9,361.01	1,019.47	834.66	184.81	5.516	
16,000.00	7,095.60	6,298.00	6,287.56	47.97	228.47	31.40	-1,990.87	9,361.01	990.08	812.54	177.55	5.576	
16,100.00	7,095.68	6,298.00	6,287.56	48.27	228.47	31.40	-1,990.87	9,361.01	970.16	798.14	172.02	5.640	
16,200.00	7,095.76	6,298.00	6,287.56	48.57	228.47	31.40	-1,990.87	9,361.01	960.29	791.12	169.17	5.676	
16,245.26	7,095.80	6,298.00	6,287.56	48.71	228.47	31.40	-1,990.87	9,361.01	959.23	790.28	168.95	5.678	CC, ES
16,300.00	7,095.84	6,298.00	6,287.56	48.87	228.47	31.40	-1,990.87	9,361.01	960.79	791.18	169.60	5.665	
16,400.00	7,095.92	6,298.00	6,287.56	49.17	228.47	31.40	-1,990.87	9,361.01	971.63	798.35	173.28	5.607	
16,500.00	7,096.00	6,298.00	6,287.56	49.47	228.47	31.40	-1,990.87	9,361.01	992.48	812.91	179.57	5.527	
16,600.00	7,096.08	6,298.00	6,287.56	49.77	228.47	31.40	-1,990.87	9,361.01	1,022.72	835.21	187.51	5.454	
16,700.00	7,096.15	6,298.00	6,287.56	50.07	228.47	31.40	-1,990.87	9,361.01	1,061.56	865.37	196.19	5.411	
16,800.00	7,096.23	6,298.00	6,287.56	50.37	228.47	31.40	-1,990.87	9,361.01	1,108.09	903.18	204.90	5.408	SF
16,900.00	7,096.31	6,298.00	6,287.56	50.67	228.47	31.40	-1,990.87	9,361.01	1,161.38	948.19	213.19	5.448	
17,000.00	7,096.39	6,298.00	6,287.56	50.97	228.47	31.40	-1,990.87	9,361.01	1,220.55	999.74	220.81	5.527	
17,100.00	7,096.47	6,298.00	6,287.56	51.27	228.47	31.40	-1,990.87	9,361.01	1,284.80	1,057.12	227.68	5.643	
17,200.00	7,096.55	6,298.00	6,287.56	51.57	228.47	31.40	-1,990.87	9,361.01	1,353.38	1,119.61	233.77	5.789	
17,300.00	7,096.62	6,298.00	6,287.56	51.87	228.47	31.40	-1,990.87	9,361.01	1,425.69	1,186.55	239.14	5.962	
17,400.00	7,096.70	6,298.00	6,287.56	52.17	228.47	31.40	-1,990.87	9,361.01	1,501.18	1,257.32	243.86	6.156	
17,500.00	7,096.78	6,298.00	6,287.56	52.47	228.47	31.40	-1,990.87	9,361.01	1,579.40	1,331.39	248.01	6.368	
17,600.00	7,096.86	6,298.00	6,287.56	52.77	228.47	31.40	-1,990.87	9,361.01	1,659.95	1,408.30	251.65	6.596	
17,700.00	7,096.94	6,298.00	6,287.56	53.07	228.47	31.40	-1,990.87	9,361.01	1,742.52	1,487.66	254.87	6.837	
17,800.00	7,097.02	6,298.00	6,287.56	53.37	228.47	31.40	-1,990.87	9,361.01	1,826.84	1,569.13	257.71	7.089	
17,900.00	7,097.10	6,298.00	6,287.56	53.67	228.47	31.40	-1,990.87	9,361.01	1,912.66	1,652.43	260.23	7.350	
18,000.00	7,097.17	6,298.00	6,287.56	53.97	228.47	31.40	-1,990.87	9,361.01	1,999.81	1,737.32	262.49	7.619	
18,100.00	7,097.25	6,298.00	6,287.56	54.27	228.47	31.40	-1,990.87	9,361.01	2,088.11	1,823.60	264.51	7.894	
18,200.00	7,097.33	6,298.00	6,287.56	54.57	228.47	31.40	-1,990.87	9,361.01	2,177.41	1,911.09	266.32	8.176	
18,300.00	7,097.41	6,298.00	6,287.56	54.87	228.47	31.40	-1,990.87	9,361.01	2,267.62	1,999.64	267.97	8.462	
18,400.00	7,097.49	6,298.00	6,287.56	55.17	228.47	31.40	-1,990.87	9,361.01	2,358.61	2,089.14	269.47	8.753	
18,500.00	7,097.57	6,298.00	6,287.56	55.47	228.47	31.40	-1,990.87	9,361.01	2,450.30	2,179.46	270.84	9.047	
18,600.00	7,097.64	6,298.00	6,287.56	55.78	228.47	31.40	-1,990.87	9,361.01	2,542.62	2,270.53	272.10	9.345	
18,700.00	7,097.72	6,298.00	6,287.56	56.08	228.47	31.40	-1,990.87	9,361.01	2,635.50	2,362.25	273.26	9.645	
18,800.00	7,097.80	6,298.00	6,287.56	56.38	228.47	31.40	-1,990.87	9,361.01	2,728.89	2,454.56	274.33	9.947	
18,900.00	7,097.88	6,298.00	6,287.56	56.68	228.47	31.40	-1,990.87	9,361.01	2,822.72	2,547.39	275.33	10.252	
19,000.00	7,097.96	6,298.00	6,287.56	56.98	228.47	31.40	-1,990.87	9,361.01	2,916.97	2,640.70	276.27	10.559	
19,100.00	7,098.04	6,298.00	6,287.56	57.28	228.47	31.40	-1,990.87	9,361.01	3,011.59	2,734.45	277.14	10.867	
19,200.00	7,098.12	6,298.00	6,287.56	57.58	228.47	31.40	-1,990.87	9,361.01	3,106.54	2,828.58	277.97	11.176	
19,300.00	7,098.19	6,298.00	6,287.56	57.88	228.47	31.40	-1,990.87	9,361.01	3,201.81	2,923.06	278.75	11.486	
19,400.00	7,098.27	6,298.00	6,287.56	58.18	228.47	31.40	-1,990.87	9,361.01	3,297.35	3,017.86	279.49	11.798	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 350-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	6,298.00	6,287.56	58.48	228.47	31.40	-1,990.87	9,361.01	3,393.15	3,112.96	280.19	12.110	
19,600.00	7,098.43	6,298.00	6,287.56	58.78	228.47	31.40	-1,990.87	9,361.01	3,489.18	3,208.32	280.86	12.423	
19,700.00	7,098.51	6,298.00	6,287.56	59.08	228.47	31.40	-1,990.87	9,361.01	3,585.44	3,303.94	281.50	12.737	
19,800.00	7,098.59	6,298.00	6,287.56	59.38	228.47	31.40	-1,990.87	9,361.01	3,681.89	3,399.77	282.12	13.051	
19,900.00	7,098.66	6,298.00	6,287.56	59.68	228.47	31.40	-1,990.87	9,361.01	3,778.53	3,495.82	282.71	13.365	
20,000.00	7,098.74	6,298.00	6,287.56	59.98	228.47	31.40	-1,990.87	9,361.01	3,875.33	3,592.05	283.28	13.680	
20,100.00	7,098.82	6,298.00	6,287.56	60.28	228.47	31.40	-1,990.87	9,361.01	3,972.30	3,688.47	283.83	13.995	
20,200.00	7,098.90	6,298.00	6,287.56	60.58	228.47	31.40	-1,990.87	9,361.01	4,069.41	3,785.05	284.36	14.311	
20,300.00	7,098.98	6,298.00	6,287.56	60.88	228.47	31.40	-1,990.87	9,361.01	4,166.66	3,881.78	284.88	14.626	
20,328.16	7,099.00	6,298.00	6,287.56	60.96	228.47	31.40	-1,990.87	9,361.01	4,194.07	3,909.05	285.02	14.715	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #188 (Offset) - 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
0.00	0.00	175.51	175.51	0.00	1.62	95.81	-616.84	6,059.21	6,090.53				
100.00	100.00	284.48	275.51	0.23	2.68	95.81	-616.84	6,059.21	6,090.53	6,087.63	2.90	2,098.316	
200.00	200.00	375.52	375.51	0.53	4.47	95.81	-616.84	6,059.21	6,090.53	6,085.54	4.99	1,220.080	
300.00	300.00	475.52	475.51	0.83	6.43	95.81	-616.84	6,059.21	6,090.53	6,083.27	7.26	839.206	
357.29	357.29	532.81	532.80	1.00	7.56	95.81	-616.29	6,059.21	6,090.47	6,081.92	8.56	711.882	
400.00	400.00	575.06	575.06	1.13	8.39	95.81	-616.30	6,059.21	6,090.48	6,080.96	9.51	640.149	
500.00	500.00	674.01	674.00	1.43	10.33	95.81	-616.46	6,059.21	6,090.49	6,078.73	11.76	517.940	
600.00	599.98	772.95	772.94	1.73	12.28	-78.78	-616.79	6,059.21	6,090.18	6,076.18	14.00	434.896	
700.00	699.84	875.40	875.35	2.03	14.29	-78.85	-616.84	6,059.21	6,089.17	6,072.85	16.32	373.089	
800.00	799.45	975.01	974.97	2.33	16.26	-78.96	-616.84	6,059.21	6,087.49	6,068.91	18.58	327.587	
900.00	898.70	1,073.51	1,073.45	2.63	18.20	-79.13	-615.76	6,059.21	6,085.05	6,064.23	20.82	292.232	
1,000.00	997.47	1,170.38	1,170.32	2.93	20.10	-79.32	-616.05	6,059.21	6,082.12	6,059.09	23.03	264.089	
1,100.00	1,095.62	1,266.80	1,266.73	3.23	22.00	-79.56	-616.66	6,059.21	6,078.62	6,053.39	25.23	240.934	
1,157.34	1,151.58	1,327.19	1,327.10	3.40	23.19	-79.72	-616.84	6,059.21	6,076.34	6,049.75	26.59	228.512	
1,200.00	1,193.13	1,368.74	1,368.64	3.53	24.01	-79.81	-616.84	6,059.21	6,074.57	6,047.03	27.54	220.595	
1,300.00	1,290.51	1,466.11	1,466.02	3.83	25.93	-80.02	-616.84	6,059.21	6,070.48	6,040.73	29.76	204.013	
1,400.00	1,387.89	1,563.28	1,563.19	4.13	27.84	-80.23	-616.30	6,059.21	6,066.44	6,034.47	31.97	189.758	
1,500.00	1,485.27	1,659.89	1,659.80	4.43	29.75	-80.43	-616.42	6,059.21	6,062.53	6,028.35	34.17	177.410	
1,600.00	1,582.65	1,756.58	1,756.48	4.73	31.65	-80.63	-616.71	6,059.21	6,058.71	6,022.33	36.38	166.554	
1,700.00	1,680.02	1,855.68	1,855.54	5.03	33.65	-80.84	-616.84	6,059.21	6,054.96	6,016.29	38.68	156.557	
1,800.00	1,777.40	1,953.05	1,952.92	5.33	35.64	-81.05	-616.84	6,059.21	6,051.29	6,010.33	40.96	147.727	
1,900.00	1,874.78	2,050.30	2,050.15	5.63	37.62	-81.27	-615.75	6,059.21	6,047.63	6,004.39	43.25	139.840	
2,000.00	1,972.16	2,146.53	2,146.38	5.93	39.58	-81.47	-615.94	6,059.21	6,044.14	5,998.63	45.51	132.809	
2,100.00	2,069.54	2,242.91	2,242.75	6.23	41.55	-81.67	-616.46	6,059.21	6,040.75	5,992.98	47.78	126.437	
2,200.00	2,166.92	2,342.63	2,342.43	6.53	43.59	-81.88	-616.84	6,059.21	6,037.43	5,987.32	50.11	120.478	
2,300.00	2,264.30	2,440.01	2,439.81	6.83	45.57	-82.09	-616.84	6,059.21	6,034.18	5,981.78	52.40	115.154	
2,400.00	2,361.68	2,537.37	2,537.17	7.13	47.56	-82.31	-616.04	6,059.21	6,030.98	5,976.29	54.69	110.278	
2,500.00	2,459.06	2,634.14	2,633.93	7.43	49.54	-82.51	-616.17	6,059.21	6,027.90	5,970.93	56.97	105.817	
2,600.00	2,556.44	2,731.03	2,730.82	7.73	51.52	-82.72	-616.56	6,059.21	6,024.91	5,965.67	59.24	101.697	
2,700.00	2,653.82	2,829.58	2,829.33	8.03	53.57	-82.93	-616.84	6,059.21	6,022.00	5,960.41	61.60	97.767	
2,800.00	2,751.19	2,926.96	2,926.71	8.33	55.63	-83.13	-616.84	6,059.21	6,019.17	5,955.21	63.96	94.112	
2,900.00	2,848.57	3,024.30	3,024.03	8.63	57.69	-83.35	-615.80	6,059.21	6,016.40	5,950.08	66.32	90.719	
3,000.00	2,945.95	3,121.25	3,120.99	8.93	59.75	-83.56	-616.00	6,059.21	6,013.74	5,945.07	68.67	87.572	
3,100.00	3,043.33	3,218.38	3,218.10	9.23	61.80	-83.76	-616.55	6,059.21	6,011.17	5,940.15	71.03	84.630	
3,200.00	3,140.71	3,316.55	3,316.22	9.53	63.74	-83.97	-616.84	6,059.21	6,008.69	5,935.42	73.27	82.009	
3,300.00	3,238.09	3,413.93	3,413.60	9.83	65.59	-84.18	-616.84	6,059.21	6,006.28	5,930.86	75.41	79.645	
3,400.00	3,335.47	3,511.30	3,510.96	10.13	67.43	-84.40	-615.76	6,059.21	6,003.95	5,926.39	77.56	77.412	
3,500.00	3,432.85	3,608.66	3,608.32	10.43	69.28	-84.61	-615.95	6,059.21	6,001.71	5,922.01	79.70	75.301	
3,600.00	3,530.23	3,706.18	3,705.84	10.73	71.12	-84.82	-616.48	6,059.21	5,999.56	5,917.71	81.85	73.299	
3,700.00	3,627.61	3,803.48	3,803.12	11.03	73.05	-85.03	-616.84	6,059.21	5,997.49	5,913.42	84.07	71.337	
3,800.00	3,724.99	3,900.86	3,900.50	11.33	75.04	-85.24	-616.84	6,059.21	5,995.51	5,909.15	86.36	69.423	
3,900.00	3,822.36	3,998.30	3,997.94	11.63	77.03	-85.45	-616.67	6,059.21	5,993.62	5,904.97	88.65	67.608	
4,000.00	3,919.74	4,126.34	4,095.26	11.93	79.67	-85.66	-616.84	6,059.21	5,991.81	5,900.21	91.59	65.418	
4,100.00	4,017.12	4,193.04	4,192.64	12.23	81.13	-85.87	-616.84	6,059.21	5,990.08	5,896.72	93.36	64.162	
4,200.00	4,114.50	4,290.42	4,290.01	12.53	83.27	-86.08	-616.84	6,059.21	5,988.44	5,892.64	95.80	62.511	
4,300.00	4,211.88	4,387.80	4,387.39	12.83	85.41	-86.29	-616.84	6,059.21	5,986.89	5,888.65	98.24	60.942	
4,400.00	4,309.26	4,485.18	4,484.77	13.13	87.55	-86.50	-616.84	6,059.21	5,985.42	5,884.74	100.68	59.450	
4,500.00	4,406.64	4,582.56	4,582.15	13.43	89.69	-86.72	-616.84	6,059.21	5,984.04	5,880.92	103.12	58.030	
4,600.00	4,504.02	4,679.98	4,679.52	13.73	91.83	-86.96	-613.16	6,059.21	5,982.89	5,877.33	105.56	56.677	
4,700.00	4,601.40	4,777.99	4,777.53	14.03	93.99	-87.17	-613.29	6,059.21	5,981.69	5,873.68	108.02	55.378	
4,800.00	4,698.78	4,876.12	4,875.64	14.33	96.15	-87.38	-613.64	6,059.21	5,980.57	5,870.10	110.47	54.136	
4,900.00	4,796.16	4,974.36	4,973.87	14.63	98.31	-87.59	-614.22	6,059.21	5,979.52	5,866.58	112.93	52.948	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	5,072.70	5,072.20	14.93	100.47	-87.80	-615.02	6,059.21	5,978.53	5,863.14	115.39	51.810	
5,100.00	4,990.91	5,302.94	5,166.43	15.23	105.42	-87.99	-616.84	6,059.21	5,977.57	5,856.92	120.65	49.545	
5,200.00	5,088.29	5,269.73	5,269.19	15.53	104.80	-88.21	-617.31	6,059.21	5,976.77	5,856.44	120.32	49.672	
5,300.00	5,185.67	5,361.82	5,361.18	15.83	106.63	-88.41	-616.84	6,059.21	5,976.10	5,853.65	122.45	48.803	
5,400.00	5,283.05	5,459.20	5,458.56	16.13	108.62	-88.63	-616.84	6,059.21	5,975.50	5,850.75	124.75	47.902	
5,500.00	5,380.43	5,556.58	5,555.94	16.43	110.61	-88.84	-616.84	6,059.21	5,974.98	5,847.94	127.04	47.034	
5,600.00	5,477.81	5,653.96	5,653.32	16.73	112.60	-89.05	-616.84	6,059.21	5,974.55	5,845.22	129.33	46.197	
5,700.00	5,575.19	5,751.33	5,750.70	17.03	114.59	-89.26	-616.84	6,059.21	5,974.21	5,842.59	131.62	45.390	
5,800.00	5,672.57	5,848.71	5,848.08	17.33	116.58	-89.47	-616.84	6,059.21	5,973.95	5,840.04	133.91	44.611	
5,900.00	5,769.95	5,946.09	5,945.46	17.63	118.58	-89.69	-616.84	6,059.21	5,973.78	5,837.58	136.20	43.860	
6,000.00	5,867.33	6,043.47	6,042.84	17.93	120.57	-89.90	-616.84	6,059.21	5,973.69	5,835.20	138.49	43.133	
6,047.30	5,913.39	6,089.53	6,088.90	18.07	121.51	-90.00	-616.84	6,059.21	5,973.68	5,834.11	139.58	42.798	
6,100.00	5,964.70	6,140.85	6,140.22	18.23	122.56	-90.11	-616.84	6,059.21	5,973.70	5,832.91	140.78	42.431	
6,200.00	6,062.08	6,238.23	6,237.60	18.53	124.55	-90.32	-616.84	6,059.21	5,973.79	5,830.71	143.08	41.752	
6,300.00	6,159.46	6,335.61	6,334.98	18.83	126.54	-90.54	-616.84	6,059.21	5,973.96	5,828.59	145.37	41.095	
6,400.00	6,256.84	6,432.99	6,432.35	19.13	128.53	-90.75	-616.84	6,059.21	5,974.22	5,826.56	147.66	40.460	
6,500.00	6,354.22	6,530.37	6,529.73	19.43	130.52	-90.96	-616.84	6,059.21	5,974.57	5,824.62	149.95	39.844	
6,600.00	6,451.60	6,476.00	6,475.22	19.73	129.41	-90.84	-616.84	6,059.21	5,976.94	5,827.84	149.10	40.087	
6,694.27	6,543.40	6,476.00	6,475.22	20.02	129.41	-90.84	-616.84	6,059.21	5,980.46	5,831.15	149.32	40.052	
6,700.00	6,548.98	6,476.00	6,475.22	20.03	129.41	-88.41	-616.84	6,059.21	5,980.70	5,831.37	149.33	40.050	
6,750.00	6,597.52	6,476.00	6,475.22	20.18	129.41	-69.16	-616.84	6,059.21	5,980.55	5,831.12	149.43	40.022	
6,800.00	6,645.56	6,476.00	6,475.22	20.33	129.41	-54.91	-616.84	6,059.21	5,976.50	5,826.97	149.53	39.970	
6,850.00	6,692.73	6,476.00	6,475.22	20.48	129.41	-45.19	-616.84	6,059.21	5,968.55	5,818.93	149.61	39.893	
6,900.00	6,738.66	6,476.00	6,475.22	20.63	129.41	-38.59	-616.84	6,059.21	5,956.75	5,807.06	149.69	39.793	
6,950.00	6,783.02	6,476.00	6,475.22	20.78	129.41	-34.03	-616.84	6,059.21	5,941.18	5,791.41	149.77	39.669	
7,000.00	6,825.45	6,476.00	6,475.22	20.94	129.41	-30.82	-616.84	6,059.21	5,921.92	5,772.08	149.84	39.522	
7,050.00	6,865.65	6,476.00	6,475.22	21.09	129.41	-28.56	-616.84	6,059.21	5,899.08	5,749.17	149.90	39.353	
7,100.00	6,903.29	6,476.00	6,475.22	21.24	129.41	-26.99	-616.84	6,059.21	5,872.79	5,722.83	149.97	39.161	
7,150.00	6,938.11	6,476.00	6,475.22	21.39	129.41	-25.97	-616.84	6,059.21	5,843.22	5,693.19	150.03	38.947	
7,200.00	6,969.82	6,476.00	6,475.22	21.54	129.41	-25.41	-616.84	6,059.21	5,810.53	5,660.44	150.09	38.713	
7,250.00	6,998.19	6,476.00	6,475.22	21.69	129.41	-25.29	-616.84	6,059.21	5,774.93	5,624.77	150.16	38.459	
7,300.00	7,023.01	6,476.00	6,475.22	21.84	129.41	-25.60	-616.84	6,059.21	5,736.63	5,586.40	150.23	38.187	
7,350.00	7,044.08	6,476.00	6,475.22	21.99	129.41	-26.43	-616.84	6,059.21	5,695.88	5,545.58	150.30	37.897	
7,400.00	7,061.25	6,476.00	6,475.22	22.14	129.41	-27.91	-616.84	6,059.21	5,652.93	5,502.55	150.38	37.591	
7,450.00	7,074.38	6,476.00	6,475.22	22.29	129.41	-30.31	-616.84	6,059.21	5,608.07	5,457.59	150.47	37.270	
7,500.00	7,083.37	6,476.00	6,475.22	22.44	129.41	-34.20	-616.84	6,059.21	5,561.59	5,411.01	150.57	36.936	
7,550.00	7,088.16	6,476.00	6,475.22	22.59	129.41	-40.78	-616.84	6,059.21	5,513.81	5,363.13	150.69	36.592	
7,581.00	7,089.00	6,476.00	6,475.22	22.68	129.41	-47.35	-616.84	6,059.21	5,483.69	5,332.93	150.76	36.373	
7,600.00	7,089.02	6,476.00	6,475.22	22.74	129.41	-47.35	-616.84	6,059.21	5,465.12	5,314.31	150.81	36.239	
7,700.00	7,089.09	6,476.00	6,475.22	23.04	129.41	-47.35	-616.84	6,059.21	5,367.49	5,216.43	151.06	35.532	
7,800.00	7,089.17	6,476.00	6,475.22	23.34	129.41	-47.35	-616.84	6,059.21	5,269.94	5,118.63	151.31	34.829	
7,900.00	7,089.25	6,476.00	6,475.22	23.64	129.41	-47.35	-616.84	6,059.21	5,172.49	5,020.94	151.56	34.129	
8,000.00	7,089.33	6,476.00	6,475.22	23.94	129.41	-47.35	-616.84	6,059.21	5,075.14	4,923.34	151.80	33.433	
8,100.00	7,089.41	6,476.00	6,475.22	24.24	129.41	-47.35	-616.84	6,059.21	4,977.89	4,825.85	152.04	32.741	
8,200.00	7,089.49	6,476.00	6,475.22	24.54	129.41	-47.35	-616.84	6,059.21	4,880.76	4,728.48	152.27	32.052	
8,300.00	7,089.56	6,476.00	6,475.22	24.84	129.41	-47.35	-616.84	6,059.21	4,783.74	4,631.23	152.51	31.368	
8,400.00	7,089.64	6,476.00	6,475.22	25.14	129.41	-47.35	-616.84	6,059.21	4,686.85	4,534.11	152.73	30.686	
8,500.00	7,089.72	6,476.00	6,475.22	25.44	129.41	-47.35	-616.84	6,059.21	4,590.09	4,437.13	152.96	30.009	
8,600.00	7,089.80	6,476.00	6,475.22	25.75	129.41	-47.35	-616.84	6,059.21	4,493.47	4,340.30	153.17	29.336	
8,700.00	7,089.88	6,476.00	6,475.22	26.05	129.41	-47.35	-616.84	6,059.21	4,397.00	4,243.62	153.39	28.666	
8,800.00	7,089.96	6,476.00	6,475.22	26.35	129.41	-47.35	-616.84	6,059.21	4,300.70	4,147.11	153.59	28.001	
8,900.00	7,090.03	6,476.00	6,475.22	26.65	129.41	-47.35	-616.84	6,059.21	4,204.57	4,050.77	153.79	27.339	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #188 (Offset) - 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
9,000.00	7,090.11	6,476.00	6,475.22	26.95	129.41	-47.35	-616.84	6,059.21	4,108.62	3,954.63	153.98	26.682	
9,100.00	7,090.19	6,476.00	6,475.22	27.25	129.41	-47.35	-616.84	6,059.21	4,012.87	3,858.70	154.17	26.029	
9,200.00	7,090.27	6,476.00	6,475.22	27.55	129.41	-47.35	-616.84	6,059.21	3,917.33	3,762.98	154.35	25.380	
9,300.00	7,090.35	6,476.00	6,475.22	27.85	129.41	-47.35	-616.84	6,059.21	3,822.02	3,667.51	154.51	24.736	
9,400.00	7,090.43	6,476.00	6,475.22	28.15	129.41	-47.35	-616.84	6,059.21	3,726.96	3,572.29	154.67	24.096	
9,500.00	7,090.51	6,476.00	6,475.22	28.45	129.41	-47.35	-616.84	6,059.21	3,632.16	3,477.34	154.82	23.461	
9,600.00	7,090.58	6,476.00	6,475.22	28.75	129.41	-47.35	-616.84	6,059.21	3,537.65	3,382.70	154.95	22.831	
9,700.00	7,090.66	6,476.00	6,475.22	29.05	129.41	-47.35	-616.84	6,059.21	3,443.45	3,288.38	155.07	22.206	
9,800.00	7,090.74	6,476.00	6,475.22	29.35	129.41	-47.35	-616.84	6,059.21	3,349.58	3,194.40	155.18	21.586	
9,900.00	7,090.82	6,476.00	6,475.22	29.65	129.41	-47.35	-616.84	6,059.21	3,256.08	3,100.82	155.26	20.971	
10,000.00	7,090.90	6,476.00	6,475.22	29.95	129.41	-47.35	-616.84	6,059.21	3,162.98	3,007.64	155.33	20.363	
10,100.00	7,090.98	6,476.00	6,475.22	30.25	129.41	-47.35	-616.84	6,059.21	3,070.31	2,914.93	155.38	19.760	
10,200.00	7,091.05	6,476.00	6,475.22	30.55	129.41	-47.35	-616.84	6,059.21	2,978.11	2,822.70	155.41	19.163	
10,300.00	7,091.13	6,476.00	6,475.22	30.85	129.41	-47.35	-616.84	6,059.21	2,886.44	2,731.03	155.41	18.573	
10,400.00	7,091.21	6,476.00	6,475.22	31.15	129.41	-47.35	-616.84	6,059.21	2,795.34	2,639.95	155.38	17.990	
10,500.00	7,091.29	6,476.00	6,475.22	31.45	129.41	-47.35	-616.84	6,059.21	2,704.86	2,549.54	155.32	17.415	
10,600.00	7,091.37	6,476.00	6,475.22	31.76	129.41	-47.35	-616.84	6,059.21	2,615.08	2,459.85	155.22	16.847	
10,700.00	7,091.45	6,476.00	6,475.22	32.06	129.41	-47.35	-616.84	6,059.21	2,526.06	2,370.98	155.09	16.288	
10,800.00	7,091.53	6,476.00	6,475.22	32.36	129.41	-47.35	-616.84	6,059.21	2,437.90	2,283.00	154.90	15.738	
10,900.00	7,091.60	6,476.00	6,475.22	32.66	129.41	-47.35	-616.84	6,059.21	2,350.69	2,196.02	154.67	15.198	
11,000.00	7,091.68	6,476.00	6,475.22	32.96	129.41	-47.35	-616.84	6,059.21	2,264.53	2,110.16	154.38	14.669	
11,100.00	7,091.76	6,476.00	6,475.22	33.26	129.41	-47.35	-616.84	6,059.21	2,179.56	2,025.54	154.02	14.151	
11,200.00	7,091.84	6,476.00	6,475.22	33.56	129.41	-47.35	-616.84	6,059.21	2,095.91	1,942.33	153.59	13.646	
11,300.00	7,091.92	6,476.00	6,475.22	33.86	129.41	-47.35	-616.84	6,059.21	2,013.76	1,860.68	153.07	13.156	
11,400.00	7,092.00	6,476.00	6,475.22	34.16	129.41	-47.35	-616.84	6,059.21	1,933.28	1,780.82	152.46	12.680	
11,500.00	7,092.07	6,476.00	6,475.22	34.46	129.41	-47.35	-616.84	6,059.21	1,854.71	1,702.96	151.75	12.222	
11,600.00	7,092.15	6,476.00	6,475.22	34.76	129.41	-47.35	-616.84	6,059.21	1,778.29	1,627.36	150.93	11.782	
11,700.00	7,092.23	6,476.00	6,475.22	35.06	129.41	-47.35	-616.84	6,059.21	1,704.32	1,554.34	149.98	11.364	
11,800.00	7,092.31	6,476.00	6,475.22	35.36	129.41	-47.35	-616.84	6,059.21	1,633.11	1,484.22	148.90	10.968	
11,900.00	7,092.39	6,476.00	6,475.22	35.66	129.41	-47.35	-616.84	6,059.21	1,565.06	1,417.39	147.68	10.598	
12,000.00	7,092.47	6,476.00	6,475.22	35.96	129.41	-47.35	-616.84	6,059.21	1,500.60	1,354.28	146.32	10.256	
12,100.00	7,092.55	6,476.00	6,475.22	36.26	129.41	-47.35	-616.84	6,059.21	1,440.20	1,295.37	144.83	9.944	
12,200.00	7,092.62	6,476.00	6,475.22	36.56	129.41	-47.35	-616.84	6,059.21	1,384.39	1,241.16	143.23	9.666	
12,300.00	7,092.70	6,476.00	6,475.22	36.86	129.41	-47.35	-616.84	6,059.21	1,333.75	1,192.19	141.56	9.422	
12,400.00	7,092.78	6,476.00	6,475.22	37.16	129.41	-47.35	-616.84	6,059.21	1,288.90	1,149.02	139.88	9.214	
12,500.00	7,092.86	6,476.00	6,475.22	37.46	129.41	-47.35	-616.84	6,059.21	1,250.46	1,112.18	138.28	9.043	
12,600.00	7,092.94	6,476.00	6,475.22	37.76	129.41	-47.35	-616.84	6,059.21	1,219.02	1,082.17	136.85	8.908	
12,700.00	7,093.02	6,476.00	6,475.22	38.06	129.41	-47.35	-616.84	6,059.21	1,195.15	1,059.42	135.73	8.806	
12,800.00	7,093.09	6,476.00	6,475.22	38.36	129.41	-47.35	-616.84	6,059.21	1,179.30	1,044.28	135.02	8.734	
12,900.00	7,093.17	6,476.00	6,475.22	38.66	129.41	-47.35	-616.84	6,059.21	1,171.80	1,036.98	134.82	8.692	
12,938.16	7,093.20	6,476.00	6,475.22	38.78	129.41	-47.35	-616.84	6,059.21	1,171.18	1,036.29	134.89	8.683	CC, ES
13,000.00	7,093.25	6,476.00	6,475.22	38.96	129.41	-47.35	-616.84	6,059.21	1,172.81	1,037.63	135.18	8.676	SF
13,100.00	7,093.33	6,476.00	6,475.22	39.26	129.41	-47.35	-616.84	6,059.21	1,182.31	1,046.21	136.09	8.687	
13,200.00	7,093.41	6,476.00	6,475.22	39.56	129.41	-47.35	-616.84	6,059.21	1,200.09	1,062.59	137.50	8.728	
13,300.00	7,093.49	6,476.00	6,475.22	39.86	129.41	-47.35	-616.84	6,059.21	1,225.80	1,086.50	139.30	8.800	
13,400.00	7,093.57	6,476.00	6,475.22	40.16	129.41	-47.35	-616.84	6,059.21	1,258.95	1,117.58	141.37	8.905	
13,500.00	7,093.64	6,476.00	6,475.22	40.47	129.41	-47.35	-616.84	6,059.21	1,298.97	1,155.38	143.60	9.046	
13,600.00	7,093.72	6,476.00	6,475.22	40.77	129.41	-47.35	-616.84	6,059.21	1,345.25	1,199.37	145.87	9.222	
13,700.00	7,093.80	6,476.00	6,475.22	41.07	129.41	-47.35	-616.84	6,059.21	1,397.16	1,249.03	148.13	9.432	
13,800.00	7,093.88	6,476.00	6,475.22	41.37	129.41	-47.35	-616.84	6,059.21	1,454.11	1,303.81	150.30	9.675	
13,900.00	7,093.96	6,476.00	6,475.22	41.67	129.41	-47.35	-616.84	6,059.21	1,515.52	1,363.16	152.36	9.947	
14,000.00	7,094.04	6,476.00	6,475.22	41.97	129.41	-47.35	-616.84	6,059.21	1,580.88	1,426.58	154.29	10.246	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #188 (Offset) - 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
14,100.00	7,094.11	6,476.00	6,475.22	42.27	129.41	-47.35	-616.84	6,059.21	1,649.71	1,493.63	156.08	10.570	
14,200.00	7,094.19	6,476.00	6,475.22	42.57	129.41	-47.35	-616.84	6,059.21	1,721.60	1,563.87	157.73	10.915	
14,300.00	7,094.27	6,476.00	6,475.22	42.87	129.41	-47.35	-616.84	6,059.21	1,796.18	1,636.93	159.25	11.279	
14,400.00	7,094.35	6,476.00	6,475.22	43.17	129.41	-47.35	-616.84	6,059.21	1,873.14	1,712.48	160.65	11.660	
14,500.00	7,094.43	6,476.00	6,475.22	43.47	129.41	-47.35	-616.84	6,059.21	1,952.18	1,790.24	161.94	12.055	
14,600.00	7,094.51	6,476.00	6,475.22	43.77	129.41	-47.35	-616.84	6,059.21	2,033.07	1,869.94	163.13	12.463	
14,700.00	7,094.58	6,476.00	6,475.22	44.07	129.41	-47.35	-616.84	6,059.21	2,115.60	1,951.37	164.22	12.882	
14,800.00	7,094.66	6,476.00	6,475.22	44.37	129.41	-47.35	-616.84	6,059.21	2,199.57	2,034.33	165.24	13.311	
14,900.00	7,094.74	6,476.00	6,475.22	44.67	129.41	-47.35	-616.84	6,059.21	2,284.84	2,118.65	166.18	13.749	
15,000.00	7,094.82	6,476.00	6,475.22	44.97	129.41	-47.35	-616.84	6,059.21	2,371.26	2,204.19	167.07	14.194	
15,100.00	7,094.90	6,476.00	6,475.22	45.27	129.41	-47.35	-616.84	6,059.21	2,458.70	2,290.81	167.89	14.645	
15,200.00	7,094.98	6,476.00	6,475.22	45.57	129.41	-47.35	-616.84	6,059.21	2,547.07	2,378.41	168.66	15.102	
15,300.00	7,095.06	6,476.00	6,475.22	45.87	129.41	-47.35	-616.84	6,059.21	2,636.28	2,466.89	169.39	15.563	
15,400.00	7,095.13	6,476.00	6,475.22	46.17	129.41	-47.35	-616.84	6,059.21	2,726.23	2,556.15	170.08	16.029	
15,500.00	7,095.21	6,476.00	6,475.22	46.47	129.41	-47.35	-616.84	6,059.21	2,816.86	2,646.12	170.74	16.498	
15,600.00	7,095.29	6,476.00	6,475.22	46.77	129.41	-47.35	-616.84	6,059.21	2,908.10	2,736.74	171.36	16.971	
15,700.00	7,095.37	6,476.00	6,475.22	47.07	129.41	-47.35	-616.84	6,059.21	2,999.91	2,827.95	171.95	17.446	
15,800.00	7,095.45	6,476.00	6,475.22	47.37	129.41	-47.35	-616.84	6,059.21	3,092.22	2,919.69	172.52	17.923	
15,900.00	7,095.53	6,476.00	6,475.22	47.67	129.41	-47.35	-616.84	6,059.21	3,184.99	3,011.92	173.07	18.403	
16,000.00	7,095.60	6,476.00	6,475.22	47.97	129.41	-47.35	-616.84	6,059.21	3,278.19	3,104.59	173.60	18.884	
16,100.00	7,095.68	6,476.00	6,475.22	48.27	129.41	-47.35	-616.84	6,059.21	3,371.78	3,197.67	174.11	19.366	
16,200.00	7,095.76	6,476.00	6,475.22	48.57	129.41	-47.35	-616.84	6,059.21	3,465.73	3,291.13	174.60	19.849	
16,300.00	7,095.84	6,476.00	6,475.22	48.87	129.41	-47.35	-616.84	6,059.21	3,560.01	3,384.93	175.08	20.334	
16,400.00	7,095.92	6,476.00	6,475.22	49.17	129.41	-47.35	-616.84	6,059.21	3,654.59	3,479.04	175.55	20.818	
16,500.00	7,096.00	6,476.00	6,475.22	49.47	129.41	-47.35	-616.84	6,059.21	3,749.45	3,573.45	176.00	21.304	
16,600.00	7,096.08	6,476.00	6,475.22	49.77	129.41	-47.35	-616.84	6,059.21	3,844.57	3,668.13	176.44	21.790	
16,700.00	7,096.15	6,476.00	6,475.22	50.07	129.41	-47.35	-616.84	6,059.21	3,939.94	3,763.07	176.87	22.276	
16,800.00	7,096.23	6,476.00	6,475.22	50.37	129.41	-47.35	-616.84	6,059.21	4,035.53	3,858.23	177.30	22.762	
16,900.00	7,096.31	6,476.00	6,475.22	50.67	129.41	-47.35	-616.84	6,059.21	4,131.33	3,953.62	177.71	23.248	
17,000.00	7,096.39	6,476.00	6,475.22	50.97	129.41	-47.35	-616.84	6,059.21	4,227.32	4,049.20	178.12	23.733	
17,100.00	7,096.47	6,476.00	6,475.22	51.27	129.41	-47.35	-616.84	6,059.21	4,323.49	4,144.98	178.52	24.219	
17,200.00	7,096.55	6,476.00	6,475.22	51.57	129.41	-47.35	-616.84	6,059.21	4,419.84	4,240.93	178.91	24.704	
17,300.00	7,096.62	6,476.00	6,475.22	51.87	129.41	-47.35	-616.84	6,059.21	4,516.34	4,337.04	179.30	25.189	
17,400.00	7,096.70	6,476.00	6,475.22	52.17	129.41	-47.35	-616.84	6,059.21	4,612.99	4,433.31	179.68	25.673	
17,500.00	7,096.78	6,476.00	6,475.22	52.47	129.41	-47.35	-616.84	6,059.21	4,709.78	4,529.72	180.06	26.157	
17,600.00	7,096.86	6,476.00	6,475.22	52.77	129.41	-47.35	-616.84	6,059.21	4,806.71	4,626.27	180.43	26.640	
17,700.00	7,096.94	6,476.00	6,475.22	53.07	129.41	-47.35	-616.84	6,059.21	4,903.75	4,722.95	180.80	27.122	
17,800.00	7,097.02	6,476.00	6,475.22	53.37	129.41	-47.35	-616.84	6,059.21	5,000.92	4,819.75	181.17	27.604	
17,900.00	7,097.10	6,476.00	6,475.22	53.67	129.41	-47.35	-616.84	6,059.21	5,098.19	4,916.66	181.53	28.085	
18,000.00	7,097.17	6,476.00	6,475.22	53.97	129.41	-47.35	-616.84	6,059.21	5,195.57	5,013.68	181.89	28.565	
18,100.00	7,097.25	6,476.00	6,475.22	54.27	129.41	-47.35	-616.84	6,059.21	5,293.04	5,110.80	182.24	29.044	
18,200.00	7,097.33	6,476.00	6,475.22	54.57	129.41	-47.35	-616.84	6,059.21	5,390.61	5,208.01	182.59	29.523	
18,300.00	7,097.41	6,476.00	6,475.22	54.87	129.41	-47.35	-616.84	6,059.21	5,488.26	5,305.32	182.94	30.000	
18,400.00	7,097.49	6,476.00	6,475.22	55.17	129.41	-47.35	-616.84	6,059.21	5,586.00	5,402.71	183.29	30.476	
18,500.00	7,097.57	6,476.00	6,475.22	55.47	129.41	-47.35	-616.84	6,059.21	5,683.82	5,500.18	183.63	30.952	
18,600.00	7,097.64	6,476.00	6,475.22	55.78	129.41	-47.35	-616.84	6,059.21	5,781.71	5,597.73	183.98	31.427	
18,700.00	7,097.72	6,476.00	6,475.22	56.08	129.41	-47.35	-616.84	6,059.21	5,879.67	5,695.35	184.32	31.900	
18,800.00	7,097.80	6,476.00	6,475.22	56.38	129.41	-47.35	-616.84	6,059.21	5,977.70	5,793.04	184.65	32.373	
18,900.00	7,097.88	6,476.00	6,475.22	56.68	129.41	-47.35	-616.84	6,059.21	6,075.79	5,890.80	184.99	32.844	
19,000.00	7,097.96	6,476.00	6,475.22	56.98	129.41	-47.35	-616.84	6,059.21	6,173.95	5,988.62	185.32	33.314	
19,100.00	7,098.04	6,476.00	6,475.22	57.28	129.41	-47.35	-616.84	6,059.21	6,272.16	6,086.50	185.66	33.784	
19,200.00	7,098.12	6,476.00	6,475.22	57.58	129.41	-47.35	-616.84	6,059.21	6,370.43	6,184.44	185.99	34.252	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 280-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,098.19	6,476.00	6,475.22	57.88	129.41	-47.35	-616.84	6,059.21	6,468.75	6,282.43	186.32	34.719	
19,400.00	7,098.27	6,476.00	6,475.22	58.18	129.41	-47.35	-616.84	6,059.21	6,567.12	6,380.47	186.65	35.185	
19,500.00	7,098.35	6,476.00	6,475.22	58.48	129.41	-47.35	-616.84	6,059.21	6,665.54	6,478.57	186.98	35.649	
19,600.00	7,098.43	6,476.00	6,475.22	58.78	129.41	-47.35	-616.84	6,059.21	6,764.01	6,576.71	187.30	36.113	
19,700.00	7,098.51	6,476.00	6,475.22	59.08	129.41	-47.35	-616.84	6,059.21	6,862.52	6,674.89	187.63	36.575	
19,800.00	7,098.59	6,476.00	6,475.22	59.38	129.41	-47.35	-616.84	6,059.21	6,961.07	6,773.12	187.95	37.037	
19,900.00	7,098.66	6,476.00	6,475.22	59.68	129.41	-47.35	-616.84	6,059.21	7,059.67	6,871.39	188.27	37.497	
20,000.00	7,098.74	6,476.00	6,475.22	59.98	129.41	-47.35	-616.84	6,059.21	7,158.30	6,969.71	188.60	37.956	
20,100.00	7,098.82	6,476.00	6,475.22	60.28	129.41	-47.35	-616.84	6,059.21	7,256.97	7,068.05	188.92	38.413	
20,200.00	7,098.90	6,476.00	6,475.22	60.58	129.41	-47.35	-616.84	6,059.21	7,355.68	7,166.44	189.24	38.870	
20,300.00	7,098.98	6,476.00	6,475.22	60.88	129.41	-47.35	-616.84	6,059.21	7,454.42	7,264.86	189.56	39.325	
20,328.16	7,099.00	6,476.00	6,475.22	60.96	129.41	-47.35	-616.84	6,059.21	7,482.23	7,292.58	189.65	39.453	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	167.37	167.37	0.00	0.14	104.51	-1,752.56	6,770.37	6,993.52				
100.00	100.00	246.46	246.46	0.23	0.25	104.51	-1,752.00	6,770.61	6,993.65	6,993.30	0.36	N/A	
200.00	200.00	349.95	349.94	0.53	0.38	104.50	-1,751.21	6,771.09	6,993.91	6,993.18	0.74	9,491.550	
300.00	300.00	446.38	446.36	0.83	0.51	104.49	-1,750.38	6,771.63	6,994.24	6,993.13	1.11	6,295.466	
400.00	400.00	545.51	545.49	1.13	0.64	104.49	-1,749.61	6,772.22	6,994.61	6,993.12	1.49	4,693.283	
500.00	500.00	640.29	640.27	1.43	0.76	104.48	-1,748.90	6,772.78	6,995.00	6,993.13	1.87	3,745.279	
600.00	599.98	737.73	737.70	1.73	0.89	-70.12	-1,748.12	6,773.44	6,994.86	6,992.61	2.25	3,110.465	
700.00	699.84	825.56	825.53	2.03	1.00	-70.18	-1,747.30	6,774.14	6,993.63	6,991.00	2.62	2,666.146	
800.00	799.45	910.61	910.57	2.33	1.11	-70.29	-1,746.44	6,774.99	6,991.39	6,988.39	3.00	2,331.880	
900.00	898.70	1,004.51	1,004.46	2.63	1.23	-70.45	-1,745.54	6,776.11	6,988.19	6,984.80	3.39	2,063.525	
1,000.00	997.47	1,105.42	1,105.35	2.93	1.36	-70.66	-1,744.67	6,777.25	6,983.82	6,980.04	3.78	1,845.717	
1,100.00	1,095.62	1,205.99	1,205.92	3.23	1.49	-70.93	-1,743.62	6,778.45	6,978.35	6,974.17	4.18	1,669.962	
1,157.34	1,151.58	1,286.97	1,286.88	3.40	1.59	-71.15	-1,742.50	6,779.25	6,974.57	6,970.15	4.42	1,578.849	
1,200.00	1,193.13	1,323.44	1,323.34	3.53	1.64	-71.21	-1,742.01	6,779.57	6,971.59	6,967.01	4.58	1,523.843	
1,300.00	1,290.51	1,420.11	1,420.00	3.83	1.77	-71.40	-1,740.59	6,780.45	6,964.68	6,959.73	4.95	1,406.294	
1,400.00	1,387.89	1,494.78	1,494.66	4.13	1.86	-71.54	-1,739.46	6,781.27	6,958.01	6,952.69	5.32	1,308.917	
1,500.00	1,485.27	1,595.05	1,594.91	4.43	1.99	-71.73	-1,738.21	6,782.51	6,951.61	6,945.90	5.71	1,217.682	
1,600.00	1,582.65	1,656.64	1,656.50	4.73	2.07	-71.85	-1,737.33	6,783.42	6,945.47	6,939.40	6.07	1,144.614	
1,700.00	1,680.02	1,750.00	1,749.83	5.03	2.19	-72.03	-1,736.10	6,785.07	6,939.70	6,933.24	6.46	1,073.891	
1,800.00	1,777.40	1,819.93	1,819.74	5.33	2.28	-72.17	-1,735.03	6,786.48	6,934.22	6,927.39	6.83	1,014.635	
1,900.00	1,874.78	1,925.00	1,924.78	5.63	2.42	-72.37	-1,733.66	6,788.60	6,928.84	6,921.60	7.24	956.426	
2,000.00	1,972.16	2,004.36	2,004.10	5.93	2.52	-72.53	-1,732.40	6,790.37	6,923.70	6,916.08	7.63	907.670	
2,100.00	2,069.54	2,068.95	2,068.66	6.23	2.60	-72.65	-1,731.45	6,792.03	6,918.99	6,910.99	8.00	864.913	
2,200.00	2,166.92	2,182.52	2,182.19	6.53	2.74	-72.87	-1,730.20	6,795.02	6,914.49	6,906.06	8.43	820.268	
2,300.00	2,264.30	2,261.24	2,260.87	6.83	2.83	-73.02	-1,729.23	6,797.11	6,910.06	6,901.24	8.82	783.418	
2,400.00	2,361.68	2,363.77	2,363.36	7.13	2.96	-73.22	-1,728.04	6,800.07	6,905.95	6,896.71	9.24	747.386	
2,500.00	2,459.06	2,429.99	2,429.54	7.43	3.04	-73.35	-1,727.25	6,801.97	6,901.92	6,892.30	9.62	717.511	
2,600.00	2,556.44	2,532.49	2,531.99	7.73	3.17	-73.55	-1,726.03	6,805.07	6,898.08	6,888.04	10.04	687.028	
2,700.00	2,653.82	2,609.48	2,608.93	8.03	3.26	-73.70	-1,725.11	6,807.66	6,894.63	6,884.19	10.43	660.794	
2,800.00	2,751.19	2,671.72	2,671.12	8.33	3.34	-73.83	-1,724.27	6,809.95	6,891.56	6,880.75	10.81	637.474	
2,900.00	2,848.57	2,754.57	2,753.90	8.63	3.44	-73.99	-1,723.22	6,813.23	6,888.86	6,877.65	11.21	614.380	
3,000.00	2,945.95	2,827.45	2,826.70	8.93	3.53	-74.14	-1,722.11	6,816.43	6,886.59	6,874.99	11.60	593.527	
3,100.00	3,043.33	2,953.79	2,952.91	9.23	3.68	-74.39	-1,720.28	6,821.95	6,884.43	6,872.37	12.06	571.035	
3,200.00	3,140.71	3,038.64	3,037.68	9.53	3.79	-74.56	-1,718.81	6,825.50	6,882.11	6,869.65	12.46	552.372	
3,300.00	3,238.09	3,126.08	3,125.01	9.83	3.90	-74.74	-1,717.30	6,829.42	6,880.15	6,867.29	12.87	534.741	
3,400.00	3,335.47	3,194.93	3,193.78	10.13	3.98	-74.88	-1,715.99	6,832.58	6,878.40	6,865.14	13.25	519.057	
3,500.00	3,432.85	3,265.72	3,264.47	10.43	4.07	-75.03	-1,714.68	6,836.19	6,877.19	6,863.54	13.64	504.165	
3,600.00	3,530.23	3,353.53	3,352.13	10.73	4.18	-75.21	-1,713.05	6,840.86	6,876.28	6,862.23	14.05	489.404	
3,700.00	3,627.61	3,441.53	3,439.98	11.03	4.29	-75.39	-1,711.35	6,845.69	6,875.61	6,861.15	14.46	475.480	
3,800.00	3,724.99	3,626.18	3,624.38	11.33	4.52	-75.76	-1,708.66	6,854.85	6,874.69	6,859.71	14.99	458.677	
3,900.00	3,822.36	3,742.32	3,740.42	11.63	4.66	-75.99	-1,707.69	6,859.59	6,873.03	6,857.59	15.44	445.222	
4,000.00	3,919.74	3,838.17	3,836.20	11.93	4.78	-76.17	-1,706.95	6,863.22	6,871.14	6,855.28	15.86	433.181	
4,100.00	4,017.12	3,960.80	3,958.75	12.23	4.93	-76.41	-1,705.99	6,867.73	6,869.24	6,852.92	16.32	420.909	
4,200.00	4,114.50	4,179.09	4,176.95	12.53	5.19	-76.83	-1,705.53	6,873.55	6,866.72	6,849.82	16.90	406.235	
4,300.00	4,211.88	4,294.96	4,292.81	12.83	5.29	-77.04	-1,706.17	6,875.07	6,862.85	6,845.50	17.35	395.447	
4,400.00	4,309.26	4,497.26	4,495.10	13.13	5.35	-77.40	-1,707.53	6,875.99	6,858.25	6,840.42	17.83	384.713	
4,500.00	4,406.64	4,589.28	4,587.11	13.43	5.34	-77.57	-1,707.49	6,875.78	6,852.96	6,834.85	18.12	378.299	
4,600.00	4,504.02	4,683.35	4,681.18	13.73	5.33	-77.74	-1,707.89	6,875.52	6,847.76	6,829.33	18.43	371.519	
4,700.00	4,601.40	4,783.29	4,781.12	14.03	5.31	-77.92	-1,708.78	6,875.32	6,842.75	6,823.97	18.78	364.401	
4,800.00	4,698.78	4,879.32	4,877.15	14.33	5.31	-78.09	-1,709.78	6,875.16	6,837.86	6,818.73	19.13	357.503	
4,900.00	4,796.16	4,971.25	4,969.08	14.63	5.31	-78.26	-1,710.70	6,875.09	6,833.10	6,813.62	19.48	350.800	
5,000.00	4,893.53	5,072.47	5,070.29	14.93	5.30	-78.44	-1,711.69	6,874.83	6,828.25	6,808.42	19.82	344.471	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,990.91	5,178.99	5,176.80	15.23	5.31	-78.63	-1,712.73	6,874.71	6,823.61	6,803.43	20.18	338.120	
5,200.00	5,088.29	5,264.47	5,262.27	15.53	5.31	-78.78	-1,713.68	6,874.60	6,819.01	6,798.49	20.53	332.197	
5,300.00	5,185.67	5,364.75	5,362.55	15.83	5.32	-78.96	-1,714.82	6,874.45	6,814.48	6,793.60	20.88	326.367	
5,400.00	5,283.05	5,470.30	5,468.09	16.13	5.33	-79.15	-1,716.09	6,874.25	6,809.98	6,788.75	21.23	320.720	
5,500.00	5,380.43	5,557.75	5,555.53	16.43	5.35	-79.31	-1,717.11	6,874.13	6,805.58	6,784.00	21.58	315.347	
5,600.00	5,477.81	5,648.19	5,645.97	16.73	5.38	-79.47	-1,718.07	6,874.18	6,801.42	6,779.48	21.94	309.984	
5,700.00	5,575.19	5,729.88	5,727.66	17.03	5.41	-79.62	-1,718.87	6,874.19	6,797.29	6,775.00	22.29	304.918	
5,800.00	5,672.57	5,814.56	5,812.33	17.33	5.45	-79.77	-1,719.59	6,874.39	6,793.44	6,770.78	22.66	299.789	
5,900.00	5,769.95	5,931.24	5,928.99	17.63	5.51	-79.97	-1,721.74	6,874.66	6,789.75	6,766.70	23.04	294.633	
6,000.00	5,867.33	6,034.98	6,032.70	17.93	5.55	-80.15	-1,724.25	6,874.60	6,785.88	6,762.47	23.41	289.917	
6,100.00	5,964.70	6,159.36	6,157.05	18.23	5.59	-80.36	-1,726.83	6,874.33	6,781.89	6,758.12	23.77	285.289	
6,200.00	6,062.08	6,248.39	6,246.07	18.53	5.62	-80.52	-1,728.27	6,874.02	6,777.78	6,753.67	24.11	281.092	
6,300.00	6,159.46	6,345.79	6,343.46	18.83	5.65	-80.69	-1,729.80	6,873.67	6,773.72	6,749.26	24.46	276.980	
6,400.00	6,256.84	6,400.00	6,442.73	19.13	5.67	-80.87	-1,731.24	6,873.36	6,769.76	6,744.98	24.78	273.188	
6,500.00	6,354.22	6,538.05	6,535.69	19.43	5.72	-81.03	-1,732.73	6,872.99	6,765.81	6,740.67	25.14	269.102	
6,600.00	6,451.60	6,641.64	6,639.27	19.73	5.76	-81.22	-1,734.36	6,872.66	6,761.98	6,736.49	25.49	265.278	
6,694.27	6,543.40	6,729.39	6,727.02	20.02	5.81	-81.37	-1,735.57	6,872.43	6,758.48	6,732.67	25.82	261.800	
6,700.00	6,548.98	6,732.91	6,730.53	20.03	5.81	-78.95	-1,735.61	6,872.42	6,758.24	6,732.41	25.83	261.599	
6,750.00	6,597.52	6,770.14	6,767.76	20.18	5.83	-59.74	-1,736.05	6,872.37	6,753.79	6,727.79	26.00	259.724	
6,800.00	6,645.56	6,828.96	6,826.58	20.33	5.86	-45.50	-1,736.75	6,872.30	6,745.05	6,718.86	26.19	257.591	
6,850.00	6,692.73	6,859.11	6,856.72	20.48	5.88	-35.67	-1,737.07	6,872.28	6,732.09	6,705.74	26.35	255.469	
6,900.00	6,738.66	6,911.87	6,909.48	20.63	5.91	-28.93	-1,737.72	6,872.28	6,715.03	6,688.50	26.53	253.078	
6,950.00	6,783.02	6,964.04	6,961.65	20.78	5.94	-24.15	-1,738.28	6,872.20	6,693.89	6,667.18	26.71	250.611	
7,000.00	6,825.45	7,004.46	7,002.06	20.94	5.96	-20.61	-1,738.63	6,872.13	6,668.89	6,642.01	26.88	248.100	
7,050.00	6,865.65	7,048.26	7,045.86	21.09	5.98	-17.92	-1,739.01	6,872.05	6,640.21	6,613.16	27.05	245.473	
7,100.00	6,903.29	7,079.96	7,077.56	21.24	6.00	-15.76	-1,739.27	6,872.01	6,608.11	6,580.89	27.22	242.799	
7,150.00	6,938.11	7,122.99	7,120.59	21.39	6.02	-14.01	-1,739.60	6,871.93	6,572.79	6,545.40	27.39	239.998	
7,200.00	6,969.82	7,151.43	7,149.03	21.54	6.04	-12.47	-1,739.83	6,871.87	6,534.52	6,506.97	27.55	237.191	
7,250.00	6,998.19	7,175.00	7,172.60	21.69	6.05	-11.05	-1,740.04	6,871.83	6,493.61	6,465.90	27.71	234.333	
7,300.00	7,023.01	7,193.68	7,191.28	21.84	6.06	-9.63	-1,740.23	6,871.81	6,450.38	6,422.51	27.87	231.431	
7,350.00	7,044.08	7,209.74	7,207.34	21.99	6.08	-8.05	-1,740.38	6,871.81	6,405.17	6,377.14	28.03	228.496	
7,400.00	7,061.25	7,224.40	7,221.99	22.14	6.09	-6.02	-1,740.50	6,871.82	6,358.29	6,330.10	28.19	225.536	
7,450.00	7,074.38	7,249.09	7,246.69	22.29	6.10	-2.85	-1,740.67	6,871.83	6,310.08	6,281.72	28.36	222.517	
7,500.00	7,083.37	7,261.44	7,259.03	22.44	6.11	3.94	-1,740.75	6,871.82	6,260.91	6,232.39	28.51	219.569	
7,550.00	7,088.16	7,267.79	7,265.38	22.59	6.12	29.51	-1,740.80	6,871.81	6,211.16	6,182.49	28.67	216.656	
7,581.00	7,089.00	7,268.85	7,266.44	22.68	6.12	90.68	-1,740.81	6,871.81	6,180.19	6,151.43	28.76	214.872	
7,600.00	7,089.02	7,268.83	7,266.42	22.74	6.12	90.68	-1,740.81	6,871.81	6,161.21	6,132.39	28.82	213.787	
7,700.00	7,089.09	7,268.72	7,266.32	23.04	6.12	90.65	-1,740.81	6,871.81	6,061.30	6,032.18	29.12	208.146	
7,800.00	7,089.17	7,268.61	7,266.21	23.34	6.12	90.63	-1,740.81	6,871.81	5,961.39	5,931.97	29.42	202.620	
7,900.00	7,089.25	7,268.51	7,266.10	23.64	6.12	90.61	-1,740.80	6,871.81	5,861.49	5,831.76	29.72	197.207	
8,000.00	7,089.33	7,268.40	7,266.00	23.94	6.12	90.58	-1,740.80	6,871.81	5,761.59	5,731.56	30.02	191.902	
8,100.00	7,089.41	7,268.30	7,265.89	24.24	6.12	90.56	-1,740.80	6,871.81	5,661.69	5,631.36	30.32	186.703	
8,200.00	7,089.49	7,268.20	7,265.79	24.54	6.12	90.54	-1,740.80	6,871.81	5,561.80	5,531.17	30.63	181.606	
8,300.00	7,089.56	7,268.10	7,265.69	24.84	6.12	90.52	-1,740.80	6,871.81	5,461.91	5,430.98	30.93	176.609	
8,400.00	7,089.64	7,268.00	7,265.59	25.14	6.12	90.49	-1,740.80	6,871.81	5,362.02	5,330.79	31.23	171.708	
8,500.00	7,089.72	7,267.90	7,265.49	25.44	6.12	90.47	-1,740.80	6,871.81	5,262.14	5,230.61	31.53	166.901	
8,600.00	7,089.80	7,267.80	7,265.40	25.75	6.12	90.45	-1,740.80	6,871.81	5,162.26	5,130.44	31.83	162.185	
8,700.00	7,089.88	7,267.70	7,265.30	26.05	6.12	90.43	-1,740.80	6,871.81	5,062.39	5,030.26	32.13	157.557	
8,800.00	7,089.96	7,267.61	7,265.20	26.35	6.11	90.41	-1,740.80	6,871.81	4,962.53	4,930.10	32.43	153.016	
8,900.00	7,090.03	7,267.51	7,265.11	26.65	6.11	90.39	-1,740.80	6,871.81	4,862.67	4,829.93	32.73	148.558	
9,000.00	7,090.11	7,267.42	7,265.02	26.95	6.11	90.37	-1,740.80	6,871.81	4,762.81	4,729.78	33.03	144.182	
9,100.00	7,090.19	7,267.33	7,264.92	27.25	6.11	90.35	-1,740.80	6,871.81	4,662.96	4,629.63	33.33	139.884	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104 — **Offset Well Error:** 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,200.00	7,090.27	7,267.24	7,264.83	27.55	6.11	90.33	-1,740.80	6,871.81	4,563.12	4,529.49	33.64	135.664	
9,300.00	7,090.35	7,267.15	7,264.74	27.85	6.11	90.31	-1,740.79	6,871.81	4,463.29	4,429.35	33.94	131.519	
9,400.00	7,090.43	7,267.06	7,264.65	28.15	6.11	90.29	-1,740.79	6,871.81	4,363.46	4,329.22	34.24	127.448	
9,500.00	7,090.51	7,266.97	7,264.56	28.45	6.11	90.27	-1,740.79	6,871.81	4,263.64	4,229.10	34.54	123.447	
9,600.00	7,090.58	7,266.88	7,264.48	28.75	6.11	90.25	-1,740.79	6,871.81	4,163.83	4,128.99	34.84	119.515	
9,700.00	7,090.66	7,266.79	7,264.39	29.05	6.11	90.23	-1,740.79	6,871.81	4,064.03	4,028.89	35.14	115.652	
9,800.00	7,090.74	7,266.71	7,264.30	29.35	6.11	90.21	-1,740.79	6,871.81	3,964.24	3,928.80	35.44	111.854	
9,900.00	7,090.82	7,266.62	7,264.22	29.65	6.11	90.19	-1,740.79	6,871.81	3,864.46	3,828.72	35.74	108.120	
10,000.00	7,090.90	7,266.54	7,264.13	29.95	6.11	90.17	-1,740.79	6,871.81	3,764.69	3,728.65	36.04	104.449	
10,100.00	7,090.98	7,266.46	7,264.05	30.25	6.11	90.15	-1,740.79	6,871.81	3,664.93	3,628.59	36.34	100.839	
10,200.00	7,091.05	7,266.37	7,263.97	30.55	6.11	90.14	-1,740.79	6,871.81	3,565.19	3,528.55	36.65	97.289	
10,300.00	7,091.13	7,266.29	7,263.89	30.85	6.11	90.12	-1,740.79	6,871.81	3,465.46	3,428.52	36.95	93.797	
10,400.00	7,091.21	7,266.21	7,263.81	31.15	6.11	90.10	-1,740.79	6,871.81	3,365.75	3,328.51	37.25	90.362	
10,500.00	7,091.29	7,266.13	7,263.73	31.45	6.11	90.08	-1,740.79	6,871.81	3,266.06	3,228.51	37.55	86.982	
10,600.00	7,091.37	7,266.05	7,263.65	31.76	6.11	90.06	-1,740.79	6,871.81	3,166.39	3,128.54	37.85	83.657	
10,700.00	7,091.45	7,265.97	7,263.57	32.06	6.11	90.05	-1,740.79	6,871.81	3,066.73	3,028.58	38.15	80.384	
10,800.00	7,091.53	7,265.90	7,263.49	32.36	6.11	90.03	-1,740.79	6,871.81	2,967.10	2,928.65	38.45	77.164	
10,900.00	7,091.60	7,265.82	7,263.42	32.66	6.11	90.01	-1,740.79	6,871.81	2,867.50	2,828.75	38.75	73.994	
11,000.00	7,091.68	7,265.74	7,263.34	32.96	6.11	90.00	-1,740.78	6,871.81	2,767.92	2,728.87	39.05	70.873	
11,100.00	7,091.76	7,265.67	7,263.26	33.26	6.11	89.98	-1,740.78	6,871.81	2,668.38	2,629.02	39.36	67.802	
11,200.00	7,091.84	7,265.59	7,263.19	33.56	6.11	89.96	-1,740.78	6,871.81	2,568.87	2,529.22	39.66	64.777	
11,300.00	7,091.92	7,265.52	7,263.12	33.86	6.11	89.95	-1,740.78	6,871.81	2,469.40	2,429.45	39.96	61.800	
11,400.00	7,092.00	7,265.45	7,263.04	34.16	6.11	89.93	-1,740.78	6,871.81	2,369.98	2,329.72	40.26	58.867	
11,500.00	7,092.07	7,265.38	7,262.97	34.46	6.11	89.91	-1,740.78	6,871.81	2,270.61	2,230.05	40.56	55.980	
11,600.00	7,092.15	7,265.30	7,262.90	34.76	6.11	89.90	-1,740.78	6,871.81	2,171.29	2,130.43	40.86	53.137	
11,700.00	7,092.23	7,265.23	7,262.83	35.06	6.11	89.88	-1,740.78	6,871.81	2,072.04	2,030.88	41.16	50.336	
11,800.00	7,092.31	7,265.16	7,262.76	35.36	6.11	89.87	-1,740.78	6,871.81	1,972.87	1,931.40	41.47	47.579	
11,900.00	7,092.39	7,265.09	7,262.69	35.66	6.11	89.85	-1,740.78	6,871.81	1,873.78	1,832.02	41.77	44.863	
12,000.00	7,092.47	7,265.02	7,262.62	35.96	6.11	89.84	-1,740.78	6,871.81	1,774.80	1,732.73	42.07	42.188	
12,100.00	7,092.55	7,264.96	7,262.55	36.26	6.11	89.82	-1,740.78	6,871.81	1,675.94	1,633.57	42.37	39.555	
12,200.00	7,092.62	7,264.89	7,262.48	36.56	6.11	89.81	-1,740.78	6,871.81	1,577.22	1,534.55	42.67	36.962	
12,300.00	7,092.70	7,264.82	7,262.42	36.86	6.11	89.79	-1,740.78	6,871.81	1,478.67	1,435.70	42.97	34.409	
12,400.00	7,092.78	7,264.76	7,262.35	37.16	6.11	89.78	-1,740.78	6,871.81	1,380.33	1,337.06	43.27	31.897	
12,500.00	7,092.86	7,264.69	7,262.28	37.46	6.11	89.76	-1,740.78	6,871.81	1,282.25	1,238.68	43.58	29.426	
12,600.00	7,092.94	7,264.62	7,262.22	37.76	6.11	89.75	-1,740.78	6,871.81	1,184.49	1,140.61	43.88	26.997	
12,700.00	7,093.02	7,264.56	7,262.16	38.06	6.11	89.73	-1,740.78	6,871.81	1,087.14	1,042.96	44.18	24.610	
12,800.00	7,093.09	7,264.50	7,262.09	38.36	6.11	89.72	-1,740.78	6,871.81	990.31	945.84	44.47	22.267	
12,900.00	7,093.17	7,264.43	7,262.03	38.66	6.11	89.71	-1,740.78	6,871.81	894.19	849.42	44.77	19.973	
13,000.00	7,093.25	7,264.37	7,261.96	38.96	6.11	89.69	-1,740.77	6,871.81	799.01	753.95	45.06	17.731	
13,100.00	7,093.33	7,264.31	7,261.90	39.26	6.11	89.68	-1,740.77	6,871.81	705.17	659.82	45.35	15.549	
13,200.00	7,093.41	7,264.25	7,261.84	39.56	6.11	89.66	-1,740.77	6,871.81	613.29	567.66	45.63	13.441	
13,300.00	7,093.49	7,264.18	7,261.78	39.86	6.11	89.65	-1,740.77	6,871.81	524.38	478.49	45.89	11.427	
13,400.00	7,093.57	7,264.12	7,261.72	40.16	6.11	89.64	-1,740.77	6,871.81	440.25	394.14	46.11	9.547	
13,500.00	7,093.64	7,264.06	7,261.66	40.47	6.11	89.62	-1,740.77	6,871.81	364.24	317.97	46.27	7.872	
13,600.00	7,093.72	7,264.00	7,261.60	40.77	6.11	89.61	-1,740.77	6,871.81	302.53	256.21	46.32	6.532	
13,700.00	7,093.80	7,263.94	7,261.54	41.07	6.11	89.60	-1,740.77	6,871.81	265.28	219.01	46.27	5.733	
13,755.75	7,093.84	7,263.91	7,261.51	41.23	6.11	89.59	-1,740.77	6,871.81	259.36	213.07	46.29	5.603	CC, ES, SF
13,800.00	7,093.88	7,263.89	7,261.48	41.37	6.11	89.59	-1,740.77	6,871.81	263.11	216.74	46.37	5.674	
13,900.00	7,093.96	7,263.83	7,261.42	41.67	6.11	89.57	-1,740.77	6,871.81	296.78	250.01	46.76	6.346	
14,000.00	7,094.04	7,263.77	7,261.37	41.97	6.11	89.56	-1,740.77	6,871.81	356.27	308.99	47.28	7.536	
14,100.00	7,094.11	7,263.71	7,261.31	42.27	6.11	89.55	-1,740.77	6,871.81	431.02	383.26	47.76	9.025	
14,200.00	7,094.19	7,263.66	7,261.25	42.57	6.11	89.53	-1,740.77	6,871.81	514.42	466.23	48.19	10.675	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 100-Standard Keeper 104

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	7,263.60	7,261.20	42.87	6.11	89.52	-1,740.77	6,871.81	602.89	554.31	48.58	12.410	
14,400.00	7,094.35	7,263.55	7,261.14	43.17	6.11	89.51	-1,740.77	6,871.81	694.50	645.55	48.95	14.189	
14,500.00	7,094.43	7,263.49	7,261.09	43.47	6.11	89.50	-1,740.77	6,871.81	788.15	738.86	49.29	15.989	
14,600.00	7,094.51	7,263.44	7,261.03	43.77	6.11	89.49	-1,740.77	6,871.81	883.19	833.57	49.63	17.797	
14,700.00	7,094.58	7,263.38	7,260.98	44.07	6.11	89.47	-1,740.77	6,871.81	979.23	929.27	49.95	19.603	
14,800.00	7,094.66	7,263.33	7,260.92	44.37	6.11	89.46	-1,740.77	6,871.81	1,075.98	1,025.71	50.28	21.402	
14,900.00	7,094.74	7,263.27	7,260.87	44.67	6.11	89.45	-1,740.77	6,871.81	1,173.28	1,122.69	50.59	23.191	
15,000.00	7,094.82	7,263.22	7,260.82	44.97	6.11	89.44	-1,740.77	6,871.81	1,271.00	1,220.09	50.91	24.967	
15,100.00	7,094.90	7,263.17	7,260.76	45.27	6.11	89.43	-1,740.77	6,871.81	1,369.05	1,317.83	51.22	26.730	
15,200.00	7,094.98	7,263.12	7,260.71	45.57	6.11	89.42	-1,740.77	6,871.81	1,467.36	1,415.83	51.53	28.477	
15,300.00	7,095.06	7,263.06	7,260.66	45.87	6.11	89.40	-1,740.77	6,871.81	1,565.88	1,514.05	51.84	30.208	
15,400.00	7,095.13	7,263.01	7,260.61	46.17	6.11	89.39	-1,740.76	6,871.81	1,664.58	1,612.44	52.14	31.923	
15,500.00	7,095.21	7,262.96	7,260.56	46.47	6.11	89.38	-1,740.76	6,871.81	1,763.43	1,710.98	52.45	33.621	
15,600.00	7,095.29	7,262.91	7,260.51	46.77	6.11	89.37	-1,740.76	6,871.81	1,862.40	1,809.65	52.76	35.302	
15,700.00	7,095.37	7,262.86	7,260.46	47.07	6.11	89.36	-1,740.76	6,871.81	1,961.48	1,908.42	53.06	36.966	
15,800.00	7,095.45	7,262.81	7,260.41	47.37	6.11	89.35	-1,740.76	6,871.81	2,060.64	2,007.28	53.37	38.614	
15,900.00	7,095.53	7,262.76	7,260.36	47.67	6.11	89.34	-1,740.76	6,871.81	2,159.88	2,106.21	53.67	40.244	
16,000.00	7,095.60	7,262.71	7,260.31	47.97	6.11	89.33	-1,740.76	6,871.81	2,259.19	2,205.22	53.97	41.858	
16,100.00	7,095.68	7,262.67	7,260.26	48.27	6.11	89.32	-1,740.76	6,871.81	2,358.56	2,304.28	54.28	43.455	
16,200.00	7,095.76	7,262.62	7,260.21	48.57	6.11	89.31	-1,740.76	6,871.81	2,457.98	2,403.40	54.58	45.035	
16,300.00	7,095.84	7,262.57	7,260.17	48.87	6.11	89.30	-1,740.76	6,871.81	2,557.44	2,502.56	54.88	46.599	
16,400.00	7,095.92	7,262.52	7,260.12	49.17	6.11	89.28	-1,740.76	6,871.81	2,656.94	2,601.76	55.18	48.146	
16,500.00	7,096.00	7,262.48	7,260.07	49.47	6.11	89.27	-1,740.76	6,871.81	2,756.48	2,701.00	55.49	49.678	
16,600.00	7,096.08	7,262.43	7,260.03	49.77	6.11	89.26	-1,740.76	6,871.81	2,856.05	2,800.27	55.79	51.194	
16,700.00	7,096.15	7,262.38	7,259.98	50.07	6.11	89.25	-1,740.76	6,871.81	2,955.65	2,899.56	56.09	52.694	
16,800.00	7,096.23	7,262.34	7,259.93	50.37	6.11	89.24	-1,740.76	6,871.81	3,055.28	2,998.89	56.39	54.178	
16,900.00	7,096.31	7,262.29	7,259.89	50.67	6.11	89.23	-1,740.76	6,871.81	3,154.93	3,098.24	56.69	55.648	
17,000.00	7,096.39	7,262.25	7,259.84	50.97	6.11	89.22	-1,740.76	6,871.81	3,254.60	3,197.61	57.00	57.102	
17,100.00	7,096.47	7,262.20	7,259.80	51.27	6.11	89.21	-1,740.76	6,871.81	3,354.30	3,297.00	57.30	58.541	
17,200.00	7,096.55	7,262.16	7,259.75	51.57	6.11	89.20	-1,740.76	6,871.81	3,454.00	3,396.41	57.60	59.966	
17,300.00	7,096.62	7,262.11	7,259.71	51.87	6.11	89.19	-1,740.76	6,871.82	3,553.73	3,495.83	57.90	61.376	
17,400.00	7,096.70	7,262.07	7,259.67	52.17	6.11	89.18	-1,740.76	6,871.82	3,653.47	3,595.27	58.20	62.772	
17,500.00	7,096.78	7,262.03	7,259.62	52.47	6.11	89.17	-1,740.76	6,871.82	3,753.23	3,694.72	58.50	64.154	
17,600.00	7,096.86	7,261.98	7,259.58	52.77	6.11	89.17	-1,740.76	6,871.82	3,852.99	3,794.19	58.80	65.522	
17,700.00	7,096.94	7,261.94	7,259.54	53.07	6.11	89.16	-1,740.76	6,871.82	3,952.77	3,893.67	59.11	66.877	
17,800.00	7,097.02	7,261.90	7,259.49	53.37	6.11	89.15	-1,740.76	6,871.82	4,052.56	3,993.15	59.41	68.218	
17,900.00	7,097.10	7,261.86	7,259.45	53.67	6.11	89.14	-1,740.76	6,871.82	4,152.36	4,092.65	59.71	69.545	
18,000.00	7,097.17	7,261.81	7,259.41	53.97	6.11	89.13	-1,740.76	6,871.82	4,252.17	4,192.16	60.01	70.860	
18,100.00	7,097.25	7,261.77	7,259.37	54.27	6.11	89.12	-1,740.76	6,871.82	4,351.99	4,291.68	60.31	72.161	
18,200.00	7,097.33	7,261.73	7,259.33	54.57	6.11	89.11	-1,740.76	6,871.82	4,451.81	4,391.20	60.61	73.450	
18,300.00	7,097.41	7,261.69	7,259.29	54.87	6.11	89.10	-1,740.76	6,871.82	4,551.65	4,490.74	60.91	74.726	
18,400.00	7,097.49	7,261.65	7,259.24	55.17	6.11	89.09	-1,740.76	6,871.82	4,651.49	4,590.28	61.21	75.990	
18,500.00	7,097.57	7,261.61	7,259.20	55.47	6.11	89.08	-1,740.76	6,871.82	4,751.34	4,689.82	61.51	77.242	
18,600.00	7,097.64	7,261.57	7,259.16	55.78	6.11	89.07	-1,740.75	6,871.82	4,851.19	4,789.38	61.81	78.481	
18,700.00	7,097.72	7,261.53	7,259.12	56.08	6.11	89.06	-1,740.75	6,871.82	4,951.05	4,888.94	62.11	79.709	
18,800.00	7,097.80	7,261.49	7,259.08	56.38	6.11	89.06	-1,740.75	6,871.82	5,050.92	4,988.50	62.41	80.925	
18,900.00	7,097.88	7,261.45	7,259.05	56.68	6.11	89.05	-1,740.75	6,871.82	5,150.79	5,088.07	62.72	82.130	
19,000.00	7,097.96	7,261.41	7,259.01	56.98	6.11	89.04	-1,740.75	6,871.82	5,250.66	5,187.65	63.02	83.323	
19,100.00	7,098.04	7,261.37	7,258.97	57.28	6.11	89.03	-1,740.75	6,871.82	5,350.54	5,287.23	63.32	84.505	
19,200.00	7,098.12	7,261.33	7,258.93	57.58	6.11	89.02	-1,740.75	6,871.82	5,450.43	5,386.81	63.62	85.676	
19,300.00	7,098.19	7,261.30	7,258.89	57.88	6.11	89.01	-1,740.75	6,871.82	5,550.32	5,486.40	63.92	86.835	
19,400.00	7,098.27	7,261.26	7,258.85	58.18	6.11	89.01	-1,740.75	6,871.82	5,650.21	5,585.99	64.22	87.985	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 100-Standard Keeper 104

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	7,261.22	7,258.82	58.48	6.11	89.00	-1,740.75	6,871.82	5,750.11	5,685.59	64.52	89.123	
19,600.00	7,098.43	7,261.18	7,258.78	58.78	6.11	88.99	-1,740.75	6,871.82	5,850.01	5,785.19	64.82	90.251	
19,700.00	7,098.51	7,261.15	7,258.74	59.08	6.11	88.98	-1,740.75	6,871.82	5,949.91	5,884.79	65.12	91.369	
19,800.00	7,098.59	7,261.11	7,258.70	59.38	6.11	88.97	-1,740.75	6,871.82	6,049.82	5,984.39	65.42	92.476	
19,900.00	7,098.66	7,261.07	7,258.67	59.68	6.11	88.96	-1,740.75	6,871.82	6,149.72	6,084.00	65.72	93.574	
20,000.00	7,098.74	7,261.04	7,258.63	59.98	6.11	88.96	-1,740.75	6,871.82	6,249.64	6,183.62	66.02	94.661	
20,100.00	7,098.82	7,261.00	7,258.60	60.28	6.11	88.95	-1,740.75	6,871.82	6,349.55	6,283.23	66.32	95.739	
20,200.00	7,098.90	7,260.96	7,258.56	60.58	6.11	88.94	-1,740.75	6,871.82	6,449.47	6,382.85	66.62	96.807	
20,300.00	7,098.98	7,260.93	7,258.52	60.88	6.11	88.93	-1,740.75	6,871.82	6,549.39	6,482.47	66.92	97.865	
20,328.16	7,099.00	7,260.92	7,258.51	60.96	6.11	88.93	-1,740.75	6,871.82	6,577.53	6,510.52	67.01	98.162	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	15.49	-15.49	0.00	0.14	-98.36	-1,371.44	-9,336.03	9,436.22				
100.00	100.00	84.51	84.51	0.23	0.75	-98.36	-1,371.44	-9,336.03	9,436.22	9,435.25	0.98	9,675.352	
200.00	200.00	275.49	184.51	0.53	2.86	-98.36	-1,371.44	-9,336.03	9,436.22	9,432.84	3.38	2,788.388	
300.00	300.00	284.51	284.51	0.83	3.02	-98.36	-1,371.44	-9,336.03	9,436.22	9,432.38	3.85	2,452.947	
400.00	400.00	384.51	384.51	1.13	4.82	-98.36	-1,371.44	-9,336.03	9,436.22	9,430.27	5.95	1,585.920	
500.00	500.00	484.51	484.51	1.43	6.63	-98.36	-1,371.44	-9,336.03	9,436.22	9,428.17	8.05	1,171.750	
600.00	599.98	583.90	583.90	1.73	8.42	87.09	-1,371.13	-9,336.03	9,436.09	9,425.95	10.15	930.106	
700.00	699.84	682.77	682.76	2.03	10.20	87.12	-1,371.21	-9,336.03	9,435.84	9,423.61	12.23	771.671	
800.00	799.45	781.40	781.40	2.33	11.98	87.18	-1,371.36	-9,336.03	9,435.42	9,421.12	14.31	659.529	
900.00	898.70	883.23	883.21	2.63	13.84	87.27	-1,371.44	-9,336.03	9,434.84	9,418.37	16.47	572.938	
1,000.00	997.47	981.99	981.98	2.93	15.66	87.38	-1,371.44	-9,336.03	9,434.10	9,415.51	18.59	507.534	
1,100.00	1,095.62	1,078.42	1,078.40	3.23	17.44	87.51	-1,371.05	-9,336.03	9,433.18	9,412.51	20.67	456.467	
1,157.34	1,151.58	1,132.83	1,132.81	3.40	18.44	87.59	-1,371.15	-9,336.03	9,432.65	9,410.81	21.84	431.882	
1,200.00	1,193.13	1,173.25	1,173.24	3.53	19.19	87.64	-1,371.27	-9,336.03	9,432.25	9,409.54	22.71	415.263	
1,300.00	1,290.51	1,275.05	1,275.02	3.83	21.09	87.78	-1,371.44	-9,336.03	9,431.34	9,406.42	24.92	378.474	
1,400.00	1,387.89	1,372.43	1,372.40	4.13	22.94	87.92	-1,371.44	-9,336.03	9,430.47	9,403.40	27.06	348.474	
1,500.00	1,485.27	1,469.66	1,469.63	4.43	24.78	88.06	-1,370.90	-9,336.03	9,429.58	9,400.37	29.20	322.906	
1,600.00	1,582.65	1,565.03	1,565.00	4.73	26.58	88.19	-1,370.99	-9,336.03	9,428.82	9,397.52	31.31	301.174	
1,700.00	1,680.02	1,660.47	1,660.44	5.03	28.39	88.32	-1,371.24	-9,336.03	9,428.14	9,394.73	33.41	282.169	
1,800.00	1,777.40	1,761.98	1,761.92	5.33	30.37	88.46	-1,371.44	-9,336.03	9,427.51	9,391.82	35.69	264.130	
1,900.00	1,874.78	1,859.35	1,859.30	5.63	32.32	88.59	-1,371.44	-9,336.03	9,426.91	9,388.96	37.95	248.432	
2,000.00	1,972.16	1,956.73	1,956.67	5.93	34.27	88.73	-1,371.44	-9,336.03	9,426.36	9,386.16	40.20	234.495	
2,100.00	2,069.54	2,051.52	2,051.45	6.23	36.17	88.86	-1,370.73	-9,336.03	9,425.79	9,383.39	42.40	222.310	
2,200.00	2,166.92	2,146.33	2,146.26	6.53	38.07	88.99	-1,371.07	-9,336.03	9,425.39	9,380.79	44.60	211.328	
2,300.00	2,264.30	2,248.93	2,248.81	6.83	40.16	89.13	-1,371.44	-9,336.03	9,425.05	9,378.06	46.99	200.581	
2,400.00	2,361.68	2,346.31	2,346.19	7.13	42.19	89.26	-1,371.44	-9,336.03	9,424.72	9,375.40	49.32	191.101	
2,500.00	2,459.06	2,443.69	2,443.57	7.43	44.22	89.40	-1,371.44	-9,336.03	9,424.45	9,372.80	51.65	182.478	
2,600.00	2,556.44	2,538.29	2,538.16	7.73	46.19	89.53	-1,370.48	-9,336.03	9,424.13	9,370.22	53.92	174.786	
2,700.00	2,653.82	2,632.59	2,632.45	8.03	48.16	89.66	-1,370.91	-9,336.03	9,424.02	9,367.83	56.18	167.738	
2,800.00	2,751.19	2,735.90	2,735.71	8.33	50.31	89.80	-1,371.44	-9,336.03	9,423.96	9,365.32	58.64	160.706	
2,900.00	2,848.57	2,833.28	2,833.09	8.63	52.36	89.94	-1,371.44	-9,336.03	9,423.91	9,362.92	60.99	154.525	
2,946.78	2,894.13	2,878.84	2,878.64	8.77	53.32	90.00	-1,371.44	-9,336.03	9,423.90	9,361.82	62.08	151.794	
3,000.00	2,945.95	2,930.66	2,930.47	8.93	54.41	90.07	-1,371.44	-9,336.03	9,423.91	9,360.58	63.33	148.802	
3,082.71	3,026.50	3,011.20	3,010.99	9.18	56.10	90.19	-1,370.10	-9,336.03	9,423.83	9,358.56	65.27	144.379	CC
3,100.00	3,043.33	3,027.63	3,027.43	9.23	56.44	90.21	-1,370.10	-9,336.03	9,423.84	9,358.18	65.67	143.506	
3,200.00	3,140.71	3,122.78	3,122.57	9.53	58.44	90.34	-1,370.28	-9,336.03	9,423.98	9,356.01	67.97	138.655	
3,300.00	3,238.09	3,218.05	3,217.83	9.83	60.44	90.47	-1,370.71	-9,336.03	9,424.18	9,353.91	70.27	134.118	
3,400.00	3,335.47	3,313.44	3,313.22	10.13	62.45	90.60	-1,371.40	-9,336.03	9,424.46	9,351.89	72.57	129.864	
3,500.00	3,432.85	3,337.00	3,336.71	10.43	62.94	90.63	-1,371.44	-9,336.03	9,425.09	9,351.72	73.37	128.468	ES
3,600.00	3,530.23	3,337.00	3,336.71	10.73	62.94	90.63	-1,371.44	-9,336.03	9,426.75	9,353.10	73.66	127.982	
3,700.00	3,627.61	3,337.00	3,336.71	11.03	62.94	90.63	-1,371.44	-9,336.03	9,429.48	9,355.54	73.94	127.526	
3,800.00	3,724.99	3,337.00	3,336.71	11.33	62.94	90.63	-1,371.44	-9,336.03	9,433.27	9,359.05	74.22	127.099	
3,900.00	3,822.36	3,337.00	3,336.71	11.63	62.94	90.63	-1,371.44	-9,336.03	9,438.11	9,363.62	74.49	126.700	
4,000.00	3,919.74	3,337.00	3,336.71	11.93	62.94	90.63	-1,371.44	-9,336.03	9,444.02	9,369.26	74.76	126.330	
4,100.00	4,017.12	3,337.00	3,336.71	12.23	62.94	90.63	-1,371.44	-9,336.03	9,450.97	9,375.95	75.02	125.986	
4,200.00	4,114.50	3,337.00	3,336.71	12.53	62.94	90.63	-1,371.44	-9,336.03	9,458.98	9,383.71	75.27	125.670	
4,300.00	4,211.88	3,337.00	3,336.71	12.83	62.94	90.63	-1,371.44	-9,336.03	9,468.04	9,392.52	75.51	125.380	
4,400.00	4,309.26	3,337.00	3,336.71	13.13	62.94	90.63	-1,371.44	-9,336.03	9,478.14	9,402.39	75.75	125.116	
4,500.00	4,406.64	3,337.00	3,336.71	13.43	62.94	90.63	-1,371.44	-9,336.03	9,489.29	9,413.30	75.99	124.878	
4,600.00	4,504.02	3,337.00	3,336.71	13.73	62.94	90.63	-1,371.44	-9,336.03	9,501.47	9,425.26	76.22	124.665	
4,700.00	4,601.40	3,337.00	3,336.71	14.03	62.94	90.63	-1,371.44	-9,336.03	9,514.70	9,438.26	76.44	124.476	
4,800.00	4,698.78	3,337.00	3,336.71	14.33	62.94	90.63	-1,371.44	-9,336.03	9,528.95	9,452.30	76.65	124.312	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #231 (Offset) - 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
4,900.00	4,796.16	3,337.00	3,336.71	14.63	62.94	90.63	-1,371.44	-9,336.03	9,544.23	9,467.37	76.86	124.172	
5,000.00	4,893.53	3,337.00	3,336.71	14.93	62.94	90.63	-1,371.44	-9,336.03	9,560.53	9,483.46	77.07	124.055	
5,100.00	4,990.91	3,337.00	3,336.71	15.23	62.94	90.63	-1,371.44	-9,336.03	9,577.85	9,500.58	77.27	123.960	
5,200.00	5,088.29	3,337.00	3,336.71	15.53	62.94	90.63	-1,371.44	-9,336.03	9,596.18	9,518.72	77.46	123.889	
5,300.00	5,185.67	3,337.00	3,336.71	15.83	62.94	90.63	-1,371.44	-9,336.03	9,615.51	9,537.86	77.64	123.839	
5,400.00	5,283.05	3,337.00	3,336.71	16.13	62.94	90.63	-1,371.44	-9,336.03	9,635.84	9,558.02	77.83	123.812	
5,500.00	5,380.43	3,337.00	3,336.71	16.43	62.94	90.63	-1,371.44	-9,336.03	9,657.17	9,579.16	78.00	123.805	SF
5,600.00	5,477.81	3,337.00	3,336.71	16.73	62.94	90.63	-1,371.44	-9,336.03	9,679.48	9,601.31	78.17	123.820	
5,700.00	5,575.19	3,337.00	3,336.71	17.03	62.94	90.63	-1,371.44	-9,336.03	9,702.77	9,624.43	78.34	123.854	
5,800.00	5,672.57	3,337.00	3,336.71	17.33	62.94	90.63	-1,371.44	-9,336.03	9,727.03	9,648.53	78.50	123.909	
5,900.00	5,769.95	3,337.00	3,336.71	17.63	62.94	90.63	-1,371.44	-9,336.03	9,752.26	9,673.60	78.66	123.984	
6,000.00	5,867.33	3,337.00	3,336.71	17.93	62.94	90.63	-1,371.44	-9,336.03	9,778.45	9,699.64	78.81	124.077	
6,100.00	5,964.70	3,337.00	3,336.71	18.23	62.94	90.63	-1,371.44	-9,336.03	9,805.58	9,726.63	78.96	124.190	
6,200.00	6,062.08	3,337.00	3,336.71	18.53	62.94	90.63	-1,371.44	-9,336.03	9,833.66	9,754.56	79.10	124.321	
6,300.00	6,159.46	3,337.00	3,336.71	18.83	62.94	90.63	-1,371.44	-9,336.03	9,862.67	9,783.44	79.24	124.470	
6,400.00	6,256.84	3,337.00	3,336.71	19.13	62.94	90.63	-1,371.44	-9,336.03	9,892.61	9,813.24	79.37	124.637	
6,500.00	6,354.22	3,337.00	3,336.71	19.43	62.94	90.63	-1,371.44	-9,336.03	9,923.47	9,843.97	79.50	124.821	
6,600.00	6,451.60	3,337.00	3,336.71	19.73	62.94	90.63	-1,371.44	-9,336.03	9,955.23	9,875.60	79.63	125.022	
6,694.27	6,543.40	3,337.00	3,336.71	20.02	62.94	90.63	-1,371.44	-9,336.03	9,986.00	9,906.26	79.74	125.227	
6,700.00	6,548.98	3,337.00	3,336.71	20.03	62.94	93.05	-1,371.44	-9,336.03	9,987.92	9,908.17	79.75	125.240	
6,750.00	6,597.52	3,337.00	3,336.71	20.18	62.94	112.12	-1,371.44	-9,336.03	10,007.08	9,927.26	79.81	125.380	
6,800.00	6,645.56	3,337.00	3,336.71	20.33	62.94	126.17	-1,371.44	-9,336.03	10,030.36	9,950.48	79.88	125.567	
6,850.00	6,692.73	3,337.00	3,336.71	20.48	62.94	135.68	-1,371.44	-9,336.03	10,057.58	9,977.63	79.95	125.796	
6,900.00	6,738.66	3,337.00	3,336.71	20.63	62.94	142.02	-1,371.44	-9,336.03	10,088.50	10,008.47	80.03	126.064	
6,950.00	6,783.02	3,337.00	3,336.71	20.78	62.94	146.25	-1,371.44	-9,336.03	10,122.83	10,042.73	80.11	126.366	
7,000.00	6,825.45	3,337.00	3,336.71	20.94	62.94	149.04	-1,371.44	-9,336.03	10,160.30	10,080.11	80.19	126.696	
7,050.00	6,865.65	3,337.00	3,336.71	21.09	62.94	150.72	-1,371.44	-9,336.03	10,200.58	10,120.29	80.29	127.050	
7,100.00	6,903.29	3,337.00	3,336.71	21.24	62.94	151.44	-1,371.44	-9,336.03	10,243.33	10,162.94	80.39	127.422	
7,150.00	6,938.11	3,337.00	3,336.71	21.39	62.94	151.16	-1,371.44	-9,336.03	10,288.20	10,207.71	80.50	127.807	
7,200.00	6,969.82	3,337.00	3,336.71	21.54	62.94	149.54	-1,371.44	-9,336.03	10,334.83	10,254.22	80.62	128.200	
7,250.00	6,998.19	3,337.00	3,336.71	21.69	62.94	145.62	-1,371.44	-9,336.03	10,382.83	10,302.09	80.74	128.595	
7,300.00	7,023.01	3,337.00	3,336.71	21.84	62.94	136.34	-1,371.44	-9,336.03	10,431.83	10,350.96	80.87	128.988	
7,350.00	7,044.08	3,337.00	3,336.71	21.99	62.94	109.95	-1,371.44	-9,336.03	10,481.44	10,400.43	81.02	129.374	
7,400.00	7,061.25	3,337.00	3,336.71	22.14	62.94	51.25	-1,371.44	-9,336.03	10,531.28	10,450.11	81.17	129.747	
7,450.00	7,074.38	3,337.00	3,336.71	22.29	62.94	18.37	-1,371.44	-9,336.03	10,580.97	10,499.64	81.33	130.104	
7,500.00	7,083.37	3,337.00	3,336.71	22.44	62.94	6.75	-1,371.44	-9,336.03	10,630.13	10,548.63	81.49	130.439	
7,550.00	7,088.16	3,337.00	3,336.71	22.59	62.94	1.36	-1,371.44	-9,336.03	10,678.40	10,596.73	81.67	130.750	
7,581.00	7,089.00	3,337.00	3,336.71	22.68	62.94	-0.72	-1,371.44	-9,336.03	10,707.72	10,625.94	81.78	130.928	
7,600.00	7,089.02	3,337.00	3,336.71	22.74	62.94	-0.72	-1,371.44	-9,336.03	10,725.54	10,643.68	81.85	131.034	
7,700.00	7,089.09	3,337.00	3,336.71	23.04	62.94	-0.72	-1,371.44	-9,336.03	10,819.35	10,737.13	82.22	131.587	
7,800.00	7,089.17	3,337.00	3,336.71	23.34	62.94	-0.72	-1,371.44	-9,336.03	10,913.28	10,830.69	82.59	132.140	
7,900.00	7,089.25	3,337.00	3,336.71	23.64	62.94	-0.72	-1,371.44	-9,336.03	11,007.31	10,924.36	82.95	132.693	
8,000.00	7,089.33	3,337.00	3,336.71	23.94	62.94	-0.72	-1,371.44	-9,336.03	11,101.45	11,018.13	83.32	133.244	
8,100.00	7,089.41	3,337.00	3,336.71	24.24	62.94	-0.72	-1,371.44	-9,336.03	11,195.69	11,112.01	83.68	133.794	
8,200.00	7,089.49	3,337.00	3,336.71	24.54	62.94	-0.72	-1,371.44	-9,336.03	11,290.03	11,205.99	84.04	134.343	
8,300.00	7,089.56	3,337.00	3,336.71	24.84	62.94	-0.72	-1,371.44	-9,336.03	11,384.46	11,300.07	84.40	134.891	
8,400.00	7,089.64	3,337.00	3,336.71	25.14	62.94	-0.72	-1,371.44	-9,336.03	11,478.99	11,394.24	84.75	135.438	
8,500.00	7,089.72	3,337.00	3,336.71	25.44	62.94	-0.72	-1,371.44	-9,336.03	11,573.61	11,488.50	85.11	135.983	
8,600.00	7,089.80	3,337.00	3,336.71	25.75	62.94	-0.72	-1,371.44	-9,336.03	11,668.32	11,582.86	85.47	136.527	
8,700.00	7,089.88	3,337.00	3,336.71	26.05	62.94	-0.72	-1,371.44	-9,336.03	11,763.12	11,677.30	85.82	137.070	
8,800.00	7,089.96	3,337.00	3,336.71	26.35	62.94	-0.72	-1,371.44	-9,336.03	11,858.01	11,771.84	86.17	137.611	
8,900.00	7,090.03	3,337.00	3,336.71	26.65	62.94	-0.72	-1,371.44	-9,336.03	11,952.97	11,866.45	86.52	138.150	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,090.11	3,337.00	3,336.71	26.95	62.94	-0.72	-1,371.44	-9,336.03	12,048.02	11,961.15	86.87	138.689	
9,100.00	7,090.19	3,337.00	3,336.71	27.25	62.94	-0.72	-1,371.44	-9,336.03	12,143.15	12,055.93	87.22	139.225	
9,200.00	7,090.27	3,337.00	3,336.71	27.55	62.94	-0.72	-1,371.44	-9,336.03	12,238.36	12,150.79	87.57	139.760	
9,300.00	7,090.35	3,337.00	3,336.71	27.85	62.94	-0.72	-1,371.44	-9,336.03	12,333.64	12,245.73	87.91	140.294	
9,400.00	7,090.43	3,337.00	3,336.71	28.15	62.94	-0.72	-1,371.44	-9,336.03	12,429.00	12,340.74	88.26	140.825	
9,500.00	7,090.51	3,337.00	3,336.71	28.45	62.94	-0.72	-1,371.44	-9,336.03	12,524.42	12,435.82	88.60	141.355	
9,600.00	7,090.58	3,337.00	3,336.71	28.75	62.94	-0.72	-1,371.44	-9,336.03	12,619.92	12,530.98	88.95	141.884	
9,700.00	7,090.66	3,337.00	3,336.71	29.05	62.94	-0.72	-1,371.44	-9,336.03	12,715.49	12,626.20	89.29	142.410	
9,800.00	7,090.74	3,337.00	3,336.71	29.35	62.94	-0.72	-1,371.44	-9,336.03	12,811.13	12,721.50	89.63	142.935	
9,900.00	7,090.82	3,337.00	3,336.71	29.65	62.94	-0.72	-1,371.44	-9,336.03	12,906.83	12,816.86	89.97	143.458	
10,000.00	7,090.90	3,337.00	3,336.71	29.95	62.94	-0.72	-1,371.44	-9,336.03	13,002.60	12,912.29	90.31	143.979	
10,100.00	7,090.98	3,337.00	3,336.71	30.25	62.94	-0.72	-1,371.44	-9,336.03	13,098.43	13,007.78	90.65	144.499	
10,200.00	7,091.05	3,337.00	3,336.71	30.55	62.94	-0.72	-1,371.44	-9,336.03	13,194.32	13,103.34	90.99	145.016	
10,300.00	7,091.13	3,337.00	3,336.71	30.85	62.94	-0.72	-1,371.44	-9,336.03	13,290.27	13,198.95	91.32	145.532	
10,400.00	7,091.21	3,337.00	3,336.71	31.15	62.94	-0.72	-1,371.44	-9,336.03	13,386.29	13,294.63	91.66	146.045	
10,500.00	7,091.29	3,337.00	3,336.71	31.45	62.94	-0.72	-1,371.44	-9,336.03	13,482.36	13,390.36	91.99	146.557	
10,600.00	7,091.37	3,337.00	3,336.71	31.76	62.94	-0.72	-1,371.44	-9,336.03	13,578.48	13,486.15	92.33	147.067	
10,700.00	7,091.45	3,337.00	3,336.71	32.06	62.94	-0.72	-1,371.44	-9,336.03	13,674.66	13,582.00	92.66	147.575	
10,800.00	7,091.53	3,337.00	3,336.71	32.36	62.94	-0.72	-1,371.44	-9,336.03	13,770.90	13,677.90	93.00	148.081	
10,900.00	7,091.60	3,337.00	3,336.71	32.66	62.94	-0.72	-1,371.44	-9,336.03	13,867.19	13,773.86	93.33	148.585	
11,000.00	7,091.68	3,337.00	3,336.71	32.96	62.94	-0.72	-1,371.44	-9,336.03	13,963.53	13,869.87	93.66	149.087	
11,100.00	7,091.76	3,337.00	3,336.71	33.26	62.94	-0.72	-1,371.44	-9,336.03	14,059.93	13,965.93	93.99	149.587	
11,200.00	7,091.84	3,337.00	3,336.71	33.56	62.94	-0.72	-1,371.44	-9,336.03	14,156.37	14,062.05	94.32	150.086	
11,300.00	7,091.92	3,337.00	3,336.71	33.86	62.94	-0.72	-1,371.44	-9,336.03	14,252.86	14,158.21	94.65	150.582	
11,400.00	7,092.00	3,337.00	3,336.71	34.16	62.94	-0.72	-1,371.44	-9,336.03	14,349.40	14,254.42	94.98	151.076	
11,500.00	7,092.07	3,337.00	3,336.71	34.46	62.94	-0.72	-1,371.44	-9,336.03	14,445.99	14,350.68	95.31	151.568	
11,600.00	7,092.15	3,337.00	3,336.71	34.76	62.94	-0.72	-1,371.44	-9,336.03	14,542.62	14,446.98	95.64	152.058	
11,700.00	7,092.23	3,337.00	3,336.71	35.06	62.94	-0.72	-1,371.44	-9,336.03	14,639.30	14,543.33	95.97	152.546	
11,800.00	7,092.31	3,337.00	3,336.71	35.36	62.94	-0.72	-1,371.44	-9,336.03	14,736.02	14,639.73	96.29	153.033	
11,900.00	7,092.39	3,337.00	3,336.71	35.66	62.94	-0.72	-1,371.44	-9,336.03	14,832.79	14,736.17	96.62	153.517	
12,000.00	7,092.47	3,337.00	3,336.71	35.96	62.94	-0.72	-1,371.44	-9,336.03	14,929.60	14,832.65	96.95	153.999	
12,100.00	7,092.55	3,337.00	3,336.71	36.26	62.94	-0.72	-1,371.44	-9,336.03	15,026.45	14,929.18	97.27	154.479	
12,200.00	7,092.62	3,337.00	3,336.71	36.56	62.94	-0.72	-1,371.44	-9,336.03	15,123.34	15,025.74	97.60	154.957	
12,300.00	7,092.70	3,337.00	3,336.71	36.86	62.94	-0.72	-1,371.44	-9,336.03	15,220.27	15,122.35	97.92	155.433	
12,400.00	7,092.78	3,337.00	3,336.71	37.16	62.94	-0.72	-1,371.44	-9,336.03	15,317.25	15,219.00	98.25	155.908	
12,500.00	7,092.86	3,337.00	3,336.71	37.46	62.94	-0.72	-1,371.44	-9,336.03	15,414.26	15,315.69	98.57	156.380	
12,600.00	7,092.94	3,337.00	3,336.71	37.76	62.94	-0.72	-1,371.44	-9,336.03	15,511.30	15,412.41	98.89	156.850	
12,700.00	7,093.02	3,337.00	3,336.71	38.06	62.94	-0.72	-1,371.44	-9,336.03	15,608.39	15,509.17	99.22	157.318	
12,800.00	7,093.09	3,337.00	3,336.71	38.36	62.94	-0.72	-1,371.44	-9,336.03	15,705.51	15,605.97	99.54	157.784	
12,900.00	7,093.17	3,337.00	3,336.71	38.66	62.94	-0.72	-1,371.44	-9,336.03	15,802.67	15,702.81	99.86	158.248	
13,000.00	7,093.25	3,337.00	3,336.71	38.96	62.94	-0.72	-1,371.44	-9,336.03	15,899.86	15,799.68	100.18	158.710	
13,100.00	7,093.33	3,337.00	3,336.71	39.26	62.94	-0.72	-1,371.44	-9,336.03	15,997.09	15,896.59	100.50	159.170	
13,200.00	7,093.41	3,337.00	3,336.71	39.56	62.94	-0.72	-1,371.44	-9,336.03	16,094.35	15,993.53	100.82	159.629	
13,300.00	7,093.49	3,337.00	3,336.71	39.86	62.94	-0.72	-1,371.44	-9,336.03	16,191.65	16,090.50	101.14	160.085	
13,400.00	7,093.57	3,337.00	3,336.71	40.16	62.94	-0.72	-1,371.44	-9,336.03	16,288.97	16,187.51	101.46	160.539	
13,500.00	7,093.64	3,337.00	3,336.71	40.47	62.94	-0.72	-1,371.44	-9,336.03	16,386.33	16,284.55	101.78	160.991	
13,600.00	7,093.72	3,337.00	3,336.71	40.77	62.94	-0.72	-1,371.44	-9,336.03	16,483.73	16,381.62	102.10	161.441	
13,700.00	7,093.80	3,337.00	3,336.71	41.07	62.94	-0.72	-1,371.44	-9,336.03	16,581.15	16,478.73	102.42	161.889	
13,800.00	7,093.88	3,337.00	3,336.71	41.37	62.94	-0.72	-1,371.44	-9,336.03	16,678.60	16,575.86	102.74	162.336	
13,900.00	7,093.96	3,337.00	3,336.71	41.67	62.94	-0.72	-1,371.44	-9,336.03	16,776.08	16,673.03	103.06	162.780	
14,000.00	7,094.04	3,337.00	3,336.71	41.97	62.94	-0.72	-1,371.44	-9,336.03	16,873.60	16,770.22	103.38	163.222	
14,100.00	7,094.11	3,337.00	3,336.71	42.27	62.94	-0.72	-1,371.44	-9,336.03	16,971.14	16,867.44	103.70	163.663	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 230-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	7,094.19	3,337.00	3,336.71	42.57	62.94	-0.72	-1,371.44	-9,336.03	17,068.71	16,964.70	104.01	164.101	
14,300.00	7,094.27	3,337.00	3,336.71	42.87	62.94	-0.72	-1,371.44	-9,336.03	17,166.31	17,061.98	104.33	164.538	
14,400.00	7,094.35	3,337.00	3,336.71	43.17	62.94	-0.72	-1,371.44	-9,336.03	17,263.93	17,159.29	104.65	164.972	
14,500.00	7,094.43	3,337.00	3,336.71	43.47	62.94	-0.72	-1,371.44	-9,336.03	17,361.59	17,256.62	104.96	165.405	
14,600.00	7,094.51	3,337.00	3,336.71	43.77	62.94	-0.72	-1,371.44	-9,336.03	17,459.26	17,353.98	105.28	165.836	
14,700.00	7,094.58	3,337.00	3,336.71	44.07	62.94	-0.72	-1,371.44	-9,336.03	17,556.97	17,451.37	105.60	166.265	
14,800.00	7,094.66	3,337.00	3,336.71	44.37	62.94	-0.72	-1,371.44	-9,336.03	17,654.70	17,548.79	105.91	166.692	
14,900.00	7,094.74	3,337.00	3,336.71	44.67	62.94	-0.72	-1,371.44	-9,336.03	17,752.46	17,646.23	106.23	167.117	
15,000.00	7,094.82	3,337.00	3,336.71	44.97	62.94	-0.72	-1,371.44	-9,336.03	17,850.24	17,743.69	106.54	167.540	
15,100.00	7,094.90	3,337.00	3,336.71	45.27	62.94	-0.72	-1,371.44	-9,336.03	17,948.04	17,841.18	106.86	167.961	
15,200.00	7,094.98	3,337.00	3,336.71	45.57	62.94	-0.72	-1,371.44	-9,336.03	18,045.87	17,938.70	107.17	168.381	
15,300.00	7,095.06	3,337.00	3,336.71	45.87	62.94	-0.72	-1,371.44	-9,336.03	18,143.73	18,036.24	107.49	168.798	
15,400.00	7,095.13	3,337.00	3,336.71	46.17	62.94	-0.72	-1,371.44	-9,336.03	18,241.60	18,133.80	107.80	169.214	
15,500.00	7,095.21	3,337.00	3,336.71	46.47	62.94	-0.72	-1,371.44	-9,336.03	18,339.50	18,231.39	108.12	169.628	
15,600.00	7,095.29	3,337.00	3,336.71	46.77	62.94	-0.72	-1,371.44	-9,336.03	18,437.42	18,328.99	108.43	170.040	
15,700.00	7,095.37	3,337.00	3,336.71	47.07	62.94	-0.72	-1,371.44	-9,336.03	18,535.37	18,426.62	108.74	170.450	
15,800.00	7,095.45	3,337.00	3,336.71	47.37	62.94	-0.72	-1,371.44	-9,336.03	18,633.33	18,524.28	109.06	170.858	
15,900.00	7,095.53	3,337.00	3,336.71	47.67	62.94	-0.72	-1,371.44	-9,336.03	18,731.32	18,621.95	109.37	171.265	
16,000.00	7,095.60	3,337.00	3,336.71	47.97	62.94	-0.72	-1,371.44	-9,336.03	18,829.33	18,719.65	109.68	171.670	
16,100.00	7,095.68	3,337.00	3,336.71	48.27	62.94	-0.72	-1,371.44	-9,336.03	18,927.36	18,817.36	110.00	172.073	
16,200.00	7,095.76	3,337.00	3,336.71	48.57	62.94	-0.72	-1,371.44	-9,336.03	19,025.41	18,915.10	110.31	172.474	
16,300.00	7,095.84	3,337.00	3,336.71	48.87	62.94	-0.72	-1,371.44	-9,336.03	19,123.48	19,012.86	110.62	172.873	
16,400.00	7,095.92	3,337.00	3,336.71	49.17	62.94	-0.72	-1,371.44	-9,336.03	19,221.57	19,110.64	110.93	173.271	
16,500.00	7,096.00	3,337.00	3,336.71	49.47	62.94	-0.72	-1,371.44	-9,336.03	19,319.68	19,208.43	111.25	173.667	
16,600.00	7,096.08	3,337.00	3,336.71	49.77	62.94	-0.72	-1,371.44	-9,336.03	19,417.81	19,306.25	111.56	174.061	
16,700.00	7,096.15	3,337.00	3,336.71	50.07	62.94	-0.72	-1,371.44	-9,336.03	19,515.96	19,404.09	111.87	174.453	
16,800.00	7,096.23	3,337.00	3,336.71	50.37	62.94	-0.72	-1,371.44	-9,336.03	19,614.12	19,501.94	112.18	174.843	
16,900.00	7,096.31	3,337.00	3,336.71	50.67	62.94	-0.72	-1,371.44	-9,336.03	19,712.31	19,599.82	112.49	175.232	
17,000.00	7,096.39	3,337.00	3,336.71	50.97	62.94	-0.72	-1,371.44	-9,336.03	19,810.51	19,697.71	112.80	175.619	
17,100.00	7,096.47	3,337.00	3,336.71	51.27	62.94	-0.72	-1,371.44	-9,336.03	19,908.73	19,795.62	113.11	176.005	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #231A (Offset) - 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	0.00	0.00	-105.34	-1,752.83	-6,391.86	6,628.54				
100.00	100.00	3.51	3.51	0.23	0.04	-105.34	-1,752.83	-6,391.86	6,627.84	6,627.57	0.26	N/A	
200.00	200.00	103.51	103.51	0.53	1.10	-105.34	-1,752.83	-6,391.86	6,627.84	6,626.21	1.63	4,070.691	
300.00	300.00	203.51	203.51	0.83	2.17	-105.34	-1,752.83	-6,391.86	6,627.84	6,624.85	2.99	2,214.974	
400.00	400.00	340.47	303.51	1.13	3.80	-105.34	-1,752.83	-6,391.86	6,627.84	6,622.91	4.93	1,344.214	
500.00	500.00	403.53	403.51	1.43	5.09	-105.34	-1,752.83	-6,391.86	6,627.84	6,621.32	6.52	1,016.610	
600.00	599.98	503.51	503.49	1.73	7.14	80.11	-1,752.83	-6,391.86	6,627.54	6,618.68	8.86	747.766	
700.00	699.84	599.91	599.89	2.03	9.11	80.18	-1,751.89	-6,391.86	6,626.40	6,615.26	11.13	595.171	
800.00	799.45	693.31	693.28	2.33	11.02	80.28	-1,752.24	-6,391.86	6,625.01	6,611.67	13.34	496.529	
900.00	898.70	802.28	802.21	2.63	13.24	80.42	-1,752.83	-6,391.86	6,623.10	6,607.23	15.87	417.327	
1,000.00	997.47	901.05	900.98	2.93	15.26	80.61	-1,752.83	-6,391.86	6,620.49	6,602.30	18.19	363.966	
1,100.00	1,095.62	999.21	999.14	3.23	17.27	80.83	-1,752.83	-6,391.86	6,617.36	6,596.86	20.50	322.844	
1,157.34	1,151.58	1,055.16	1,055.10	3.40	18.41	80.97	-1,752.83	-6,391.86	6,615.33	6,593.52	21.81	303.270	
1,200.00	1,193.13	1,095.19	1,095.11	3.53	19.23	81.06	-1,751.93	-6,391.86	6,613.55	6,590.79	22.76	290.580	
1,300.00	1,290.51	1,189.00	1,188.92	3.83	21.15	81.24	-1,752.11	-6,391.86	6,610.01	6,585.03	24.98	264.632	
1,400.00	1,387.89	1,282.91	1,282.83	4.13	23.07	81.42	-1,752.51	-6,391.86	6,606.60	6,579.40	27.20	242.903	
1,500.00	1,485.27	1,388.91	1,388.78	4.43	25.28	81.62	-1,752.83	-6,391.86	6,603.23	6,573.52	29.71	222.269	
1,600.00	1,582.65	1,486.29	1,486.16	4.73	27.35	81.81	-1,752.83	-6,391.86	6,599.87	6,567.79	32.08	205.739	
1,700.00	1,680.02	1,582.03	1,581.88	5.03	29.39	82.01	-1,751.89	-6,391.86	6,596.36	6,561.95	34.41	191.675	
1,800.00	1,777.40	1,673.83	1,673.68	5.33	31.34	82.19	-1,752.15	-6,391.86	6,593.22	6,556.56	36.67	179.818	
1,900.00	1,874.78	1,765.79	1,765.63	5.63	33.30	82.36	-1,752.76	-6,391.86	6,590.24	6,551.32	38.92	169.322	
2,000.00	1,972.16	1,875.88	1,875.67	5.93	35.64	82.58	-1,752.83	-6,391.86	6,587.19	6,545.63	41.56	158.486	
2,100.00	2,069.54	1,973.26	1,973.05	6.23	37.71	82.77	-1,752.83	-6,391.86	6,584.21	6,540.28	43.93	149.864	
2,200.00	2,166.92	2,068.38	2,068.16	6.53	39.73	82.96	-1,751.77	-6,391.86	6,581.08	6,534.82	46.26	142.269	
2,300.00	2,264.30	2,161.20	2,160.98	6.83	41.71	83.14	-1,752.07	-6,391.86	6,578.33	6,529.80	48.53	135.545	
2,400.00	2,361.68	2,254.17	2,253.94	7.13	43.68	83.32	-1,752.67	-6,391.86	6,575.72	6,524.91	50.81	129.418	
2,500.00	2,459.06	2,362.85	2,362.57	7.43	46.00	83.53	-1,752.83	-6,391.86	6,573.08	6,519.65	53.42	123.040	
2,600.00	2,556.44	2,460.23	2,459.95	7.73	48.07	83.73	-1,752.83	-6,391.86	6,570.48	6,514.69	55.79	117.763	
2,700.00	2,653.82	2,556.00	2,555.71	8.03	50.11	83.92	-1,751.76	-6,391.86	6,567.76	6,509.63	58.13	112.981	
2,800.00	2,751.19	2,649.15	2,648.86	8.33	52.09	84.11	-1,752.03	-6,391.86	6,565.38	6,504.97	60.41	108.674	
2,900.00	2,848.57	2,742.45	2,742.15	8.63	54.07	84.29	-1,752.60	-6,391.86	6,563.14	6,500.45	62.70	104.678	
3,000.00	2,945.95	2,849.82	2,849.47	8.93	56.29	84.50	-1,752.83	-6,391.86	6,560.90	6,495.69	65.22	100.602	
3,100.00	3,043.33	2,946.77	2,946.41	9.23	58.27	84.69	-1,752.09	-6,391.86	6,558.56	6,491.06	67.50	97.168	
3,200.00	3,140.71	3,038.45	3,038.08	9.53	60.14	84.87	-1,752.33	-6,391.86	6,556.49	6,486.82	69.67	94.106	
3,300.00	3,238.09	3,142.00	3,141.60	9.83	62.23	85.07	-1,752.83	-6,391.86	6,554.53	6,482.47	72.06	90.958	
3,400.00	3,335.47	3,239.38	3,238.98	10.13	64.14	85.27	-1,752.83	-6,391.86	6,552.57	6,478.30	74.27	88.226	
3,500.00	3,432.85	3,336.75	3,336.36	10.43	66.05	85.46	-1,752.83	-6,391.86	6,550.68	6,474.20	76.48	85.652	
3,600.00	3,530.23	3,384.00	3,383.58	10.73	66.98	85.55	-1,752.83	-6,391.86	6,549.06	6,471.36	77.70	84.282	
3,667.07	3,595.54	3,384.00	3,383.58	10.93	66.98	85.55	-1,752.83	-6,391.86	6,548.72	6,470.82	77.90	84.068	CC
3,700.00	3,627.61	3,384.00	3,383.58	11.03	66.98	85.55	-1,752.83	-6,391.86	6,548.80	6,470.81	77.99	83.970	ES
3,800.00	3,724.99	3,384.00	3,383.58	11.33	66.98	85.55	-1,752.83	-6,391.86	6,550.07	6,471.81	78.26	83.695	
3,900.00	3,822.36	3,384.00	3,383.58	11.63	66.98	85.55	-1,752.83	-6,391.86	6,552.86	6,474.34	78.52	83.457	
4,000.00	3,919.74	3,384.00	3,383.58	11.93	66.98	85.55	-1,752.83	-6,391.86	6,557.18	6,478.42	78.76	83.256	
4,100.00	4,017.12	3,384.00	3,383.58	12.23	66.98	85.55	-1,752.83	-6,391.86	6,563.01	6,484.03	78.99	83.089	
4,200.00	4,114.50	3,384.00	3,383.58	12.53	66.98	85.55	-1,752.83	-6,391.86	6,570.37	6,491.17	79.20	82.958	
4,300.00	4,211.88	3,384.00	3,383.58	12.83	66.98	85.55	-1,752.83	-6,391.86	6,579.23	6,499.83	79.40	82.861	
4,400.00	4,309.26	3,384.00	3,383.58	13.13	66.98	85.55	-1,752.83	-6,391.86	6,589.61	6,510.02	79.59	82.797	
4,500.00	4,406.64	3,384.00	3,383.58	13.43	66.98	85.55	-1,752.83	-6,391.86	6,601.48	6,521.72	79.76	82.767	SF
4,600.00	4,504.02	3,384.00	3,383.58	13.73	66.98	85.55	-1,752.83	-6,391.86	6,614.84	6,534.92	79.92	82.769	
4,700.00	4,601.40	3,384.00	3,383.58	14.03	66.98	85.55	-1,752.83	-6,391.86	6,629.68	6,549.62	80.07	82.803	
4,800.00	4,698.78	3,384.00	3,383.58	14.33	66.98	85.55	-1,752.83	-6,391.86	6,646.00	6,565.80	80.20	82.868	
4,900.00	4,796.16	3,384.00	3,383.58	14.63	66.98	85.55	-1,752.83	-6,391.86	6,663.77	6,583.45	80.32	82.965	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #231A (Offset) - 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
5,000.00	4,893.53	3,384.00	3,383.58	14.93	66.98	85.55	-1,752.83	-6,391.86	6,683.00	6,602.57	80.43	83.091	
5,100.00	4,990.91	3,384.00	3,383.58	15.23	66.98	85.55	-1,752.83	-6,391.86	6,703.66	6,623.13	80.53	83.248	
5,200.00	5,088.29	3,384.00	3,383.58	15.53	66.98	85.55	-1,752.83	-6,391.86	6,725.74	6,645.13	80.61	83.433	
5,300.00	5,185.67	3,384.00	3,383.58	15.83	66.98	85.55	-1,752.83	-6,391.86	6,749.24	6,668.55	80.69	83.647	
5,400.00	5,283.05	3,384.00	3,383.58	16.13	66.98	85.55	-1,752.83	-6,391.86	6,774.13	6,693.37	80.75	83.888	
5,500.00	5,380.43	3,384.00	3,383.58	16.43	66.98	85.55	-1,752.83	-6,391.86	6,800.39	6,719.59	80.81	84.157	
5,600.00	5,477.81	3,384.00	3,383.58	16.73	66.98	85.55	-1,752.83	-6,391.86	6,828.03	6,747.18	80.85	84.453	
5,700.00	5,575.19	3,384.00	3,383.58	17.03	66.98	85.55	-1,752.83	-6,391.86	6,857.01	6,776.12	80.89	84.775	
5,800.00	5,672.57	3,384.00	3,383.58	17.33	66.98	85.55	-1,752.83	-6,391.86	6,887.32	6,806.40	80.91	85.122	
5,900.00	5,769.95	3,384.00	3,383.58	17.63	66.98	85.55	-1,752.83	-6,391.86	6,918.94	6,838.01	80.93	85.494	
6,000.00	5,867.33	3,384.00	3,383.58	17.93	66.98	85.55	-1,752.83	-6,391.86	6,951.86	6,870.92	80.94	85.891	
6,100.00	5,964.70	3,384.00	3,383.58	18.23	66.98	85.55	-1,752.83	-6,391.86	6,986.05	6,905.11	80.94	86.312	
6,200.00	6,062.08	3,384.00	3,383.58	18.53	66.98	85.55	-1,752.83	-6,391.86	7,021.50	6,940.57	80.93	86.755	
6,300.00	6,159.46	3,384.00	3,383.58	18.83	66.98	85.55	-1,752.83	-6,391.86	7,058.19	6,977.27	80.92	87.222	
6,400.00	6,256.84	3,384.00	3,383.58	19.13	66.98	85.55	-1,752.83	-6,391.86	7,096.10	7,015.20	80.90	87.710	
6,500.00	6,354.22	3,384.00	3,383.58	19.43	66.98	85.55	-1,752.83	-6,391.86	7,135.21	7,054.33	80.88	88.220	
6,600.00	6,451.60	3,384.00	3,383.58	19.73	66.98	85.55	-1,752.83	-6,391.86	7,175.50	7,094.65	80.85	88.751	
6,694.27	6,543.40	3,384.00	3,383.58	20.02	66.98	85.55	-1,752.83	-6,391.86	7,214.54	7,133.73	80.82	89.270	
6,700.00	6,548.98	3,384.00	3,383.58	20.03	66.98	87.94	-1,752.83	-6,391.86	7,216.98	7,136.16	80.82	89.302	
6,750.00	6,597.52	3,384.00	3,383.58	20.18	66.98	106.72	-1,752.83	-6,391.86	7,240.48	7,159.68	80.80	89.606	
6,800.00	6,645.56	3,384.00	3,383.58	20.33	66.98	120.40	-1,752.83	-6,391.86	7,267.93	7,187.13	80.80	89.950	
6,850.00	6,692.73	3,384.00	3,383.58	20.48	66.98	129.42	-1,752.83	-6,391.86	7,299.07	7,218.26	80.81	90.328	
6,900.00	6,738.66	3,384.00	3,383.58	20.63	66.98	135.13	-1,752.83	-6,391.86	7,333.62	7,252.79	80.82	90.736	
6,950.00	6,783.02	3,384.00	3,383.58	20.78	66.98	138.54	-1,752.83	-6,391.86	7,371.26	7,290.41	80.85	91.168	
7,000.00	6,825.45	3,384.00	3,383.58	20.94	66.98	140.20	-1,752.83	-6,391.86	7,411.68	7,330.78	80.90	91.618	
7,050.00	6,865.65	3,384.00	3,383.58	21.09	66.98	140.32	-1,752.83	-6,391.86	7,454.51	7,373.55	80.96	92.080	
7,100.00	6,903.29	3,384.00	3,383.58	21.24	66.98	138.76	-1,752.83	-6,391.86	7,499.39	7,418.36	81.03	92.549	
7,150.00	6,938.11	3,384.00	3,383.58	21.39	66.98	134.94	-1,752.83	-6,391.86	7,545.96	7,464.83	81.12	93.019	
7,200.00	6,969.82	3,384.00	3,383.58	21.54	66.98	127.42	-1,752.83	-6,391.86	7,593.82	7,512.58	81.23	93.485	
7,250.00	6,998.19	3,384.00	3,383.58	21.69	66.98	113.03	-1,752.83	-6,391.86	7,642.59	7,561.23	81.35	93.942	
7,300.00	7,023.01	3,384.00	3,383.58	21.84	66.98	87.27	-1,752.83	-6,391.86	7,691.88	7,610.39	81.50	94.384	
7,350.00	7,044.08	3,384.00	3,383.58	21.99	66.98	55.22	-1,752.83	-6,391.86	7,741.32	7,659.67	81.65	94.808	
7,400.00	7,061.25	3,384.00	3,383.58	22.14	66.98	32.25	-1,752.83	-6,391.86	7,790.53	7,708.71	81.83	95.208	
7,450.00	7,074.38	3,384.00	3,383.58	22.29	66.98	19.36	-1,752.83	-6,391.86	7,839.15	7,757.13	82.02	95.581	
7,500.00	7,083.37	3,384.00	3,383.58	22.44	66.98	11.93	-1,752.83	-6,391.86	7,886.81	7,804.59	82.22	95.924	
7,550.00	7,088.16	3,384.00	3,383.58	22.59	66.98	7.24	-1,752.83	-6,391.86	7,933.17	7,850.73	82.44	96.233	
7,581.00	7,089.00	3,384.00	3,383.58	22.68	66.98	5.12	-1,752.83	-6,391.86	7,961.12	7,878.54	82.58	96.406	
7,600.00	7,089.02	3,384.00	3,383.58	22.74	66.98	5.12	-1,752.83	-6,391.86	7,978.05	7,895.38	82.67	96.507	
7,700.00	7,089.09	3,384.00	3,383.58	23.04	66.98	5.12	-1,752.83	-6,391.86	8,067.31	7,984.17	83.13	97.042	
7,800.00	7,089.17	3,384.00	3,383.58	23.34	66.98	5.12	-1,752.83	-6,391.86	8,156.81	8,073.22	83.59	97.580	
7,900.00	7,089.25	3,384.00	3,383.58	23.64	66.98	5.12	-1,752.83	-6,391.86	8,246.56	8,162.51	84.04	98.121	
8,000.00	7,089.33	3,384.00	3,383.58	23.94	66.98	5.12	-1,752.83	-6,391.86	8,336.53	8,252.04	84.49	98.665	
8,100.00	7,089.41	3,384.00	3,383.58	24.24	66.98	5.12	-1,752.83	-6,391.86	8,426.74	8,341.80	84.94	99.211	
8,200.00	7,089.49	3,384.00	3,383.58	24.54	66.98	5.12	-1,752.83	-6,391.86	8,517.16	8,431.78	85.38	99.759	
8,300.00	7,089.56	3,384.00	3,383.58	24.84	66.98	5.12	-1,752.83	-6,391.86	8,607.80	8,521.98	85.81	100.310	
8,400.00	7,089.64	3,384.00	3,383.58	25.14	66.98	5.12	-1,752.83	-6,391.86	8,698.64	8,612.39	86.24	100.862	
8,500.00	7,089.72	3,384.00	3,383.58	25.44	66.98	5.12	-1,752.83	-6,391.86	8,789.68	8,703.01	86.67	101.415	
8,600.00	7,089.80	3,384.00	3,383.58	25.75	66.98	5.12	-1,752.83	-6,391.86	8,880.91	8,793.81	87.09	101.970	
8,700.00	7,089.88	3,384.00	3,383.58	26.05	66.98	5.12	-1,752.83	-6,391.86	8,972.33	8,884.81	87.51	102.526	
8,800.00	7,089.96	3,384.00	3,383.58	26.35	66.98	5.12	-1,752.83	-6,391.86	9,063.93	8,976.00	87.93	103.083	
8,900.00	7,090.03	3,384.00	3,383.58	26.65	66.98	5.12	-1,752.83	-6,391.86	9,155.70	9,067.36	88.34	103.641	
9,000.00	7,090.11	3,384.00	3,383.58	26.95	66.98	5.12	-1,752.83	-6,391.86	9,247.65	9,158.90	88.75	104.199	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #231A (Offset) - 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
9,100.00	7,090.19	3,384.00	3,383.58	27.25	66.98	5.12	-1,752.83	-6,391.86	9,339.76	9,250.61	89.16	104.758	
9,200.00	7,090.27	3,384.00	3,383.58	27.55	66.98	5.12	-1,752.83	-6,391.86	9,432.03	9,342.48	89.56	105.317	
9,300.00	7,090.35	3,384.00	3,383.58	27.85	66.98	5.12	-1,752.83	-6,391.86	9,524.46	9,434.50	89.96	105.877	
9,400.00	7,090.43	3,384.00	3,383.58	28.15	66.98	5.12	-1,752.83	-6,391.86	9,617.04	9,526.69	90.36	106.436	
9,500.00	7,090.51	3,384.00	3,383.58	28.45	66.98	5.12	-1,752.83	-6,391.86	9,709.77	9,619.02	90.75	106.996	
9,600.00	7,090.58	3,384.00	3,383.58	28.75	66.98	5.12	-1,752.83	-6,391.86	9,802.64	9,711.50	91.14	107.555	
9,700.00	7,090.66	3,384.00	3,383.58	29.05	66.98	5.12	-1,752.83	-6,391.86	9,895.65	9,804.12	91.53	108.114	
9,800.00	7,090.74	3,384.00	3,383.58	29.35	66.98	5.12	-1,752.83	-6,391.86	9,988.79	9,896.88	91.92	108.673	
9,900.00	7,090.82	3,384.00	3,383.58	29.65	66.98	5.12	-1,752.83	-6,391.86	10,082.07	9,989.77	92.30	109.231	
10,000.00	7,090.90	3,384.00	3,383.58	29.95	66.98	5.12	-1,752.83	-6,391.86	10,175.47	10,082.79	92.68	109.789	
10,100.00	7,090.98	3,384.00	3,383.58	30.25	66.98	5.12	-1,752.83	-6,391.86	10,269.00	10,175.94	93.06	110.346	
10,200.00	7,091.05	3,384.00	3,383.58	30.55	66.98	5.12	-1,752.83	-6,391.86	10,362.65	10,269.21	93.44	110.902	
10,300.00	7,091.13	3,384.00	3,383.58	30.85	66.98	5.12	-1,752.83	-6,391.86	10,456.41	10,362.60	93.81	111.458	
10,400.00	7,091.21	3,384.00	3,383.58	31.15	66.98	5.12	-1,752.83	-6,391.86	10,550.29	10,456.11	94.19	112.013	
10,500.00	7,091.29	3,384.00	3,383.58	31.45	66.98	5.12	-1,752.83	-6,391.86	10,644.29	10,549.73	94.56	112.567	
10,600.00	7,091.37	3,384.00	3,383.58	31.76	66.98	5.12	-1,752.83	-6,391.86	10,738.39	10,643.46	94.93	113.119	
10,700.00	7,091.45	3,384.00	3,383.58	32.06	66.98	5.12	-1,752.83	-6,391.86	10,832.59	10,737.30	95.30	113.671	
10,800.00	7,091.53	3,384.00	3,383.58	32.36	66.98	5.12	-1,752.83	-6,391.86	10,926.90	10,831.24	95.66	114.222	
10,900.00	7,091.60	3,384.00	3,383.58	32.66	66.98	5.12	-1,752.83	-6,391.86	11,021.31	10,925.28	96.03	114.772	
11,000.00	7,091.68	3,384.00	3,383.58	32.96	66.98	5.12	-1,752.83	-6,391.86	11,115.82	11,019.43	96.39	115.320	
11,100.00	7,091.76	3,384.00	3,383.58	33.26	66.98	5.12	-1,752.83	-6,391.86	11,210.42	11,113.67	96.75	115.867	
11,200.00	7,091.84	3,384.00	3,383.58	33.56	66.98	5.12	-1,752.83	-6,391.86	11,305.12	11,208.01	97.11	116.413	
11,300.00	7,091.92	3,384.00	3,383.58	33.86	66.98	5.12	-1,752.83	-6,391.86	11,399.90	11,302.43	97.47	116.958	
11,400.00	7,092.00	3,384.00	3,383.58	34.16	66.98	5.12	-1,752.83	-6,391.86	11,494.78	11,396.95	97.83	117.501	
11,500.00	7,092.07	3,384.00	3,383.58	34.46	66.98	5.12	-1,752.83	-6,391.86	11,589.74	11,491.56	98.18	118.043	
11,600.00	7,092.15	3,384.00	3,383.58	34.76	66.98	5.12	-1,752.83	-6,391.86	11,684.78	11,586.25	98.54	118.583	
11,700.00	7,092.23	3,384.00	3,383.58	35.06	66.98	5.12	-1,752.83	-6,391.86	11,779.91	11,681.02	98.89	119.122	
11,800.00	7,092.31	3,384.00	3,383.58	35.36	66.98	5.12	-1,752.83	-6,391.86	11,875.12	11,775.88	99.24	119.660	
11,900.00	7,092.39	3,384.00	3,383.58	35.66	66.98	5.12	-1,752.83	-6,391.86	11,970.40	11,870.81	99.59	120.195	
12,000.00	7,092.47	3,384.00	3,383.58	35.96	66.98	5.12	-1,752.83	-6,391.86	12,065.76	11,965.82	99.94	120.730	
12,100.00	7,092.55	3,384.00	3,383.58	36.26	66.98	5.12	-1,752.83	-6,391.86	12,161.20	12,060.91	100.29	121.262	
12,200.00	7,092.62	3,384.00	3,383.58	36.56	66.98	5.12	-1,752.83	-6,391.86	12,256.71	12,156.07	100.64	121.794	
12,300.00	7,092.70	3,384.00	3,383.58	36.86	66.98	5.12	-1,752.83	-6,391.86	12,352.29	12,251.31	100.98	122.323	
12,400.00	7,092.78	3,384.00	3,383.58	37.16	66.98	5.12	-1,752.83	-6,391.86	12,447.94	12,346.61	101.33	122.851	
12,500.00	7,092.86	3,384.00	3,383.58	37.46	66.98	5.12	-1,752.83	-6,391.86	12,543.65	12,441.98	101.67	123.377	
12,600.00	7,092.94	3,384.00	3,383.58	37.76	66.98	5.12	-1,752.83	-6,391.86	12,639.44	12,537.43	102.01	123.901	
12,700.00	7,093.02	3,384.00	3,383.58	38.06	66.98	5.12	-1,752.83	-6,391.86	12,735.29	12,632.93	102.35	124.424	
12,800.00	7,093.09	3,384.00	3,383.58	38.36	66.98	5.12	-1,752.83	-6,391.86	12,831.20	12,728.50	102.69	124.945	
12,900.00	7,093.17	3,384.00	3,383.58	38.66	66.98	5.12	-1,752.83	-6,391.86	12,927.17	12,824.14	103.03	125.464	
13,000.00	7,093.25	3,384.00	3,383.58	38.96	66.98	5.12	-1,752.83	-6,391.86	13,023.20	12,919.83	103.37	125.982	
13,100.00	7,093.33	3,384.00	3,383.58	39.26	66.98	5.12	-1,752.83	-6,391.86	13,119.30	13,015.59	103.71	126.497	
13,200.00	7,093.41	3,384.00	3,383.58	39.56	66.98	5.12	-1,752.83	-6,391.86	13,215.45	13,111.40	104.05	127.011	
13,300.00	7,093.49	3,384.00	3,383.58	39.86	66.98	5.12	-1,752.83	-6,391.86	13,311.66	13,207.27	104.39	127.523	
13,400.00	7,093.57	3,384.00	3,383.58	40.16	66.98	5.12	-1,752.83	-6,391.86	13,407.92	13,303.20	104.72	128.033	
13,500.00	7,093.64	3,384.00	3,383.58	40.47	66.98	5.12	-1,752.83	-6,391.86	13,504.24	13,399.18	105.06	128.542	
13,600.00	7,093.72	3,384.00	3,383.58	40.77	66.98	5.12	-1,752.83	-6,391.86	13,600.61	13,495.22	105.39	129.049	
13,700.00	7,093.80	3,384.00	3,383.58	41.07	66.98	5.12	-1,752.83	-6,391.86	13,697.03	13,591.31	105.73	129.553	
13,800.00	7,093.88	3,384.00	3,383.58	41.37	66.98	5.12	-1,752.83	-6,391.86	13,793.51	13,687.45	106.06	130.056	
13,900.00	7,093.96	3,384.00	3,383.58	41.67	66.98	5.12	-1,752.83	-6,391.86	13,890.03	13,783.64	106.39	130.557	
14,000.00	7,094.04	3,384.00	3,383.58	41.97	66.98	5.12	-1,752.83	-6,391.86	13,986.60	13,879.88	106.72	131.057	
14,100.00	7,094.11	3,384.00	3,383.58	42.27	66.98	5.12	-1,752.83	-6,391.86	14,083.22	13,976.17	107.05	131.554	
14,200.00	7,094.19	3,384.00	3,383.58	42.57	66.98	5.12	-1,752.83	-6,391.86	14,179.89	14,072.51	107.38	132.050	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 322-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	3,384.00	3,383.58	42.87	66.98	5.12	-1,752.83	-6,391.86	14,276.60	14,168.89	107.71	132.543	
14,400.00	7,094.35	3,384.00	3,383.58	43.17	66.98	5.12	-1,752.83	-6,391.86	14,373.36	14,265.32	108.04	133.035	
14,500.00	7,094.43	3,384.00	3,383.58	43.47	66.98	5.12	-1,752.83	-6,391.86	14,470.17	14,361.79	108.37	133.525	
14,600.00	7,094.51	3,384.00	3,383.58	43.77	66.98	5.12	-1,752.83	-6,391.86	14,567.01	14,458.31	108.70	134.013	
14,700.00	7,094.58	3,384.00	3,383.58	44.07	66.98	5.12	-1,752.83	-6,391.86	14,663.90	14,554.87	109.03	134.499	
14,800.00	7,094.66	3,384.00	3,383.58	44.37	66.98	5.12	-1,752.83	-6,391.86	14,760.83	14,651.48	109.35	134.984	
14,900.00	7,094.74	3,384.00	3,383.58	44.67	66.98	5.12	-1,752.83	-6,391.86	14,857.80	14,748.12	109.68	135.466	
15,000.00	7,094.82	3,384.00	3,383.58	44.97	66.98	5.12	-1,752.83	-6,391.86	14,954.81	14,844.80	110.00	135.947	
15,100.00	7,094.90	3,384.00	3,383.58	45.27	66.98	5.12	-1,752.83	-6,391.86	15,051.86	14,941.53	110.33	136.426	
15,200.00	7,094.98	3,384.00	3,383.58	45.57	66.98	5.12	-1,752.83	-6,391.86	15,148.94	15,038.29	110.66	136.902	
15,300.00	7,095.06	3,384.00	3,383.58	45.87	66.98	5.12	-1,752.83	-6,391.86	15,246.07	15,135.09	110.98	137.377	
15,400.00	7,095.13	3,384.00	3,383.58	46.17	66.98	5.12	-1,752.83	-6,391.86	15,343.23	15,231.93	111.30	137.851	
15,500.00	7,095.21	3,384.00	3,383.58	46.47	66.98	5.12	-1,752.83	-6,391.86	15,440.43	15,328.80	111.63	138.322	
15,600.00	7,095.29	3,384.00	3,383.58	46.77	66.98	5.12	-1,752.83	-6,391.86	15,537.66	15,425.71	111.95	138.791	
15,700.00	7,095.37	3,384.00	3,383.58	47.07	66.98	5.12	-1,752.83	-6,391.86	15,634.93	15,522.66	112.27	139.259	
15,800.00	7,095.45	3,384.00	3,383.58	47.37	66.98	5.12	-1,752.83	-6,391.86	15,732.24	15,619.64	112.59	139.724	
15,900.00	7,095.53	3,384.00	3,383.58	47.67	66.98	5.12	-1,752.83	-6,391.86	15,829.57	15,716.66	112.92	140.188	
16,000.00	7,095.60	3,384.00	3,383.58	47.97	66.98	5.12	-1,752.83	-6,391.86	15,926.94	15,813.70	113.24	140.650	
16,100.00	7,095.68	3,384.00	3,383.58	48.27	66.98	5.12	-1,752.83	-6,391.86	16,024.34	15,910.79	113.56	141.110	
16,200.00	7,095.76	3,384.00	3,383.58	48.57	66.98	5.12	-1,752.83	-6,391.86	16,121.78	16,007.90	113.88	141.569	
16,300.00	7,095.84	3,384.00	3,383.58	48.87	66.98	5.12	-1,752.83	-6,391.86	16,219.24	16,105.04	114.20	142.025	
16,400.00	7,095.92	3,384.00	3,383.58	49.17	66.98	5.12	-1,752.83	-6,391.86	16,316.74	16,202.22	114.52	142.480	
16,500.00	7,096.00	3,384.00	3,383.58	49.47	66.98	5.12	-1,752.83	-6,391.86	16,414.27	16,299.43	114.84	142.932	
16,600.00	7,096.08	3,384.00	3,383.58	49.77	66.98	5.12	-1,752.83	-6,391.86	16,511.82	16,396.66	115.16	143.383	
16,700.00	7,096.15	3,384.00	3,383.58	50.07	66.98	5.12	-1,752.83	-6,391.86	16,609.41	16,493.93	115.48	143.832	
16,800.00	7,096.23	3,384.00	3,383.58	50.37	66.98	5.12	-1,752.83	-6,391.86	16,707.02	16,591.22	115.80	144.280	
16,900.00	7,096.31	3,384.00	3,383.58	50.67	66.98	5.12	-1,752.83	-6,391.86	16,804.66	16,688.55	116.11	144.725	
17,000.00	7,096.39	3,384.00	3,383.58	50.97	66.98	5.12	-1,752.83	-6,391.86	16,902.33	16,785.90	116.43	145.169	
17,100.00	7,096.47	3,384.00	3,383.58	51.27	66.98	5.12	-1,752.83	-6,391.86	17,000.02	16,883.27	116.75	145.611	
17,200.00	7,096.55	3,384.00	3,383.58	51.57	66.98	5.12	-1,752.83	-6,391.86	17,097.75	16,980.68	117.07	146.051	
17,300.00	7,096.62	3,384.00	3,383.58	51.87	66.98	5.12	-1,752.83	-6,391.86	17,195.50	17,078.11	117.38	146.489	
17,400.00	7,096.70	3,384.00	3,383.58	52.17	66.98	5.12	-1,752.83	-6,391.86	17,293.27	17,175.57	117.70	146.925	
17,500.00	7,096.78	3,384.00	3,383.58	52.47	66.98	5.12	-1,752.83	-6,391.86	17,391.07	17,273.05	118.02	147.360	
17,600.00	7,096.86	3,384.00	3,383.58	52.77	66.98	5.12	-1,752.83	-6,391.86	17,488.89	17,370.56	118.33	147.793	
17,700.00	7,096.94	3,384.00	3,383.58	53.07	66.98	5.12	-1,752.83	-6,391.86	17,586.74	17,468.09	118.65	148.224	
17,800.00	7,097.02	3,384.00	3,383.58	53.37	66.98	5.12	-1,752.83	-6,391.86	17,684.62	17,565.65	118.97	148.654	
17,900.00	7,097.10	3,384.00	3,383.58	53.67	66.98	5.12	-1,752.83	-6,391.86	17,782.51	17,663.23	119.28	149.081	
18,000.00	7,097.17	3,384.00	3,383.58	53.97	66.98	5.12	-1,752.83	-6,391.86	17,880.43	17,760.84	119.60	149.507	
18,100.00	7,097.25	3,384.00	3,383.58	54.27	66.98	5.12	-1,752.83	-6,391.86	17,978.38	17,858.47	119.91	149.931	
18,200.00	7,097.33	3,384.00	3,383.58	54.57	66.98	5.12	-1,752.83	-6,391.86	18,076.34	17,956.12	120.23	150.354	
18,300.00	7,097.41	3,384.00	3,383.58	54.87	66.98	5.12	-1,752.83	-6,391.86	18,174.33	18,053.79	120.54	150.775	
18,400.00	7,097.49	3,384.00	3,383.58	55.17	66.98	5.12	-1,752.83	-6,391.86	18,272.34	18,151.49	120.85	151.194	
18,500.00	7,097.57	3,384.00	3,383.58	55.47	66.98	5.12	-1,752.83	-6,391.86	18,370.37	18,249.20	121.17	151.611	
18,600.00	7,097.64	3,384.00	3,383.58	55.78	66.98	5.12	-1,752.83	-6,391.86	18,468.42	18,346.94	121.48	152.026	
18,700.00	7,097.72	3,384.00	3,383.58	56.08	66.98	5.12	-1,752.83	-6,391.86	18,566.50	18,444.70	121.80	152.440	
18,800.00	7,097.80	3,384.00	3,383.58	56.38	66.98	5.12	-1,752.83	-6,391.86	18,664.59	18,542.48	122.11	152.852	
18,900.00	7,097.88	3,384.00	3,383.58	56.68	66.98	5.12	-1,752.83	-6,391.86	18,762.70	18,640.28	122.42	153.263	
19,000.00	7,097.96	3,384.00	3,383.58	56.98	66.98	5.12	-1,752.83	-6,391.86	18,860.84	18,738.10	122.73	153.672	
19,100.00	7,098.04	3,384.00	3,383.58	57.28	66.98	5.12	-1,752.83	-6,391.86	18,958.99	18,835.94	123.05	154.079	
19,200.00	7,098.12	3,384.00	3,383.58	57.58	66.98	5.12	-1,752.83	-6,391.86	19,057.16	18,933.80	123.36	154.484	
19,300.00	7,098.19	3,384.00	3,383.58	57.88	66.98	5.12	-1,752.83	-6,391.86	19,155.35	19,031.68	123.67	154.888	
19,400.00	7,098.27	3,384.00	3,383.58	58.18	66.98	5.12	-1,752.83	-6,391.86	19,253.56	19,129.58	123.98	155.290	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 322-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	3,384.00	3,383.58	58.48	66.98	5.12	-1,752.83	-6,391.86	19,351.79	19,227.49	124.30	155.691	
19,600.00	7,098.43	3,384.00	3,383.58	58.78	66.98	5.12	-1,752.83	-6,391.86	19,450.03	19,325.43	124.61	156.090	
19,700.00	7,098.51	3,384.00	3,383.58	59.08	66.98	5.12	-1,752.83	-6,391.86	19,548.30	19,423.38	124.92	156.487	
19,800.00	7,098.59	3,384.00	3,383.58	59.38	66.98	5.12	-1,752.83	-6,391.86	19,646.58	19,521.35	125.23	156.883	
19,900.00	7,098.66	3,384.00	3,383.58	59.68	66.98	5.12	-1,752.83	-6,391.86	19,744.88	19,619.34	125.54	157.277	
20,000.00	7,098.74	3,384.00	3,383.58	59.98	66.98	5.12	-1,752.83	-6,391.86	19,843.19	19,717.34	125.85	157.669	
20,100.00	7,098.82	3,384.00	3,383.58	60.28	66.98	5.12	-1,752.83	-6,391.86	19,941.53	19,815.36	126.16	158.060	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-178.35	-1,350.80	-38.98	1,351.91				
100.00	100.00	61.51	61.51	0.23	0.57	-178.35	-1,350.80	-38.98	1,351.36	1,350.56	0.80	1,699.390	
200.00	200.00	161.51	161.51	0.53	1.49	-178.35	-1,350.80	-38.98	1,351.36	1,349.34	2.02	669.189	
300.00	300.00	261.52	261.51	0.83	2.66	-178.35	-1,350.80	-38.98	1,351.36	1,347.87	3.49	387.351	
400.00	400.00	361.52	361.51	1.13	4.51	-178.35	-1,350.80	-38.98	1,351.36	1,345.72	5.64	239.719	
500.00	500.00	461.52	461.51	1.43	6.36	-178.35	-1,350.80	-38.98	1,351.36	1,343.57	7.79	173.567	
600.00	599.98	560.24	560.23	1.73	8.18	7.09	-1,350.24	-38.98	1,349.07	1,339.16	9.91	136.121	
700.00	699.84	657.97	657.96	2.03	9.99	7.13	-1,350.41	-38.98	1,344.05	1,332.03	12.02	111.841	
800.00	799.45	755.49	755.49	2.33	11.79	7.20	-1,350.73	-38.98	1,335.73	1,321.61	14.12	94.596	
900.00	898.70	860.24	860.21	2.63	13.78	7.30	-1,350.80	-38.98	1,323.70	1,307.29	16.40	80.693	
1,000.00	997.47	959.00	958.98	2.93	15.65	7.43	-1,350.80	-38.98	1,308.18	1,289.60	18.58	70.399	
1,100.00	1,095.62	1,057.00	1,056.97	3.23	17.52	7.59	-1,350.19	-38.98	1,288.65	1,267.90	20.75	62.115	
1,157.34	1,151.58	1,111.86	1,111.84	3.40	18.56	7.70	-1,350.22	-38.98	1,276.31	1,254.35	21.96	58.115	
1,200.00	1,193.13	1,152.61	1,152.58	3.53	19.34	7.75	-1,350.27	-38.98	1,266.74	1,243.88	22.86	55.402	
1,300.00	1,290.51	1,248.17	1,248.14	3.83	21.15	7.89	-1,350.50	-38.98	1,244.43	1,219.45	24.98	49.814	
1,400.00	1,387.89	1,349.46	1,349.40	4.13	23.11	8.04	-1,350.80	-38.98	1,222.18	1,194.95	27.24	44.875	
1,500.00	1,485.27	1,446.84	1,446.78	4.43	25.08	8.19	-1,350.80	-38.98	1,199.65	1,170.15	29.51	40.659	
1,600.00	1,582.65	1,544.22	1,544.16	4.73	27.04	8.35	-1,350.80	-38.98	1,177.13	1,145.36	31.78	37.046	
1,700.00	1,680.02	1,639.54	1,639.48	5.03	28.97	8.51	-1,350.05	-38.98	1,153.88	1,119.88	34.00	33.934	
1,800.00	1,777.40	1,734.12	1,734.05	5.33	30.89	8.68	-1,350.34	-38.98	1,131.68	1,095.46	36.22	31.248	
1,900.00	1,874.78	1,836.41	1,836.30	5.63	32.97	8.86	-1,350.80	-38.98	1,109.63	1,071.03	38.60	28.746	
2,000.00	1,972.16	1,933.79	1,933.67	5.93	35.02	9.05	-1,350.80	-38.98	1,087.15	1,046.20	40.95	26.550	
2,100.00	2,069.54	2,031.17	2,031.05	6.23	37.06	9.24	-1,350.80	-38.98	1,064.68	1,021.38	43.29	24.592	
2,200.00	2,166.92	2,126.30	2,126.18	6.53	39.06	9.44	-1,349.79	-38.98	1,041.21	995.62	45.59	22.838	
2,300.00	2,264.30	2,220.38	2,220.24	6.83	41.04	9.64	-1,350.15	-38.98	1,019.14	971.27	47.87	21.291	
2,400.00	2,361.68	2,323.38	2,323.19	7.13	43.20	9.87	-1,350.80	-38.98	997.34	947.01	50.33	19.814	
2,500.00	2,459.06	2,420.76	2,420.57	7.43	45.26	10.10	-1,350.80	-38.98	974.92	922.23	52.69	18.503	
2,600.00	2,556.44	2,518.14	2,517.95	7.73	47.32	10.34	-1,350.80	-38.98	952.52	897.47	55.05	17.304	
2,700.00	2,653.82	2,614.11	2,613.90	8.03	49.34	10.59	-1,349.71	-38.98	929.05	871.68	57.37	16.193	
2,800.00	2,751.19	2,708.64	2,708.43	8.33	51.34	10.85	-1,350.01	-38.98	906.99	847.32	59.67	15.200	
2,900.00	2,848.57	2,803.32	2,803.11	8.63	53.34	11.11	-1,350.61	-38.98	885.26	823.29	61.97	14.286	
3,000.00	2,945.95	2,907.73	2,907.47	8.93	55.55	11.42	-1,350.80	-38.98	863.09	798.61	64.48	13.385	
3,100.00	3,043.33	3,005.11	3,004.84	9.23	57.61	11.73	-1,350.80	-38.98	840.79	773.95	66.84	12.579	
3,200.00	3,140.71	3,099.69	3,099.41	9.53	59.61	12.05	-1,350.08	-38.98	817.79	748.65	69.14	11.828	
3,300.00	3,238.09	3,193.86	3,193.57	9.83	61.61	12.37	-1,350.60	-38.98	796.08	724.64	71.44	11.144	
3,400.00	3,335.47	3,297.31	3,296.98	10.13	63.80	12.75	-1,350.80	-38.98	774.02	700.09	73.93	10.470	
3,500.00	3,432.85	3,394.69	3,394.36	10.43	65.86	13.13	-1,350.80	-38.98	751.83	675.54	76.29	9.855	
3,600.00	3,530.23	3,402.00	3,401.64	10.73	66.02	13.16	-1,350.80	-38.98	735.21	658.95	76.26	9.641	SF
3,673.84	3,602.13	3,402.00	3,401.64	10.95	66.02	13.16	-1,350.80	-38.98	731.49	656.12	75.37	9.705	CC, ES
3,700.00	3,627.61	3,402.00	3,401.64	11.03	66.02	13.16	-1,350.80	-38.98	731.96	657.06	74.90	9.772	
3,800.00	3,724.99	3,402.00	3,401.64	11.33	66.02	13.16	-1,350.80	-38.98	742.29	669.86	72.43	10.249	
3,900.00	3,822.36	3,402.00	3,401.64	11.63	66.02	13.16	-1,350.80	-38.98	765.65	696.58	69.07	11.085	
4,000.00	3,919.74	3,402.00	3,401.64	11.93	66.02	13.16	-1,350.80	-38.98	800.91	735.73	65.18	12.288	
4,100.00	4,017.12	3,402.00	3,401.64	12.23	66.02	13.16	-1,350.80	-38.98	846.58	785.50	61.07	13.861	
4,200.00	4,114.50	3,402.00	3,401.64	12.53	66.02	13.16	-1,350.80	-38.98	901.07	844.04	57.03	15.801	
4,300.00	4,211.88	3,402.00	3,401.64	12.83	66.02	13.16	-1,350.80	-38.98	962.89	909.68	53.21	18.095	
4,400.00	4,309.26	3,402.00	3,401.64	13.13	66.02	13.16	-1,350.80	-38.98	1,030.72	980.99	49.73	20.727	
4,500.00	4,406.64	3,402.00	3,401.64	13.43	66.02	13.16	-1,350.80	-38.98	1,103.46	1,056.84	46.61	23.673	
4,600.00	4,504.02	3,402.00	3,401.64	13.73	66.02	13.16	-1,350.80	-38.98	1,180.19	1,136.32	43.87	26.904	
4,700.00	4,601.40	3,402.00	3,401.64	14.03	66.02	13.16	-1,350.80	-38.98	1,260.19	1,218.72	41.47	30.386	
4,800.00	4,698.78	3,402.00	3,401.64	14.33	66.02	13.16	-1,350.80	-38.98	1,342.87	1,303.47	39.40	34.081	
4,900.00	4,796.16	3,402.00	3,401.64	14.63	66.02	13.16	-1,350.80	-38.98	1,427.78	1,390.15	37.62	37.949	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259 (Offset) - 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
5,000.00	4,893.53	3,402.00	3,401.64	14.93	66.02	13.16	-1,350.80	-38.98	1,514.52	1,478.41	36.11	41.945	
5,100.00	4,990.91	3,402.00	3,401.64	15.23	66.02	13.16	-1,350.80	-38.98	1,602.81	1,567.99	34.82	46.028	
5,200.00	5,088.29	3,402.00	3,401.64	15.53	66.02	13.16	-1,350.80	-38.98	1,692.41	1,658.66	33.74	50.153	
5,300.00	5,185.67	3,402.00	3,401.64	15.83	66.02	13.16	-1,350.80	-38.98	1,783.11	1,750.26	32.85	54.280	
5,400.00	5,283.05	3,402.00	3,401.64	16.13	66.02	13.16	-1,350.80	-38.98	1,874.75	1,842.64	32.12	58.371	
5,500.00	5,380.43	3,402.00	3,401.64	16.43	66.02	13.16	-1,350.80	-38.98	1,967.21	1,935.68	31.53	62.391	
5,600.00	5,477.81	3,402.00	3,401.64	16.73	66.02	13.16	-1,350.80	-38.98	2,060.38	2,029.31	31.07	66.312	
5,700.00	5,575.19	3,402.00	3,401.64	17.03	66.02	13.16	-1,350.80	-38.98	2,154.16	2,123.43	30.72	70.111	
5,800.00	5,672.57	3,402.00	3,401.64	17.33	66.02	13.16	-1,350.80	-38.98	2,248.47	2,217.99	30.48	73.769	
5,900.00	5,769.95	3,402.00	3,401.64	17.63	66.02	13.16	-1,350.80	-38.98	2,343.26	2,312.94	30.32	77.276	
6,000.00	5,867.33	3,402.00	3,401.64	17.93	66.02	13.16	-1,350.80	-38.98	2,438.46	2,408.22	30.25	80.623	
6,100.00	5,964.70	3,402.00	3,401.64	18.23	66.02	13.16	-1,350.80	-38.98	2,534.03	2,503.80	30.24	83.809	
6,200.00	6,062.08	3,402.00	3,401.64	18.53	66.02	13.16	-1,350.80	-38.98	2,629.93	2,599.65	30.29	86.836	
6,300.00	6,159.46	3,402.00	3,401.64	18.83	66.02	13.16	-1,350.80	-38.98	2,726.13	2,695.74	30.39	89.708	
6,400.00	6,256.84	3,402.00	3,401.64	19.13	66.02	13.16	-1,350.80	-38.98	2,822.59	2,792.05	30.54	92.433	
6,500.00	6,354.22	3,402.00	3,401.64	19.43	66.02	13.16	-1,350.80	-38.98	2,919.29	2,888.57	30.72	95.020	
6,600.00	6,451.60	3,402.00	3,401.64	19.73	66.02	13.16	-1,350.80	-38.98	3,016.20	2,985.26	30.94	97.478	
6,694.27	6,543.40	3,402.00	3,401.64	20.02	66.02	13.16	-1,350.80	-38.98	3,107.74	3,076.57	31.18	99.686	
6,700.00	6,548.98	3,402.00	3,401.64	20.03	66.02	13.24	-1,350.80	-38.98	3,113.31	3,082.12	31.19	99.817	
6,750.00	6,597.52	3,402.00	3,401.64	20.18	66.02	11.84	-1,350.80	-38.98	3,161.93	3,130.59	31.34	100.890	
6,800.00	6,645.56	3,402.00	3,401.64	20.33	66.02	8.63	-1,350.80	-38.98	3,210.33	3,178.80	31.52	101.842	
6,850.00	6,692.73	3,402.00	3,401.64	20.48	66.02	5.78	-1,350.80	-38.98	3,258.14	3,226.40	31.74	102.658	
6,900.00	6,738.66	3,402.00	3,401.64	20.63	66.02	3.78	-1,350.80	-38.98	3,305.05	3,273.06	31.99	103.326	
6,950.00	6,783.02	3,402.00	3,401.64	20.78	66.02	2.45	-1,350.80	-38.98	3,350.73	3,318.46	32.27	103.830	
7,000.00	6,825.45	3,402.00	3,401.64	20.94	66.02	1.56	-1,350.80	-38.98	3,394.90	3,362.31	32.59	104.156	
7,050.00	6,865.65	3,402.00	3,401.64	21.09	66.02	0.92	-1,350.80	-38.98	3,437.29	3,404.33	32.96	104.293	
7,100.00	6,903.29	3,402.00	3,401.64	21.24	66.02	0.46	-1,350.80	-38.98	3,477.64	3,444.28	33.36	104.232	
7,150.00	6,938.11	3,402.00	3,401.64	21.39	66.02	0.11	-1,350.80	-38.98	3,515.73	3,481.91	33.81	103.970	
7,200.00	6,969.82	3,402.00	3,401.64	21.54	66.02	-0.17	-1,350.80	-38.98	3,551.34	3,517.03	34.31	103.506	
7,250.00	6,998.19	3,402.00	3,401.64	21.69	66.02	-0.41	-1,350.80	-38.98	3,584.27	3,549.42	34.85	102.847	
7,300.00	7,023.01	3,402.00	3,401.64	21.84	66.02	-0.61	-1,350.80	-38.98	3,614.35	3,578.92	35.43	102.000	
7,350.00	7,044.08	3,402.00	3,401.64	21.99	66.02	-0.80	-1,350.80	-38.98	3,641.44	3,605.38	36.06	100.981	
7,400.00	7,061.25	3,402.00	3,401.64	22.14	66.02	-0.97	-1,350.80	-38.98	3,665.38	3,628.65	36.73	99.802	
7,450.00	7,074.38	3,402.00	3,401.64	22.29	66.02	-1.15	-1,350.80	-38.98	3,686.06	3,648.63	37.43	98.483	
7,500.00	7,083.37	3,402.00	3,401.64	22.44	66.02	-1.32	-1,350.80	-38.98	3,703.38	3,665.22	38.16	97.042	
7,550.00	7,088.16	3,402.00	3,401.64	22.59	66.02	-1.51	-1,350.80	-38.98	3,717.26	3,678.33	38.93	95.495	
7,581.00	7,089.00	3,402.00	3,401.64	22.68	66.02	-1.63	-1,350.80	-38.98	3,724.10	3,684.69	39.41	94.489	
7,600.00	7,089.02	3,402.00	3,401.64	22.74	66.02	-1.63	-1,350.80	-38.98	3,727.92	3,688.21	39.72	93.863	
7,700.00	7,089.09	3,402.00	3,401.64	23.04	66.02	-1.63	-1,350.80	-38.98	3,749.57	3,708.23	41.34	90.707	
7,800.00	7,089.17	3,402.00	3,401.64	23.34	66.02	-1.63	-1,350.80	-38.98	3,773.75	3,730.76	42.98	87.793	
7,900.00	7,089.25	3,402.00	3,401.64	23.64	66.02	-1.63	-1,350.80	-38.98	3,800.40	3,755.76	44.64	85.127	
8,000.00	7,089.33	3,402.00	3,401.64	23.94	66.02	-1.63	-1,350.80	-38.98	3,829.48	3,783.17	46.30	82.702	
8,100.00	7,089.41	3,402.00	3,401.64	24.24	66.02	-1.63	-1,350.80	-38.98	3,860.93	3,812.97	47.96	80.507	
8,200.00	7,089.49	3,402.00	3,401.64	24.54	66.02	-1.63	-1,350.80	-38.98	3,894.70	3,845.10	49.60	78.528	
8,300.00	7,089.56	3,402.00	3,401.64	24.84	66.02	-1.63	-1,350.80	-38.98	3,930.72	3,879.50	51.22	76.749	
8,400.00	7,089.64	3,402.00	3,401.64	25.14	66.02	-1.63	-1,350.80	-38.98	3,968.93	3,916.12	52.81	75.155	
8,500.00	7,089.72	3,402.00	3,401.64	25.44	66.02	-1.63	-1,350.80	-38.98	4,009.27	3,954.90	54.38	73.730	
8,600.00	7,089.80	3,402.00	3,401.64	25.75	66.02	-1.63	-1,350.80	-38.98	4,051.69	3,995.77	55.91	72.462	
8,700.00	7,089.88	3,402.00	3,401.64	26.05	66.02	-1.63	-1,350.80	-38.98	4,096.10	4,038.68	57.42	71.336	
8,800.00	7,089.96	3,402.00	3,401.64	26.35	66.02	-1.63	-1,350.80	-38.98	4,142.45	4,083.56	58.89	70.340	
8,900.00	7,090.03	3,402.00	3,401.64	26.65	66.02	-1.63	-1,350.80	-38.98	4,190.68	4,130.35	60.33	69.464	
9,000.00	7,090.11	3,402.00	3,401.64	26.95	66.02	-1.63	-1,350.80	-38.98	4,240.71	4,178.98	61.73	68.697	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259 (Offset) - 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
9,100.00	7,090.19	3,402.00	3,401.64	27.25	66.02	-1.63	-1,350.80	-38.98	4,292.50	4,229.40	63.10	68.030	
9,200.00	7,090.27	3,402.00	3,401.64	27.55	66.02	-1.63	-1,350.80	-38.98	4,345.96	4,281.54	64.43	67.454	
9,300.00	7,090.35	3,402.00	3,401.64	27.85	66.02	-1.63	-1,350.80	-38.98	4,401.05	4,335.33	65.72	66.963	
9,400.00	7,090.43	3,402.00	3,401.64	28.15	66.02	-1.63	-1,350.80	-38.98	4,457.71	4,390.72	66.98	66.548	
9,500.00	7,090.51	3,402.00	3,401.64	28.45	66.02	-1.63	-1,350.80	-38.98	4,515.86	4,447.65	68.21	66.204	
9,600.00	7,090.58	3,402.00	3,401.64	28.75	66.02	-1.63	-1,350.80	-38.98	4,575.47	4,506.06	69.40	65.926	
9,700.00	7,090.66	3,402.00	3,401.64	29.05	66.02	-1.63	-1,350.80	-38.98	4,636.46	4,565.90	70.56	65.708	
9,800.00	7,090.74	3,402.00	3,401.64	29.35	66.02	-1.63	-1,350.80	-38.98	4,698.79	4,627.10	71.69	65.544	
9,900.00	7,090.82	3,402.00	3,401.64	29.65	66.02	-1.63	-1,350.80	-38.98	4,762.41	4,689.62	72.78	65.432	
10,000.00	7,090.90	3,402.00	3,401.64	29.95	66.02	-1.63	-1,350.80	-38.98	4,827.25	4,753.41	73.85	65.367	
10,100.00	7,090.98	3,402.00	3,401.64	30.25	66.02	-1.63	-1,350.80	-38.98	4,893.29	4,818.40	74.88	65.345	
10,200.00	7,091.05	3,402.00	3,401.64	30.55	66.02	-1.63	-1,350.80	-38.98	4,960.46	4,884.57	75.89	65.364	
10,300.00	7,091.13	3,402.00	3,401.64	30.85	66.02	-1.63	-1,350.80	-38.98	5,028.72	4,951.85	76.87	65.420	
10,400.00	7,091.21	3,402.00	3,401.64	31.15	66.02	-1.63	-1,350.80	-38.98	5,098.03	5,020.21	77.82	65.511	
10,500.00	7,091.29	3,402.00	3,401.64	31.45	66.02	-1.63	-1,350.80	-38.98	5,168.34	5,089.60	78.75	65.633	
10,600.00	7,091.37	3,402.00	3,401.64	31.76	66.02	-1.63	-1,350.80	-38.98	5,239.62	5,159.97	79.65	65.785	
10,700.00	7,091.45	3,402.00	3,401.64	32.06	66.02	-1.63	-1,350.80	-38.98	5,311.83	5,231.30	80.52	65.965	
10,800.00	7,091.53	3,402.00	3,401.64	32.36	66.02	-1.63	-1,350.80	-38.98	5,384.92	5,303.54	81.38	66.171	
10,900.00	7,091.60	3,402.00	3,401.64	32.66	66.02	-1.63	-1,350.80	-38.98	5,458.87	5,376.66	82.21	66.400	
11,000.00	7,091.68	3,402.00	3,401.64	32.96	66.02	-1.63	-1,350.80	-38.98	5,533.64	5,450.61	83.02	66.651	
11,100.00	7,091.76	3,402.00	3,401.64	33.26	66.02	-1.63	-1,350.80	-38.98	5,609.19	5,525.37	83.82	66.923	
11,200.00	7,091.84	3,402.00	3,401.64	33.56	66.02	-1.63	-1,350.80	-38.98	5,685.50	5,600.91	84.59	67.215	
11,300.00	7,091.92	3,402.00	3,401.64	33.86	66.02	-1.63	-1,350.80	-38.98	5,762.53	5,677.19	85.34	67.524	
11,400.00	7,092.00	3,402.00	3,401.64	34.16	66.02	-1.63	-1,350.80	-38.98	5,840.26	5,754.18	86.08	67.849	
11,500.00	7,092.07	3,402.00	3,401.64	34.46	66.02	-1.63	-1,350.80	-38.98	5,918.66	5,831.86	86.80	68.191	
11,600.00	7,092.15	3,402.00	3,401.64	34.76	66.02	-1.63	-1,350.80	-38.98	5,997.70	5,910.20	87.50	68.546	
11,700.00	7,092.23	3,402.00	3,401.64	35.06	66.02	-1.63	-1,350.80	-38.98	6,077.36	5,989.17	88.19	68.916	
11,800.00	7,092.31	3,402.00	3,401.64	35.36	66.02	-1.63	-1,350.80	-38.98	6,157.61	6,068.75	88.86	69.297	
11,900.00	7,092.39	3,402.00	3,401.64	35.66	66.02	-1.63	-1,350.80	-38.98	6,238.43	6,148.91	89.52	69.691	
12,000.00	7,092.47	3,402.00	3,401.64	35.96	66.02	-1.63	-1,350.80	-38.98	6,319.80	6,229.64	90.16	70.095	
12,100.00	7,092.55	3,402.00	3,401.64	36.26	66.02	-1.63	-1,350.80	-38.98	6,401.70	6,310.91	90.79	70.510	
12,200.00	7,092.62	3,402.00	3,401.64	36.56	66.02	-1.63	-1,350.80	-38.98	6,484.10	6,392.69	91.41	70.934	
12,300.00	7,092.70	3,402.00	3,401.64	36.86	66.02	-1.63	-1,350.80	-38.98	6,567.00	6,474.98	92.02	71.366	
12,400.00	7,092.78	3,402.00	3,401.64	37.16	66.02	-1.63	-1,350.80	-38.98	6,650.37	6,557.75	92.61	71.807	
12,500.00	7,092.86	3,402.00	3,401.64	37.46	66.02	-1.63	-1,350.80	-38.98	6,734.18	6,640.99	93.20	72.256	
12,600.00	7,092.94	3,402.00	3,401.64	37.76	66.02	-1.63	-1,350.80	-38.98	6,818.44	6,724.67	93.77	72.712	
12,700.00	7,093.02	3,402.00	3,401.64	38.06	66.02	-1.63	-1,350.80	-38.98	6,903.11	6,808.78	94.34	73.174	
12,800.00	7,093.09	3,402.00	3,401.64	38.36	66.02	-1.63	-1,350.80	-38.98	6,988.19	6,893.30	94.89	73.643	
12,900.00	7,093.17	3,402.00	3,401.64	38.66	66.02	-1.63	-1,350.80	-38.98	7,073.66	6,978.23	95.44	74.117	
13,000.00	7,093.25	3,402.00	3,401.64	38.96	66.02	-1.63	-1,350.80	-38.98	7,159.51	7,063.54	95.98	74.597	
13,100.00	7,093.33	3,402.00	3,401.64	39.26	66.02	-1.63	-1,350.80	-38.98	7,245.72	7,149.22	96.51	75.081	
13,200.00	7,093.41	3,402.00	3,401.64	39.56	66.02	-1.63	-1,350.80	-38.98	7,332.28	7,235.26	97.03	75.570	
13,300.00	7,093.49	3,402.00	3,401.64	39.86	66.02	-1.63	-1,350.80	-38.98	7,419.18	7,321.64	97.54	76.064	
13,400.00	7,093.57	3,402.00	3,401.64	40.16	66.02	-1.63	-1,350.80	-38.98	7,506.40	7,408.36	98.04	76.561	
13,500.00	7,093.64	3,402.00	3,401.64	40.47	66.02	-1.63	-1,350.80	-38.98	7,593.94	7,495.40	98.54	77.062	
13,600.00	7,093.72	3,402.00	3,401.64	40.77	66.02	-1.63	-1,350.80	-38.98	7,681.79	7,582.75	99.04	77.566	
13,700.00	7,093.80	3,402.00	3,401.64	41.07	66.02	-1.63	-1,350.80	-38.98	7,769.92	7,670.40	99.52	78.073	
13,800.00	7,093.88	3,402.00	3,401.64	41.37	66.02	-1.63	-1,350.80	-38.98	7,858.35	7,758.34	100.00	78.583	
13,900.00	7,093.96	3,402.00	3,401.64	41.67	66.02	-1.63	-1,350.80	-38.98	7,947.04	7,846.57	100.47	79.095	
14,000.00	7,094.04	3,402.00	3,401.64	41.97	66.02	-1.63	-1,350.80	-38.98	8,036.00	7,935.06	100.94	79.610	
14,100.00	7,094.11	3,402.00	3,401.64	42.27	66.02	-1.63	-1,350.80	-38.98	8,125.22	8,023.82	101.40	80.127	
14,200.00	7,094.19	3,402.00	3,401.64	42.57	66.02	-1.63	-1,350.80	-38.98	8,214.69	8,112.83	101.86	80.646	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259 (Offset) - 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
14,300.00	7,094.27	3,402.00	3,401.64	42.87	66.02	-1.63	-1,350.80	-38.98	8,304.39	8,202.08	102.31	81.166	
14,400.00	7,094.35	3,402.00	3,401.64	43.17	66.02	-1.63	-1,350.80	-38.98	8,394.33	8,291.57	102.76	81.688	
14,500.00	7,094.43	3,402.00	3,401.64	43.47	66.02	-1.63	-1,350.80	-38.98	8,484.50	8,381.30	103.20	82.211	
14,600.00	7,094.51	3,402.00	3,401.64	43.77	66.02	-1.63	-1,350.80	-38.98	8,574.88	8,471.24	103.64	82.736	
14,700.00	7,094.58	3,402.00	3,401.64	44.07	66.02	-1.63	-1,350.80	-38.98	8,665.48	8,561.40	104.08	83.261	
14,800.00	7,094.66	3,402.00	3,401.64	44.37	66.02	-1.63	-1,350.80	-38.98	8,756.27	8,651.77	104.51	83.788	
14,900.00	7,094.74	3,402.00	3,401.64	44.67	66.02	-1.63	-1,350.80	-38.98	8,847.27	8,742.34	104.93	84.315	
15,000.00	7,094.82	3,402.00	3,401.64	44.97	66.02	-1.63	-1,350.80	-38.98	8,938.46	8,833.11	105.35	84.843	
15,100.00	7,094.90	3,402.00	3,401.64	45.27	66.02	-1.63	-1,350.80	-38.98	9,029.84	8,924.07	105.77	85.371	
15,200.00	7,094.98	3,402.00	3,401.64	45.57	66.02	-1.63	-1,350.80	-38.98	9,121.39	9,015.21	106.19	85.900	
15,300.00	7,095.06	3,402.00	3,401.64	45.87	66.02	-1.63	-1,350.80	-38.98	9,213.13	9,106.53	106.60	86.429	
15,400.00	7,095.13	3,402.00	3,401.64	46.17	66.02	-1.63	-1,350.80	-38.98	9,305.03	9,198.02	107.01	86.959	
15,500.00	7,095.21	3,402.00	3,401.64	46.47	66.02	-1.63	-1,350.80	-38.98	9,397.10	9,289.69	107.41	87.488	
15,600.00	7,095.29	3,402.00	3,401.64	46.77	66.02	-1.63	-1,350.80	-38.98	9,489.33	9,381.52	107.81	88.017	
15,700.00	7,095.37	3,402.00	3,401.64	47.07	66.02	-1.63	-1,350.80	-38.98	9,581.71	9,473.50	108.21	88.546	
15,800.00	7,095.45	3,402.00	3,401.64	47.37	66.02	-1.63	-1,350.80	-38.98	9,674.25	9,565.64	108.61	89.075	
15,900.00	7,095.53	3,402.00	3,401.64	47.67	66.02	-1.63	-1,350.80	-38.98	9,766.93	9,657.93	109.00	89.604	
16,000.00	7,095.60	3,402.00	3,401.64	47.97	66.02	-1.63	-1,350.80	-38.98	9,859.76	9,750.37	109.39	90.133	
16,100.00	7,095.68	3,402.00	3,401.64	48.27	66.02	-1.63	-1,350.80	-38.98	9,952.72	9,842.94	109.78	90.661	
16,200.00	7,095.76	3,402.00	3,401.64	48.57	66.02	-1.63	-1,350.80	-38.98	10,045.82	9,935.66	110.17	91.188	
16,300.00	7,095.84	3,402.00	3,401.64	48.87	66.02	-1.63	-1,350.80	-38.98	10,139.06	10,028.51	110.55	91.715	
16,400.00	7,095.92	3,402.00	3,401.64	49.17	66.02	-1.63	-1,350.80	-38.98	10,232.42	10,121.48	110.93	92.241	
16,500.00	7,096.00	3,402.00	3,401.64	49.47	66.02	-1.63	-1,350.80	-38.98	10,325.90	10,214.59	111.31	92.767	
16,600.00	7,096.08	3,402.00	3,401.64	49.77	66.02	-1.63	-1,350.80	-38.98	10,419.50	10,307.82	111.69	93.292	
16,700.00	7,096.15	3,402.00	3,401.64	50.07	66.02	-1.63	-1,350.80	-38.98	10,513.23	10,401.17	112.06	93.816	
16,800.00	7,096.23	3,402.00	3,401.64	50.37	66.02	-1.63	-1,350.80	-38.98	10,607.06	10,494.63	112.43	94.340	
16,900.00	7,096.31	3,402.00	3,401.64	50.67	66.02	-1.63	-1,350.80	-38.98	10,701.01	10,588.21	112.81	94.862	
17,000.00	7,096.39	3,402.00	3,401.64	50.97	66.02	-1.63	-1,350.80	-38.98	10,795.07	10,681.90	113.18	95.384	
17,100.00	7,096.47	3,402.00	3,401.64	51.27	66.02	-1.63	-1,350.80	-38.98	10,889.24	10,775.69	113.54	95.904	
17,200.00	7,096.55	3,402.00	3,401.64	51.57	66.02	-1.63	-1,350.80	-38.98	10,983.50	10,869.59	113.91	96.424	
17,300.00	7,096.62	3,402.00	3,401.64	51.87	66.02	-1.63	-1,350.80	-38.98	11,077.87	10,963.60	114.27	96.943	
17,400.00	7,096.70	3,402.00	3,401.64	52.17	66.02	-1.63	-1,350.80	-38.98	11,172.33	11,057.70	114.63	97.460	
17,500.00	7,096.78	3,402.00	3,401.64	52.47	66.02	-1.63	-1,350.80	-38.98	11,266.90	11,151.90	115.00	97.977	
17,600.00	7,096.86	3,402.00	3,401.64	52.77	66.02	-1.63	-1,350.80	-38.98	11,361.55	11,246.19	115.36	98.492	
17,700.00	7,096.94	3,402.00	3,401.64	53.07	66.02	-1.63	-1,350.80	-38.98	11,456.29	11,340.58	115.71	99.006	
17,800.00	7,097.02	3,402.00	3,401.64	53.37	66.02	-1.63	-1,350.80	-38.98	11,551.13	11,435.06	116.07	99.519	
17,900.00	7,097.10	3,402.00	3,401.64	53.67	66.02	-1.63	-1,350.80	-38.98	11,646.05	11,529.62	116.42	100.031	
18,000.00	7,097.17	3,402.00	3,401.64	53.97	66.02	-1.63	-1,350.80	-38.98	11,741.05	11,624.27	116.78	100.541	
18,100.00	7,097.25	3,402.00	3,401.64	54.27	66.02	-1.63	-1,350.80	-38.98	11,836.14	11,719.01	117.13	101.051	
18,200.00	7,097.33	3,402.00	3,401.64	54.57	66.02	-1.63	-1,350.80	-38.98	11,931.31	11,813.82	117.48	101.558	
18,300.00	7,097.41	3,402.00	3,401.64	54.87	66.02	-1.63	-1,350.80	-38.98	12,026.55	11,908.72	117.83	102.065	
18,400.00	7,097.49	3,402.00	3,401.64	55.17	66.02	-1.63	-1,350.80	-38.98	12,121.87	12,003.69	118.18	102.570	
18,500.00	7,097.57	3,402.00	3,401.64	55.47	66.02	-1.63	-1,350.80	-38.98	12,217.27	12,098.74	118.53	103.074	
18,600.00	7,097.64	3,402.00	3,401.64	55.78	66.02	-1.63	-1,350.80	-38.98	12,312.74	12,193.86	118.88	103.577	
18,700.00	7,097.72	3,402.00	3,401.64	56.08	66.02	-1.63	-1,350.80	-38.98	12,408.28	12,289.06	119.22	104.078	
18,800.00	7,097.80	3,402.00	3,401.64	56.38	66.02	-1.63	-1,350.80	-38.98	12,503.89	12,384.33	119.57	104.578	
18,900.00	7,097.88	3,402.00	3,401.64	56.68	66.02	-1.63	-1,350.80	-38.98	12,599.57	12,479.66	119.91	105.076	
19,000.00	7,097.96	3,402.00	3,401.64	56.98	66.02	-1.63	-1,350.80	-38.98	12,695.32	12,575.06	120.25	105.573	
19,100.00	7,098.04	3,402.00	3,401.64	57.28	66.02	-1.63	-1,350.80	-38.98	12,791.13	12,670.53	120.59	106.068	
19,200.00	7,098.12	3,402.00	3,401.64	57.58	66.02	-1.63	-1,350.80	-38.98	12,887.00	12,766.07	120.93	106.562	
19,300.00	7,098.19	3,402.00	3,401.64	57.88	66.02	-1.63	-1,350.80	-38.98	12,982.94	12,861.66	121.27	107.055	
19,400.00	7,098.27	3,402.00	3,401.64	58.18	66.02	-1.63	-1,350.80	-38.98	13,078.94	12,957.32	121.61	107.546	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 235-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	3,402.00	3,401.64	58.48	66.02	-1.63	-1,350.80	-38.98	13,174.99	13,053.04	121.95	108.035	
19,600.00	7,098.43	3,402.00	3,401.64	58.78	66.02	-1.63	-1,350.80	-38.98	13,271.11	13,148.82	122.29	108.523	
19,700.00	7,098.51	3,402.00	3,401.64	59.08	66.02	-1.63	-1,350.80	-38.98	13,367.28	13,244.65	122.62	109.010	
19,800.00	7,098.59	3,402.00	3,401.64	59.38	66.02	-1.63	-1,350.80	-38.98	13,463.51	13,340.55	122.96	109.495	
19,900.00	7,098.66	3,402.00	3,401.64	59.68	66.02	-1.63	-1,350.80	-38.98	13,559.79	13,436.50	123.30	109.978	
20,000.00	7,098.74	3,402.00	3,401.64	59.98	66.02	-1.63	-1,350.80	-38.98	13,656.13	13,532.50	123.63	110.460	
20,100.00	7,098.82	3,402.00	3,401.64	60.28	66.02	-1.63	-1,350.80	-38.98	13,752.51	13,628.55	123.96	110.940	
20,200.00	7,098.90	3,402.00	3,401.64	60.58	66.02	-1.63	-1,350.80	-38.98	13,848.95	13,724.66	124.30	111.419	
20,300.00	7,098.98	3,402.00	3,401.64	60.88	66.02	-1.63	-1,350.80	-38.98	13,945.44	13,820.82	124.63	111.897	
20,328.16	7,099.00	3,402.00	3,401.64	60.96	66.02	-1.63	-1,350.80	-38.98	13,972.62	13,847.90	124.72	112.031	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259A (Offset) - 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	0.00	0.00	107.88	-1,036.75	3,213.28	3,376.73				
100.00	100.00	52.51	52.51	0.23	0.49	107.88	-1,036.75	3,213.28	3,376.39	3,375.68	0.71	4,742.379	
200.00	200.00	152.51	152.51	0.53	1.91	107.88	-1,036.75	3,213.28	3,376.39	3,373.95	2.44	1,383.631	
224.99	224.99	177.50	177.50	0.60	2.39	107.88	-1,036.58	3,213.28	3,376.34	3,373.35	2.99	1,128.975	
300.00	300.00	248.33	248.33	0.83	3.74	107.88	-1,036.73	3,213.28	3,376.39	3,371.83	4.56	739.882	
400.00	400.00	352.52	352.51	1.13	5.66	107.88	-1,036.75	3,213.28	3,376.39	3,369.60	6.79	497.180	
420.89	420.89	372.68	372.66	1.19	6.04	107.88	-1,036.41	3,213.28	3,376.29	3,369.06	7.23	467.243	
500.00	500.00	447.07	447.06	1.43	7.41	107.88	-1,036.63	3,213.28	3,376.36	3,367.52	8.84	382.051	
600.00	599.98	552.51	552.49	1.73	9.36	-66.73	-1,036.75	3,213.28	3,375.70	3,364.62	11.09	304.504	
700.00	699.84	652.37	652.35	2.03	11.21	-66.85	-1,036.75	3,213.28	3,373.64	3,360.41	13.23	254.970	
800.00	799.45	751.80	751.78	2.33	13.04	-67.05	-1,036.47	3,213.28	3,370.13	3,354.76	15.37	219.278	
900.00	898.70	850.22	850.20	2.63	14.86	-67.33	-1,036.53	3,213.28	3,365.39	3,347.90	17.49	192.436	
1,000.00	997.47	948.20	948.17	2.93	16.67	-67.68	-1,036.66	3,213.28	3,359.38	3,339.79	19.60	171.405	
1,100.00	1,095.62	1,048.18	1,048.14	3.23	18.62	-68.11	-1,036.75	3,213.28	3,352.11	3,330.27	21.84	153.463	
1,157.34	1,151.58	1,104.14	1,104.10	3.40	19.75	-68.40	-1,036.75	3,213.28	3,347.39	3,324.25	23.15	144.627	
1,200.00	1,193.13	1,145.68	1,145.64	3.53	20.59	-68.55	-1,036.75	3,213.28	3,343.75	3,319.64	24.11	138.676	
1,300.00	1,290.51	1,243.00	1,242.95	3.83	22.55	-68.92	-1,035.94	3,213.28	3,335.08	3,308.70	26.38	126.439	
1,400.00	1,387.89	1,338.12	1,338.07	4.13	24.47	-69.26	-1,036.06	3,213.28	3,326.81	3,298.21	28.60	116.331	
1,500.00	1,485.27	1,433.35	1,433.30	4.43	26.39	-69.61	-1,036.43	3,213.28	3,318.74	3,287.92	30.82	107.679	
1,600.00	1,582.65	1,535.26	1,535.16	4.73	28.46	-69.98	-1,036.75	3,213.28	3,310.78	3,277.59	33.18	99.768	
1,700.00	1,680.02	1,632.64	1,632.54	5.03	30.44	-70.34	-1,036.75	3,213.28	3,302.88	3,267.41	35.46	93.132	
1,800.00	1,777.40	1,730.02	1,729.92	5.33	32.42	-70.70	-1,036.75	3,213.28	3,295.11	3,257.37	37.74	87.301	
1,900.00	1,874.78	1,825.01	1,824.90	5.63	34.35	-71.08	-1,035.79	3,213.28	3,287.26	3,247.28	39.98	82.232	
2,000.00	1,972.16	1,919.92	1,919.80	5.93	36.28	-71.43	-1,036.24	3,213.28	3,279.88	3,237.68	42.21	77.713	
2,100.00	2,069.54	2,022.21	2,022.05	6.23	38.38	-71.81	-1,036.75	3,213.28	3,272.66	3,228.05	44.61	73.360	
2,200.00	2,166.92	2,119.59	2,119.43	6.53	40.44	-72.18	-1,036.75	3,213.28	3,265.45	3,218.49	46.96	69.531	
2,300.00	2,264.30	2,216.97	2,216.81	6.83	42.49	-72.55	-1,036.75	3,213.28	3,258.39	3,209.08	49.32	66.069	
2,400.00	2,361.68	2,313.00	2,312.83	7.13	44.52	-72.93	-1,036.01	3,213.28	3,251.32	3,199.68	51.64	62.958	
2,500.00	2,459.06	2,408.78	2,408.61	7.43	46.54	-73.29	-1,036.32	3,213.28	3,244.62	3,190.66	53.96	60.127	
2,600.00	2,556.44	2,509.18	2,508.95	7.73	48.64	-73.67	-1,036.75	3,213.28	3,238.08	3,181.72	56.36	57.449	
2,700.00	2,653.82	2,606.56	2,606.33	8.03	50.63	-74.05	-1,036.75	3,213.28	3,231.60	3,172.95	58.65	55.097	
2,800.00	2,751.19	2,703.94	2,703.71	8.33	52.62	-74.43	-1,036.75	3,213.28	3,225.27	3,164.33	60.94	52.924	
2,900.00	2,848.57	2,801.32	2,801.09	8.63	54.60	-74.81	-1,036.75	3,213.28	3,219.09	3,155.86	63.23	50.910	
3,000.00	2,945.95	2,897.55	2,897.29	8.93	56.57	-75.22	-1,034.95	3,213.28	3,212.75	3,147.25	65.50	49.053	
3,100.00	3,043.33	2,993.42	2,993.16	9.23	58.53	-75.59	-1,035.30	3,213.28	3,206.93	3,139.18	67.75	47.332	
3,200.00	3,140.71	3,089.44	3,089.16	9.53	60.49	-75.96	-1,035.94	3,213.28	3,201.31	3,131.30	70.01	45.724	
3,300.00	3,238.09	3,190.92	3,190.60	9.83	62.52	-76.34	-1,036.75	3,213.28	3,195.85	3,123.50	72.35	44.172	
3,400.00	3,335.47	3,288.30	3,287.98	10.13	64.30	-76.73	-1,036.75	3,213.28	3,190.42	3,116.00	74.43	42.867	
3,500.00	3,432.85	3,385.68	3,385.36	10.43	66.08	-77.12	-1,036.75	3,213.28	3,185.15	3,108.64	76.50	41.634	
3,600.00	3,530.23	3,414.00	3,413.67	10.73	66.59	-77.23	-1,036.75	3,213.28	3,180.77	3,103.47	77.30	41.146	
3,693.19	3,620.97	3,414.00	3,413.67	11.01	66.59	-77.23	-1,036.75	3,213.28	3,179.41	3,101.89	77.52	41.015	CC
3,700.00	3,627.61	3,414.00	3,413.67	11.03	66.59	-77.23	-1,036.75	3,213.28	3,179.42	3,101.88	77.53	41.008	ES
3,800.00	3,724.99	3,414.00	3,413.67	11.33	66.59	-77.23	-1,036.75	3,213.28	3,181.20	3,103.51	77.70	40.944	SF
3,900.00	3,822.36	3,414.00	3,413.67	11.63	66.59	-77.23	-1,036.75	3,213.28	3,186.13	3,108.33	77.80	40.952	
4,000.00	3,919.74	3,414.00	3,413.67	11.93	66.59	-77.23	-1,036.75	3,213.28	3,194.18	3,116.33	77.85	41.031	
4,100.00	4,017.12	3,414.00	3,413.67	12.23	66.59	-77.23	-1,036.75	3,213.28	3,205.33	3,127.49	77.84	41.181	
4,200.00	4,114.50	3,414.00	3,413.67	12.53	66.59	-77.23	-1,036.75	3,213.28	3,219.55	3,141.78	77.77	41.399	
4,300.00	4,211.88	3,414.00	3,413.67	12.83	66.59	-77.23	-1,036.75	3,213.28	3,236.80	3,159.15	77.65	41.684	
4,400.00	4,309.26	3,414.00	3,413.67	13.13	66.59	-77.23	-1,036.75	3,213.28	3,257.03	3,179.55	77.48	42.036	
4,500.00	4,406.64	3,414.00	3,413.67	13.43	66.59	-77.23	-1,036.75	3,213.28	3,280.18	3,202.91	77.27	42.453	
4,600.00	4,504.02	3,414.00	3,413.67	13.73	66.59	-77.23	-1,036.75	3,213.28	3,306.20	3,229.19	77.01	42.933	
4,700.00	4,601.40	3,414.00	3,413.67	14.03	66.59	-77.23	-1,036.75	3,213.28	3,335.01	3,258.30	76.71	43.475	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 101-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,800.00	4,698.78	3,414.00	3,413.67	14.33	66.59	-77.23	-1,036.75	3,213.28	3,366.55	3,290.17	76.38	44.077	
4,900.00	4,796.16	3,414.00	3,413.67	14.63	66.59	-77.23	-1,036.75	3,213.28	3,400.74	3,324.73	76.01	44.738	
5,000.00	4,893.53	3,414.00	3,413.67	14.93	66.59	-77.23	-1,036.75	3,213.28	3,437.50	3,361.88	75.62	45.455	
5,100.00	4,990.91	3,414.00	3,413.67	15.23	66.59	-77.23	-1,036.75	3,213.28	3,476.75	3,401.54	75.21	46.228	
5,200.00	5,088.29	3,414.00	3,413.67	15.53	66.59	-77.23	-1,036.75	3,213.28	3,518.40	3,443.62	74.77	47.054	
5,300.00	5,185.67	3,414.00	3,413.67	15.83	66.59	-77.23	-1,036.75	3,213.28	3,562.37	3,488.05	74.32	47.931	
5,400.00	5,283.05	3,414.00	3,413.67	16.13	66.59	-77.23	-1,036.75	3,213.28	3,608.58	3,534.72	73.86	48.859	
5,500.00	5,380.43	3,414.00	3,413.67	16.43	66.59	-77.23	-1,036.75	3,213.28	3,656.94	3,583.56	73.38	49.833	
5,600.00	5,477.81	3,414.00	3,413.67	16.73	66.59	-77.23	-1,036.75	3,213.28	3,707.37	3,634.46	72.90	50.854	
5,700.00	5,575.19	3,414.00	3,413.67	17.03	66.59	-77.23	-1,036.75	3,213.28	3,759.78	3,687.36	72.42	51.918	
5,800.00	5,672.57	3,414.00	3,413.67	17.33	66.59	-77.23	-1,036.75	3,213.28	3,814.09	3,742.16	71.93	53.024	
5,900.00	5,769.95	3,414.00	3,413.67	17.63	66.59	-77.23	-1,036.75	3,213.28	3,870.23	3,798.78	71.45	54.170	
6,000.00	5,867.33	3,414.00	3,413.67	17.93	66.59	-77.23	-1,036.75	3,213.28	3,928.11	3,857.14	70.96	55.354	
6,100.00	5,964.70	3,414.00	3,413.67	18.23	66.59	-77.23	-1,036.75	3,213.28	3,987.65	3,917.17	70.49	56.574	
6,200.00	6,062.08	3,414.00	3,413.67	18.53	66.59	-77.23	-1,036.75	3,213.28	4,048.80	3,978.78	70.02	57.828	
6,300.00	6,159.46	3,414.00	3,413.67	18.83	66.59	-77.23	-1,036.75	3,213.28	4,111.46	4,041.91	69.55	59.113	
6,400.00	6,256.84	3,414.00	3,413.67	19.13	66.59	-77.23	-1,036.75	3,213.28	4,175.58	4,106.48	69.10	60.429	
6,500.00	6,354.22	3,414.00	3,413.67	19.43	66.59	-77.23	-1,036.75	3,213.28	4,241.09	4,172.43	68.66	61.773	
6,600.00	6,451.60	3,414.00	3,413.67	19.73	66.59	-77.23	-1,036.75	3,213.28	4,307.92	4,239.70	68.22	63.144	
6,694.27	6,543.40	3,414.00	3,413.67	20.02	66.59	-77.23	-1,036.75	3,213.28	4,372.08	4,304.26	67.83	64.458	
6,700.00	6,548.98	3,414.00	3,413.67	20.03	66.59	-74.87	-1,036.75	3,213.28	4,376.00	4,308.20	67.80	64.539	
6,750.00	6,597.52	3,414.00	3,413.67	20.18	66.59	-56.13	-1,036.75	3,213.28	4,408.53	4,340.95	67.58	65.237	
6,800.00	6,645.56	3,414.00	3,413.67	20.33	66.59	-42.25	-1,036.75	3,213.28	4,438.01	4,370.69	67.32	65.920	
6,850.00	6,692.73	3,414.00	3,413.67	20.48	66.59	-32.77	-1,036.75	3,213.28	4,464.28	4,397.23	67.05	66.583	
6,900.00	6,738.66	3,414.00	3,413.67	20.63	66.59	-26.30	-1,036.75	3,213.28	4,487.20	4,420.45	66.75	67.223	
6,950.00	6,783.02	3,414.00	3,413.67	20.78	66.59	-21.75	-1,036.75	3,213.28	4,506.65	4,440.21	66.43	67.836	
7,000.00	6,825.45	3,414.00	3,413.67	20.94	66.59	-18.45	-1,036.75	3,213.28	4,522.52	4,456.42	66.10	68.418	
7,050.00	6,865.65	3,414.00	3,413.67	21.09	66.59	-15.98	-1,036.75	3,213.28	4,534.73	4,468.98	65.75	68.965	
7,100.00	6,903.29	3,414.00	3,413.67	21.24	66.59	-14.08	-1,036.75	3,213.28	4,543.22	4,477.83	65.39	69.474	
7,150.00	6,938.11	3,414.00	3,413.67	21.39	66.59	-12.58	-1,036.75	3,213.28	4,547.95	4,482.92	65.03	69.940	
7,200.00	6,969.82	3,414.00	3,413.67	21.54	66.59	-11.39	-1,036.75	3,213.28	4,548.88	4,484.23	64.65	70.361	
7,250.00	6,998.19	3,414.00	3,413.67	21.69	66.59	-10.41	-1,036.75	3,213.28	4,546.02	4,481.75	64.27	70.732	
7,300.00	7,023.01	3,414.00	3,413.67	21.84	66.59	-9.60	-1,036.75	3,213.28	4,539.38	4,475.49	63.89	71.049	
7,350.00	7,044.08	3,414.00	3,413.67	21.99	66.59	-8.93	-1,036.75	3,213.28	4,529.00	4,465.49	63.51	71.310	
7,400.00	7,061.25	3,414.00	3,413.67	22.14	66.59	-8.35	-1,036.75	3,213.28	4,514.92	4,451.79	63.14	71.511	
7,450.00	7,074.38	3,414.00	3,413.67	22.29	66.59	-7.85	-1,036.75	3,213.28	4,497.23	4,434.46	62.77	71.648	
7,500.00	7,083.37	3,414.00	3,413.67	22.44	66.59	-7.40	-1,036.75	3,213.28	4,476.00	4,413.59	62.41	71.717	
7,550.00	7,088.16	3,414.00	3,413.67	22.59	66.59	-7.00	-1,036.75	3,213.28	4,451.37	4,389.30	62.07	71.717	
7,581.00	7,089.00	3,414.00	3,413.67	22.68	66.59	-6.76	-1,036.75	3,213.28	4,434.44	4,372.57	61.86	71.680	
7,600.00	7,089.02	3,414.00	3,413.67	22.74	66.59	-6.76	-1,036.75	3,213.28	4,423.70	4,361.96	61.74	71.648	
7,700.00	7,089.09	3,414.00	3,413.67	23.04	66.59	-6.76	-1,036.75	3,213.28	4,368.16	4,307.08	61.08	71.518	
7,800.00	7,089.17	3,414.00	3,413.67	23.34	66.59	-6.76	-1,036.75	3,213.28	4,314.22	4,253.84	60.38	71.451	
7,900.00	7,089.25	3,414.00	3,413.67	23.64	66.59	-6.76	-1,036.75	3,213.28	4,261.94	4,202.30	59.65	71.451	
8,000.00	7,089.33	3,414.00	3,413.67	23.94	66.59	-6.76	-1,036.75	3,213.28	4,211.39	4,152.51	58.88	71.520	
8,100.00	7,089.41	3,414.00	3,413.67	24.24	66.59	-6.76	-1,036.75	3,213.28	4,162.63	4,104.55	58.09	71.662	
8,200.00	7,089.49	3,414.00	3,413.67	24.54	66.59	-6.76	-1,036.75	3,213.28	4,115.72	4,058.47	57.26	71.881	
8,300.00	7,089.56	3,414.00	3,413.67	24.84	66.59	-6.76	-1,036.75	3,213.28	4,070.73	4,014.33	56.40	72.180	
8,400.00	7,089.64	3,414.00	3,413.67	25.14	66.59	-6.76	-1,036.75	3,213.28	4,027.72	3,972.21	55.51	72.561	
8,500.00	7,089.72	3,414.00	3,413.67	25.44	66.59	-6.76	-1,036.75	3,213.28	3,986.75	3,932.16	54.59	73.028	
8,600.00	7,089.80	3,414.00	3,413.67	25.75	66.59	-6.76	-1,036.75	3,213.28	3,947.89	3,894.24	53.65	73.582	
8,700.00	7,089.88	3,414.00	3,413.67	26.05	66.59	-6.76	-1,036.75	3,213.28	3,911.20	3,858.51	52.69	74.226	
8,800.00	7,089.96	3,414.00	3,413.67	26.35	66.59	-6.76	-1,036.75	3,213.28	3,876.75	3,825.03	51.72	74.959	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 101-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.00	7,090.03	3,414.00	3,413.67	26.65	66.59	-6.76	-1,036.75	3,213.28	3,844.59	3,793.85	50.73	75.780	
9,000.00	7,090.11	3,414.00	3,413.67	26.95	66.59	-6.76	-1,036.75	3,213.28	3,814.78	3,765.03	49.75	76.683	
9,100.00	7,090.19	3,414.00	3,413.67	27.25	66.59	-6.76	-1,036.75	3,213.28	3,787.37	3,738.61	48.77	77.662	
9,200.00	7,090.27	3,414.00	3,413.67	27.55	66.59	-6.76	-1,036.75	3,213.28	3,762.43	3,714.62	47.81	78.702	
9,300.00	7,090.35	3,414.00	3,413.67	27.85	66.59	-6.76	-1,036.75	3,213.28	3,739.99	3,693.11	46.88	79.785	
9,400.00	7,090.43	3,414.00	3,413.67	28.15	66.59	-6.76	-1,036.75	3,213.28	3,720.11	3,674.11	45.99	80.882	
9,500.00	7,090.51	3,414.00	3,413.67	28.45	66.59	-6.76	-1,036.75	3,213.28	3,702.82	3,657.64	45.18	81.953	
9,600.00	7,090.58	3,414.00	3,413.67	28.75	66.59	-6.76	-1,036.75	3,213.28	3,688.16	3,643.70	44.46	82.948	
9,700.00	7,090.66	3,414.00	3,413.67	29.05	66.59	-6.76	-1,036.75	3,213.28	3,676.17	3,632.30	43.87	83.801	
9,800.00	7,090.74	3,414.00	3,413.67	29.35	66.59	-6.76	-1,036.75	3,213.28	3,666.86	3,623.44	43.43	84.440	
9,900.00	7,090.82	3,414.00	3,413.67	29.65	66.59	-6.76	-1,036.75	3,213.28	3,660.27	3,617.10	43.17	84.788	
10,000.00	7,090.90	3,414.00	3,413.67	29.95	66.59	-6.76	-1,036.75	3,213.28	3,656.39	3,613.26	43.13	84.778	
10,091.66	7,090.97	3,414.00	3,413.67	30.23	66.59	-6.76	-1,036.75	3,213.28	3,655.24	3,611.95	43.30	84.422	
10,100.00	7,090.98	3,414.00	3,413.67	30.25	66.59	-6.76	-1,036.75	3,213.28	3,655.25	3,611.93	43.32	84.373	
10,200.00	7,091.05	3,414.00	3,413.67	30.55	66.59	-6.76	-1,036.75	3,213.28	3,656.85	3,613.09	43.76	83.570	
10,300.00	7,091.13	3,414.00	3,413.67	30.85	66.59	-6.76	-1,036.75	3,213.28	3,661.18	3,616.75	44.43	82.411	
10,400.00	7,091.21	3,414.00	3,413.67	31.15	66.59	-6.76	-1,036.75	3,213.28	3,668.23	3,622.92	45.31	80.966	
10,500.00	7,091.29	3,414.00	3,413.67	31.45	66.59	-6.76	-1,036.75	3,213.28	3,677.98	3,631.61	46.37	79.321	
10,600.00	7,091.37	3,414.00	3,413.67	31.76	66.59	-6.76	-1,036.75	3,213.28	3,690.42	3,642.84	47.58	77.560	
10,700.00	7,091.45	3,414.00	3,413.67	32.06	66.59	-6.76	-1,036.75	3,213.28	3,705.52	3,656.61	48.91	75.756	
10,800.00	7,091.53	3,414.00	3,413.67	32.36	66.59	-6.76	-1,036.75	3,213.28	3,723.25	3,672.91	50.34	73.967	
10,900.00	7,091.60	3,414.00	3,413.67	32.66	66.59	-6.76	-1,036.75	3,213.28	3,743.56	3,691.73	51.83	72.234	
11,000.00	7,091.68	3,414.00	3,413.67	32.96	66.59	-6.76	-1,036.75	3,213.28	3,766.42	3,713.06	53.36	70.583	
11,100.00	7,091.76	3,414.00	3,413.67	33.26	66.59	-6.76	-1,036.75	3,213.28	3,791.78	3,736.85	54.93	69.033	
11,200.00	7,091.84	3,414.00	3,413.67	33.56	66.59	-6.76	-1,036.75	3,213.28	3,819.59	3,763.08	56.51	67.592	
11,300.00	7,091.92	3,414.00	3,413.67	33.86	66.59	-6.76	-1,036.75	3,213.28	3,849.79	3,791.70	58.10	66.265	
11,400.00	7,092.00	3,414.00	3,413.67	34.16	66.59	-6.76	-1,036.75	3,213.28	3,882.34	3,822.66	59.68	65.050	
11,500.00	7,092.07	3,414.00	3,413.67	34.46	66.59	-6.76	-1,036.75	3,213.28	3,917.17	3,855.92	61.26	63.947	
11,600.00	7,092.15	3,414.00	3,413.67	34.76	66.59	-6.76	-1,036.75	3,213.28	3,954.23	3,891.41	62.82	62.950	
11,700.00	7,092.23	3,414.00	3,413.67	35.06	66.59	-6.76	-1,036.75	3,213.28	3,993.44	3,929.09	64.35	62.055	
11,800.00	7,092.31	3,414.00	3,413.67	35.36	66.59	-6.76	-1,036.75	3,213.28	4,034.75	3,968.89	65.87	61.256	
11,900.00	7,092.39	3,414.00	3,413.67	35.66	66.59	-6.76	-1,036.75	3,213.28	4,078.10	4,010.75	67.35	60.547	
12,000.00	7,092.47	3,414.00	3,413.67	35.96	66.59	-6.76	-1,036.75	3,213.28	4,123.42	4,054.61	68.81	59.923	
12,100.00	7,092.55	3,414.00	3,413.67	36.26	66.59	-6.76	-1,036.75	3,213.28	4,170.64	4,100.40	70.24	59.378	
12,200.00	7,092.62	3,414.00	3,413.67	36.56	66.59	-6.76	-1,036.75	3,213.28	4,219.71	4,148.07	71.63	58.907	
12,300.00	7,092.70	3,414.00	3,413.67	36.86	66.59	-6.76	-1,036.75	3,213.28	4,270.55	4,197.55	73.00	58.504	
12,400.00	7,092.78	3,414.00	3,413.67	37.16	66.59	-6.76	-1,036.75	3,213.28	4,323.11	4,248.78	74.32	58.165	
12,500.00	7,092.86	3,414.00	3,413.67	37.46	66.59	-6.76	-1,036.75	3,213.28	4,377.32	4,301.70	75.62	57.886	
12,600.00	7,092.94	3,414.00	3,413.67	37.76	66.59	-6.76	-1,036.75	3,213.28	4,433.12	4,356.24	76.88	57.662	
12,700.00	7,093.02	3,414.00	3,413.67	38.06	66.59	-6.76	-1,036.75	3,213.28	4,490.46	4,412.35	78.11	57.489	
12,800.00	7,093.09	3,414.00	3,413.67	38.36	66.59	-6.76	-1,036.75	3,213.28	4,549.28	4,469.97	79.31	57.364	
12,900.00	7,093.17	3,414.00	3,413.67	38.66	66.59	-6.76	-1,036.75	3,213.28	4,609.51	4,529.04	80.47	57.284	
13,000.00	7,093.25	3,414.00	3,413.67	38.96	66.59	-6.76	-1,036.75	3,213.28	4,671.11	4,589.51	81.60	57.244	
13,100.00	7,093.33	3,414.00	3,413.67	39.26	66.59	-6.76	-1,036.75	3,213.28	4,734.02	4,651.32	82.70	57.243	
13,200.00	7,093.41	3,414.00	3,413.67	39.56	66.59	-6.76	-1,036.75	3,213.28	4,798.19	4,714.42	83.77	57.277	
13,300.00	7,093.49	3,414.00	3,413.67	39.86	66.59	-6.76	-1,036.75	3,213.28	4,863.57	4,778.75	84.81	57.345	
13,400.00	7,093.57	3,414.00	3,413.67	40.16	66.59	-6.76	-1,036.75	3,213.28	4,930.11	4,844.28	85.82	57.444	
13,500.00	7,093.64	3,414.00	3,413.67	40.47	66.59	-6.76	-1,036.75	3,213.28	4,997.76	4,910.95	86.81	57.571	
13,600.00	7,093.72	3,414.00	3,413.67	40.77	66.59	-6.76	-1,036.75	3,213.28	5,066.49	4,978.72	87.77	57.726	
13,700.00	7,093.80	3,414.00	3,413.67	41.07	66.59	-6.76	-1,036.75	3,213.28	5,136.24	5,047.54	88.70	57.905	
13,800.00	7,093.88	3,414.00	3,413.67	41.37	66.59	-6.76	-1,036.75	3,213.28	5,206.98	5,117.37	89.61	58.108	
13,900.00	7,093.96	3,414.00	3,413.67	41.67	66.59	-6.76	-1,036.75	3,213.28	5,278.66	5,188.17	90.49	58.332	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259A (Offset) - 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
14,000.00	7,094.04	3,414.00	3,413.67	41.97	66.59	-6.76	-1,036.75	3,213.28	5,351.26	5,259.90	91.35	58.577	
14,100.00	7,094.11	3,414.00	3,413.67	42.27	66.59	-6.76	-1,036.75	3,213.28	5,424.72	5,332.53	92.19	58.840	
14,200.00	7,094.19	3,414.00	3,413.67	42.57	66.59	-6.76	-1,036.75	3,213.28	5,499.03	5,406.01	93.01	59.122	
14,300.00	7,094.27	3,414.00	3,413.67	42.87	66.59	-6.76	-1,036.75	3,213.28	5,574.13	5,480.32	93.81	59.419	
14,400.00	7,094.35	3,414.00	3,413.67	43.17	66.59	-6.76	-1,036.75	3,213.28	5,650.01	5,555.42	94.59	59.733	
14,500.00	7,094.43	3,414.00	3,413.67	43.47	66.59	-6.76	-1,036.75	3,213.28	5,726.63	5,631.28	95.35	60.060	
14,600.00	7,094.51	3,414.00	3,413.67	43.77	66.59	-6.76	-1,036.75	3,213.28	5,803.96	5,707.87	96.09	60.402	
14,700.00	7,094.58	3,414.00	3,413.67	44.07	66.59	-6.76	-1,036.75	3,213.28	5,881.98	5,785.16	96.81	60.755	
14,800.00	7,094.66	3,414.00	3,413.67	44.37	66.59	-6.76	-1,036.75	3,213.28	5,960.65	5,863.12	97.52	61.121	
14,900.00	7,094.74	3,414.00	3,413.67	44.67	66.59	-6.76	-1,036.75	3,213.28	6,039.95	5,941.73	98.21	61.497	
15,000.00	7,094.82	3,414.00	3,413.67	44.97	66.59	-6.76	-1,036.75	3,213.28	6,119.86	6,020.96	98.89	61.884	
15,100.00	7,094.90	3,414.00	3,413.67	45.27	66.59	-6.76	-1,036.75	3,213.28	6,200.35	6,100.79	99.56	62.280	
15,200.00	7,094.98	3,414.00	3,413.67	45.57	66.59	-6.76	-1,036.75	3,213.28	6,281.40	6,181.19	100.20	62.686	
15,300.00	7,095.06	3,414.00	3,413.67	45.87	66.59	-6.76	-1,036.75	3,213.28	6,362.99	6,262.15	100.84	63.099	
15,400.00	7,095.13	3,414.00	3,413.67	46.17	66.59	-6.76	-1,036.75	3,213.28	6,445.10	6,343.64	101.46	63.521	
15,500.00	7,095.21	3,414.00	3,413.67	46.47	66.59	-6.76	-1,036.75	3,213.28	6,527.71	6,425.63	102.08	63.949	
15,600.00	7,095.29	3,414.00	3,413.67	46.77	66.59	-6.76	-1,036.75	3,213.28	6,610.80	6,508.12	102.68	64.385	
15,700.00	7,095.37	3,414.00	3,413.67	47.07	66.59	-6.76	-1,036.75	3,213.28	6,694.35	6,591.08	103.27	64.827	
15,800.00	7,095.45	3,414.00	3,413.67	47.37	66.59	-6.76	-1,036.75	3,213.28	6,778.35	6,674.50	103.84	65.275	
15,900.00	7,095.53	3,414.00	3,413.67	47.67	66.59	-6.76	-1,036.75	3,213.28	6,862.77	6,758.36	104.41	65.728	
16,000.00	7,095.60	3,414.00	3,413.67	47.97	66.59	-6.76	-1,036.75	3,213.28	6,947.61	6,842.64	104.97	66.186	
16,100.00	7,095.68	3,414.00	3,413.67	48.27	66.59	-6.76	-1,036.75	3,213.28	7,032.85	6,927.33	105.52	66.649	
16,200.00	7,095.76	3,414.00	3,413.67	48.57	66.59	-6.76	-1,036.75	3,213.28	7,118.47	7,012.41	106.06	67.117	
16,300.00	7,095.84	3,414.00	3,413.67	48.87	66.59	-6.76	-1,036.75	3,213.28	7,204.47	7,097.87	106.59	67.589	
16,400.00	7,095.92	3,414.00	3,413.67	49.17	66.59	-6.76	-1,036.75	3,213.28	7,290.82	7,183.70	107.12	68.064	
16,500.00	7,096.00	3,414.00	3,413.67	49.47	66.59	-6.76	-1,036.75	3,213.28	7,377.51	7,269.88	107.63	68.543	
16,600.00	7,096.08	3,414.00	3,413.67	49.77	66.59	-6.76	-1,036.75	3,213.28	7,464.54	7,356.40	108.14	69.026	
16,700.00	7,096.15	3,414.00	3,413.67	50.07	66.59	-6.76	-1,036.75	3,213.28	7,551.89	7,443.24	108.64	69.511	
16,800.00	7,096.23	3,414.00	3,413.67	50.37	66.59	-6.76	-1,036.75	3,213.28	7,639.55	7,530.41	109.14	69.999	
16,900.00	7,096.31	3,414.00	3,413.67	50.67	66.59	-6.76	-1,036.75	3,213.28	7,727.51	7,617.88	109.63	70.490	
17,000.00	7,096.39	3,414.00	3,413.67	50.97	66.59	-6.76	-1,036.75	3,213.28	7,815.75	7,705.65	110.11	70.983	
17,100.00	7,096.47	3,414.00	3,413.67	51.27	66.59	-6.76	-1,036.75	3,213.28	7,904.28	7,793.70	110.58	71.478	
17,200.00	7,096.55	3,414.00	3,413.67	51.57	66.59	-6.76	-1,036.75	3,213.28	7,993.08	7,882.03	111.05	71.975	
17,300.00	7,096.62	3,414.00	3,413.67	51.87	66.59	-6.76	-1,036.75	3,213.28	8,082.14	7,970.62	111.52	72.474	
17,400.00	7,096.70	3,414.00	3,413.67	52.17	66.59	-6.76	-1,036.75	3,213.28	8,171.46	8,059.48	111.98	72.974	
17,500.00	7,096.78	3,414.00	3,413.67	52.47	66.59	-6.76	-1,036.75	3,213.28	8,261.01	8,148.58	112.43	73.476	
17,600.00	7,096.86	3,414.00	3,413.67	52.77	66.59	-6.76	-1,036.75	3,213.28	8,350.81	8,237.93	112.88	73.979	
17,700.00	7,096.94	3,414.00	3,413.67	53.07	66.59	-6.76	-1,036.75	3,213.28	8,440.83	8,327.51	113.33	74.483	
17,800.00	7,097.02	3,414.00	3,413.67	53.37	66.59	-6.76	-1,036.75	3,213.28	8,531.08	8,417.32	113.77	74.988	
17,900.00	7,097.10	3,414.00	3,413.67	53.67	66.59	-6.76	-1,036.75	3,213.28	8,621.54	8,507.34	114.20	75.495	
18,000.00	7,097.17	3,414.00	3,413.67	53.97	66.59	-6.76	-1,036.75	3,213.28	8,712.22	8,597.58	114.63	76.001	
18,100.00	7,097.25	3,414.00	3,413.67	54.27	66.59	-6.76	-1,036.75	3,213.28	8,803.09	8,688.03	115.06	76.509	
18,200.00	7,097.33	3,414.00	3,413.67	54.57	66.59	-6.76	-1,036.75	3,213.28	8,894.16	8,778.67	115.48	77.017	
18,300.00	7,097.41	3,414.00	3,413.67	54.87	66.59	-6.76	-1,036.75	3,213.28	8,985.42	8,869.51	115.90	77.525	
18,400.00	7,097.49	3,414.00	3,413.67	55.17	66.59	-6.76	-1,036.75	3,213.28	9,076.86	8,960.54	116.32	78.034	
18,500.00	7,097.57	3,414.00	3,413.67	55.47	66.59	-6.76	-1,036.75	3,213.28	9,168.48	9,051.75	116.73	78.543	
18,600.00	7,097.64	3,414.00	3,413.67	55.78	66.59	-6.76	-1,036.75	3,213.28	9,260.28	9,143.13	117.14	79.052	
18,700.00	7,097.72	3,414.00	3,413.67	56.08	66.59	-6.76	-1,036.75	3,213.28	9,352.24	9,234.69	117.55	79.561	
18,800.00	7,097.80	3,414.00	3,413.67	56.38	66.59	-6.76	-1,036.75	3,213.28	9,444.37	9,326.42	117.95	80.070	
18,900.00	7,097.88	3,414.00	3,413.67	56.68	66.59	-6.76	-1,036.75	3,213.28	9,536.65	9,418.30	118.35	80.579	
19,000.00	7,097.96	3,414.00	3,413.67	56.98	66.59	-6.76	-1,036.75	3,213.28	9,629.09	9,510.34	118.75	81.088	
19,100.00	7,098.04	3,414.00	3,413.67	57.28	66.59	-6.76	-1,036.75	3,213.28	9,721.68	9,602.54	119.14	81.597	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #259A (Offset) - 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
19,200.00	7,098.12	3,414.00	3,413.67	57.58	66.59	-6.76	-1,036.75	3,213.28	9,814.41	9,694.88	119.53	82.105	
19,300.00	7,098.19	3,414.00	3,413.67	57.88	66.59	-6.76	-1,036.75	3,213.28	9,907.29	9,787.37	119.92	82.613	
19,400.00	7,098.27	3,414.00	3,413.67	58.18	66.59	-6.76	-1,036.75	3,213.28	10,000.30	9,879.99	120.31	83.120	
19,500.00	7,098.35	3,414.00	3,413.67	58.48	66.59	-6.76	-1,036.75	3,213.28	10,093.45	9,972.75	120.70	83.627	
19,600.00	7,098.43	3,414.00	3,413.67	58.78	66.59	-6.76	-1,036.75	3,213.28	10,186.73	10,065.65	121.08	84.134	
19,700.00	7,098.51	3,414.00	3,413.67	59.08	66.59	-6.76	-1,036.75	3,213.28	10,280.13	10,158.67	121.46	84.640	
19,800.00	7,098.59	3,414.00	3,413.67	59.38	66.59	-6.76	-1,036.75	3,213.28	10,373.66	10,251.82	121.84	85.145	
19,900.00	7,098.66	3,414.00	3,413.67	59.68	66.59	-6.76	-1,036.75	3,213.28	10,467.30	10,345.09	122.21	85.649	
20,000.00	7,098.74	3,414.00	3,413.67	59.98	66.59	-6.76	-1,036.75	3,213.28	10,561.06	10,438.48	122.59	86.153	
20,100.00	7,098.82	3,414.00	3,413.67	60.28	66.59	-6.76	-1,036.75	3,213.28	10,654.94	10,531.98	122.96	86.656	
20,200.00	7,098.90	3,414.00	3,413.67	60.58	66.59	-6.76	-1,036.75	3,213.28	10,748.93	10,625.60	123.33	87.158	
20,300.00	7,098.98	3,414.00	3,413.67	60.88	66.59	-6.76	-1,036.75	3,213.28	10,843.02	10,719.32	123.70	87.659	
20,328.16	7,099.00	3,414.00	3,413.67	60.96	66.59	-6.76	-1,036.75	3,213.28	10,869.53	10,745.74	123.80	87.800	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #269A (Offset) - 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
0.00	0.00	0.00	52.60	0.00	0.00	98.03	-1,175.66	8,336.01	8,418.56				
100.00	100.00	217.81	217.80	0.23	0.65	98.02	-1,174.20	8,334.75	8,417.61	8,416.73	0.88	9,566.244	
200.00	200.00	303.66	303.64	0.53	0.91	98.02	-1,173.80	8,333.80	8,416.46	8,415.03	1.44	5,854.962	
300.00	300.00	377.38	377.35	0.83	1.13	98.02	-1,173.86	8,333.19	8,415.65	8,413.69	1.96	4,296.698	
400.00	400.00	431.08	431.05	1.13	1.29	98.02	-1,174.49	8,332.85	8,415.22	8,412.80	2.42	3,477.731	
419.46	419.46	441.00	440.97	1.18	1.32	98.02	-1,174.69	8,332.82	8,415.21	8,412.71	2.51	3,355.503	
500.00	500.00	472.00	471.96	1.43	1.42	98.03	-1,175.52	8,332.75	8,415.41	8,412.57	2.84	2,960.546	
600.00	599.98	513.12	513.05	1.73	1.54	-76.53	-1,176.98	8,332.88	8,415.88	8,412.62	3.27	2,576.928	
700.00	699.84	548.84	548.74	2.03	1.65	-76.52	-1,178.62	8,333.25	8,416.33	8,412.66	3.67	2,291.405	
800.00	799.45	592.00	591.81	2.33	1.78	-76.52	-1,181.13	8,334.00	8,416.75	8,412.65	4.10	2,051.651	
900.00	898.70	620.00	619.74	2.63	1.86	-76.53	-1,182.99	8,334.64	8,417.08	8,412.59	4.49	1,876.145	
1,000.00	997.47	651.00	650.65	2.93	1.95	-76.54	-1,185.23	8,335.53	8,417.37	8,412.49	4.88	1,725.123	
1,100.00	1,095.62	681.00	680.53	3.23	2.04	-76.55	-1,187.67	8,336.57	8,417.64	8,412.37	5.27	1,597.518	
1,157.34	1,151.58	713.00	712.38	3.40	2.14	-76.58	-1,190.53	8,337.89	8,417.79	8,412.25	5.54	1,520.236	
1,200.00	1,193.13	713.00	712.38	3.53	2.14	-76.58	-1,190.53	8,337.89	8,417.98	8,412.32	5.67	1,485.932	
1,300.00	1,290.51	744.00	743.18	3.83	2.23	-76.61	-1,193.59	8,339.46	8,419.10	8,413.04	6.06	1,389.739	
1,400.00	1,387.89	775.00	773.96	4.13	2.33	-76.63	-1,196.90	8,341.24	8,421.02	8,414.57	6.45	1,305.386	
1,500.00	1,485.27	806.00	804.70	4.43	2.42	-76.66	-1,200.39	8,343.19	8,423.70	8,416.86	6.84	1,230.832	
1,600.00	1,582.65	836.00	834.39	4.73	2.51	-76.68	-1,204.08	8,345.34	8,427.28	8,420.05	7.23	1,164.986	
1,700.00	1,680.02	867.00	865.01	5.03	2.60	-76.70	-1,208.18	8,347.88	8,431.78	8,424.15	7.63	1,105.558	
1,800.00	1,777.40	898.00	895.60	5.33	2.69	-76.72	-1,212.47	8,350.58	8,437.04	8,429.02	8.02	1,052.047	
1,900.00	1,874.78	930.00	927.12	5.63	2.79	-76.74	-1,217.13	8,353.53	8,443.03	8,434.62	8.42	1,003.266	
2,000.00	1,972.16	974.73	971.07	5.93	2.92	-76.77	-1,224.17	8,357.90	8,449.74	8,440.89	8.85	954.809	
2,100.00	2,069.54	1,024.00	1,019.32	6.23	3.07	-76.79	-1,232.72	8,363.05	8,457.19	8,447.89	9.30	909.628	
2,200.00	2,166.92	1,056.00	1,050.57	6.53	3.17	-76.80	-1,238.67	8,366.48	8,465.23	8,455.54	9.69	873.306	
2,300.00	2,264.30	1,099.23	1,092.68	6.83	3.30	-76.81	-1,247.14	8,371.39	8,474.02	8,463.90	10.12	837.115	
2,400.00	2,361.68	1,118.00	1,110.92	7.13	3.35	-76.82	-1,250.99	8,373.61	8,483.59	8,473.11	10.48	809.576	
2,500.00	2,459.06	1,178.00	1,169.11	7.43	3.54	-76.83	-1,263.48	8,381.22	8,493.85	8,482.89	10.96	775.064	
2,600.00	2,556.44	1,238.00	1,227.21	7.73	3.72	-76.84	-1,276.11	8,389.26	8,504.75	8,493.31	11.44	743.495	
2,700.00	2,653.82	1,283.40	1,271.10	8.03	3.85	-76.85	-1,285.89	8,395.47	8,516.08	8,504.21	11.87	717.146	
2,800.00	2,751.19	1,357.93	1,343.03	8.33	4.08	-76.86	-1,302.27	8,406.07	8,527.96	8,515.56	12.40	687.820	
2,900.00	2,848.57	1,412.69	1,395.81	8.63	4.24	-76.86	-1,314.54	8,413.95	8,540.14	8,527.28	12.86	663.945	
3,000.00	2,945.95	1,489.79	1,469.90	8.93	4.47	-76.87	-1,332.62	8,425.33	8,552.77	8,539.38	13.39	638.552	
3,100.00	3,043.33	1,646.57	1,620.36	9.23	4.94	-76.87	-1,370.52	8,447.73	8,565.01	8,550.85	14.16	604.678	
3,200.00	3,140.71	2,030.45	1,990.96	9.53	6.09	-76.90	-1,457.73	8,496.53	8,575.85	8,560.24	15.62	549.137	
3,300.00	3,238.09	2,071.98	2,031.17	9.83	6.22	-76.90	-1,466.96	8,501.28	8,584.97	8,568.93	16.04	535.174	
3,400.00	3,335.47	2,131.78	2,089.21	10.13	6.40	-76.91	-1,479.42	8,508.54	8,594.65	8,578.13	16.52	520.232	
3,500.00	3,432.85	2,227.11	2,181.72	10.43	6.68	-76.93	-1,499.14	8,520.41	8,604.62	8,587.51	17.11	502.994	
3,600.00	3,530.23	2,451.57	2,399.32	10.73	7.36	-76.96	-1,547.81	8,546.11	8,613.60	8,595.52	18.08	476.406	
3,700.00	3,627.61	3,512.00	3,448.77	11.03	10.54	-77.90	-1,653.13	8,614.07	8,613.16	8,591.60	21.56	399.452	
3,800.00	3,724.99	3,512.00	3,448.77	11.33	10.54	-77.90	-1,653.13	8,614.07	8,611.23	8,589.37	21.86	393.883	
3,900.00	3,822.36	3,512.00	3,448.77	11.63	10.54	-77.90	-1,653.13	8,614.07	8,610.47	8,588.31	22.16	388.518	
3,915.94	3,837.89	3,512.00	3,448.77	11.68	10.54	-77.90	-1,653.13	8,614.07	8,610.45	8,588.24	22.21	387.681	
4,000.00	3,919.74	3,512.00	3,448.77	11.93	10.54	-77.90	-1,653.13	8,614.07	8,610.86	8,588.40	22.46	383.347	
4,100.00	4,017.12	3,512.00	3,448.77	12.23	10.54	-77.90	-1,653.13	8,614.07	8,612.42	8,589.66	22.76	378.364	
4,200.00	4,114.50	3,512.00	3,448.77	12.53	10.54	-77.90	-1,653.13	8,614.07	8,615.14	8,592.08	23.06	373.561	
4,300.00	4,211.88	3,512.00	3,448.77	12.83	10.54	-77.90	-1,653.13	8,614.07	8,619.01	8,595.65	23.36	368.931	
4,400.00	4,309.26	3,512.00	3,448.77	13.13	10.54	-77.90	-1,653.13	8,614.07	8,624.05	8,600.39	23.66	364.467	
4,500.00	4,406.64	3,512.00	3,448.77	13.43	10.54	-77.90	-1,653.13	8,614.07	8,630.24	8,606.28	23.96	360.163	
4,600.00	4,504.02	3,512.00	3,448.77	13.73	10.54	-77.90	-1,653.13	8,614.07	8,637.58	8,613.32	24.26	356.013	
4,700.00	4,601.40	3,512.00	3,448.77	14.03	10.54	-77.90	-1,653.13	8,614.07	8,646.08	8,621.52	24.56	352.011	
4,800.00	4,698.78	3,512.00	3,448.77	14.33	10.54	-77.90	-1,653.13	8,614.07	8,655.72	8,630.86	24.86	348.152	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #269A (Offset) - 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
4,900.00	4,796.16	3,512.00	3,448.77	14.63	10.54	-77.90	-1,653.13	8,614.07	8,666.50	8,641.34	25.16	344.430	
5,000.00	4,893.53	3,512.00	3,448.77	14.93	10.54	-77.90	-1,653.13	8,614.07	8,678.43	8,652.97	25.46	340.841	
5,100.00	4,990.91	3,512.00	3,448.77	15.23	10.54	-77.90	-1,653.13	8,614.07	8,691.48	8,665.72	25.76	337.379	
5,200.00	5,088.29	3,512.00	3,448.77	15.53	10.54	-77.90	-1,653.13	8,614.07	8,705.67	8,679.61	26.06	334.040	
5,300.00	5,185.67	3,512.00	3,448.77	15.83	10.54	-77.90	-1,653.13	8,614.07	8,720.98	8,694.62	26.36	330.820	
5,400.00	5,283.05	3,512.00	3,448.77	16.13	10.54	-77.90	-1,653.13	8,614.07	8,737.41	8,710.75	26.66	327.714	
5,500.00	5,380.43	3,512.00	3,448.77	16.43	10.54	-77.90	-1,653.13	8,614.07	8,754.95	8,727.99	26.96	324.719	
5,600.00	5,477.81	3,512.00	3,448.77	16.73	10.54	-77.90	-1,653.13	8,614.07	8,773.59	8,746.33	27.26	321.830	
5,700.00	5,575.19	3,512.00	3,448.77	17.03	10.54	-77.90	-1,653.13	8,614.07	8,793.34	8,765.78	27.56	319.043	
5,800.00	5,672.57	3,512.00	3,448.77	17.33	10.54	-77.90	-1,653.13	8,614.07	8,814.17	8,786.31	27.86	316.356	
5,900.00	5,769.95	3,512.00	3,448.77	17.63	10.54	-77.90	-1,653.13	8,614.07	8,836.08	8,807.92	28.16	313.765	
6,000.00	5,867.33	3,512.00	3,448.77	17.93	10.54	-77.90	-1,653.13	8,614.07	8,859.07	8,830.61	28.46	311.265	
6,100.00	5,964.70	3,512.00	3,448.77	18.23	10.54	-77.90	-1,653.13	8,614.07	8,883.13	8,854.37	28.76	308.855	
6,200.00	6,062.08	3,512.00	3,448.77	18.53	10.54	-77.90	-1,653.13	8,614.07	8,908.25	8,879.18	29.06	306.531	
6,300.00	6,159.46	3,512.00	3,448.77	18.83	10.54	-77.90	-1,653.13	8,614.07	8,934.41	8,905.05	29.36	304.291	
6,400.00	6,256.84	3,512.00	3,448.77	19.13	10.54	-77.90	-1,653.13	8,614.07	8,961.61	8,931.95	29.66	302.130	
6,500.00	6,354.22	3,512.00	3,448.77	19.43	10.54	-77.90	-1,653.13	8,614.07	8,989.84	8,959.88	29.96	300.048	
6,600.00	6,451.60	3,512.00	3,448.77	19.73	10.54	-77.90	-1,653.13	8,614.07	9,019.10	8,988.83	30.26	298.040	
6,694.27	6,543.40	3,512.00	3,448.77	20.02	10.54	-77.90	-1,653.13	8,614.07	9,047.60	9,017.05	30.54	296.214	
6,700.00	6,548.98	3,512.00	3,448.77	20.03	10.54	-75.49	-1,653.13	8,614.07	9,049.33	9,018.77	30.56	296.104	
6,750.00	6,597.52	3,512.00	3,448.77	20.18	10.54	-56.39	-1,653.13	8,614.07	9,062.28	9,031.57	30.71	295.099	
6,800.00	6,645.56	3,512.00	3,448.77	20.33	10.54	-42.20	-1,653.13	8,614.07	9,071.27	9,040.41	30.86	293.975	
6,850.00	6,692.73	3,512.00	3,448.77	20.48	10.54	-32.44	-1,653.13	8,614.07	9,076.23	9,045.23	31.01	292.734	
6,900.00	6,738.66	3,512.00	3,448.77	20.63	10.54	-25.71	-1,653.13	8,614.07	9,077.14	9,045.99	31.15	291.374	
6,950.00	6,783.02	3,512.00	3,448.77	20.78	10.54	-20.92	-1,653.13	8,614.07	9,074.00	9,042.70	31.30	289.897	
7,000.00	6,825.45	3,512.00	3,448.77	20.94	10.54	-17.38	-1,653.13	8,614.07	9,066.81	9,035.36	31.45	288.306	
7,050.00	6,865.65	3,512.00	3,448.77	21.09	10.54	-14.67	-1,653.13	8,614.07	9,055.63	9,024.03	31.60	286.603	
7,100.00	6,903.29	3,512.00	3,448.77	21.24	10.54	-12.51	-1,653.13	8,614.07	9,040.53	9,008.78	31.74	284.791	
7,150.00	6,938.11	3,512.00	3,448.77	21.39	10.54	-10.73	-1,653.13	8,614.07	9,021.60	8,989.70	31.89	282.875	
7,200.00	6,969.82	3,512.00	3,448.77	21.54	10.54	-9.21	-1,653.13	8,614.07	8,998.96	8,966.92	32.04	280.861	
7,250.00	6,998.19	3,512.00	3,448.77	21.69	10.54	-7.86	-1,653.13	8,614.07	8,972.76	8,940.57	32.19	278.753	
7,300.00	7,023.01	3,512.00	3,448.77	21.84	10.54	-6.61	-1,653.13	8,614.07	8,943.16	8,910.82	32.34	276.558	
7,350.00	7,044.08	3,512.00	3,448.77	21.99	10.54	-5.39	-1,653.13	8,614.07	8,910.37	8,877.88	32.49	274.282	
7,400.00	7,061.25	3,512.00	3,448.77	22.14	10.54	-4.12	-1,653.13	8,614.07	8,874.59	8,841.95	32.63	271.935	
7,450.00	7,074.38	3,512.00	3,448.77	22.29	10.54	-2.74	-1,653.13	8,614.07	8,836.06	8,803.28	32.78	269.523	
7,500.00	7,083.37	3,512.00	3,448.77	22.44	10.54	-1.11	-1,653.13	8,614.07	8,795.04	8,762.11	32.93	267.056	
7,550.00	7,088.16	3,512.00	3,448.77	22.59	10.54	0.95	-1,653.13	8,614.07	8,751.82	8,718.74	33.08	264.542	
7,581.00	7,089.00	3,512.00	3,448.77	22.68	10.54	2.57	-1,653.13	8,614.07	8,724.04	8,690.87	33.18	262.964	
7,600.00	7,089.02	3,512.00	3,448.77	22.74	10.54	2.57	-1,653.13	8,614.07	8,706.81	8,673.58	33.23	261.992	
7,700.00	7,089.09	3,512.00	3,448.77	23.04	10.54	2.57	-1,653.13	8,614.07	8,616.24	8,582.70	33.53	256.939	
7,800.00	7,089.17	3,512.00	3,448.77	23.34	10.54	2.57	-1,653.13	8,614.07	8,525.88	8,492.04	33.84	251.982	
7,900.00	7,089.25	3,512.00	3,448.77	23.64	10.54	2.57	-1,653.13	8,614.07	8,435.74	8,401.60	34.14	247.119	
8,000.00	7,089.33	3,512.00	3,448.77	23.94	10.54	2.57	-1,653.13	8,614.07	8,345.82	8,311.38	34.44	242.348	
8,100.00	7,089.41	3,512.00	3,448.77	24.24	10.54	2.57	-1,653.13	8,614.07	8,256.13	8,221.40	34.74	237.667	
8,200.00	7,089.49	3,512.00	3,448.77	24.54	10.54	2.57	-1,653.13	8,614.07	8,166.69	8,131.65	35.04	233.073	
8,300.00	7,089.56	3,512.00	3,448.77	24.84	10.54	2.57	-1,653.13	8,614.07	8,077.49	8,042.15	35.34	228.565	
8,400.00	7,089.64	3,512.00	3,448.77	25.14	10.54	2.57	-1,653.13	8,614.07	7,988.55	7,952.91	35.64	224.140	
8,500.00	7,089.72	3,512.00	3,448.77	25.44	10.54	2.57	-1,653.13	8,614.07	7,899.87	7,863.93	35.94	219.797	
8,600.00	7,089.80	3,512.00	3,448.77	25.75	10.54	2.57	-1,653.13	8,614.07	7,811.46	7,775.22	36.24	215.534	
8,700.00	7,089.88	3,512.00	3,448.77	26.05	10.54	2.57	-1,653.13	8,614.07	7,723.34	7,686.80	36.54	211.348	
8,800.00	7,089.96	3,512.00	3,448.77	26.35	10.54	2.57	-1,653.13	8,614.07	7,635.51	7,598.67	36.84	207.240	
8,900.00	7,090.03	3,512.00	3,448.77	26.65	10.54	2.57	-1,653.13	8,614.07	7,547.99	7,510.84	37.14	203.206	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #269A (Offset) - 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
9,000.00	7,090.11	3,512.00	3,448.77	26.95	10.54	2.57	-1,653.13	8,614.07	7,460.77	7,423.33	37.45	199.245	
9,100.00	7,090.19	3,512.00	3,448.77	27.25	10.54	2.57	-1,653.13	8,614.07	7,373.89	7,336.14	37.75	195.356	
9,200.00	7,090.27	3,512.00	3,448.77	27.55	10.54	2.57	-1,653.13	8,614.07	7,287.33	7,249.29	38.05	191.538	
9,300.00	7,090.35	3,512.00	3,448.77	27.85	10.54	2.57	-1,653.13	8,614.07	7,201.13	7,162.78	38.35	187.789	
9,400.00	7,090.43	3,512.00	3,448.77	28.15	10.54	2.57	-1,653.13	8,614.07	7,115.29	7,076.64	38.65	184.107	
9,500.00	7,090.51	3,512.00	3,448.77	28.45	10.54	2.57	-1,653.13	8,614.07	7,029.82	6,990.87	38.95	180.493	
9,600.00	7,090.58	3,512.00	3,448.77	28.75	10.54	2.57	-1,653.13	8,614.07	6,944.74	6,905.49	39.25	176.943	
9,700.00	7,090.66	3,512.00	3,448.77	29.05	10.54	2.57	-1,653.13	8,614.07	6,860.06	6,820.52	39.55	173.458	
9,800.00	7,090.74	3,512.00	3,448.77	29.35	10.54	2.57	-1,653.13	8,614.07	6,775.80	6,735.95	39.85	170.036	
9,900.00	7,090.82	3,512.00	3,448.77	29.65	10.54	2.57	-1,653.13	8,614.07	6,691.98	6,651.83	40.15	166.676	
10,000.00	7,090.90	3,512.00	3,448.77	29.95	10.54	2.57	-1,653.13	8,614.07	6,608.60	6,568.15	40.45	163.377	
10,100.00	7,090.98	3,512.00	3,448.77	30.25	10.54	2.57	-1,653.13	8,614.07	6,525.69	6,484.94	40.75	160.139	
10,200.00	7,091.05	3,512.00	3,448.77	30.55	10.54	2.57	-1,653.13	8,614.07	6,443.27	6,402.22	41.05	156.959	
10,300.00	7,091.13	3,512.00	3,448.77	30.85	10.54	2.57	-1,653.13	8,614.07	6,361.35	6,320.00	41.35	153.839	
10,400.00	7,091.21	3,512.00	3,448.77	31.15	10.54	2.57	-1,653.13	8,614.07	6,279.95	6,238.30	41.65	150.775	
10,500.00	7,091.29	3,512.00	3,448.77	31.45	10.54	2.57	-1,653.13	8,614.07	6,199.10	6,157.15	41.95	147.769	
10,600.00	7,091.37	3,512.00	3,448.77	31.76	10.54	2.57	-1,653.13	8,614.07	6,118.81	6,076.56	42.25	144.819	
10,700.00	7,091.45	3,512.00	3,448.77	32.06	10.54	2.57	-1,653.13	8,614.07	6,039.12	5,996.57	42.55	141.925	
10,800.00	7,091.53	3,512.00	3,448.77	32.36	10.54	2.57	-1,653.13	8,614.07	5,960.03	5,917.18	42.85	139.086	
10,900.00	7,091.60	3,512.00	3,448.77	32.66	10.54	2.57	-1,653.13	8,614.07	5,881.58	5,838.43	43.15	136.301	
11,000.00	7,091.68	3,512.00	3,448.77	32.96	10.54	2.57	-1,653.13	8,614.07	5,803.80	5,760.35	43.45	133.569	
11,100.00	7,091.76	3,512.00	3,448.77	33.26	10.54	2.57	-1,653.13	8,614.07	5,726.70	5,682.95	43.75	130.891	
11,200.00	7,091.84	3,512.00	3,448.77	33.56	10.54	2.57	-1,653.13	8,614.07	5,650.32	5,606.27	44.05	128.266	
11,300.00	7,091.92	3,512.00	3,448.77	33.86	10.54	2.57	-1,653.13	8,614.07	5,574.69	5,530.34	44.35	125.694	
11,400.00	7,092.00	3,512.00	3,448.77	34.16	10.54	2.57	-1,653.13	8,614.07	5,499.84	5,455.19	44.65	123.173	
11,500.00	7,092.07	3,512.00	3,448.77	34.46	10.54	2.57	-1,653.13	8,614.07	5,425.80	5,380.85	44.95	120.704	
11,600.00	7,092.15	3,512.00	3,448.77	34.76	10.54	2.57	-1,653.13	8,614.07	5,352.60	5,307.35	45.25	118.287	
11,700.00	7,092.23	3,512.00	3,448.77	35.06	10.54	2.57	-1,653.13	8,614.07	5,280.28	5,234.73	45.55	115.921	
11,800.00	7,092.31	3,512.00	3,448.77	35.36	10.54	2.57	-1,653.13	8,614.07	5,208.88	5,163.03	45.85	113.606	
11,900.00	7,092.39	3,512.00	3,448.77	35.66	10.54	2.57	-1,653.13	8,614.07	5,138.43	5,092.28	46.15	111.342	
12,000.00	7,092.47	3,512.00	3,448.77	35.96	10.54	2.57	-1,653.13	8,614.07	5,068.98	5,022.53	46.45	109.128	
12,100.00	7,092.55	3,512.00	3,448.77	36.26	10.54	2.57	-1,653.13	8,614.07	5,000.56	4,953.81	46.75	106.965	
12,200.00	7,092.62	3,512.00	3,448.77	36.56	10.54	2.57	-1,653.13	8,614.07	4,933.22	4,886.17	47.05	104.853	
12,300.00	7,092.70	3,512.00	3,448.77	36.86	10.54	2.57	-1,653.13	8,614.07	4,867.00	4,819.65	47.35	102.791	
12,400.00	7,092.78	3,512.00	3,448.77	37.16	10.54	2.57	-1,653.13	8,614.07	4,801.95	4,754.30	47.65	100.780	
12,500.00	7,092.86	3,512.00	3,448.77	37.46	10.54	2.57	-1,653.13	8,614.07	4,738.12	4,690.17	47.95	98.819	
12,600.00	7,092.94	3,512.00	3,448.77	37.76	10.54	2.57	-1,653.13	8,614.07	4,675.55	4,627.31	48.25	96.909	
12,700.00	7,093.02	3,512.00	3,448.77	38.06	10.54	2.57	-1,653.13	8,614.07	4,614.31	4,565.76	48.55	95.050	
12,800.00	7,093.09	3,512.00	3,448.77	38.36	10.54	2.57	-1,653.13	8,614.07	4,554.44	4,505.59	48.85	93.241	
12,900.00	7,093.17	3,512.00	3,448.77	38.66	10.54	2.57	-1,653.13	8,614.07	4,495.99	4,446.85	49.14	91.484	
13,000.00	7,093.25	3,512.00	3,448.77	38.96	10.54	2.57	-1,653.13	8,614.07	4,439.03	4,389.58	49.44	89.778	
13,100.00	7,093.33	3,512.00	3,448.77	39.26	10.54	2.57	-1,653.13	8,614.07	4,383.61	4,333.86	49.74	88.124	
13,200.00	7,093.41	3,512.00	3,448.77	39.56	10.54	2.57	-1,653.13	8,614.07	4,329.79	4,279.75	50.04	86.522	
13,300.00	7,093.49	3,512.00	3,448.77	39.86	10.54	2.57	-1,653.13	8,614.07	4,277.63	4,227.29	50.34	84.971	
13,400.00	7,093.57	3,512.00	3,448.77	40.16	10.54	2.57	-1,653.13	8,614.07	4,227.19	4,176.55	50.64	83.474	
13,500.00	7,093.64	3,512.00	3,448.77	40.47	10.54	2.57	-1,653.13	8,614.07	4,178.54	4,127.60	50.94	82.028	
13,600.00	7,093.72	3,512.00	3,448.77	40.77	10.54	2.57	-1,653.13	8,614.07	4,131.74	4,080.50	51.24	80.636	
13,700.00	7,093.80	3,512.00	3,448.77	41.07	10.54	2.57	-1,653.13	8,614.07	4,086.84	4,035.31	51.54	79.297	
13,800.00	7,093.88	3,512.00	3,448.77	41.37	10.54	2.57	-1,653.13	8,614.07	4,043.93	3,992.09	51.84	78.011	
13,900.00	7,093.96	3,512.00	3,448.77	41.67	10.54	2.57	-1,653.13	8,614.07	4,003.05	3,950.91	52.14	76.780	
14,000.00	7,094.04	3,512.00	3,448.77	41.97	10.54	2.57	-1,653.13	8,614.07	3,964.27	3,911.83	52.44	75.602	
14,100.00	7,094.11	3,512.00	3,448.77	42.27	10.54	2.57	-1,653.13	8,614.07	3,927.66	3,874.92	52.74	74.479	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #269A (Offset) - 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
14,200.00	7,094.19	3,512.00	3,448.77	42.57	10.54	2.57	-1,653.13	8,614.07	3,893.27	3,840.23	53.03	73.410	
14,300.00	7,094.27	3,512.00	3,448.77	42.87	10.54	2.57	-1,653.13	8,614.07	3,861.16	3,807.83	53.33	72.397	
14,400.00	7,094.35	3,512.00	3,448.77	43.17	10.54	2.57	-1,653.13	8,614.07	3,831.40	3,777.77	53.63	71.438	
14,500.00	7,094.43	3,512.00	3,448.77	43.47	10.54	2.57	-1,653.13	8,614.07	3,804.03	3,750.10	53.93	70.534	
14,600.00	7,094.51	3,512.00	3,448.77	43.77	10.54	2.57	-1,653.13	8,614.07	3,779.11	3,724.88	54.23	69.685	
14,700.00	7,094.58	3,512.00	3,448.77	44.07	10.54	2.57	-1,653.13	8,614.07	3,756.69	3,702.16	54.53	68.892	
14,800.00	7,094.66	3,512.00	3,448.77	44.37	10.54	2.57	-1,653.13	8,614.07	3,736.82	3,681.99	54.83	68.153	
14,900.00	7,094.74	3,512.00	3,448.77	44.67	10.54	2.57	-1,653.13	8,614.07	3,719.52	3,664.39	55.13	67.469	
15,000.00	7,094.82	3,512.00	3,448.77	44.97	10.54	2.57	-1,653.13	8,614.07	3,704.85	3,649.42	55.43	66.840	
15,100.00	7,094.90	3,512.00	3,448.77	45.27	10.54	2.57	-1,653.13	8,614.07	3,692.82	3,637.09	55.73	66.265	
15,200.00	7,094.98	3,512.00	3,448.77	45.57	10.54	2.57	-1,653.13	8,614.07	3,683.47	3,627.45	56.03	65.744	
15,300.00	7,095.06	3,512.00	3,448.77	45.87	10.54	2.57	-1,653.13	8,614.07	3,676.82	3,620.49	56.33	65.276	
15,400.00	7,095.13	3,512.00	3,448.77	46.17	10.54	2.57	-1,653.13	8,614.07	3,672.88	3,616.26	56.63	64.861	
15,494.77	7,095.21	3,512.00	3,448.77	46.45	10.54	2.57	-1,653.13	8,614.07	3,671.66	3,614.75	56.91	64.515	CC
15,500.00	7,095.21	3,512.00	3,448.77	46.47	10.54	2.57	-1,653.13	8,614.07	3,671.66	3,614.74	56.93	64.498	ES
15,600.00	7,095.29	3,512.00	3,448.77	46.77	10.54	2.57	-1,653.13	8,614.07	3,673.17	3,615.94	57.23	64.186	
15,700.00	7,095.37	3,512.00	3,448.77	47.07	10.54	2.57	-1,653.13	8,614.07	3,677.39	3,619.86	57.53	63.924	
15,800.00	7,095.45	3,512.00	3,448.77	47.37	10.54	2.57	-1,653.13	8,614.07	3,684.33	3,626.50	57.83	63.713	
15,900.00	7,095.53	3,512.00	3,448.77	47.67	10.54	2.57	-1,653.13	8,614.07	3,693.95	3,635.83	58.13	63.549	
16,000.00	7,095.60	3,512.00	3,448.77	47.97	10.54	2.57	-1,653.13	8,614.07	3,706.26	3,647.83	58.43	63.433	
16,100.00	7,095.68	3,512.00	3,448.77	48.27	10.54	2.57	-1,653.13	8,614.07	3,721.21	3,662.48	58.73	63.363	
16,200.00	7,095.76	3,512.00	3,448.77	48.57	10.54	2.57	-1,653.13	8,614.07	3,738.77	3,679.75	59.03	63.338	SF
16,300.00	7,095.84	3,512.00	3,448.77	48.87	10.54	2.57	-1,653.13	8,614.07	3,758.92	3,699.59	59.33	63.357	
16,400.00	7,095.92	3,512.00	3,448.77	49.17	10.54	2.57	-1,653.13	8,614.07	3,781.60	3,721.97	59.63	63.418	
16,500.00	7,096.00	3,512.00	3,448.77	49.47	10.54	2.57	-1,653.13	8,614.07	3,806.78	3,746.85	59.93	63.520	
16,600.00	7,096.08	3,512.00	3,448.77	49.77	10.54	2.57	-1,653.13	8,614.07	3,834.40	3,774.17	60.23	63.661	
16,700.00	7,096.15	3,512.00	3,448.77	50.07	10.54	2.57	-1,653.13	8,614.07	3,864.41	3,803.88	60.53	63.841	
16,800.00	7,096.23	3,512.00	3,448.77	50.37	10.54	2.57	-1,653.13	8,614.07	3,896.76	3,835.92	60.83	64.057	
16,900.00	7,096.31	3,512.00	3,448.77	50.67	10.54	2.57	-1,653.13	8,614.07	3,931.38	3,870.25	61.13	64.308	
17,000.00	7,096.39	3,512.00	3,448.77	50.97	10.54	2.57	-1,653.13	8,614.07	3,968.22	3,906.79	61.44	64.592	
17,100.00	7,096.47	3,512.00	3,448.77	51.27	10.54	2.57	-1,653.13	8,614.07	4,007.22	3,945.49	61.74	64.909	
17,200.00	7,096.55	3,512.00	3,448.77	51.57	10.54	2.57	-1,653.13	8,614.07	4,048.32	3,986.28	62.04	65.256	
17,300.00	7,096.62	3,512.00	3,448.77	51.87	10.54	2.57	-1,653.13	8,614.07	4,091.45	4,029.11	62.34	65.633	
17,400.00	7,096.70	3,512.00	3,448.77	52.17	10.54	2.57	-1,653.13	8,614.07	4,136.54	4,073.90	62.64	66.037	
17,500.00	7,096.78	3,512.00	3,448.77	52.47	10.54	2.57	-1,653.13	8,614.07	4,183.54	4,120.60	62.94	66.468	
17,600.00	7,096.86	3,512.00	3,448.77	52.77	10.54	2.57	-1,653.13	8,614.07	4,232.38	4,169.14	63.24	66.924	
17,700.00	7,096.94	3,512.00	3,448.77	53.07	10.54	2.57	-1,653.13	8,614.07	4,283.00	4,219.46	63.54	67.403	
17,800.00	7,097.02	3,512.00	3,448.77	53.37	10.54	2.57	-1,653.13	8,614.07	4,335.34	4,271.49	63.84	67.905	
17,900.00	7,097.10	3,512.00	3,448.77	53.67	10.54	2.57	-1,653.13	8,614.07	4,389.33	4,325.18	64.15	68.428	
18,000.00	7,097.17	3,512.00	3,448.77	53.97	10.54	2.57	-1,653.13	8,614.07	4,444.91	4,380.47	64.45	68.971	
18,100.00	7,097.25	3,512.00	3,448.77	54.27	10.54	2.57	-1,653.13	8,614.07	4,502.03	4,437.28	64.75	69.532	
18,200.00	7,097.33	3,512.00	3,448.77	54.57	10.54	2.57	-1,653.13	8,614.07	4,560.63	4,495.58	65.05	70.111	
18,300.00	7,097.41	3,512.00	3,448.77	54.87	10.54	2.57	-1,653.13	8,614.07	4,620.65	4,555.30	65.35	70.706	
18,400.00	7,097.49	3,512.00	3,448.77	55.17	10.54	2.57	-1,653.13	8,614.07	4,682.03	4,616.38	65.65	71.317	
18,500.00	7,097.57	3,512.00	3,448.77	55.47	10.54	2.57	-1,653.13	8,614.07	4,744.73	4,678.78	65.95	71.942	
18,600.00	7,097.64	3,512.00	3,448.77	55.78	10.54	2.57	-1,653.13	8,614.07	4,808.69	4,742.44	66.25	72.580	
18,700.00	7,097.72	3,512.00	3,448.77	56.08	10.54	2.57	-1,653.13	8,614.07	4,873.87	4,807.31	66.55	73.231	
18,800.00	7,097.80	3,512.00	3,448.77	56.38	10.54	2.57	-1,653.13	8,614.07	4,940.20	4,873.35	66.86	73.893	
18,900.00	7,097.88	3,512.00	3,448.77	56.68	10.54	2.57	-1,653.13	8,614.07	5,007.66	4,940.50	67.16	74.567	
19,000.00	7,097.96	3,512.00	3,448.77	56.98	10.54	2.57	-1,653.13	8,614.07	5,076.19	5,008.73	67.46	75.250	
19,100.00	7,098.04	3,512.00	3,448.77	57.28	10.54	2.57	-1,653.13	8,614.07	5,145.75	5,077.99	67.76	75.942	
19,200.00	7,098.12	3,512.00	3,448.77	57.58	10.54	2.57	-1,653.13	8,614.07	5,216.30	5,148.24	68.06	76.643	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 71-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,300.00	7,098.19	3,512.00	3,448.77	57.88	10.54	2.57	-1,653.13	8,614.07	5,287.80	5,219.44	68.36	77.351	
19,400.00	7,098.27	3,512.00	3,448.77	58.18	10.54	2.57	-1,653.13	8,614.07	5,360.21	5,291.55	68.66	78.067	
19,500.00	7,098.35	3,512.00	3,448.77	58.48	10.54	2.57	-1,653.13	8,614.07	5,433.50	5,364.54	68.96	78.789	
19,600.00	7,098.43	3,512.00	3,448.77	58.78	10.54	2.57	-1,653.13	8,614.07	5,507.63	5,438.37	69.26	79.516	
19,700.00	7,098.51	3,512.00	3,448.77	59.08	10.54	2.57	-1,653.13	8,614.07	5,582.56	5,513.00	69.56	80.250	
19,800.00	7,098.59	3,512.00	3,448.77	59.38	10.54	2.57	-1,653.13	8,614.07	5,658.27	5,588.41	69.87	80.988	
19,900.00	7,098.66	3,512.00	3,448.77	59.68	10.54	2.57	-1,653.13	8,614.07	5,734.73	5,664.56	70.17	81.730	
20,000.00	7,098.74	3,512.00	3,448.77	59.98	10.54	2.57	-1,653.13	8,614.07	5,811.90	5,741.43	70.47	82.476	
20,100.00	7,098.82	3,512.00	3,448.77	60.28	10.54	2.57	-1,653.13	8,614.07	5,889.75	5,818.99	70.77	83.226	
20,200.00	7,098.90	3,512.00	3,448.77	60.58	10.54	2.57	-1,653.13	8,614.07	5,968.27	5,897.20	71.07	83.978	
20,300.00	7,098.98	3,512.00	3,448.77	60.88	10.54	2.57	-1,653.13	8,614.07	6,047.42	5,976.05	71.37	84.733	
20,328.16	7,099.00	3,512.00	3,448.77	60.96	10.54	2.57	-1,653.13	8,614.07	6,069.82	5,998.37	71.45	84.946	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	168.51	168.51	0.00	1.79	95.63	-586.32	5,943.14	5,971.99				
100.00	100.00	268.53	268.51	0.23	3.16	95.63	-586.32	5,943.14	5,971.99	5,968.61	3.39	1,763.410	
200.00	200.00	368.53	368.51	0.53	5.13	95.63	-586.32	5,943.14	5,971.99	5,966.34	5.65	1,056.371	
300.00	300.00	468.53	468.51	0.83	7.09	95.63	-586.32	5,943.14	5,971.99	5,964.07	7.92	754.039	
339.99	339.99	508.00	507.98	0.95	7.87	95.62	-585.25	5,943.14	5,971.89	5,963.07	8.82	677.361	
400.00	400.00	566.81	566.78	1.13	9.03	95.63	-585.36	5,943.14	5,971.90	5,961.75	10.15	588.195	
500.00	500.00	664.81	664.78	1.43	10.95	95.63	-585.82	5,943.14	5,971.95	5,959.57	12.38	482.375	
600.00	599.98	768.55	768.49	1.73	12.97	-78.96	-586.32	5,943.14	5,971.66	5,956.97	14.70	406.369	
700.00	699.84	868.41	868.35	2.03	14.87	-79.03	-586.32	5,943.14	5,970.66	5,953.77	16.89	353.469	
800.00	799.45	968.02	967.97	2.33	16.76	-79.14	-586.32	5,943.14	5,969.00	5,949.92	19.08	312.786	
900.00	898.70	1,066.42	1,066.36	2.63	18.63	-79.31	-585.84	5,943.14	5,966.66	5,945.41	21.25	280.757	
1,000.00	997.47	1,164.28	1,164.22	2.93	20.48	-79.51	-586.08	5,943.14	5,963.77	5,940.36	23.41	254.747	
1,100.00	1,095.62	1,264.22	1,264.14	3.23	22.41	-79.75	-586.32	5,943.14	5,960.30	5,934.67	25.63	232.514	
1,157.34	1,151.58	1,320.18	1,320.10	3.40	23.51	-79.91	-586.32	5,943.14	5,958.04	5,931.14	26.91	221.419	
1,200.00	1,193.13	1,361.73	1,361.64	3.53	24.33	-80.00	-586.32	5,943.14	5,956.31	5,928.45	27.85	213.834	
1,300.00	1,290.51	1,459.11	1,459.02	3.83	26.25	-80.21	-586.32	5,943.14	5,952.30	5,922.22	30.07	197.928	
1,400.00	1,387.89	1,555.77	1,555.68	4.13	28.15	-80.43	-585.50	5,943.14	5,948.31	5,916.03	32.28	184.289	
1,500.00	1,485.27	1,652.16	1,652.06	4.43	30.05	-80.63	-585.77	5,943.14	5,944.49	5,910.01	34.48	172.426	
1,600.00	1,582.65	1,748.66	1,748.55	4.73	31.95	-80.84	-586.27	5,943.14	5,940.77	5,904.09	36.68	161.978	
1,700.00	1,680.02	1,848.67	1,848.54	5.03	33.92	-81.05	-586.32	5,943.14	5,937.10	5,898.16	38.95	152.442	
1,800.00	1,777.40	1,946.05	1,945.92	5.33	35.84	-81.27	-586.32	5,943.14	5,933.51	5,892.35	41.16	144.140	
1,900.00	1,874.78	2,043.08	2,042.94	5.63	37.75	-81.48	-585.52	5,943.14	5,929.97	5,886.59	43.38	136.710	
2,000.00	1,972.16	2,139.68	2,139.54	5.93	39.65	-81.69	-585.75	5,943.14	5,926.57	5,880.99	45.58	130.028	
2,100.00	2,069.54	2,236.39	2,236.24	6.23	41.56	-81.90	-586.21	5,943.14	5,923.26	5,875.48	47.78	123.959	
2,200.00	2,166.92	2,335.61	2,335.43	6.53	43.51	-82.11	-586.32	5,943.14	5,920.02	5,869.98	50.04	118.309	
2,300.00	2,264.30	2,432.99	2,432.81	6.83	45.43	-82.33	-586.32	5,943.14	5,916.86	5,864.60	52.26	113.226	
2,400.00	2,361.68	2,529.81	2,529.63	7.13	47.34	-82.54	-585.75	5,943.14	5,913.76	5,859.30	54.46	108.581	
2,500.00	2,459.06	2,626.61	2,626.42	7.43	49.24	-82.75	-586.13	5,943.14	5,910.79	5,854.12	56.67	104.300	
2,600.00	2,556.44	2,725.16	2,724.95	7.73	51.23	-82.97	-586.32	5,943.14	5,907.89	5,848.93	58.96	100.201	
2,700.00	2,653.82	2,822.54	2,822.33	8.03	53.22	-83.18	-586.32	5,943.14	5,905.08	5,843.83	61.25	96.414	
2,800.00	2,751.19	2,919.65	2,919.43	8.33	55.20	-83.40	-585.72	5,943.14	5,902.33	5,838.80	63.53	92.908	
2,900.00	2,848.57	3,016.71	3,016.49	8.63	57.18	-83.61	-586.06	5,943.14	5,899.70	5,833.89	65.81	89.649	
3,000.00	2,945.95	3,114.72	3,114.47	8.93	59.22	-83.82	-586.32	5,943.14	5,897.15	5,829.00	68.15	86.534	
3,100.00	3,043.33	3,212.10	3,211.84	9.23	61.28	-84.03	-586.32	5,943.14	5,894.68	5,824.17	70.51	83.604	
3,200.00	3,140.71	3,309.32	3,309.05	9.53	63.34	-84.25	-585.68	5,943.14	5,892.29	5,819.43	72.86	80.869	
3,300.00	3,238.09	3,406.67	3,406.40	9.83	65.39	-84.46	-586.26	5,943.14	5,890.00	5,814.78	75.22	78.304	
3,400.00	3,335.47	3,504.29	3,503.98	10.13	67.46	-84.68	-586.32	5,943.14	5,887.79	5,810.20	77.59	75.888	
3,500.00	3,432.85	3,601.67	3,601.36	10.43	69.52	-84.89	-586.32	5,943.14	5,885.66	5,805.72	79.95	73.620	
3,600.00	3,530.23	3,597.00	3,596.66	10.73	69.42	-84.88	-586.32	5,943.14	5,884.51	5,804.38	80.14	73.431	
3,617.79	3,547.55	3,597.00	3,596.66	10.79	69.42	-84.88	-586.32	5,943.14	5,884.49	5,804.30	80.19	73.385	
3,700.00	3,627.61	3,597.00	3,596.66	11.03	69.42	-84.88	-586.32	5,943.14	5,885.06	5,804.65	80.41	73.190	
3,800.00	3,724.99	3,597.00	3,596.66	11.33	69.42	-84.88	-586.32	5,943.14	5,887.31	5,806.65	80.66	72.988	
3,900.00	3,822.36	3,597.00	3,596.66	11.63	69.42	-84.88	-586.32	5,943.14	5,891.25	5,810.36	80.90	72.825	
4,000.00	3,919.74	3,597.00	3,596.66	11.93	69.42	-84.88	-586.32	5,943.14	5,896.89	5,815.78	81.11	72.701	
4,100.00	4,017.12	3,597.00	3,596.66	12.23	69.42	-84.88	-586.32	5,943.14	5,904.21	5,822.90	81.31	72.614	
4,200.00	4,114.50	3,597.00	3,596.66	12.53	69.42	-84.88	-586.32	5,943.14	5,913.22	5,831.73	81.49	72.564	
4,300.00	4,211.88	3,597.00	3,596.66	12.83	69.42	-84.88	-586.32	5,943.14	5,923.90	5,842.25	81.65	72.550	
4,400.00	4,309.26	3,597.00	3,596.66	13.13	69.42	-84.88	-586.32	5,943.14	5,936.25	5,854.45	81.80	72.572	
4,500.00	4,406.64	3,597.00	3,596.66	13.43	69.42	-84.88	-586.32	5,943.14	5,950.25	5,868.32	81.93	72.629	
4,600.00	4,504.02	3,597.00	3,596.66	13.73	69.42	-84.88	-586.32	5,943.14	5,965.90	5,883.86	82.04	72.721	
4,700.00	4,601.40	3,597.00	3,596.66	14.03	69.42	-84.88	-586.32	5,943.14	5,983.17	5,901.04	82.13	72.846	
4,800.00	4,698.78	3,597.00	3,596.66	14.33	69.42	-84.88	-586.32	5,943.14	6,002.07	5,919.85	82.21	73.005	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,796.16	3,597.00	3,596.66	14.63	69.42	-84.88	-586.32	5,943.14	6,022.56	5,940.28	82.28	73.196	
5,000.00	4,893.53	3,597.00	3,596.66	14.93	69.42	-84.88	-586.32	5,943.14	6,044.64	5,962.31	82.33	73.419	
5,100.00	4,990.91	3,597.00	3,596.66	15.23	69.42	-84.88	-586.32	5,943.14	6,068.29	5,985.92	82.37	73.674	
5,200.00	5,088.29	3,597.00	3,596.66	15.53	69.42	-84.88	-586.32	5,943.14	6,093.49	6,011.10	82.39	73.959	
5,300.00	5,185.67	3,597.00	3,596.66	15.83	69.42	-84.88	-586.32	5,943.14	6,120.21	6,037.81	82.40	74.274	
5,400.00	5,283.05	3,597.00	3,596.66	16.13	69.42	-84.88	-586.32	5,943.14	6,148.45	6,066.05	82.40	74.619	
5,500.00	5,380.43	3,597.00	3,596.66	16.43	69.42	-84.88	-586.32	5,943.14	6,178.18	6,095.80	82.38	74.992	
5,600.00	5,477.81	3,597.00	3,596.66	16.73	69.42	-84.88	-586.32	5,943.14	6,209.38	6,127.02	82.36	75.394	
5,700.00	5,575.19	3,597.00	3,596.66	17.03	69.42	-84.88	-586.32	5,943.14	6,242.02	6,159.69	82.32	75.823	
5,800.00	5,672.57	3,597.00	3,596.66	17.33	69.42	-84.88	-586.32	5,943.14	6,276.08	6,193.80	82.28	76.278	
5,900.00	5,769.95	3,597.00	3,596.66	17.63	69.42	-84.88	-586.32	5,943.14	6,311.55	6,229.33	82.22	76.760	
6,000.00	5,867.33	3,597.00	3,596.66	17.93	69.42	-84.88	-586.32	5,943.14	6,348.39	6,266.23	82.16	77.267	
6,100.00	5,964.70	3,597.00	3,596.66	18.23	69.42	-84.88	-586.32	5,943.14	6,386.59	6,304.50	82.09	77.799	
6,200.00	6,062.08	3,597.00	3,596.66	18.53	69.42	-84.88	-586.32	5,943.14	6,426.12	6,344.11	82.01	78.355	
6,300.00	6,159.46	3,597.00	3,596.66	18.83	69.42	-84.88	-586.32	5,943.14	6,466.95	6,385.02	81.93	78.935	
6,400.00	6,256.84	3,597.00	3,596.66	19.13	69.42	-84.88	-586.32	5,943.14	6,509.06	6,427.22	81.84	79.537	
6,500.00	6,354.22	3,597.00	3,596.66	19.43	69.42	-84.88	-586.32	5,943.14	6,552.43	6,470.69	81.74	80.161	
6,600.00	6,451.60	3,597.00	3,596.66	19.73	69.42	-84.88	-586.32	5,943.14	6,597.03	6,515.39	81.64	80.807	
6,694.27	6,543.40	3,597.00	3,596.66	20.02	69.42	-84.88	-586.32	5,943.14	6,640.17	6,558.63	81.54	81.435	
6,700.00	6,548.98	3,597.00	3,596.66	20.03	69.42	-82.45	-586.32	5,943.14	6,642.81	6,561.27	81.53	81.474	
6,750.00	6,597.52	3,597.00	3,596.66	20.18	69.42	-63.18	-586.32	5,943.14	6,663.75	6,582.28	81.47	81.794	
6,800.00	6,645.56	3,597.00	3,596.66	20.33	69.42	-48.88	-586.32	5,943.14	6,680.98	6,599.58	81.40	82.078	
6,850.00	6,692.73	3,597.00	3,596.66	20.48	69.42	-39.06	-586.32	5,943.14	6,694.39	6,613.08	81.32	82.323	
6,900.00	6,738.66	3,597.00	3,596.66	20.63	69.42	-32.31	-586.32	5,943.14	6,703.92	6,622.69	81.23	82.529	
6,950.00	6,783.02	3,597.00	3,596.66	20.78	69.42	-27.56	-586.32	5,943.14	6,709.50	6,628.36	81.14	82.691	
7,000.00	6,825.45	3,597.00	3,596.66	20.94	69.42	-24.10	-586.32	5,943.14	6,711.10	6,630.06	81.04	82.809	
7,050.00	6,865.65	3,597.00	3,596.66	21.09	69.42	-21.51	-586.32	5,943.14	6,708.72	6,627.77	80.94	82.881	
7,100.00	6,903.29	3,597.00	3,596.66	21.24	69.42	-19.54	-586.32	5,943.14	6,702.35	6,621.51	80.84	82.905	
7,150.00	6,938.11	3,597.00	3,596.66	21.39	69.42	-18.01	-586.32	5,943.14	6,692.05	6,611.31	80.74	82.881	
7,200.00	6,969.82	3,597.00	3,596.66	21.54	69.42	-16.81	-586.32	5,943.14	6,677.88	6,597.23	80.65	82.805	
7,250.00	6,998.19	3,597.00	3,596.66	21.69	69.42	-15.88	-586.32	5,943.14	6,659.91	6,579.36	80.55	82.679	
7,300.00	7,023.01	3,597.00	3,596.66	21.84	69.42	-15.14	-586.32	5,943.14	6,638.25	6,557.79	80.46	82.502	
7,350.00	7,044.08	3,597.00	3,596.66	21.99	69.42	-14.58	-586.32	5,943.14	6,613.03	6,532.65	80.38	82.272	
7,400.00	7,061.25	3,597.00	3,596.66	22.14	69.42	-14.17	-586.32	5,943.14	6,584.41	6,504.11	80.31	81.990	
7,450.00	7,074.38	3,597.00	3,596.66	22.29	69.42	-13.88	-586.32	5,943.14	6,552.56	6,472.32	80.25	81.656	
7,500.00	7,083.37	3,597.00	3,596.66	22.44	69.42	-13.71	-586.32	5,943.14	6,517.68	6,437.48	80.20	81.271	
7,550.00	7,088.16	3,597.00	3,596.66	22.59	69.42	-13.65	-586.32	5,943.14	6,479.98	6,399.82	80.16	80.836	
7,581.00	7,089.00	3,597.00	3,596.66	22.68	69.42	-13.67	-586.32	5,943.14	6,455.30	6,375.15	80.15	80.542	
7,600.00	7,089.02	3,597.00	3,596.66	22.74	69.42	-13.67	-586.32	5,943.14	6,439.89	6,359.74	80.14	80.355	
7,700.00	7,089.09	3,597.00	3,596.66	23.04	69.42	-13.67	-586.32	5,943.14	6,359.10	6,279.00	80.10	79.385	
7,800.00	7,089.17	3,597.00	3,596.66	23.34	69.42	-13.67	-586.32	5,943.14	6,278.87	6,198.82	80.05	78.434	
7,900.00	7,089.25	3,597.00	3,596.66	23.64	69.42	-13.67	-586.32	5,943.14	6,199.22	6,119.23	79.99	77.501	
8,000.00	7,089.33	3,597.00	3,596.66	23.94	69.42	-13.67	-586.32	5,943.14	6,120.16	6,040.25	79.91	76.588	
8,100.00	7,089.41	3,597.00	3,596.66	24.24	69.42	-13.67	-586.32	5,943.14	6,041.72	5,961.90	79.82	75.695	
8,200.00	7,089.49	3,597.00	3,596.66	24.54	69.42	-13.67	-586.32	5,943.14	5,963.93	5,884.22	79.71	74.821	
8,300.00	7,089.56	3,597.00	3,596.66	24.84	69.42	-13.67	-586.32	5,943.14	5,886.81	5,807.22	79.58	73.969	
8,400.00	7,089.64	3,597.00	3,596.66	25.14	69.42	-13.67	-586.32	5,943.14	5,810.39	5,730.94	79.44	73.138	
8,500.00	7,089.72	3,597.00	3,596.66	25.44	69.42	-13.67	-586.32	5,943.14	5,734.69	5,655.40	79.29	72.329	
8,600.00	7,089.80	3,597.00	3,596.66	25.75	69.42	-13.67	-586.32	5,943.14	5,659.74	5,580.63	79.11	71.542	
8,700.00	7,089.88	3,597.00	3,596.66	26.05	69.42	-13.67	-586.32	5,943.14	5,585.58	5,506.67	78.92	70.779	
8,800.00	7,089.96	3,597.00	3,596.66	26.35	69.42	-13.67	-586.32	5,943.14	5,512.24	5,433.54	78.70	70.039	
8,900.00	7,090.03	3,597.00	3,596.66	26.65	69.42	-13.67	-586.32	5,943.14	5,439.75	5,361.28	78.47	69.323	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #270 (Offset) - 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
9,000.00	7,090.11	3,597.00	3,596.66	26.95	69.42	-13.67	-586.32	5,943.14	5,368.14	5,289.92	78.22	68.633	
9,100.00	7,090.19	3,597.00	3,596.66	27.25	69.42	-13.67	-586.32	5,943.14	5,297.45	5,219.51	77.94	67.969	
9,200.00	7,090.27	3,597.00	3,596.66	27.55	69.42	-13.67	-586.32	5,943.14	5,227.72	5,150.08	77.64	67.331	
9,300.00	7,090.35	3,597.00	3,596.66	27.85	69.42	-13.67	-586.32	5,943.14	5,158.98	5,081.66	77.32	66.722	
9,400.00	7,090.43	3,597.00	3,596.66	28.15	69.42	-13.67	-586.32	5,943.14	5,091.28	5,014.30	76.98	66.141	
9,500.00	7,090.51	3,597.00	3,596.66	28.45	69.42	-13.67	-586.32	5,943.14	5,024.66	4,948.05	76.61	65.589	
9,600.00	7,090.58	3,597.00	3,596.66	28.75	69.42	-13.67	-586.32	5,943.14	4,959.16	4,882.94	76.21	65.069	
9,700.00	7,090.66	3,597.00	3,596.66	29.05	69.42	-13.67	-586.32	5,943.14	4,894.82	4,819.03	75.79	64.580	
9,800.00	7,090.74	3,597.00	3,596.66	29.35	69.42	-13.67	-586.32	5,943.14	4,831.70	4,756.35	75.35	64.124	
9,900.00	7,090.82	3,597.00	3,596.66	29.65	69.42	-13.67	-586.32	5,943.14	4,769.85	4,694.97	74.88	63.702	
10,000.00	7,090.90	3,597.00	3,596.66	29.95	69.42	-13.67	-586.32	5,943.14	4,709.30	4,634.92	74.38	63.316	
10,100.00	7,090.98	3,597.00	3,596.66	30.25	69.42	-13.67	-586.32	5,943.14	4,650.11	4,576.26	73.85	62.966	
10,200.00	7,091.05	3,597.00	3,596.66	30.55	69.42	-13.67	-586.32	5,943.14	4,592.34	4,519.04	73.30	62.654	
10,300.00	7,091.13	3,597.00	3,596.66	30.85	69.42	-13.67	-586.32	5,943.14	4,536.04	4,463.32	72.71	62.381	
10,400.00	7,091.21	3,597.00	3,596.66	31.15	69.42	-13.67	-586.32	5,943.14	4,481.26	4,409.16	72.11	62.149	
10,500.00	7,091.29	3,597.00	3,596.66	31.45	69.42	-13.67	-586.32	5,943.14	4,428.07	4,356.60	71.47	61.958	
10,600.00	7,091.37	3,597.00	3,596.66	31.76	69.42	-13.67	-586.32	5,943.14	4,376.51	4,305.70	70.81	61.811	
10,700.00	7,091.45	3,597.00	3,596.66	32.06	69.42	-13.67	-586.32	5,943.14	4,326.65	4,256.53	70.12	61.707	
10,800.00	7,091.53	3,597.00	3,596.66	32.36	69.42	-13.67	-586.32	5,943.14	4,278.54	4,209.14	69.40	61.648	
10,900.00	7,091.60	3,597.00	3,596.66	32.66	69.42	-13.67	-586.32	5,943.14	4,232.26	4,163.59	68.67	61.635	
11,000.00	7,091.68	3,597.00	3,596.66	32.96	69.42	-13.67	-586.32	5,943.14	4,187.84	4,119.94	67.91	61.668	
11,100.00	7,091.76	3,597.00	3,596.66	33.26	69.42	-13.67	-586.32	5,943.14	4,145.37	4,078.24	67.13	61.748	
11,200.00	7,091.84	3,597.00	3,596.66	33.56	69.42	-13.67	-586.32	5,943.14	4,104.89	4,038.55	66.34	61.873	
11,300.00	7,091.92	3,597.00	3,596.66	33.86	69.42	-13.67	-586.32	5,943.14	4,066.47	4,000.93	65.54	62.044	
11,400.00	7,092.00	3,597.00	3,596.66	34.16	69.42	-13.67	-586.32	5,943.14	4,030.17	3,965.44	64.73	62.257	
11,500.00	7,092.07	3,597.00	3,596.66	34.46	69.42	-13.67	-586.32	5,943.14	3,996.04	3,932.11	63.93	62.511	
11,600.00	7,092.15	3,597.00	3,596.66	34.76	69.42	-13.67	-586.32	5,943.14	3,964.14	3,901.01	63.12	62.801	
11,700.00	7,092.23	3,597.00	3,596.66	35.06	69.42	-13.67	-586.32	5,943.14	3,934.52	3,872.19	62.33	63.121	
11,800.00	7,092.31	3,597.00	3,596.66	35.36	69.42	-13.67	-586.32	5,943.14	3,907.24	3,845.67	61.57	63.465	
11,900.00	7,092.39	3,597.00	3,596.66	35.66	69.42	-13.67	-586.32	5,943.14	3,882.34	3,821.51	60.83	63.822	
12,000.00	7,092.47	3,597.00	3,596.66	35.96	69.42	-13.67	-586.32	5,943.14	3,859.87	3,799.73	60.14	64.180	
12,100.00	7,092.55	3,597.00	3,596.66	36.26	69.42	-13.67	-586.32	5,943.14	3,839.88	3,780.37	59.51	64.526	
12,200.00	7,092.62	3,597.00	3,596.66	36.56	69.42	-13.67	-586.32	5,943.14	3,822.40	3,763.45	58.95	64.842	
12,300.00	7,092.70	3,597.00	3,596.66	36.86	69.42	-13.67	-586.32	5,943.14	3,807.46	3,748.99	58.48	65.110	
12,400.00	7,092.78	3,597.00	3,596.66	37.16	69.42	-13.67	-586.32	5,943.14	3,795.11	3,737.00	58.11	65.310	
12,500.00	7,092.86	3,597.00	3,596.66	37.46	69.42	-13.67	-586.32	5,943.14	3,785.35	3,727.49	57.86	65.422	
12,600.00	7,092.94	3,597.00	3,596.66	37.76	69.42	-13.67	-586.32	5,943.14	3,778.22	3,720.47	57.75	65.428	
12,700.00	7,093.02	3,597.00	3,596.66	38.06	69.42	-13.67	-586.32	5,943.14	3,773.73	3,715.95	57.78	65.315	
12,800.00	7,093.09	3,597.00	3,596.66	38.36	69.42	-13.67	-586.32	5,943.14	3,771.88	3,713.91	57.96	65.074	
12,819.72	7,093.11	3,597.00	3,596.66	38.42	69.42	-13.67	-586.32	5,943.14	3,771.83	3,713.81	58.02	65.011	CC, ES
12,900.00	7,093.17	3,597.00	3,596.66	38.66	69.42	-13.67	-586.32	5,943.14	3,772.68	3,714.37	58.31	64.704	
13,000.00	7,093.25	3,597.00	3,596.66	38.96	69.42	-13.67	-586.32	5,943.14	3,776.13	3,717.33	58.81	64.213	
13,100.00	7,093.33	3,597.00	3,596.66	39.26	69.42	-13.67	-586.32	5,943.14	3,782.23	3,722.77	59.46	63.613	
13,200.00	7,093.41	3,597.00	3,596.66	39.56	69.42	-13.67	-586.32	5,943.14	3,790.95	3,730.70	60.25	62.923	
13,300.00	7,093.49	3,597.00	3,596.66	39.86	69.42	-13.67	-586.32	5,943.14	3,802.28	3,741.12	61.16	62.166	
13,400.00	7,093.57	3,597.00	3,596.66	40.16	69.42	-13.67	-586.32	5,943.14	3,816.20	3,754.01	62.19	61.363	
13,500.00	7,093.64	3,597.00	3,596.66	40.47	69.42	-13.67	-586.32	5,943.14	3,832.68	3,769.37	63.31	60.535	
13,600.00	7,093.72	3,597.00	3,596.66	40.77	69.42	-13.67	-586.32	5,943.14	3,851.69	3,787.17	64.51	59.702	
13,700.00	7,093.80	3,597.00	3,596.66	41.07	69.42	-13.67	-586.32	5,943.14	3,873.19	3,807.41	65.78	58.881	
13,800.00	7,093.88	3,597.00	3,596.66	41.37	69.42	-13.67	-586.32	5,943.14	3,897.13	3,830.03	67.10	58.083	
13,900.00	7,093.96	3,597.00	3,596.66	41.67	69.42	-13.67	-586.32	5,943.14	3,923.48	3,855.03	68.45	57.319	
14,000.00	7,094.04	3,597.00	3,596.66	41.97	69.42	-13.67	-586.32	5,943.14	3,952.18	3,882.35	69.83	56.597	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #270 (Offset) - 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
14,100.00	7,094.11	3,597.00	3,596.66	42.27	69.42	-13.67	-586.32	5,943.14	3,983.19	3,911.96	71.23	55.921	
14,200.00	7,094.19	3,597.00	3,596.66	42.57	69.42	-13.67	-586.32	5,943.14	4,016.45	3,943.81	72.64	55.296	
14,300.00	7,094.27	3,597.00	3,596.66	42.87	69.42	-13.67	-586.32	5,943.14	4,051.90	3,977.86	74.04	54.723	
14,400.00	7,094.35	3,597.00	3,596.66	43.17	69.42	-13.67	-586.32	5,943.14	4,089.49	4,014.05	75.45	54.202	
14,500.00	7,094.43	3,597.00	3,596.66	43.47	69.42	-13.67	-586.32	5,943.14	4,129.17	4,052.32	76.84	53.734	
14,600.00	7,094.51	3,597.00	3,596.66	43.77	69.42	-13.67	-586.32	5,943.14	4,170.86	4,092.63	78.23	53.318	
14,700.00	7,094.58	3,597.00	3,596.66	44.07	69.42	-13.67	-586.32	5,943.14	4,214.51	4,134.92	79.59	52.951	
14,800.00	7,094.66	3,597.00	3,596.66	44.37	69.42	-13.67	-586.32	5,943.14	4,260.07	4,179.13	80.94	52.634	
14,900.00	7,094.74	3,597.00	3,596.66	44.67	69.42	-13.67	-586.32	5,943.14	4,307.46	4,225.20	82.26	52.363	
15,000.00	7,094.82	3,597.00	3,596.66	44.97	69.42	-13.67	-586.32	5,943.14	4,356.64	4,273.08	83.56	52.137	
15,100.00	7,094.90	3,597.00	3,596.66	45.27	69.42	-13.67	-586.32	5,943.14	4,407.53	4,322.70	84.84	51.953	
15,200.00	7,094.98	3,597.00	3,596.66	45.57	69.42	-13.67	-586.32	5,943.14	4,460.09	4,374.01	86.09	51.810	
15,300.00	7,095.06	3,597.00	3,596.66	45.87	69.42	-13.67	-586.32	5,943.14	4,514.25	4,426.94	87.31	51.705	
15,400.00	7,095.13	3,597.00	3,596.66	46.17	69.42	-13.67	-586.32	5,943.14	4,569.96	4,481.46	88.50	51.637	
15,500.00	7,095.21	3,597.00	3,596.66	46.47	69.42	-13.67	-586.32	5,943.14	4,627.16	4,537.49	89.67	51.603	
15,600.00	7,095.29	3,597.00	3,596.66	46.77	69.42	-13.67	-586.32	5,943.14	4,685.79	4,594.98	90.81	51.601 SF	
15,700.00	7,095.37	3,597.00	3,596.66	47.07	69.42	-13.67	-586.32	5,943.14	4,745.81	4,653.89	91.92	51.630	
15,800.00	7,095.45	3,597.00	3,596.66	47.37	69.42	-13.67	-586.32	5,943.14	4,807.16	4,714.15	93.00	51.687	
15,900.00	7,095.53	3,597.00	3,596.66	47.67	69.42	-13.67	-586.32	5,943.14	4,869.79	4,775.72	94.06	51.772	
16,000.00	7,095.60	3,597.00	3,596.66	47.97	69.42	-13.67	-586.32	5,943.14	4,933.65	4,838.55	95.09	51.882	
16,100.00	7,095.68	3,597.00	3,596.66	48.27	69.42	-13.67	-586.32	5,943.14	4,998.69	4,902.59	96.10	52.016	
16,200.00	7,095.76	3,597.00	3,596.66	48.57	69.42	-13.67	-586.32	5,943.14	5,064.88	4,967.80	97.08	52.172	
16,300.00	7,095.84	3,597.00	3,596.66	48.87	69.42	-13.67	-586.32	5,943.14	5,132.16	5,034.12	98.04	52.350	
16,400.00	7,095.92	3,597.00	3,596.66	49.17	69.42	-13.67	-586.32	5,943.14	5,200.49	5,101.52	98.97	52.547	
16,500.00	7,096.00	3,597.00	3,596.66	49.47	69.42	-13.67	-586.32	5,943.14	5,269.83	5,169.96	99.88	52.763	
16,600.00	7,096.08	3,597.00	3,596.66	49.77	69.42	-13.67	-586.32	5,943.14	5,340.15	5,239.39	100.76	52.997	
16,700.00	7,096.15	3,597.00	3,596.66	50.07	69.42	-13.67	-586.32	5,943.14	5,411.40	5,309.77	101.63	53.247	
16,800.00	7,096.23	3,597.00	3,596.66	50.37	69.42	-13.67	-586.32	5,943.14	5,483.55	5,381.08	102.47	53.513	
16,900.00	7,096.31	3,597.00	3,596.66	50.67	69.42	-13.67	-586.32	5,943.14	5,556.56	5,453.27	103.29	53.793	
17,000.00	7,096.39	3,597.00	3,596.66	50.97	69.42	-13.67	-586.32	5,943.14	5,630.40	5,526.30	104.10	54.087	
17,100.00	7,096.47	3,597.00	3,596.66	51.27	69.42	-13.67	-586.32	5,943.14	5,705.04	5,600.16	104.88	54.394	
17,200.00	7,096.55	3,597.00	3,596.66	51.57	69.42	-13.67	-586.32	5,943.14	5,780.45	5,674.80	105.65	54.713	
17,300.00	7,096.62	3,597.00	3,596.66	51.87	69.42	-13.67	-586.32	5,943.14	5,856.59	5,750.19	106.40	55.043	
17,400.00	7,096.70	3,597.00	3,596.66	52.17	69.42	-13.67	-586.32	5,943.14	5,933.44	5,826.30	107.13	55.384	
17,500.00	7,096.78	3,597.00	3,596.66	52.47	69.42	-13.67	-586.32	5,943.14	6,010.97	5,903.12	107.85	55.735	
17,600.00	7,096.86	3,597.00	3,596.66	52.77	69.42	-13.67	-586.32	5,943.14	6,089.15	5,980.60	108.55	56.095	
17,700.00	7,096.94	3,597.00	3,596.66	53.07	69.42	-13.67	-586.32	5,943.14	6,167.97	6,058.73	109.24	56.464	
17,800.00	7,097.02	3,597.00	3,596.66	53.37	69.42	-13.67	-586.32	5,943.14	6,247.39	6,137.48	109.91	56.841	
17,900.00	7,097.10	3,597.00	3,596.66	53.67	69.42	-13.67	-586.32	5,943.14	6,327.40	6,216.83	110.57	57.226	
18,000.00	7,097.17	3,597.00	3,596.66	53.97	69.42	-13.67	-586.32	5,943.14	6,407.96	6,296.75	111.21	57.619	
18,100.00	7,097.25	3,597.00	3,596.66	54.27	69.42	-13.67	-586.32	5,943.14	6,489.07	6,377.23	111.85	58.018	
18,200.00	7,097.33	3,597.00	3,596.66	54.57	69.42	-13.67	-586.32	5,943.14	6,570.70	6,458.23	112.47	58.423	
18,300.00	7,097.41	3,597.00	3,596.66	54.87	69.42	-13.67	-586.32	5,943.14	6,652.83	6,539.76	113.08	58.835	
18,400.00	7,097.49	3,597.00	3,596.66	55.17	69.42	-13.67	-586.32	5,943.14	6,735.45	6,621.77	113.68	59.252	
18,500.00	7,097.57	3,597.00	3,596.66	55.47	69.42	-13.67	-586.32	5,943.14	6,818.53	6,704.26	114.26	59.674	
18,600.00	7,097.64	3,597.00	3,596.66	55.78	69.42	-13.67	-586.32	5,943.14	6,902.05	6,787.21	114.84	60.101	
18,700.00	7,097.72	3,597.00	3,596.66	56.08	69.42	-13.67	-586.32	5,943.14	6,986.01	6,870.61	115.41	60.533	
18,800.00	7,097.80	3,597.00	3,596.66	56.38	69.42	-13.67	-586.32	5,943.14	7,070.39	6,954.43	115.97	60.969	
18,900.00	7,097.88	3,597.00	3,596.66	56.68	69.42	-13.67	-586.32	5,943.14	7,155.17	7,038.66	116.52	61.409	
19,000.00	7,097.96	3,597.00	3,596.66	56.98	69.42	-13.67	-586.32	5,943.14	7,240.34	7,123.29	117.06	61.853	
19,100.00	7,098.04	3,597.00	3,596.66	57.28	69.42	-13.67	-586.32	5,943.14	7,325.89	7,208.30	117.59	62.301	
19,200.00	7,098.12	3,597.00	3,596.66	57.58	69.42	-13.67	-586.32	5,943.14	7,411.79	7,293.68	118.11	62.751	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #270 (Offset) - 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
19,300.00	7,098.19	3,597.00	3,596.66	57.88	69.42	-13.67	-586.32	5,943.14	7,498.05	7,379.42	118.63	63.205	
19,400.00	7,098.27	3,597.00	3,596.66	58.18	69.42	-13.67	-586.32	5,943.14	7,584.64	7,465.50	119.14	63.661	
19,500.00	7,098.35	3,597.00	3,596.66	58.48	69.42	-13.67	-586.32	5,943.14	7,671.56	7,551.92	119.64	64.120	
19,600.00	7,098.43	3,597.00	3,596.66	58.78	69.42	-13.67	-586.32	5,943.14	7,758.80	7,638.66	120.14	64.581	
19,700.00	7,098.51	3,597.00	3,596.66	59.08	69.42	-13.67	-586.32	5,943.14	7,846.33	7,725.71	120.63	65.045	
19,800.00	7,098.59	3,597.00	3,596.66	59.38	69.42	-13.67	-586.32	5,943.14	7,934.17	7,813.06	121.11	65.511	
19,900.00	7,098.66	3,597.00	3,596.66	59.68	69.42	-13.67	-586.32	5,943.14	8,022.29	7,900.70	121.59	65.978	
20,000.00	7,098.74	3,597.00	3,596.66	59.98	69.42	-13.67	-586.32	5,943.14	8,110.68	7,988.62	122.06	66.447	
20,100.00	7,098.82	3,597.00	3,596.66	60.28	69.42	-13.67	-586.32	5,943.14	8,199.34	8,076.81	122.53	66.918	
20,200.00	7,098.90	3,597.00	3,596.66	60.58	69.42	-13.67	-586.32	5,943.14	8,288.26	8,165.27	122.99	67.390	
20,300.00	7,098.98	3,597.00	3,596.66	60.88	69.42	-13.67	-586.32	5,943.14	8,377.43	8,253.98	123.45	67.863	
20,328.16	7,099.00	3,597.00	3,596.66	60.96	69.42	-13.67	-586.32	5,943.14	8,402.58	8,279.01	123.57	67.997	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	617.30	616.62	0.00	1.81	90.89	-216.62	13,896.67	13,906.44				
100.00	100.00	669.18	668.11	0.23	1.97	90.92	-222.64	13,894.87	13,903.17	13,900.98	2.19	6,342.678	
200.00	200.00	706.00	704.59	0.53	2.08	90.94	-227.55	13,893.75	13,900.33	13,897.73	2.60	5,341.175	
300.00	300.00	734.33	732.60	0.83	2.16	90.96	-231.70	13,893.03	13,897.99	13,895.00	2.99	4,652.071	
400.00	400.00	767.00	764.85	1.13	2.26	90.98	-236.88	13,892.36	13,896.16	13,892.78	3.39	4,104.609	
500.00	500.00	795.05	792.48	1.43	2.34	91.00	-241.67	13,891.93	13,894.84	13,891.07	3.77	3,685.982	
600.00	599.98	828.94	825.79	1.73	2.45	-83.57	-247.88	13,891.54	13,893.81	13,889.63	4.17	3,330.802	
700.00	699.84	912.72	907.58	2.03	2.70	-83.54	-266.01	13,890.73	13,892.64	13,887.92	4.72	2,941.690	
800.00	799.45	968.56	961.51	2.33	2.87	-83.52	-280.48	13,890.29	13,891.35	13,886.16	5.19	2,676.463	
900.00	898.70	1,009.00	1,000.24	2.63	2.99	-83.52	-292.11	13,890.06	13,890.00	13,884.39	5.61	2,475.283	
1,000.00	997.47	1,068.00	1,056.35	2.93	3.17	-83.51	-310.34	13,889.93	13,888.63	13,882.55	6.09	2,281.139	
1,100.00	1,095.62	1,105.30	1,091.68	3.23	3.28	-83.51	-322.31	13,890.01	13,887.30	13,880.80	6.50	2,136.397	
1,157.34	1,151.58	1,129.00	1,114.09	3.40	3.35	-83.52	-330.01	13,890.13	13,886.54	13,879.80	6.74	2,059.271	
1,200.00	1,193.13	1,160.42	1,143.77	3.53	3.44	-83.51	-340.32	13,890.34	13,886.00	13,879.04	6.97	1,993.487	
1,300.00	1,290.51	1,347.24	1,320.04	3.83	4.01	-83.42	-402.20	13,890.97	13,884.39	13,876.56	7.83	1,774.095	
1,400.00	1,387.89	1,376.00	1,347.16	4.13	4.09	-83.41	-411.78	13,891.06	13,882.81	13,874.59	8.21	1,690.460	
1,500.00	1,485.27	1,438.00	1,405.64	4.43	4.28	-83.38	-432.35	13,891.47	13,881.59	13,872.89	8.70	1,595.874	
1,600.00	1,582.65	1,502.00	1,465.95	4.73	4.47	-83.35	-453.77	13,892.13	13,880.72	13,871.53	9.19	1,510.350	
1,700.00	1,680.02	1,547.26	1,508.46	5.03	4.61	-83.33	-469.30	13,892.75	13,880.19	13,870.56	9.63	1,441.923	
1,800.00	1,777.40	1,651.70	1,606.47	5.33	4.92	-83.27	-505.32	13,894.19	13,879.73	13,869.49	10.24	1,355.512	
1,900.00	1,874.78	1,778.71	1,725.73	5.63	5.30	-83.21	-549.00	13,896.05	13,879.41	13,868.49	10.92	1,270.944	
2,000.00	1,972.16	1,878.89	1,819.66	5.93	5.60	-83.16	-583.80	13,897.26	13,878.81	13,867.29	11.52	1,204.645	
2,100.00	2,069.54	2,006.98	1,940.33	6.23	5.99	-83.10	-626.73	13,898.64	13,878.05	13,865.84	12.21	1,137.043	
2,200.00	2,166.92	2,073.31	2,002.94	6.53	6.19	-83.07	-648.62	13,899.41	13,877.37	13,864.67	12.70	1,092.332	
2,300.00	2,264.30	2,512.91	2,417.97	6.83	7.51	-82.87	-793.49	13,899.68	13,875.63	13,861.30	14.32	968.743	
2,400.00	2,361.68	2,400.00	2,526.13	7.13	7.17	-82.83	-829.33	13,898.38	13,872.63	13,858.34	14.28	971.160	
2,500.00	2,459.06	2,669.67	2,566.81	7.43	7.98	-82.81	-842.63	13,897.89	13,869.70	13,854.31	15.39	901.005	
2,600.00	2,556.44	2,867.96	2,755.92	7.73	8.57	-82.75	-902.18	13,896.20	13,867.22	13,850.93	16.29	851.351	
2,700.00	2,653.82	2,895.00	2,781.99	8.03	8.65	-82.74	-909.38	13,895.86	13,864.07	13,847.40	16.67	831.698	
2,800.00	2,751.19	2,895.00	2,781.99	8.33	8.65	-82.74	-909.38	13,895.86	13,861.58	13,844.61	16.97	816.850	
2,900.00	2,848.57	2,958.00	2,843.12	8.63	8.84	-82.74	-924.57	13,895.87	13,859.54	13,842.08	17.46	793.855	
3,000.00	2,945.95	2,958.00	2,843.12	8.93	8.84	-82.74	-924.57	13,895.87	13,858.05	13,840.29	17.76	780.362	
3,100.00	3,043.33	3,260.00	3,140.97	9.23	9.74	-82.82	-972.74	13,897.99	13,856.74	13,837.77	18.96	730.664	
3,200.00	3,140.71	3,511.55	3,392.32	9.53	10.49	-83.03	-981.01	13,897.48	13,853.96	13,833.95	20.02	692.032	
3,300.00	3,238.09	3,527.00	3,407.78	9.83	10.54	-83.04	-981.14	13,897.35	13,850.58	13,830.22	20.37	680.097	
3,400.00	3,335.47	3,527.00	3,407.78	10.13	10.54	-83.04	-981.14	13,897.35	13,847.91	13,827.25	20.67	670.096	
3,500.00	3,432.85	3,527.00	3,407.78	10.43	10.54	-83.04	-981.14	13,897.35	13,845.96	13,825.00	20.97	660.415	
3,600.00	3,530.23	3,527.00	3,407.78	10.73	10.54	-83.04	-981.14	13,897.35	13,844.74	13,823.47	21.27	651.042	
3,700.00	3,627.61	3,527.00	3,407.78	11.03	10.54	-83.04	-981.14	13,897.35	13,844.24	13,822.67	21.57	641.963	
3,719.72	3,646.81	3,527.00	3,407.78	11.09	10.54	-83.04	-981.14	13,897.35	13,844.22	13,822.60	21.62	640.206	
3,800.00	3,724.99	3,527.00	3,407.78	11.33	10.54	-83.04	-981.14	13,897.35	13,844.45	13,822.59	21.87	633.166	
3,900.00	3,822.36	3,527.00	3,407.78	11.63	10.54	-83.04	-981.14	13,897.35	13,845.40	13,823.23	22.17	624.639	
4,000.00	3,919.74	3,527.00	3,407.78	11.93	10.54	-83.04	-981.14	13,897.35	13,847.06	13,824.59	22.47	616.373	
4,100.00	4,017.12	3,527.00	3,407.78	12.23	10.54	-83.04	-981.14	13,897.35	13,849.44	13,826.68	22.77	608.356	
4,200.00	4,114.50	3,527.00	3,407.78	12.53	10.54	-83.04	-981.14	13,897.35	13,852.55	13,829.48	23.07	600.578	
4,300.00	4,211.88	3,527.00	3,407.78	12.83	10.54	-83.04	-981.14	13,897.35	13,856.38	13,833.01	23.37	593.032	
4,400.00	4,309.26	3,527.00	3,407.78	13.13	10.54	-83.04	-981.14	13,897.35	13,860.93	13,837.26	23.67	585.707	
4,500.00	4,406.64	3,527.00	3,407.78	13.43	10.54	-83.04	-981.14	13,897.35	13,866.19	13,842.23	23.97	578.595	
4,600.00	4,504.02	3,527.00	3,407.78	13.73	10.54	-83.04	-981.14	13,897.35	13,872.18	13,847.91	24.27	571.689	
4,700.00	4,601.40	3,527.00	3,407.78	14.03	10.54	-83.04	-981.14	13,897.35	13,878.88	13,854.32	24.57	564.981	
4,800.00	4,698.78	3,527.00	3,407.78	14.33	10.54	-83.04	-981.14	13,897.35	13,886.31	13,861.44	24.87	558.463	
4,900.00	4,796.16	3,527.00	3,407.78	14.63	10.54	-83.04	-981.14	13,897.35	13,894.44	13,869.28	25.17	552.130	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #271A (Offset) - 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
5,000.00	4,893.53	3,527.00	3,407.78	14.93	10.54	-83.04	-981.14	13,897.35	13,903.29	13,877.83	25.47	545.973	
5,100.00	4,990.91	3,527.00	3,407.78	15.23	10.54	-83.04	-981.14	13,897.35	13,912.86	13,887.09	25.77	539.988	
5,200.00	5,088.29	3,527.00	3,407.78	15.53	10.54	-83.04	-981.14	13,897.35	13,923.14	13,897.07	26.07	534.167	
5,300.00	5,185.67	3,527.00	3,407.78	15.83	10.54	-83.04	-981.14	13,897.35	13,934.12	13,907.76	26.37	528.506	
5,400.00	5,283.05	3,527.00	3,407.78	16.13	10.54	-83.04	-981.14	13,897.35	13,945.82	13,919.15	26.67	522.999	
5,500.00	5,380.43	3,527.00	3,407.78	16.43	10.54	-83.04	-981.14	13,897.35	13,958.22	13,931.25	26.97	517.641	
5,600.00	5,477.81	3,527.00	3,407.78	16.73	10.54	-83.04	-981.14	13,897.35	13,971.32	13,944.06	27.27	512.427	
5,700.00	5,575.19	3,527.00	3,407.78	17.03	10.54	-83.04	-981.14	13,897.35	13,985.13	13,957.57	27.57	507.351	
5,800.00	5,672.57	3,527.00	3,407.78	17.33	10.54	-83.04	-981.14	13,897.35	13,999.64	13,971.78	27.86	502.410	
5,900.00	5,769.95	3,527.00	3,407.78	17.63	10.54	-83.04	-981.14	13,897.35	14,014.85	13,986.69	28.16	497.599	
6,000.00	5,867.33	3,527.00	3,407.78	17.93	10.54	-83.04	-981.14	13,897.35	14,030.76	14,002.29	28.46	492.913	
6,100.00	5,964.70	3,527.00	3,407.78	18.23	10.54	-83.04	-981.14	13,897.35	14,047.36	14,018.59	28.76	488.350	
6,200.00	6,062.08	3,527.00	3,407.78	18.53	10.54	-83.04	-981.14	13,897.35	14,064.65	14,035.58	29.06	483.905	
6,300.00	6,159.46	3,527.00	3,407.78	18.83	10.54	-83.04	-981.14	13,897.35	14,082.62	14,053.26	29.36	479.573	
6,400.00	6,256.84	3,527.00	3,407.78	19.13	10.54	-83.04	-981.14	13,897.35	14,101.29	14,071.62	29.66	475.353	
6,500.00	6,354.22	3,527.00	3,407.78	19.43	10.54	-83.04	-981.14	13,897.35	14,120.64	14,090.67	29.96	471.240	
6,600.00	6,451.60	3,527.00	3,407.78	19.73	10.54	-83.04	-981.14	13,897.35	14,140.67	14,110.40	30.26	467.231	
6,694.27	6,543.40	3,527.00	3,407.78	20.02	10.54	-83.04	-981.14	13,897.35	14,160.17	14,129.62	30.55	463.544	
6,700.00	6,548.98	3,527.00	3,407.78	20.03	10.54	-80.61	-981.14	13,897.35	14,161.35	14,130.78	30.56	463.322	
6,750.00	6,597.52	3,527.00	3,407.78	20.18	10.54	-61.38	-981.14	13,897.35	14,169.32	14,138.60	30.71	461.340	
6,800.00	6,645.56	3,527.00	3,407.78	20.33	10.54	-47.10	-981.14	13,897.35	14,173.13	14,142.27	30.86	459.243	
6,850.00	6,692.73	3,527.00	3,407.78	20.48	10.54	-37.28	-981.14	13,897.35	14,172.77	14,141.76	31.01	457.031	
6,900.00	6,738.66	3,527.00	3,407.78	20.63	10.54	-30.54	-981.14	13,897.35	14,168.23	14,137.07	31.16	454.706	
6,950.00	6,783.02	3,527.00	3,407.78	20.78	10.54	-25.76	-981.14	13,897.35	14,159.53	14,128.23	31.31	452.271	
7,000.00	6,825.45	3,527.00	3,407.78	20.94	10.54	-22.27	-981.14	13,897.35	14,146.75	14,115.30	31.46	449.728	
7,050.00	6,865.65	3,527.00	3,407.78	21.09	10.54	-19.63	-981.14	13,897.35	14,129.97	14,098.37	31.60	447.081	
7,100.00	6,903.29	3,527.00	3,407.78	21.24	10.54	-17.59	-981.14	13,897.35	14,109.30	14,077.55	31.75	444.335	
7,150.00	6,938.11	3,527.00	3,407.78	21.39	10.54	-15.98	-981.14	13,897.35	14,084.88	14,052.98	31.90	441.496	
7,200.00	6,969.82	3,527.00	3,407.78	21.54	10.54	-14.67	-981.14	13,897.35	14,056.88	14,024.82	32.05	438.570	
7,250.00	6,998.19	3,527.00	3,407.78	21.69	10.54	-13.59	-981.14	13,897.35	14,025.48	13,993.28	32.20	435.564	
7,300.00	7,023.01	3,527.00	3,407.78	21.84	10.54	-12.67	-981.14	13,897.35	13,990.92	13,958.57	32.35	432.485	
7,350.00	7,044.08	3,527.00	3,407.78	21.99	10.54	-11.87	-981.14	13,897.35	13,953.42	13,920.92	32.50	429.342	
7,400.00	7,061.25	3,527.00	3,407.78	22.14	10.54	-11.14	-981.14	13,897.35	13,913.26	13,880.61	32.65	426.145	
7,450.00	7,074.38	3,527.00	3,407.78	22.29	10.54	-10.43	-981.14	13,897.35	13,870.71	13,837.91	32.80	422.901	
7,500.00	7,083.37	3,527.00	3,407.78	22.44	10.54	-9.65	-981.14	13,897.35	13,826.08	13,793.13	32.95	419.622	
7,550.00	7,088.16	3,527.00	3,407.78	22.59	10.54	-8.67	-981.14	13,897.35	13,779.68	13,746.58	33.10	416.317	
7,581.00	7,089.00	3,527.00	3,407.78	22.68	10.54	-7.84	-981.14	13,897.35	13,750.19	13,716.99	33.19	414.259	
7,600.00	7,089.02	3,527.00	3,407.78	22.74	10.54	-7.84	-981.14	13,897.35	13,731.95	13,698.70	33.25	412.998	
7,700.00	7,089.09	3,527.00	3,407.78	23.04	10.54	-7.84	-981.14	13,897.35	13,636.03	13,602.48	33.55	406.432	
7,800.00	7,089.17	3,527.00	3,407.78	23.34	10.54	-7.84	-981.14	13,897.35	13,540.18	13,506.32	33.85	399.984	
7,900.00	7,089.25	3,527.00	3,407.78	23.64	10.54	-7.84	-981.14	13,897.35	13,444.38	13,410.23	34.15	393.653	
8,000.00	7,089.33	3,527.00	3,407.78	23.94	10.54	-7.84	-981.14	13,897.35	13,348.64	13,314.19	34.45	387.434	
8,100.00	7,089.41	3,527.00	3,407.78	24.24	10.54	-7.84	-981.14	13,897.35	13,252.97	13,218.21	34.75	381.326	
8,200.00	7,089.49	3,527.00	3,407.78	24.54	10.54	-7.84	-981.14	13,897.35	13,157.36	13,122.30	35.06	375.324	
8,300.00	7,089.56	3,527.00	3,407.78	24.84	10.54	-7.84	-981.14	13,897.35	13,061.82	13,026.46	35.36	369.426	
8,400.00	7,089.64	3,527.00	3,407.78	25.14	10.54	-7.84	-981.14	13,897.35	12,966.34	12,930.68	35.66	363.631	
8,500.00	7,089.72	3,527.00	3,407.78	25.44	10.54	-7.84	-981.14	13,897.35	12,870.94	12,834.98	35.96	357.934	
8,600.00	7,089.80	3,527.00	3,407.78	25.75	10.54	-7.84	-981.14	13,897.35	12,775.60	12,739.34	36.26	352.335	
8,700.00	7,089.88	3,527.00	3,407.78	26.05	10.54	-7.84	-981.14	13,897.35	12,680.33	12,643.77	36.56	346.829	
8,800.00	7,089.96	3,527.00	3,407.78	26.35	10.54	-7.84	-981.14	13,897.35	12,585.14	12,548.28	36.86	341.416	
8,900.00	7,090.03	3,527.00	3,407.78	26.65	10.54	-7.84	-981.14	13,897.35	12,490.03	12,452.86	37.16	336.093	
9,000.00	7,090.11	3,527.00	3,407.78	26.95	10.54	-7.84	-981.14	13,897.35	12,394.99	12,357.52	37.46	330.857	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #271A (Offset) - 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
9,100.00	7,090.19	3,527.00	3,407.78	27.25	10.54	-7.84	-981.14	13,897.35	12,300.03	12,262.26	37.76	325.707	
9,200.00	7,090.27	3,527.00	3,407.78	27.55	10.54	-7.84	-981.14	13,897.35	12,205.15	12,167.08	38.06	320.641	
9,300.00	7,090.35	3,527.00	3,407.78	27.85	10.54	-7.84	-981.14	13,897.35	12,110.35	12,071.98	38.37	315.656	
9,400.00	7,090.43	3,527.00	3,407.78	28.15	10.54	-7.84	-981.14	13,897.35	12,015.64	11,976.97	38.67	310.751	
9,500.00	7,090.51	3,527.00	3,407.78	28.45	10.54	-7.84	-981.14	13,897.35	11,921.01	11,882.04	38.97	305.925	
9,600.00	7,090.58	3,527.00	3,407.78	28.75	10.54	-7.84	-981.14	13,897.35	11,826.47	11,787.20	39.27	301.174	
9,700.00	7,090.66	3,527.00	3,407.78	29.05	10.54	-7.84	-981.14	13,897.35	11,732.02	11,692.45	39.57	296.499	
9,800.00	7,090.74	3,527.00	3,407.78	29.35	10.54	-7.84	-981.14	13,897.35	11,637.67	11,597.80	39.87	291.896	
9,900.00	7,090.82	3,527.00	3,407.78	29.65	10.54	-7.84	-981.14	13,897.35	11,543.41	11,503.24	40.17	287.365	
10,000.00	7,090.90	3,527.00	3,407.78	29.95	10.54	-7.84	-981.14	13,897.35	11,449.24	11,408.77	40.47	282.903	
10,100.00	7,090.98	3,527.00	3,407.78	30.25	10.54	-7.84	-981.14	13,897.35	11,355.18	11,314.41	40.77	278.510	
10,200.00	7,091.05	3,527.00	3,407.78	30.55	10.54	-7.84	-981.14	13,897.35	11,261.22	11,220.15	41.07	274.184	
10,300.00	7,091.13	3,527.00	3,407.78	30.85	10.54	-7.84	-981.14	13,897.35	11,167.36	11,125.99	41.37	269.923	
10,400.00	7,091.21	3,527.00	3,407.78	31.15	10.54	-7.84	-981.14	13,897.35	11,073.61	11,031.94	41.67	265.727	
10,500.00	7,091.29	3,527.00	3,407.78	31.45	10.54	-7.84	-981.14	13,897.35	10,979.98	10,938.00	41.97	261.593	
10,600.00	7,091.37	3,527.00	3,407.78	31.76	10.54	-7.84	-981.14	13,897.35	10,886.45	10,844.18	42.27	257.521	
10,700.00	7,091.45	3,527.00	3,407.78	32.06	10.54	-7.84	-981.14	13,897.35	10,793.04	10,750.47	42.57	253.509	
10,800.00	7,091.53	3,527.00	3,407.78	32.36	10.54	-7.84	-981.14	13,897.35	10,699.75	10,656.88	42.88	249.557	
10,900.00	7,091.60	3,527.00	3,407.78	32.66	10.54	-7.84	-981.14	13,897.35	10,606.59	10,563.41	43.18	245.662	
11,000.00	7,091.68	3,527.00	3,407.78	32.96	10.54	-7.84	-981.14	13,897.35	10,513.54	10,470.07	43.48	241.824	
11,100.00	7,091.76	3,527.00	3,407.78	33.26	10.54	-7.84	-981.14	13,897.35	10,420.63	10,376.85	43.78	238.041	
11,200.00	7,091.84	3,527.00	3,407.78	33.56	10.54	-7.84	-981.14	13,897.35	10,327.85	10,283.77	44.08	234.314	
11,300.00	7,091.92	3,527.00	3,407.78	33.86	10.54	-7.84	-981.14	13,897.35	10,235.21	10,190.83	44.38	230.640	
11,400.00	7,092.00	3,527.00	3,407.78	34.16	10.54	-7.84	-981.14	13,897.35	10,142.70	10,098.02	44.68	227.018	
11,500.00	7,092.07	3,527.00	3,407.78	34.46	10.54	-7.84	-981.14	13,897.35	10,050.34	10,005.36	44.98	223.449	
11,600.00	7,092.15	3,527.00	3,407.78	34.76	10.54	-7.84	-981.14	13,897.35	9,958.13	9,912.85	45.28	219.930	
11,700.00	7,092.23	3,527.00	3,407.78	35.06	10.54	-7.84	-981.14	13,897.35	9,866.06	9,820.49	45.58	216.460	
11,800.00	7,092.31	3,527.00	3,407.78	35.36	10.54	-7.84	-981.14	13,897.35	9,774.16	9,728.28	45.88	213.040	
11,900.00	7,092.39	3,527.00	3,407.78	35.66	10.54	-7.84	-981.14	13,897.35	9,682.41	9,636.23	46.18	209.667	
12,000.00	7,092.47	3,527.00	3,407.78	35.96	10.54	-7.84	-981.14	13,897.35	9,590.83	9,544.35	46.48	206.342	
12,100.00	7,092.55	3,527.00	3,407.78	36.26	10.54	-7.84	-981.14	13,897.35	9,499.42	9,452.64	46.78	203.063	
12,200.00	7,092.62	3,527.00	3,407.78	36.56	10.54	-7.84	-981.14	13,897.35	9,408.19	9,361.10	47.08	199.830	
12,300.00	7,092.70	3,527.00	3,407.78	36.86	10.54	-7.84	-981.14	13,897.35	9,317.13	9,269.75	47.38	196.642	
12,400.00	7,092.78	3,527.00	3,407.78	37.16	10.54	-7.84	-981.14	13,897.35	9,226.26	9,178.58	47.68	193.498	
12,500.00	7,092.86	3,527.00	3,407.78	37.46	10.54	-7.84	-981.14	13,897.35	9,135.58	9,087.60	47.98	190.397	
12,600.00	7,092.94	3,527.00	3,407.78	37.76	10.54	-7.84	-981.14	13,897.35	9,045.09	8,996.81	48.28	187.339	
12,700.00	7,093.02	3,527.00	3,407.78	38.06	10.54	-7.84	-981.14	13,897.35	8,954.81	8,906.23	48.58	184.322	
12,800.00	7,093.09	3,527.00	3,407.78	38.36	10.54	-7.84	-981.14	13,897.35	8,864.74	8,815.86	48.88	181.348	
12,900.00	7,093.17	3,527.00	3,407.78	38.66	10.54	-7.84	-981.14	13,897.35	8,774.88	8,725.70	49.18	178.414	
13,000.00	7,093.25	3,527.00	3,407.78	38.96	10.54	-7.84	-981.14	13,897.35	8,685.25	8,635.76	49.48	175.520	
13,100.00	7,093.33	3,527.00	3,407.78	39.26	10.54	-7.84	-981.14	13,897.35	8,595.84	8,546.06	49.78	172.665	
13,200.00	7,093.41	3,527.00	3,407.78	39.56	10.54	-7.84	-981.14	13,897.35	8,506.67	8,456.58	50.08	169.850	
13,300.00	7,093.49	3,527.00	3,407.78	39.86	10.54	-7.84	-981.14	13,897.35	8,417.74	8,367.36	50.38	167.073	
13,400.00	7,093.57	3,527.00	3,407.78	40.16	10.54	-7.84	-981.14	13,897.35	8,329.06	8,278.38	50.68	164.334	
13,500.00	7,093.64	3,527.00	3,407.78	40.47	10.54	-7.84	-981.14	13,897.35	8,240.65	8,189.66	50.98	161.632	
13,600.00	7,093.72	3,527.00	3,407.78	40.77	10.54	-7.84	-981.14	13,897.35	8,152.50	8,101.21	51.28	158.967	
13,700.00	7,093.80	3,527.00	3,407.78	41.07	10.54	-7.84	-981.14	13,897.35	8,064.62	8,013.04	51.58	156.339	
13,800.00	7,093.88	3,527.00	3,407.78	41.37	10.54	-7.84	-981.14	13,897.35	7,977.03	7,925.15	51.88	153.747	
13,900.00	7,093.96	3,527.00	3,407.78	41.67	10.54	-7.84	-981.14	13,897.35	7,889.74	7,837.56	52.18	151.190	
14,000.00	7,094.04	3,527.00	3,407.78	41.97	10.54	-7.84	-981.14	13,897.35	7,802.75	7,750.27	52.48	148.668	
14,100.00	7,094.11	3,527.00	3,407.78	42.27	10.54	-7.84	-981.14	13,897.35	7,716.08	7,663.30	52.78	146.181	
14,200.00	7,094.19	3,527.00	3,407.78	42.57	10.54	-7.84	-981.14	13,897.35	7,629.73	7,576.65	53.08	143.728	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 330-MWD-SDI

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	3,527.00	3,407.78	42.87	10.54	-7.84	-981.14	13,897.35	7,543.73	7,490.34	53.38	141.309	
14,400.00	7,094.35	3,527.00	3,407.78	43.17	10.54	-7.84	-981.14	13,897.35	7,458.07	7,404.38	53.68	138.924	
14,500.00	7,094.43	3,527.00	3,407.78	43.47	10.54	-7.84	-981.14	13,897.35	7,372.77	7,318.78	53.98	136.572	
14,600.00	7,094.51	3,527.00	3,407.78	43.77	10.54	-7.84	-981.14	13,897.35	7,287.84	7,233.56	54.28	134.252	
14,700.00	7,094.58	3,527.00	3,407.78	44.07	10.54	-7.84	-981.14	13,897.35	7,203.30	7,148.72	54.58	131.966	
14,800.00	7,094.66	3,527.00	3,407.78	44.37	10.54	-7.84	-981.14	13,897.35	7,119.17	7,064.28	54.88	129.712	
14,900.00	7,094.74	3,527.00	3,407.78	44.67	10.54	-7.84	-981.14	13,897.35	7,035.44	6,980.26	55.18	127.490	
15,000.00	7,094.82	3,527.00	3,407.78	44.97	10.54	-7.84	-981.14	13,897.35	6,952.15	6,896.67	55.48	125.299	
15,100.00	7,094.90	3,527.00	3,407.78	45.27	10.54	-7.84	-981.14	13,897.35	6,869.31	6,813.52	55.78	123.141	
15,200.00	7,094.98	3,527.00	3,407.78	45.57	10.54	-7.84	-981.14	13,897.35	6,786.92	6,730.84	56.08	121.013	
15,300.00	7,095.06	3,527.00	3,407.78	45.87	10.54	-7.84	-981.14	13,897.35	6,705.02	6,648.63	56.38	118.917	
15,400.00	7,095.13	3,527.00	3,407.78	46.17	10.54	-7.84	-981.14	13,897.35	6,623.61	6,566.93	56.68	116.852	
15,500.00	7,095.21	3,527.00	3,407.78	46.47	10.54	-7.84	-981.14	13,897.35	6,542.72	6,485.73	56.98	114.818	
15,600.00	7,095.29	3,527.00	3,407.78	46.77	10.54	-7.84	-981.14	13,897.35	6,462.36	6,405.08	57.28	112.814	
15,700.00	7,095.37	3,527.00	3,407.78	47.07	10.54	-7.84	-981.14	13,897.35	6,382.56	6,324.97	57.58	110.841	
15,800.00	7,095.45	3,527.00	3,407.78	47.37	10.54	-7.84	-981.14	13,897.35	6,303.33	6,245.45	57.88	108.898	
15,900.00	7,095.53	3,527.00	3,407.78	47.67	10.54	-7.84	-981.14	13,897.35	6,224.70	6,166.52	58.18	106.986	
16,000.00	7,095.60	3,527.00	3,407.78	47.97	10.54	-7.84	-981.14	13,897.35	6,146.70	6,088.21	58.48	105.104	
16,100.00	7,095.68	3,527.00	3,407.78	48.27	10.54	-7.84	-981.14	13,897.35	6,069.33	6,010.55	58.78	103.252	
16,200.00	7,095.76	3,527.00	3,407.78	48.57	10.54	-7.84	-981.14	13,897.35	5,992.64	5,933.56	59.08	101.430	
16,300.00	7,095.84	3,527.00	3,407.78	48.87	10.54	-7.84	-981.14	13,897.35	5,916.65	5,857.27	59.38	99.639	
16,400.00	7,095.92	3,527.00	3,407.78	49.17	10.54	-7.84	-981.14	13,897.35	5,841.37	5,781.69	59.68	97.878	
16,500.00	7,096.00	3,527.00	3,407.78	49.47	10.54	-7.84	-981.14	13,897.35	5,766.85	5,706.87	59.98	96.146	
16,600.00	7,096.08	3,527.00	3,407.78	49.77	10.54	-7.84	-981.14	13,897.35	5,693.11	5,632.83	60.28	94.445	
16,700.00	7,096.15	3,527.00	3,407.78	50.07	10.54	-7.84	-981.14	13,897.35	5,620.19	5,559.61	60.58	92.775	
16,800.00	7,096.23	3,527.00	3,407.78	50.37	10.54	-7.84	-981.14	13,897.35	5,548.10	5,487.22	60.88	91.134	
16,900.00	7,096.31	3,527.00	3,407.78	50.67	10.54	-7.84	-981.14	13,897.35	5,476.89	5,415.72	61.18	89.524	
17,000.00	7,096.39	3,527.00	3,407.78	50.97	10.54	-7.84	-981.14	13,897.35	5,406.60	5,345.12	61.48	87.945	
17,100.00	7,096.47	3,527.00	3,407.78	51.27	10.54	-7.84	-981.14	13,897.35	5,337.25	5,275.48	61.78	86.396	
17,200.00	7,096.55	3,527.00	3,407.78	51.57	10.54	-7.84	-981.14	13,897.35	5,268.89	5,206.81	62.08	84.878	
17,300.00	7,096.62	3,527.00	3,407.78	51.87	10.54	-7.84	-981.14	13,897.35	5,201.55	5,139.18	62.37	83.392	
17,400.00	7,096.70	3,527.00	3,407.78	52.17	10.54	-7.84	-981.14	13,897.35	5,135.28	5,072.61	62.67	81.936	
17,500.00	7,096.78	3,527.00	3,407.78	52.47	10.54	-7.84	-981.14	13,897.35	5,070.11	5,007.14	62.97	80.512	
17,600.00	7,096.86	3,527.00	3,407.78	52.77	10.54	-7.84	-981.14	13,897.35	5,006.09	4,942.82	63.27	79.120	
17,700.00	7,096.94	3,527.00	3,407.78	53.07	10.54	-7.84	-981.14	13,897.35	4,943.27	4,879.70	63.57	77.759	
17,800.00	7,097.02	3,527.00	3,407.78	53.37	10.54	-7.84	-981.14	13,897.35	4,881.69	4,817.82	63.87	76.431	
17,900.00	7,097.10	3,527.00	3,407.78	53.67	10.54	-7.84	-981.14	13,897.35	4,821.39	4,757.22	64.17	75.135	
18,000.00	7,097.17	3,527.00	3,407.78	53.97	10.54	-7.84	-981.14	13,897.35	4,762.43	4,697.96	64.47	73.872	
18,100.00	7,097.25	3,527.00	3,407.78	54.27	10.54	-7.84	-981.14	13,897.35	4,704.86	4,640.09	64.77	72.642	
18,200.00	7,097.33	3,527.00	3,407.78	54.57	10.54	-7.84	-981.14	13,897.35	4,648.73	4,583.66	65.07	71.446	
18,300.00	7,097.41	3,527.00	3,407.78	54.87	10.54	-7.84	-981.14	13,897.35	4,594.08	4,528.72	65.37	70.283	
18,400.00	7,097.49	3,527.00	3,407.78	55.17	10.54	-7.84	-981.14	13,897.35	4,540.99	4,475.32	65.66	69.154	
18,500.00	7,097.57	3,527.00	3,407.78	55.47	10.54	-7.84	-981.14	13,897.35	4,489.49	4,423.52	65.96	68.060	
18,600.00	7,097.64	3,527.00	3,407.78	55.78	10.54	-7.84	-981.14	13,897.35	4,439.64	4,373.38	66.26	67.001	
18,700.00	7,097.72	3,527.00	3,407.78	56.08	10.54	-7.84	-981.14	13,897.35	4,391.51	4,324.95	66.56	65.977	
18,800.00	7,097.80	3,527.00	3,407.78	56.38	10.54	-7.84	-981.14	13,897.35	4,345.15	4,278.29	66.86	64.989	
18,900.00	7,097.88	3,527.00	3,407.78	56.68	10.54	-7.84	-981.14	13,897.35	4,300.61	4,233.45	67.16	64.037	
19,000.00	7,097.96	3,527.00	3,407.78	56.98	10.54	-7.84	-981.14	13,897.35	4,257.96	4,190.50	67.46	63.121	
19,100.00	7,098.04	3,527.00	3,407.78	57.28	10.54	-7.84	-981.14	13,897.35	4,217.25	4,149.49	67.76	62.242	
19,200.00	7,098.12	3,527.00	3,407.78	57.58	10.54	-7.84	-981.14	13,897.35	4,178.53	4,110.47	68.05	61.400	
19,300.00	7,098.19	3,527.00	3,407.78	57.88	10.54	-7.84	-981.14	13,897.35	4,141.87	4,073.51	68.35	60.595	
19,400.00	7,098.27	3,527.00	3,407.78	58.18	10.54	-7.84	-981.14	13,897.35	4,107.31	4,038.66	68.65	59.828	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #271A (Offset) - 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
19,500.00	7,098.35	3,527.00	3,407.78	58.48	10.54	-7.84	-981.14	13,897.35	4,074.92	4,005.97	68.95	59.099	
19,600.00	7,098.43	3,527.00	3,407.78	58.78	10.54	-7.84	-981.14	13,897.35	4,044.74	3,975.49	69.25	58.408	
19,700.00	7,098.51	3,527.00	3,407.78	59.08	10.54	-7.84	-981.14	13,897.35	4,016.82	3,947.27	69.55	57.756	
19,800.00	7,098.59	3,527.00	3,407.78	59.38	10.54	-7.84	-981.14	13,897.35	3,991.21	3,921.37	69.85	57.142	
19,900.00	7,098.66	3,527.00	3,407.78	59.68	10.54	-7.84	-981.14	13,897.35	3,967.96	3,897.82	70.15	56.567	
20,000.00	7,098.74	3,527.00	3,407.78	59.98	10.54	-7.84	-981.14	13,897.35	3,947.11	3,876.66	70.45	56.031	
20,100.00	7,098.82	3,527.00	3,407.78	60.28	10.54	-7.84	-981.14	13,897.35	3,928.69	3,857.95	70.74	55.534	
20,200.00	7,098.90	3,527.00	3,407.78	60.58	10.54	-7.84	-981.14	13,897.35	3,912.74	3,841.70	71.04	55.076	
20,300.00	7,098.98	3,527.00	3,407.78	60.88	10.54	-7.84	-981.14	13,897.35	3,899.30	3,827.95	71.34	54.656	
20,328.16	7,099.00	3,527.00	3,407.78	60.96	10.54	-7.84	-981.14	13,897.35	3,895.96	3,824.54	71.43	54.545	CC, ES, SF

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	159.51	159.51	0.00	1.47	90.77	-140.60	10,400.55	10,401.50				
100.00	100.00	259.52	259.51	0.23	2.63	90.77	-140.60	10,400.55	10,401.50	10,398.65	2.85	3,647.442	
200.00	200.00	359.52	359.51	0.53	4.47	90.77	-140.60	10,400.55	10,401.50	10,396.50	5.00	2,080.190	
300.00	300.00	459.52	459.51	0.83	6.32	90.77	-140.60	10,400.55	10,401.50	10,394.35	7.15	1,454.999	
340.68	340.68	500.16	500.15	0.95	7.07	90.77	-140.05	10,400.55	10,401.49	10,393.47	8.02	1,296.596	
400.00	400.00	559.34	559.33	1.13	8.17	90.77	-140.10	10,400.55	10,401.49	10,392.20	9.29	1,119.162	
500.00	500.00	659.09	659.08	1.43	10.01	90.77	-140.31	10,400.55	10,401.50	10,390.06	11.44	909.378	
600.00	599.98	759.51	759.49	1.73	11.88	-83.81	-140.60	10,400.55	10,401.31	10,387.71	13.61	764.456	
700.00	699.84	859.37	859.35	2.03	13.78	-83.85	-140.60	10,400.55	10,400.75	10,384.95	15.80	658.099	
800.00	799.45	958.88	958.85	2.33	15.67	-83.92	-140.21	10,400.55	10,399.81	10,381.82	18.00	577.908	
900.00	898.70	1,057.87	1,057.85	2.63	17.55	-84.01	-140.41	10,400.55	10,398.52	10,378.35	20.18	515.358	
1,000.00	997.47	1,157.02	1,156.98	2.93	19.44	-84.13	-140.60	10,400.55	10,396.89	10,374.53	22.36	464.918	
1,100.00	1,095.62	1,255.18	1,255.14	3.23	21.30	-84.27	-140.60	10,400.55	10,394.92	10,370.39	24.53	423.754	
1,157.34	1,151.58	1,311.14	1,311.10	3.40	22.37	-84.36	-140.60	10,400.55	10,393.66	10,367.89	25.77	403.366	
1,200.00	1,193.13	1,352.69	1,352.64	3.53	23.16	-84.41	-140.60	10,400.55	10,392.68	10,366.00	26.69	389.445	
1,300.00	1,290.51	1,449.98	1,449.93	3.83	25.01	-84.54	-139.92	10,400.55	10,390.43	10,361.59	28.84	360.315	
1,400.00	1,387.89	1,547.39	1,547.34	4.13	26.86	-84.66	-140.30	10,400.55	10,388.23	10,357.24	30.99	335.205	
1,500.00	1,485.27	1,644.93	1,644.87	4.43	28.72	-84.77	-140.93	10,400.55	10,386.08	10,352.93	33.15	313.339	
1,600.00	1,582.65	1,742.23	1,742.16	4.73	30.57	-84.90	-140.60	10,400.55	10,383.98	10,348.68	35.30	294.173	
1,700.00	1,680.02	1,839.62	1,839.55	5.03	32.43	-85.02	-140.09	10,400.55	10,381.93	10,344.48	37.45	277.201	
1,800.00	1,777.40	1,937.15	1,937.07	5.33	34.28	-85.14	-140.20	10,400.55	10,379.93	10,340.32	39.61	262.059	
1,900.00	1,874.78	2,087.60	2,034.30	5.63	37.16	-85.26	-140.60	10,400.55	10,377.97	10,335.18	42.79	242.540	
2,000.00	1,972.16	2,131.78	2,131.67	5.93	38.03	-85.39	-140.60	10,400.55	10,376.07	10,332.11	43.96	236.057	
2,100.00	2,069.54	2,229.16	2,229.05	6.23	39.94	-85.51	-140.60	10,400.55	10,374.21	10,328.05	46.17	224.710	
2,200.00	2,166.92	2,326.70	2,326.59	6.53	41.86	-85.63	-139.85	10,400.55	10,372.42	10,324.04	48.38	214.387	
2,300.00	2,264.30	2,424.63	2,424.52	6.83	43.78	-85.75	-140.08	10,400.55	10,370.66	10,320.06	50.60	204.937	
2,400.00	2,361.68	2,528.67	2,521.19	7.13	45.82	-85.87	-140.60	10,400.55	10,368.95	10,316.00	52.95	195.830	
2,500.00	2,459.06	2,618.71	2,618.57	7.43	47.65	-86.00	-140.60	10,400.55	10,367.29	10,312.22	55.07	188.241	
2,600.00	2,556.44	2,716.09	2,715.95	7.73	49.62	-86.12	-140.60	10,400.55	10,365.69	10,308.34	57.35	180.748	
2,700.00	2,653.82	2,814.29	2,814.14	8.03	51.61	-86.24	-140.07	10,400.55	10,364.15	10,304.51	59.64	173.778	
2,800.00	2,751.19	2,941.10	2,910.71	8.33	54.19	-86.36	-140.60	10,400.55	10,362.62	10,300.11	62.51	165.770	
2,900.00	2,848.57	3,008.28	3,008.09	8.63	55.55	-86.48	-140.60	10,400.55	10,361.17	10,296.99	64.18	161.445	
3,000.00	2,945.95	3,105.65	3,105.47	8.93	57.53	-86.61	-140.60	10,400.55	10,359.76	10,293.30	66.46	155.887	
3,100.00	3,043.33	3,203.26	3,203.06	9.23	59.51	-86.74	-139.47	10,400.55	10,358.44	10,289.70	68.74	150.688	
3,200.00	3,140.71	3,301.98	3,301.77	9.53	61.52	-86.86	-139.69	10,400.55	10,357.13	10,286.08	71.05	145.778	
3,300.00	3,238.09	3,400.85	3,400.64	9.83	63.53	-86.98	-140.25	10,400.55	10,355.85	10,282.49	73.36	141.170	
3,400.00	3,335.47	3,499.89	3,499.67	10.13	65.54	-87.10	-141.13	10,400.55	10,354.61	10,278.94	75.67	136.838	
3,500.00	3,432.85	3,569.00	3,568.74	10.43	66.87	-87.19	-140.60	10,400.55	10,353.50	10,276.20	77.30	133.946	
3,594.35	3,524.73	3,569.00	3,568.74	10.72	66.87	-87.19	-140.60	10,400.55	10,353.07	10,275.49	77.57	133.459	
3,600.00	3,530.23	3,569.00	3,568.74	10.73	66.87	-87.19	-140.60	10,400.55	10,353.07	10,275.48	77.59	133.430	
3,700.00	3,627.61	3,569.00	3,568.74	11.03	66.87	-87.19	-140.60	10,400.55	10,353.61	10,275.72	77.88	132.941	
3,800.00	3,724.99	3,569.00	3,568.74	11.33	66.87	-87.19	-140.60	10,400.55	10,355.11	10,276.94	78.17	132.476	
3,900.00	3,822.36	3,569.00	3,568.74	11.63	66.87	-87.19	-140.60	10,400.55	10,357.58	10,279.13	78.44	132.038	
4,000.00	3,919.74	3,569.00	3,568.74	11.93	66.87	-87.19	-140.60	10,400.55	10,361.01	10,282.29	78.72	131.624	
4,100.00	4,017.12	3,569.00	3,568.74	12.23	66.87	-87.19	-140.60	10,400.55	10,365.41	10,286.42	78.98	131.234	
4,200.00	4,114.50	3,569.00	3,568.74	12.53	66.87	-87.19	-140.60	10,400.55	10,370.77	10,291.52	79.25	130.869	
4,300.00	4,211.88	3,569.00	3,568.74	12.83	66.87	-87.19	-140.60	10,400.55	10,377.09	10,297.59	79.50	130.528	
4,400.00	4,309.26	3,569.00	3,568.74	13.13	66.87	-87.19	-140.60	10,400.55	10,384.37	10,304.62	79.75	130.210	
4,500.00	4,406.64	3,569.00	3,568.74	13.43	66.87	-87.19	-140.60	10,400.55	10,392.60	10,312.61	80.00	129.915	
4,600.00	4,504.02	3,569.00	3,568.74	13.73	66.87	-87.19	-140.60	10,400.55	10,401.79	10,321.56	80.23	129.642	
4,700.00	4,601.40	3,569.00	3,568.74	14.03	66.87	-87.19	-140.60	10,400.55	10,411.94	10,331.47	80.47	129.392	
4,800.00	4,698.78	3,569.00	3,568.74	14.33	66.87	-87.19	-140.60	10,400.55	10,423.03	10,342.34	80.70	129.164	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 235-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,900.00	4,796.16	3,569.00	3,568.74	14.63	66.87	-87.19	-140.60	10,400.55	10,435.07	10,354.15	80.92	128.957	
5,000.00	4,893.53	3,569.00	3,568.74	14.93	66.87	-87.19	-140.60	10,400.55	10,448.05	10,366.92	81.14	128.772	
5,100.00	4,990.91	3,569.00	3,568.74	15.23	66.87	-87.19	-140.60	10,400.55	10,461.98	10,380.63	81.35	128.607	
5,200.00	5,088.29	3,569.00	3,568.74	15.53	66.87	-87.19	-140.60	10,400.55	10,476.84	10,395.28	81.56	128.463	
5,300.00	5,185.67	3,569.00	3,568.74	15.83	66.87	-87.19	-140.60	10,400.55	10,492.63	10,410.87	81.76	128.339	
5,400.00	5,283.05	3,569.00	3,568.74	16.13	66.87	-87.19	-140.60	10,400.55	10,509.35	10,427.39	81.95	128.235	
5,500.00	5,380.43	3,569.00	3,568.74	16.43	66.87	-87.19	-140.60	10,400.55	10,526.99	10,444.84	82.15	128.150	
5,600.00	5,477.81	3,569.00	3,568.74	16.73	66.87	-87.19	-140.60	10,400.55	10,545.55	10,463.22	82.33	128.085	
5,700.00	5,575.19	3,569.00	3,568.74	17.03	66.87	-87.19	-140.60	10,400.55	10,565.03	10,482.51	82.51	128.038	
5,800.00	5,672.57	3,569.00	3,568.74	17.33	66.87	-87.19	-140.60	10,400.55	10,585.41	10,502.72	82.69	128.010	
5,900.00	5,769.95	3,569.00	3,568.74	17.63	66.87	-87.19	-140.60	10,400.55	10,606.70	10,523.83	82.87	128.000	
6,000.00	5,867.33	3,569.00	3,568.74	17.93	66.87	-87.19	-140.60	10,400.55	10,628.88	10,545.85	83.03	128.007	
6,100.00	5,964.70	3,569.00	3,568.74	18.23	66.87	-87.19	-140.60	10,400.55	10,651.96	10,568.76	83.20	128.033	
6,200.00	6,062.08	3,569.00	3,568.74	18.53	66.87	-87.19	-140.60	10,400.55	10,675.93	10,592.57	83.36	128.075	
6,300.00	6,159.46	3,569.00	3,568.74	18.83	66.87	-87.19	-140.60	10,400.55	10,700.77	10,617.26	83.51	128.134	
6,400.00	6,256.84	3,569.00	3,568.74	19.13	66.87	-87.19	-140.60	10,400.55	10,726.49	10,642.83	83.66	128.210	
6,500.00	6,354.22	3,569.00	3,568.74	19.43	66.87	-87.19	-140.60	10,400.55	10,753.08	10,669.27	83.81	128.302	
6,600.00	6,451.60	3,569.00	3,568.74	19.73	66.87	-87.19	-140.60	10,400.55	10,780.53	10,696.58	83.95	128.410	
6,694.27	6,543.40	3,569.00	3,568.74	20.02	66.87	-87.19	-140.60	10,400.55	10,807.20	10,723.11	84.09	128.526	
6,700.00	6,548.98	3,569.00	3,568.74	20.03	66.87	-84.75	-140.60	10,400.55	10,808.81	10,724.72	84.09	128.534	
6,750.00	6,597.52	3,569.00	3,568.74	20.18	66.87	-65.44	-140.60	10,400.55	10,820.70	10,736.54	84.16	128.575	
6,800.00	6,645.56	3,569.00	3,568.74	20.33	66.87	-51.11	-140.60	10,400.55	10,828.54	10,744.32	84.22	128.572	
6,850.00	6,692.73	3,569.00	3,568.74	20.48	66.87	-41.28	-140.60	10,400.55	10,832.28	10,747.99	84.28	128.524	
6,900.00	6,738.66	3,569.00	3,568.74	20.63	66.87	-34.55	-140.60	10,400.55	10,831.89	10,747.55	84.34	128.428	
6,950.00	6,783.02	3,569.00	3,568.74	20.78	66.87	-29.82	-140.60	10,400.55	10,827.38	10,742.98	84.40	128.286	
7,000.00	6,825.45	3,569.00	3,568.74	20.94	66.87	-26.40	-140.60	10,400.55	10,818.78	10,734.32	84.46	128.095	
7,050.00	6,865.65	3,569.00	3,568.74	21.09	66.87	-23.87	-140.60	10,400.55	10,806.15	10,721.63	84.52	127.856	
7,100.00	6,903.29	3,569.00	3,568.74	21.24	66.87	-21.98	-140.60	10,400.55	10,789.56	10,704.98	84.58	127.568	
7,150.00	6,938.11	3,569.00	3,568.74	21.39	66.87	-20.55	-140.60	10,400.55	10,769.12	10,684.48	84.64	127.233	
7,200.00	6,969.82	3,569.00	3,568.74	21.54	66.87	-19.49	-140.60	10,400.55	10,744.98	10,660.27	84.71	126.851	
7,250.00	6,998.19	3,569.00	3,568.74	21.69	66.87	-18.72	-140.60	10,400.55	10,717.28	10,632.50	84.77	126.422	
7,300.00	7,023.01	3,569.00	3,568.74	21.84	66.87	-18.20	-140.60	10,400.55	10,686.21	10,601.36	84.85	125.948	
7,350.00	7,044.08	3,569.00	3,568.74	21.99	66.87	-17.91	-140.60	10,400.55	10,651.98	10,567.06	84.92	125.431	
7,400.00	7,061.25	3,569.00	3,568.74	22.14	66.87	-17.85	-140.60	10,400.55	10,614.82	10,529.82	85.01	124.872	
7,450.00	7,074.38	3,569.00	3,568.74	22.29	66.87	-18.03	-140.60	10,400.55	10,574.99	10,489.90	85.09	124.274	
7,500.00	7,083.37	3,569.00	3,568.74	22.44	66.87	-18.51	-140.60	10,400.55	10,532.76	10,447.57	85.19	123.639	
7,550.00	7,088.16	3,569.00	3,568.74	22.59	66.87	-19.36	-140.60	10,400.55	10,488.42	10,403.13	85.29	122.970	
7,581.00	7,089.00	3,569.00	3,568.74	22.68	66.87	-20.17	-140.60	10,400.55	10,460.01	10,374.65	85.36	122.539	
7,600.00	7,089.02	3,569.00	3,568.74	22.74	66.87	-20.17	-140.60	10,400.55	10,442.40	10,357.00	85.40	122.272	
7,700.00	7,089.09	3,569.00	3,568.74	23.04	66.87	-20.17	-140.60	10,400.55	10,349.82	10,264.19	85.63	120.871	
7,800.00	7,089.17	3,569.00	3,568.74	23.34	66.87	-20.17	-140.60	10,400.55	10,257.37	10,171.52	85.85	119.483	
7,900.00	7,089.25	3,569.00	3,568.74	23.64	66.87	-20.17	-140.60	10,400.55	10,165.07	10,079.00	86.07	118.106	
8,000.00	7,089.33	3,569.00	3,568.74	23.94	66.87	-20.17	-140.60	10,400.55	10,072.91	9,986.62	86.28	116.741	
8,100.00	7,089.41	3,569.00	3,568.74	24.24	66.87	-20.17	-140.60	10,400.55	9,980.90	9,894.40	86.50	115.388	
8,200.00	7,089.49	3,569.00	3,568.74	24.54	66.87	-20.17	-140.60	10,400.55	9,889.05	9,802.34	86.71	114.046	
8,300.00	7,089.56	3,569.00	3,568.74	24.84	66.87	-20.17	-140.60	10,400.55	9,797.36	9,710.44	86.92	112.716	
8,400.00	7,089.64	3,569.00	3,568.74	25.14	66.87	-20.17	-140.60	10,400.55	9,705.83	9,618.71	87.13	111.398	
8,500.00	7,089.72	3,569.00	3,568.74	25.44	66.87	-20.17	-140.60	10,400.55	9,614.48	9,527.14	87.33	110.091	
8,600.00	7,089.80	3,569.00	3,568.74	25.75	66.87	-20.17	-140.60	10,400.55	9,523.29	9,435.76	87.53	108.796	
8,700.00	7,089.88	3,569.00	3,568.74	26.05	66.87	-20.17	-140.60	10,400.55	9,432.29	9,344.55	87.73	107.513	
8,800.00	7,089.96	3,569.00	3,568.74	26.35	66.87	-20.17	-140.60	10,400.55	9,341.46	9,253.54	87.93	106.240	
8,900.00	7,090.03	3,569.00	3,568.74	26.65	66.87	-20.17	-140.60	10,400.55	9,250.83	9,162.71	88.12	104.980	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #272 (Offset) - 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
9,000.00	7,090.11	3,569.00	3,568.74	26.95	66.87	-20.17	-140.60	10,400.55	9,160.39	9,072.08	88.31	103.731	
9,100.00	7,090.19	3,569.00	3,568.74	27.25	66.87	-20.17	-140.60	10,400.55	9,070.16	8,981.66	88.50	102.493	
9,200.00	7,090.27	3,569.00	3,568.74	27.55	66.87	-20.17	-140.60	10,400.55	8,980.13	8,891.45	88.68	101.267	
9,300.00	7,090.35	3,569.00	3,568.74	27.85	66.87	-20.17	-140.60	10,400.55	8,890.31	8,801.45	88.86	100.052	
9,400.00	7,090.43	3,569.00	3,568.74	28.15	66.87	-20.17	-140.60	10,400.55	8,800.71	8,711.68	89.03	98.849	
9,500.00	7,090.51	3,569.00	3,568.74	28.45	66.87	-20.17	-140.60	10,400.55	8,711.34	8,622.14	89.20	97.657	
9,600.00	7,090.58	3,569.00	3,568.74	28.75	66.87	-20.17	-140.60	10,400.55	8,622.20	8,532.83	89.37	96.477	
9,700.00	7,090.66	3,569.00	3,568.74	29.05	66.87	-20.17	-140.60	10,400.55	8,533.31	8,443.77	89.53	95.308	
9,800.00	7,090.74	3,569.00	3,568.74	29.35	66.87	-20.17	-140.60	10,400.55	8,444.66	8,354.97	89.69	94.151	
9,900.00	7,090.82	3,569.00	3,568.74	29.65	66.87	-20.17	-140.60	10,400.55	8,356.27	8,266.42	89.85	93.005	
10,000.00	7,090.90	3,569.00	3,568.74	29.95	66.87	-20.17	-140.60	10,400.55	8,268.14	8,178.14	90.00	91.871	
10,100.00	7,090.98	3,569.00	3,568.74	30.25	66.87	-20.17	-140.60	10,400.55	8,180.28	8,090.14	90.14	90.749	
10,200.00	7,091.05	3,569.00	3,568.74	30.55	66.87	-20.17	-140.60	10,400.55	8,092.71	8,002.43	90.28	89.638	
10,300.00	7,091.13	3,569.00	3,568.74	30.85	66.87	-20.17	-140.60	10,400.55	8,005.43	7,915.01	90.42	88.539	
10,400.00	7,091.21	3,569.00	3,568.74	31.15	66.87	-20.17	-140.60	10,400.55	7,918.45	7,827.90	90.55	87.452	
10,500.00	7,091.29	3,569.00	3,568.74	31.45	66.87	-20.17	-140.60	10,400.55	7,831.78	7,741.11	90.67	86.377	
10,600.00	7,091.37	3,569.00	3,568.74	31.76	66.87	-20.17	-140.60	10,400.55	7,745.43	7,654.64	90.79	85.313	
10,700.00	7,091.45	3,569.00	3,568.74	32.06	66.87	-20.17	-140.60	10,400.55	7,659.42	7,568.52	90.90	84.262	
10,800.00	7,091.53	3,569.00	3,568.74	32.36	66.87	-20.17	-140.60	10,400.55	7,573.74	7,482.74	91.01	83.223	
10,900.00	7,091.60	3,569.00	3,568.74	32.66	66.87	-20.17	-140.60	10,400.55	7,488.42	7,397.32	91.10	82.197	
11,000.00	7,091.68	3,569.00	3,568.74	32.96	66.87	-20.17	-140.60	10,400.55	7,403.47	7,312.28	91.20	81.182	
11,100.00	7,091.76	3,569.00	3,568.74	33.26	66.87	-20.17	-140.60	10,400.55	7,318.91	7,227.62	91.28	80.180	
11,200.00	7,091.84	3,569.00	3,568.74	33.56	66.87	-20.17	-140.60	10,400.55	7,234.73	7,143.37	91.36	79.191	
11,300.00	7,091.92	3,569.00	3,568.74	33.86	66.87	-20.17	-140.60	10,400.55	7,150.96	7,059.53	91.43	78.214	
11,400.00	7,092.00	3,569.00	3,568.74	34.16	66.87	-20.17	-140.60	10,400.55	7,067.61	6,976.12	91.49	77.250	
11,500.00	7,092.07	3,569.00	3,568.74	34.46	66.87	-20.17	-140.60	10,400.55	6,984.70	6,893.16	91.54	76.300	
11,600.00	7,092.15	3,569.00	3,568.74	34.76	66.87	-20.17	-140.60	10,400.55	6,902.25	6,810.66	91.59	75.362	
11,700.00	7,092.23	3,569.00	3,568.74	35.06	66.87	-20.17	-140.60	10,400.55	6,820.26	6,728.64	91.62	74.438	
11,800.00	7,092.31	3,569.00	3,568.74	35.36	66.87	-20.17	-140.60	10,400.55	6,738.76	6,647.11	91.65	73.527	
11,900.00	7,092.39	3,569.00	3,568.74	35.66	66.87	-20.17	-140.60	10,400.55	6,657.76	6,566.10	91.67	72.631	
12,000.00	7,092.47	3,569.00	3,568.74	35.96	66.87	-20.17	-140.60	10,400.55	6,577.29	6,485.62	91.67	71.748	
12,100.00	7,092.55	3,569.00	3,568.74	36.26	66.87	-20.17	-140.60	10,400.55	6,497.36	6,405.69	91.67	70.879	
12,200.00	7,092.62	3,569.00	3,568.74	36.56	66.87	-20.17	-140.60	10,400.55	6,417.99	6,326.34	91.65	70.025	
12,300.00	7,092.70	3,569.00	3,568.74	36.86	66.87	-20.17	-140.60	10,400.55	6,339.21	6,247.58	91.63	69.185	
12,400.00	7,092.78	3,569.00	3,568.74	37.16	66.87	-20.17	-140.60	10,400.55	6,261.03	6,169.44	91.59	68.361	
12,500.00	7,092.86	3,569.00	3,568.74	37.46	66.87	-20.17	-140.60	10,400.55	6,183.48	6,091.94	91.54	67.551	
12,600.00	7,092.94	3,569.00	3,568.74	37.76	66.87	-20.17	-140.60	10,400.55	6,106.58	6,015.11	91.47	66.757	
12,700.00	7,093.02	3,569.00	3,568.74	38.06	66.87	-20.17	-140.60	10,400.55	6,030.36	5,938.97	91.40	65.979	
12,800.00	7,093.09	3,569.00	3,568.74	38.36	66.87	-20.17	-140.60	10,400.55	5,954.85	5,863.54	91.31	65.218	
12,900.00	7,093.17	3,569.00	3,568.74	38.66	66.87	-20.17	-140.60	10,400.55	5,880.06	5,788.86	91.20	64.472	
13,000.00	7,093.25	3,569.00	3,568.74	38.96	66.87	-20.17	-140.60	10,400.55	5,806.04	5,714.95	91.08	63.744	
13,100.00	7,093.33	3,569.00	3,568.74	39.26	66.87	-20.17	-140.60	10,400.55	5,732.80	5,641.85	90.95	63.033	
13,200.00	7,093.41	3,569.00	3,568.74	39.56	66.87	-20.17	-140.60	10,400.55	5,660.38	5,569.58	90.80	62.340	
13,300.00	7,093.49	3,569.00	3,568.74	39.86	66.87	-20.17	-140.60	10,400.55	5,588.82	5,498.18	90.63	61.664	
13,400.00	7,093.57	3,569.00	3,568.74	40.16	66.87	-20.17	-140.60	10,400.55	5,518.13	5,427.68	90.45	61.008	
13,500.00	7,093.64	3,569.00	3,568.74	40.47	66.87	-20.17	-140.60	10,400.55	5,448.37	5,358.12	90.25	60.370	
13,600.00	7,093.72	3,569.00	3,568.74	40.77	66.87	-20.17	-140.60	10,400.55	5,379.56	5,289.53	90.03	59.752	
13,700.00	7,093.80	3,569.00	3,568.74	41.07	66.87	-20.17	-140.60	10,400.55	5,311.74	5,221.95	89.80	59.153	
13,800.00	7,093.88	3,569.00	3,568.74	41.37	66.87	-20.17	-140.60	10,400.55	5,244.95	5,155.41	89.54	58.575	
13,900.00	7,093.96	3,569.00	3,568.74	41.67	66.87	-20.17	-140.60	10,400.55	5,179.23	5,089.97	89.27	58.019	
14,000.00	7,094.04	3,569.00	3,568.74	41.97	66.87	-20.17	-140.60	10,400.55	5,114.63	5,025.65	88.98	57.483	
14,100.00	7,094.11	3,569.00	3,568.74	42.27	66.87	-20.17	-140.60	10,400.55	5,051.17	4,962.51	88.66	56.970	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #272 (Offset) - 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
14,200.00	7,094.19	3,569.00	3,568.74	42.57	66.87	-20.17	-140.60	10,400.55	4,988.91	4,900.58	88.33	56.479	
14,300.00	7,094.27	3,569.00	3,568.74	42.87	66.87	-20.17	-140.60	10,400.55	4,927.90	4,839.92	87.98	56.011	
14,400.00	7,094.35	3,569.00	3,568.74	43.17	66.87	-20.17	-140.60	10,400.55	4,868.17	4,780.57	87.61	55.567	
14,500.00	7,094.43	3,569.00	3,568.74	43.47	66.87	-20.17	-140.60	10,400.55	4,809.79	4,722.57	87.22	55.147	
14,600.00	7,094.51	3,569.00	3,568.74	43.77	66.87	-20.17	-140.60	10,400.55	4,752.79	4,665.98	86.81	54.751	
14,700.00	7,094.58	3,569.00	3,568.74	44.07	66.87	-20.17	-140.60	10,400.55	4,697.23	4,610.85	86.38	54.381	
14,800.00	7,094.66	3,569.00	3,568.74	44.37	66.87	-20.17	-140.60	10,400.55	4,643.15	4,557.22	85.93	54.036	
14,900.00	7,094.74	3,569.00	3,568.74	44.67	66.87	-20.17	-140.60	10,400.55	4,590.62	4,505.16	85.46	53.716	
15,000.00	7,094.82	3,569.00	3,568.74	44.97	66.87	-20.17	-140.60	10,400.55	4,539.68	4,454.71	84.98	53.423	
15,100.00	7,094.90	3,569.00	3,568.74	45.27	66.87	-20.17	-140.60	10,400.55	4,490.40	4,405.92	84.48	53.155	
15,200.00	7,094.98	3,569.00	3,568.74	45.57	66.87	-20.17	-140.60	10,400.55	4,442.81	4,358.85	83.96	52.914	
15,300.00	7,095.06	3,569.00	3,568.74	45.87	66.87	-20.17	-140.60	10,400.55	4,396.99	4,313.55	83.44	52.699	
15,400.00	7,095.13	3,569.00	3,568.74	46.17	66.87	-20.17	-140.60	10,400.55	4,352.98	4,270.08	82.90	52.510	
15,500.00	7,095.21	3,569.00	3,568.74	46.47	66.87	-20.17	-140.60	10,400.55	4,310.84	4,228.49	82.35	52.346	
15,600.00	7,095.29	3,569.00	3,568.74	46.77	66.87	-20.17	-140.60	10,400.55	4,270.63	4,188.83	81.80	52.206	
15,700.00	7,095.37	3,569.00	3,568.74	47.07	66.87	-20.17	-140.60	10,400.55	4,232.40	4,151.15	81.25	52.089	
15,800.00	7,095.45	3,569.00	3,568.74	47.37	66.87	-20.17	-140.60	10,400.55	4,196.21	4,115.50	80.71	51.994	
15,900.00	7,095.53	3,569.00	3,568.74	47.67	66.87	-20.17	-140.60	10,400.55	4,162.10	4,081.94	80.17	51.919	
16,000.00	7,095.60	3,569.00	3,568.74	47.97	66.87	-20.17	-140.60	10,400.55	4,130.14	4,050.50	79.64	51.862	
16,100.00	7,095.68	3,569.00	3,568.74	48.27	66.87	-20.17	-140.60	10,400.55	4,100.36	4,021.23	79.13	51.819	
16,200.00	7,095.76	3,569.00	3,568.74	48.57	66.87	-20.17	-140.60	10,400.55	4,072.83	3,994.18	78.64	51.788	
16,300.00	7,095.84	3,569.00	3,568.74	48.87	66.87	-20.17	-140.60	10,400.55	4,047.57	3,969.38	78.19	51.765	
16,400.00	7,095.92	3,569.00	3,568.74	49.17	66.87	-20.17	-140.60	10,400.55	4,024.65	3,946.87	77.78	51.745	
16,500.00	7,096.00	3,569.00	3,568.74	49.47	66.87	-20.17	-140.60	10,400.55	4,004.09	3,926.67	77.41	51.724	
16,600.00	7,096.08	3,569.00	3,568.74	49.77	66.87	-20.17	-140.60	10,400.55	3,985.93	3,908.83	77.10	51.697	
16,700.00	7,096.15	3,569.00	3,568.74	50.07	66.87	-20.17	-140.60	10,400.55	3,970.21	3,893.36	76.85	51.659	
16,800.00	7,096.23	3,569.00	3,568.74	50.37	66.87	-20.17	-140.60	10,400.55	3,956.96	3,880.28	76.68	51.605	
16,900.00	7,096.31	3,569.00	3,568.74	50.67	66.87	-20.17	-140.60	10,400.55	3,946.19	3,869.61	76.58	51.530	
17,000.00	7,096.39	3,569.00	3,568.74	50.97	66.87	-20.17	-140.60	10,400.55	3,937.94	3,861.37	76.57	51.431	
17,100.00	7,096.47	3,569.00	3,568.74	51.27	66.87	-20.17	-140.60	10,400.55	3,932.21	3,855.57	76.65	51.303	
17,200.00	7,096.55	3,569.00	3,568.74	51.57	66.87	-20.17	-140.60	10,400.55	3,929.02	3,852.20	76.82	51.145	
17,275.34	7,096.61	3,569.00	3,568.74	51.80	66.87	-20.17	-140.60	10,400.55	3,928.30	3,851.28	77.02	51.006	CC, ES
17,300.00	7,096.62	3,569.00	3,568.74	51.87	66.87	-20.17	-140.60	10,400.55	3,928.38	3,851.29	77.09	50.956	
17,400.00	7,096.70	3,569.00	3,568.74	52.17	66.87	-20.17	-140.60	10,400.55	3,930.28	3,852.82	77.46	50.737	
17,500.00	7,096.78	3,569.00	3,568.74	52.47	66.87	-20.17	-140.60	10,400.55	3,934.72	3,856.79	77.93	50.491	
17,600.00	7,096.86	3,569.00	3,568.74	52.77	66.87	-20.17	-140.60	10,400.55	3,941.69	3,863.20	78.49	50.219	
17,700.00	7,096.94	3,569.00	3,568.74	53.07	66.87	-20.17	-140.60	10,400.55	3,951.19	3,872.05	79.14	49.927	
17,800.00	7,097.02	3,569.00	3,568.74	53.37	66.87	-20.17	-140.60	10,400.55	3,963.18	3,883.31	79.87	49.620	
17,900.00	7,097.10	3,569.00	3,568.74	53.67	66.87	-20.17	-140.60	10,400.55	3,977.66	3,896.98	80.68	49.303	
18,000.00	7,097.17	3,569.00	3,568.74	53.97	66.87	-20.17	-140.60	10,400.55	3,994.58	3,913.03	81.55	48.982	
18,100.00	7,097.25	3,569.00	3,568.74	54.27	66.87	-20.17	-140.60	10,400.55	4,013.93	3,931.44	82.49	48.661	
18,200.00	7,097.33	3,569.00	3,568.74	54.57	66.87	-20.17	-140.60	10,400.55	4,035.66	3,952.19	83.47	48.346	
18,300.00	7,097.41	3,569.00	3,568.74	54.87	66.87	-20.17	-140.60	10,400.55	4,059.74	3,975.23	84.50	48.042	
18,400.00	7,097.49	3,569.00	3,568.74	55.17	66.87	-20.17	-140.60	10,400.55	4,086.12	4,000.55	85.57	47.752	
18,500.00	7,097.57	3,569.00	3,568.74	55.47	66.87	-20.17	-140.60	10,400.55	4,114.77	4,028.11	86.67	47.479	
18,600.00	7,097.64	3,569.00	3,568.74	55.78	66.87	-20.17	-140.60	10,400.55	4,145.63	4,057.85	87.78	47.226	
18,700.00	7,097.72	3,569.00	3,568.74	56.08	66.87	-20.17	-140.60	10,400.55	4,178.66	4,089.75	88.91	46.996	
18,800.00	7,097.80	3,569.00	3,568.74	56.38	66.87	-20.17	-140.60	10,400.55	4,213.80	4,123.75	90.06	46.790	
18,900.00	7,097.88	3,569.00	3,568.74	56.68	66.87	-20.17	-140.60	10,400.55	4,251.01	4,159.80	91.21	46.609	
19,000.00	7,097.96	3,569.00	3,568.74	56.98	66.87	-20.17	-140.60	10,400.55	4,290.22	4,197.87	92.36	46.453	
19,100.00	7,098.04	3,569.00	3,568.74	57.28	66.87	-20.17	-140.60	10,400.55	4,331.39	4,237.89	93.50	46.324	
19,200.00	7,098.12	3,569.00	3,568.74	57.58	66.87	-20.17	-140.60	10,400.55	4,374.46	4,279.81	94.64	46.220	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #272 (Offset) - 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
19,300.00	7,098.19	3,569.00	3,568.74	57.88	66.87	-20.17	-140.60	10,400.55	4,419.37	4,323.59	95.78	46.143	
19,400.00	7,098.27	3,569.00	3,568.74	58.18	66.87	-20.17	-140.60	10,400.55	4,466.06	4,369.17	96.90	46.091	
19,500.00	7,098.35	3,569.00	3,568.74	58.48	66.87	-20.17	-140.60	10,400.55	4,514.49	4,416.49	98.00	46.064	
19,600.00	7,098.43	3,569.00	3,568.74	58.78	66.87	-20.17	-140.60	10,400.55	4,564.60	4,465.51	99.10	46.062	SF
19,700.00	7,098.51	3,569.00	3,568.74	59.08	66.87	-20.17	-140.60	10,400.55	4,616.33	4,516.16	100.17	46.084	
19,800.00	7,098.59	3,569.00	3,568.74	59.38	66.87	-20.17	-140.60	10,400.55	4,669.63	4,568.40	101.23	46.128	
19,900.00	7,098.66	3,569.00	3,568.74	59.68	66.87	-20.17	-140.60	10,400.55	4,724.45	4,622.17	102.27	46.195	
20,000.00	7,098.74	3,569.00	3,568.74	59.98	66.87	-20.17	-140.60	10,400.55	4,780.72	4,677.43	103.29	46.283	
20,100.00	7,098.82	3,569.00	3,568.74	60.28	66.87	-20.17	-140.60	10,400.55	4,838.41	4,734.12	104.29	46.392	
20,200.00	7,098.90	3,569.00	3,568.74	60.58	66.87	-20.17	-140.60	10,400.55	4,897.47	4,792.19	105.28	46.520	
20,300.00	7,098.98	3,569.00	3,568.74	60.88	66.87	-20.17	-140.60	10,400.55	4,957.83	4,851.59	106.24	46.667	
20,328.16	7,099.00	3,569.00	3,568.74	60.96	66.87	-20.17	-140.60	10,400.55	4,975.06	4,868.56	106.51	46.711	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

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

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	22.49	-22.49	0.00	0.22	-92.79	-139.61	-2,869.27	2,872.67				
100.00	100.00	77.51	77.51	0.23	0.76	-92.79	-139.61	-2,869.27	2,872.67	2,871.68	0.99	2,901.270	
200.00	200.00	177.51	177.51	0.53	1.75	-92.79	-139.61	-2,869.27	2,872.67	2,870.39	2.28	1,262.678	
300.00	300.00	277.51	277.51	0.83	2.73	-92.79	-139.61	-2,869.27	2,872.67	2,869.11	3.56	806.934	
400.00	400.00	377.52	377.51	1.13	4.18	-92.79	-139.61	-2,869.27	2,872.67	2,867.36	5.31	541.413	
500.00	500.00	477.52	477.51	1.43	6.22	-92.79	-139.61	-2,869.27	2,872.67	2,865.02	7.65	375.526	CC
501.82	501.82	479.35	479.34	1.43	6.26	92.64	-139.61	-2,869.27	2,872.67	2,864.98	7.69	373.439	
600.00	599.98	577.45	577.44	1.73	8.27	92.69	-138.86	-2,869.27	2,872.71	2,862.72	9.99	287.496	
700.00	699.84	676.95	676.93	2.03	10.30	92.79	-139.04	-2,869.27	2,872.97	2,860.65	12.33	233.087	
800.00	799.45	776.26	776.24	2.33	12.33	92.94	-139.49	-2,869.27	2,873.43	2,858.77	14.66	196.065	
900.00	898.70	876.28	876.21	2.63	14.44	93.17	-139.61	-2,869.27	2,874.09	2,857.02	17.06	168.423	
1,000.00	997.47	975.04	974.98	2.93	16.54	93.46	-139.61	-2,869.27	2,875.00	2,855.54	19.46	147.715	
1,100.00	1,095.62	1,073.13	1,073.06	3.23	18.62	93.82	-138.54	-2,869.27	2,876.21	2,854.36	21.85	131.650	
1,157.34	1,151.58	1,128.98	1,128.91	3.40	19.81	94.05	-138.65	-2,869.27	2,877.09	2,853.88	23.21	123.979	
1,200.00	1,193.13	1,170.49	1,170.41	3.53	20.69	94.23	-138.80	-2,869.27	2,877.81	2,853.59	24.22	118.839	
1,300.00	1,290.51	1,267.88	1,267.80	3.83	22.76	94.66	-139.39	-2,869.27	2,879.63	2,853.04	26.59	108.316	
1,400.00	1,387.89	1,365.54	1,365.40	4.13	24.90	95.09	-139.61	-2,869.27	2,881.62	2,852.59	29.02	99.292	
1,500.00	1,485.27	1,462.92	1,462.78	4.43	27.05	95.53	-139.61	-2,869.27	2,883.78	2,852.30	31.48	91.620	
1,600.00	1,582.65	1,560.32	1,560.17	4.73	29.20	95.99	-138.54	-2,869.27	2,886.13	2,852.20	33.93	85.063	
1,700.00	1,680.02	1,657.93	1,657.78	5.03	31.36	96.43	-138.76	-2,869.27	2,888.65	2,852.26	36.39	79.384	
1,800.00	1,777.40	1,828.85	1,754.92	5.33	35.18	96.84	-139.61	-2,869.27	2,891.33	2,850.83	40.50	71.387	ES
1,900.00	1,874.78	1,852.53	1,852.30	5.63	35.72	97.28	-139.61	-2,869.27	2,894.20	2,852.85	41.35	69.996	
2,000.00	1,972.16	1,949.91	1,949.67	5.93	37.96	97.71	-139.61	-2,869.27	2,897.25	2,853.36	43.89	66.010	
2,100.00	2,069.54	2,047.30	2,047.05	6.23	40.21	98.17	-138.23	-2,869.27	2,900.54	2,854.10	46.44	62.464	
2,200.00	2,166.92	2,145.43	2,145.17	6.53	42.47	98.61	-138.44	-2,869.27	2,903.93	2,854.94	49.00	59.269	
2,300.00	2,264.30	2,243.77	2,243.50	6.83	44.73	99.03	-139.07	-2,869.27	2,907.47	2,855.91	51.56	56.389	
2,400.00	2,361.68	2,342.30	2,342.02	7.13	47.01	99.45	-140.12	-2,869.27	2,911.14	2,857.01	54.13	53.779	
2,500.00	2,459.06	2,436.93	2,436.57	7.43	48.94	99.87	-139.61	-2,869.27	2,915.09	2,858.72	56.37	51.713	
2,600.00	2,556.44	2,534.31	2,533.95	7.73	51.02	100.30	-139.61	-2,869.27	2,919.18	2,860.44	58.74	49.694	
2,700.00	2,653.82	2,632.85	2,632.47	8.03	53.11	100.76	-138.47	-2,869.27	2,923.55	2,862.41	61.14	47.817	
2,800.00	2,751.19	2,731.72	2,731.33	8.33	55.22	101.18	-139.08	-2,869.27	2,927.93	2,864.38	63.54	46.077	
2,900.00	2,848.57	2,830.80	2,830.40	8.63	57.33	101.59	-140.14	-2,869.27	2,932.41	2,866.46	65.95	44.463	
3,000.00	2,945.95	2,923.90	2,923.47	8.93	59.43	102.00	-139.61	-2,869.27	2,937.24	2,868.88	68.36	42.970	
3,100.00	3,043.33	3,021.39	3,020.95	9.23	61.59	102.44	-138.88	-2,869.27	2,942.27	2,871.45	70.82	41.547	
3,200.00	3,140.71	3,119.93	3,119.49	9.53	63.78	102.86	-139.05	-2,869.27	2,947.35	2,874.05	73.30	40.208	
3,300.00	3,238.09	3,255.87	3,215.60	9.83	66.84	103.27	-139.61	-2,869.27	2,952.55	2,875.87	76.67	38.509	
3,400.00	3,335.47	3,313.50	3,312.98	10.13	68.28	103.69	-139.61	-2,869.27	2,957.98	2,879.58	78.41	37.726	
3,500.00	3,432.85	3,410.88	3,410.36	10.43	70.70	104.10	-139.61	-2,869.27	2,963.58	2,882.45	81.13	36.528	
3,600.00	3,530.23	3,468.00	3,467.40	10.73	72.13	104.35	-139.61	-2,869.27	2,969.62	2,886.77	82.85	35.844	SF
3,700.00	3,627.61	3,468.00	3,467.40	11.03	72.13	104.35	-139.61	-2,869.27	2,978.46	2,895.38	83.08	35.851	
3,800.00	3,724.99	3,468.00	3,467.40	11.33	72.13	104.35	-139.61	-2,869.27	2,990.62	2,907.38	83.24	35.929	
3,900.00	3,822.36	3,468.00	3,467.40	11.63	72.13	104.35	-139.61	-2,869.27	3,006.05	2,922.73	83.32	36.078	
4,000.00	3,919.74	3,468.00	3,467.40	11.93	72.13	104.35	-139.61	-2,869.27	3,024.72	2,941.38	83.34	36.294	
4,100.00	4,017.12	3,468.00	3,467.40	12.23	72.13	104.35	-139.61	-2,869.27	3,046.55	2,963.26	83.29	36.577	
4,200.00	4,114.50	3,468.00	3,467.40	12.53	72.13	104.35	-139.61	-2,869.27	3,071.49	2,988.31	83.18	36.925	
4,300.00	4,211.88	3,468.00	3,467.40	12.83	72.13	104.35	-139.61	-2,869.27	3,099.46	3,016.44	83.02	37.336	
4,400.00	4,309.26	3,468.00	3,467.40	13.13	72.13	104.35	-139.61	-2,869.27	3,130.37	3,047.57	82.80	37.808	
4,500.00	4,406.64	3,468.00	3,467.40	13.43	72.13	104.35	-139.61	-2,869.27	3,164.14	3,081.61	82.53	38.338	
4,600.00	4,504.02	3,468.00	3,467.40	13.73	72.13	104.35	-139.61	-2,869.27	3,200.68	3,118.45	82.22	38.926	
4,700.00	4,601.40	3,468.00	3,467.40	14.03	72.13	104.35	-139.61	-2,869.27	3,239.89	3,158.01	81.88	39.569	
4,800.00	4,698.78	3,468.00	3,467.40	14.33	72.13	104.35	-139.61	-2,869.27	3,281.69	3,200.19	81.50	40.266	
4,900.00	4,796.16	3,468.00	3,467.40	14.63	72.13	104.35	-139.61	-2,869.27	3,325.97	3,244.87	81.09	41.013	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,000.00	4,893.53	3,468.00	3,467.40	14.93	72.13	104.35	-139.61	-2,869.27	3,372.63	3,291.96	80.67	41.810	
5,100.00	4,990.91	3,468.00	3,467.40	15.23	72.13	104.35	-139.61	-2,869.27	3,421.58	3,341.36	80.22	42.654	
5,200.00	5,088.29	3,468.00	3,467.40	15.53	72.13	104.35	-139.61	-2,869.27	3,472.72	3,392.96	79.75	43.543	
5,300.00	5,185.67	3,468.00	3,467.40	15.83	72.13	104.35	-139.61	-2,869.27	3,525.95	3,446.67	79.28	44.476	
5,400.00	5,283.05	3,468.00	3,467.40	16.13	72.13	104.35	-139.61	-2,869.27	3,581.19	3,502.39	78.80	45.449	
5,500.00	5,380.43	3,468.00	3,467.40	16.43	72.13	104.35	-139.61	-2,869.27	3,638.33	3,560.03	78.31	46.462	
5,600.00	5,477.81	3,468.00	3,467.40	16.73	72.13	104.35	-139.61	-2,869.27	3,697.30	3,619.48	77.82	47.512	
5,700.00	5,575.19	3,468.00	3,467.40	17.03	72.13	104.35	-139.61	-2,869.27	3,758.01	3,680.68	77.33	48.597	
5,800.00	5,672.57	3,468.00	3,467.40	17.33	72.13	104.35	-139.61	-2,869.27	3,820.36	3,743.52	76.84	49.716	
5,900.00	5,769.95	3,468.00	3,467.40	17.63	72.13	104.35	-139.61	-2,869.27	3,884.29	3,807.93	76.36	50.866	
6,000.00	5,867.33	3,468.00	3,467.40	17.93	72.13	104.35	-139.61	-2,869.27	3,949.72	3,873.83	75.89	52.046	
6,100.00	5,964.70	3,468.00	3,467.40	18.23	72.13	104.35	-139.61	-2,869.27	4,016.58	3,941.15	75.42	53.253	
6,200.00	6,062.08	3,468.00	3,467.40	18.53	72.13	104.35	-139.61	-2,869.27	4,084.78	4,009.81	74.97	54.486	
6,300.00	6,159.46	3,468.00	3,467.40	18.83	72.13	104.35	-139.61	-2,869.27	4,154.28	4,079.75	74.52	55.744	
6,400.00	6,256.84	3,468.00	3,467.40	19.13	72.13	104.35	-139.61	-2,869.27	4,225.00	4,150.91	74.09	57.025	
6,500.00	6,354.22	3,468.00	3,467.40	19.43	72.13	104.35	-139.61	-2,869.27	4,296.88	4,223.21	73.67	58.326	
6,600.00	6,451.60	3,468.00	3,467.40	19.73	72.13	104.35	-139.61	-2,869.27	4,369.87	4,296.60	73.26	59.646	
6,694.27	6,543.40	3,468.00	3,467.40	20.02	72.13	104.35	-139.61	-2,869.27	4,439.63	4,366.74	72.89	60.908	
6,700.00	6,548.98	3,468.00	3,467.40	20.03	72.13	106.88	-139.61	-2,869.27	4,443.93	4,371.06	72.87	60.985	
6,750.00	6,597.52	3,468.00	3,467.40	20.18	72.13	127.16	-139.61	-2,869.27	4,483.01	4,410.31	72.70	61.664	
6,800.00	6,645.56	3,468.00	3,467.40	20.33	72.13	142.87	-139.61	-2,869.27	4,524.80	4,452.23	72.57	62.352	
6,850.00	6,692.73	3,468.00	3,467.40	20.48	72.13	154.70	-139.61	-2,869.27	4,568.92	4,496.44	72.48	63.041	
6,900.00	6,738.66	3,468.00	3,467.40	20.63	72.13	164.49	-139.61	-2,869.27	4,614.96	4,542.53	72.42	63.722	
6,950.00	6,783.02	3,468.00	3,467.40	20.78	72.13	174.29	-139.61	-2,869.27	4,662.52	4,590.11	72.41	64.388	
7,000.00	6,825.45	3,468.00	3,467.40	20.94	72.13	-172.75	-139.61	-2,869.27	4,711.20	4,638.76	72.44	65.032	
7,050.00	6,865.65	3,468.00	3,467.40	21.09	72.13	-148.68	-139.61	-2,869.27	4,760.61	4,688.09	72.52	65.647	
7,100.00	6,903.29	3,468.00	3,467.40	21.24	72.13	-101.00	-139.61	-2,869.27	4,810.34	4,737.71	72.63	66.227	
7,150.00	6,938.11	3,468.00	3,467.40	21.39	72.13	-60.90	-139.61	-2,869.27	4,860.03	4,787.24	72.79	66.768	
7,200.00	6,969.82	3,468.00	3,467.40	21.54	72.13	-43.20	-139.61	-2,869.27	4,909.28	4,836.30	72.99	67.264	
7,250.00	6,998.19	3,468.00	3,467.40	21.69	72.13	-34.53	-139.61	-2,869.27	4,957.76	4,884.54	73.22	67.711	
7,300.00	7,023.01	3,468.00	3,467.40	21.84	72.13	-29.50	-139.61	-2,869.27	5,005.11	4,931.62	73.49	68.107	
7,350.00	7,044.08	3,468.00	3,467.40	21.99	72.13	-26.23	-139.61	-2,869.27	5,051.01	4,977.22	73.79	68.449	
7,400.00	7,061.25	3,468.00	3,467.40	22.14	72.13	-23.97	-139.61	-2,869.27	5,095.17	5,021.04	74.13	68.735	
7,450.00	7,074.38	3,468.00	3,467.40	22.29	72.13	-22.35	-139.61	-2,869.27	5,137.29	5,062.79	74.49	68.963	
7,500.00	7,083.37	3,468.00	3,467.40	22.44	72.13	-21.17	-139.61	-2,869.27	5,177.10	5,102.21	74.89	69.133	
7,550.00	7,088.16	3,468.00	3,467.40	22.59	72.13	-20.32	-139.61	-2,869.27	5,214.36	5,139.05	75.30	69.244	
7,581.00	7,089.00	3,468.00	3,467.40	22.68	72.13	-19.93	-139.61	-2,869.27	5,236.07	5,160.50	75.58	69.283	
7,600.00	7,089.02	3,468.00	3,467.40	22.74	72.13	-19.93	-139.61	-2,869.27	5,249.07	5,173.32	75.74	69.300	
7,700.00	7,089.09	3,468.00	3,467.40	23.04	72.13	-19.93	-139.61	-2,869.27	5,318.04	5,241.42	76.62	69.406	
7,800.00	7,089.17	3,468.00	3,467.40	23.34	72.13	-19.93	-139.61	-2,869.27	5,387.99	5,310.51	77.48	69.540	
7,900.00	7,089.25	3,468.00	3,467.40	23.64	72.13	-19.93	-139.61	-2,869.27	5,458.87	5,380.55	78.32	69.701	
8,000.00	7,089.33	3,468.00	3,467.40	23.94	72.13	-19.93	-139.61	-2,869.27	5,530.66	5,451.52	79.14	69.887	
8,100.00	7,089.41	3,468.00	3,467.40	24.24	72.13	-19.93	-139.61	-2,869.27	5,603.30	5,523.37	79.94	70.096	
8,200.00	7,089.49	3,468.00	3,467.40	24.54	72.13	-19.93	-139.61	-2,869.27	5,676.78	5,596.06	80.72	70.326	
8,300.00	7,089.56	3,468.00	3,467.40	24.84	72.13	-19.93	-139.61	-2,869.27	5,751.06	5,669.58	81.49	70.577	
8,400.00	7,089.64	3,468.00	3,467.40	25.14	72.13	-19.93	-139.61	-2,869.27	5,826.11	5,743.88	82.23	70.848	
8,500.00	7,089.72	3,468.00	3,467.40	25.44	72.13	-19.93	-139.61	-2,869.27	5,901.90	5,818.94	82.97	71.136	
8,600.00	7,089.80	3,468.00	3,467.40	25.75	72.13	-19.93	-139.61	-2,869.27	5,978.41	5,894.72	83.68	71.441	
8,700.00	7,089.88	3,468.00	3,467.40	26.05	72.13	-19.93	-139.61	-2,869.27	6,055.59	5,971.21	84.39	71.761	
8,800.00	7,089.96	3,468.00	3,467.40	26.35	72.13	-19.93	-139.61	-2,869.27	6,133.44	6,048.37	85.07	72.097	
8,900.00	7,090.03	3,468.00	3,467.40	26.65	72.13	-19.93	-139.61	-2,869.27	6,211.92	6,126.17	85.75	72.446	
9,000.00	7,090.11	3,468.00	3,467.40	26.95	72.13	-19.93	-139.61	-2,869.27	6,291.01	6,204.60	86.41	72.808	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,100.00	7,090.19	3,468.00	3,467.40	27.25	72.13	-19.93	-139.61	-2,869.27	6,370.69	6,283.63	87.05	73.182	
9,200.00	7,090.27	3,468.00	3,467.40	27.55	72.13	-19.93	-139.61	-2,869.27	6,450.93	6,363.24	87.69	73.567	
9,300.00	7,090.35	3,468.00	3,467.40	27.85	72.13	-19.93	-139.61	-2,869.27	6,531.72	6,443.41	88.31	73.963	
9,400.00	7,090.43	3,468.00	3,467.40	28.15	72.13	-19.93	-139.61	-2,869.27	6,613.04	6,524.11	88.92	74.369	
9,500.00	7,090.51	3,468.00	3,467.40	28.45	72.13	-19.93	-139.61	-2,869.27	6,694.86	6,605.33	89.52	74.784	
9,600.00	7,090.58	3,468.00	3,467.40	28.75	72.13	-19.93	-139.61	-2,869.27	6,777.17	6,687.05	90.11	75.207	
9,700.00	7,090.66	3,468.00	3,467.40	29.05	72.13	-19.93	-139.61	-2,869.27	6,859.94	6,769.25	90.69	75.639	
9,800.00	7,090.74	3,468.00	3,467.40	29.35	72.13	-19.93	-139.61	-2,869.27	6,943.18	6,851.91	91.26	76.079	
9,900.00	7,090.82	3,468.00	3,467.40	29.65	72.13	-19.93	-139.61	-2,869.27	7,026.85	6,935.02	91.82	76.525	
10,000.00	7,090.90	3,468.00	3,467.40	29.95	72.13	-19.93	-139.61	-2,869.27	7,110.94	7,018.56	92.38	76.978	
10,100.00	7,090.98	3,468.00	3,467.40	30.25	72.13	-19.93	-139.61	-2,869.27	7,195.44	7,102.52	92.92	77.437	
10,200.00	7,091.05	3,468.00	3,467.40	30.55	72.13	-19.93	-139.61	-2,869.27	7,280.33	7,186.87	93.45	77.902	
10,300.00	7,091.13	3,468.00	3,467.40	30.85	72.13	-19.93	-139.61	-2,869.27	7,365.60	7,271.62	93.98	78.372	
10,400.00	7,091.21	3,468.00	3,467.40	31.15	72.13	-19.93	-139.61	-2,869.27	7,451.23	7,356.73	94.50	78.847	
10,500.00	7,091.29	3,468.00	3,467.40	31.45	72.13	-19.93	-139.61	-2,869.27	7,537.22	7,442.21	95.01	79.327	
10,600.00	7,091.37	3,468.00	3,467.40	31.76	72.13	-19.93	-139.61	-2,869.27	7,623.56	7,528.04	95.52	79.811	
10,700.00	7,091.45	3,468.00	3,467.40	32.06	72.13	-19.93	-139.61	-2,869.27	7,710.22	7,614.20	96.02	80.299	
10,800.00	7,091.53	3,468.00	3,467.40	32.36	72.13	-19.93	-139.61	-2,869.27	7,797.20	7,700.69	96.51	80.791	
10,900.00	7,091.60	3,468.00	3,467.40	32.66	72.13	-19.93	-139.61	-2,869.27	7,884.49	7,787.50	97.00	81.286	
11,000.00	7,091.68	3,468.00	3,467.40	32.96	72.13	-19.93	-139.61	-2,869.27	7,972.08	7,874.60	97.48	81.785	
11,100.00	7,091.76	3,468.00	3,467.40	33.26	72.13	-19.93	-139.61	-2,869.27	8,059.96	7,962.01	97.95	82.286	
11,200.00	7,091.84	3,468.00	3,467.40	33.56	72.13	-19.93	-139.61	-2,869.27	8,148.12	8,049.70	98.42	82.790	
11,300.00	7,091.92	3,468.00	3,467.40	33.86	72.13	-19.93	-139.61	-2,869.27	8,236.54	8,137.66	98.88	83.296	
11,400.00	7,092.00	3,468.00	3,467.40	34.16	72.13	-19.93	-139.61	-2,869.27	8,325.23	8,225.89	99.34	83.804	
11,500.00	7,092.07	3,468.00	3,467.40	34.46	72.13	-19.93	-139.61	-2,869.27	8,414.18	8,314.38	99.79	84.315	
11,600.00	7,092.15	3,468.00	3,467.40	34.76	72.13	-19.93	-139.61	-2,869.27	8,503.37	8,403.12	100.24	84.827	
11,700.00	7,092.23	3,468.00	3,467.40	35.06	72.13	-19.93	-139.61	-2,869.27	8,592.80	8,492.11	100.69	85.341	
11,800.00	7,092.31	3,468.00	3,467.40	35.36	72.13	-19.93	-139.61	-2,869.27	8,682.45	8,581.33	101.13	85.856	
11,900.00	7,092.39	3,468.00	3,467.40	35.66	72.13	-19.93	-139.61	-2,869.27	8,772.33	8,670.77	101.56	86.373	
12,000.00	7,092.47	3,468.00	3,467.40	35.96	72.13	-19.93	-139.61	-2,869.27	8,862.43	8,760.44	101.99	86.891	
12,100.00	7,092.55	3,468.00	3,467.40	36.26	72.13	-19.93	-139.61	-2,869.27	8,952.74	8,850.32	102.42	87.410	
12,200.00	7,092.62	3,468.00	3,467.40	36.56	72.13	-19.93	-139.61	-2,869.27	9,043.25	8,940.41	102.85	87.930	
12,300.00	7,092.70	3,468.00	3,467.40	36.86	72.13	-19.93	-139.61	-2,869.27	9,133.96	9,030.70	103.27	88.450	
12,400.00	7,092.78	3,468.00	3,467.40	37.16	72.13	-19.93	-139.61	-2,869.27	9,224.87	9,121.18	103.68	88.972	
12,500.00	7,092.86	3,468.00	3,467.40	37.46	72.13	-19.93	-139.61	-2,869.27	9,315.96	9,211.86	104.10	89.493	
12,600.00	7,092.94	3,468.00	3,467.40	37.76	72.13	-19.93	-139.61	-2,869.27	9,407.23	9,302.72	104.51	90.015	
12,700.00	7,093.02	3,468.00	3,467.40	38.06	72.13	-19.93	-139.61	-2,869.27	9,498.67	9,393.76	104.91	90.538	
12,800.00	7,093.09	3,468.00	3,467.40	38.36	72.13	-19.93	-139.61	-2,869.27	9,590.29	9,484.97	105.32	91.060	
12,900.00	7,093.17	3,468.00	3,467.40	38.66	72.13	-19.93	-139.61	-2,869.27	9,682.07	9,576.35	105.72	91.583	
13,000.00	7,093.25	3,468.00	3,467.40	38.96	72.13	-19.93	-139.61	-2,869.27	9,774.01	9,667.90	106.12	92.106	
13,100.00	7,093.33	3,468.00	3,467.40	39.26	72.13	-19.93	-139.61	-2,869.27	9,866.12	9,759.60	106.51	92.628	
13,200.00	7,093.41	3,468.00	3,467.40	39.56	72.13	-19.93	-139.61	-2,869.27	9,958.37	9,851.46	106.91	93.151	
13,300.00	7,093.49	3,468.00	3,467.40	39.86	72.13	-19.93	-139.61	-2,869.27	10,050.77	9,943.47	107.30	93.673	
13,400.00	7,093.57	3,468.00	3,467.40	40.16	72.13	-19.93	-139.61	-2,869.27	10,143.31	10,035.63	107.68	94.195	
13,500.00	7,093.64	3,468.00	3,467.40	40.47	72.13	-19.93	-139.61	-2,869.27	10,236.00	10,127.93	108.07	94.716	
13,600.00	7,093.72	3,468.00	3,467.40	40.77	72.13	-19.93	-139.61	-2,869.27	10,328.82	10,220.37	108.45	95.237	
13,700.00	7,093.80	3,468.00	3,467.40	41.07	72.13	-19.93	-139.61	-2,869.27	10,421.78	10,312.94	108.84	95.757	
13,800.00	7,093.88	3,468.00	3,467.40	41.37	72.13	-19.93	-139.61	-2,869.27	10,514.86	10,405.65	109.21	96.277	
13,900.00	7,093.96	3,468.00	3,467.40	41.67	72.13	-19.93	-139.61	-2,869.27	10,608.07	10,498.48	109.59	96.797	
14,000.00	7,094.04	3,468.00	3,467.40	41.97	72.13	-19.93	-139.61	-2,869.27	10,701.40	10,591.44	109.97	97.315	
14,100.00	7,094.11	3,468.00	3,467.40	42.27	72.13	-19.93	-139.61	-2,869.27	10,794.85	10,684.51	110.34	97.833	
14,200.00	7,094.19	3,468.00	3,467.40	42.57	72.13	-19.93	-139.61	-2,869.27	10,888.42	10,777.71	110.71	98.350	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 334-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,300.00	7,094.27	3,468.00	3,467.40	42.87	72.13	-19.93	-139.61	-2,869.27	10,982.10	10,871.02	111.08	98.866	
14,400.00	7,094.35	3,468.00	3,467.40	43.17	72.13	-19.93	-139.61	-2,869.27	11,075.90	10,964.45	111.45	99.382	
14,500.00	7,094.43	3,468.00	3,467.40	43.47	72.13	-19.93	-139.61	-2,869.27	11,169.80	11,057.98	111.81	99.896	
14,600.00	7,094.51	3,468.00	3,467.40	43.77	72.13	-19.93	-139.61	-2,869.27	11,263.80	11,151.62	112.18	100.410	
14,700.00	7,094.58	3,468.00	3,467.40	44.07	72.13	-19.93	-139.61	-2,869.27	11,357.91	11,245.37	112.54	100.922	
14,800.00	7,094.66	3,468.00	3,467.40	44.37	72.13	-19.93	-139.61	-2,869.27	11,452.11	11,339.21	112.90	101.433	
14,900.00	7,094.74	3,468.00	3,467.40	44.67	72.13	-19.93	-139.61	-2,869.27	11,546.42	11,433.16	113.26	101.944	
15,000.00	7,094.82	3,468.00	3,467.40	44.97	72.13	-19.93	-139.61	-2,869.27	11,640.82	11,527.20	113.62	102.453	
15,100.00	7,094.90	3,468.00	3,467.40	45.27	72.13	-19.93	-139.61	-2,869.27	11,735.31	11,621.33	113.98	102.961	
15,200.00	7,094.98	3,468.00	3,467.40	45.57	72.13	-19.93	-139.61	-2,869.27	11,829.89	11,715.56	114.33	103.468	
15,300.00	7,095.06	3,468.00	3,467.40	45.87	72.13	-19.93	-139.61	-2,869.27	11,924.56	11,809.88	114.69	103.974	
15,400.00	7,095.13	3,468.00	3,467.40	46.17	72.13	-19.93	-139.61	-2,869.27	12,019.32	11,904.28	115.04	104.478	
15,500.00	7,095.21	3,468.00	3,467.40	46.47	72.13	-19.93	-139.61	-2,869.27	12,114.16	11,998.77	115.39	104.982	
15,600.00	7,095.29	3,468.00	3,467.40	46.77	72.13	-19.93	-139.61	-2,869.27	12,209.09	12,093.34	115.74	105.484	
15,700.00	7,095.37	3,468.00	3,467.40	47.07	72.13	-19.93	-139.61	-2,869.27	12,304.09	12,188.00	116.09	105.985	
15,800.00	7,095.45	3,468.00	3,467.40	47.37	72.13	-19.93	-139.61	-2,869.27	12,399.18	12,282.73	116.44	106.484	
15,900.00	7,095.53	3,468.00	3,467.40	47.67	72.13	-19.93	-139.61	-2,869.27	12,494.34	12,377.55	116.79	106.982	
16,000.00	7,095.60	3,468.00	3,467.40	47.97	72.13	-19.93	-139.61	-2,869.27	12,589.57	12,472.44	117.14	107.479	
16,100.00	7,095.68	3,468.00	3,467.40	48.27	72.13	-19.93	-139.61	-2,869.27	12,684.88	12,567.40	117.48	107.974	
16,200.00	7,095.76	3,468.00	3,467.40	48.57	72.13	-19.93	-139.61	-2,869.27	12,780.26	12,662.43	117.82	108.469	
16,300.00	7,095.84	3,468.00	3,467.40	48.87	72.13	-19.93	-139.61	-2,869.27	12,875.71	12,757.54	118.17	108.961	
16,400.00	7,095.92	3,468.00	3,467.40	49.17	72.13	-19.93	-139.61	-2,869.27	12,971.23	12,852.72	118.51	109.453	
16,500.00	7,096.00	3,468.00	3,467.40	49.47	72.13	-19.93	-139.61	-2,869.27	13,066.81	12,947.96	118.85	109.942	
16,600.00	7,096.08	3,468.00	3,467.40	49.77	72.13	-19.93	-139.61	-2,869.27	13,162.46	13,043.27	119.19	110.431	
16,700.00	7,096.15	3,468.00	3,467.40	50.07	72.13	-19.93	-139.61	-2,869.27	13,258.18	13,138.65	119.53	110.918	
16,800.00	7,096.23	3,468.00	3,467.40	50.37	72.13	-19.93	-139.61	-2,869.27	13,353.96	13,234.09	119.87	111.403	
16,900.00	7,096.31	3,468.00	3,467.40	50.67	72.13	-19.93	-139.61	-2,869.27	13,449.80	13,329.59	120.21	111.887	
17,000.00	7,096.39	3,468.00	3,467.40	50.97	72.13	-19.93	-139.61	-2,869.27	13,545.70	13,425.15	120.55	112.370	
17,100.00	7,096.47	3,468.00	3,467.40	51.27	72.13	-19.93	-139.61	-2,869.27	13,641.66	13,520.77	120.88	112.851	
17,200.00	7,096.55	3,468.00	3,467.40	51.57	72.13	-19.93	-139.61	-2,869.27	13,737.67	13,616.46	121.22	113.331	
17,300.00	7,096.62	3,468.00	3,467.40	51.87	72.13	-19.93	-139.61	-2,869.27	13,833.75	13,712.19	121.55	113.809	
17,400.00	7,096.70	3,468.00	3,467.40	52.17	72.13	-19.93	-139.61	-2,869.27	13,929.87	13,807.99	121.89	114.286	
17,500.00	7,096.78	3,468.00	3,467.40	52.47	72.13	-19.93	-139.61	-2,869.27	14,026.06	13,903.84	122.22	114.761	
17,600.00	7,096.86	3,468.00	3,467.40	52.77	72.13	-19.93	-139.61	-2,869.27	14,122.29	13,999.74	122.55	115.234	
17,700.00	7,096.94	3,468.00	3,467.40	53.07	72.13	-19.93	-139.61	-2,869.27	14,218.58	14,095.69	122.88	115.706	
17,800.00	7,097.02	3,468.00	3,467.40	53.37	72.13	-19.93	-139.61	-2,869.27	14,314.92	14,191.70	123.22	116.177	
17,900.00	7,097.10	3,468.00	3,467.40	53.67	72.13	-19.93	-139.61	-2,869.27	14,411.30	14,287.76	123.55	116.646	
18,000.00	7,097.17	3,468.00	3,467.40	53.97	72.13	-19.93	-139.61	-2,869.27	14,507.74	14,383.86	123.88	117.113	
18,100.00	7,097.25	3,468.00	3,467.40	54.27	72.13	-19.93	-139.61	-2,869.27	14,604.23	14,480.02	124.21	117.579	
18,200.00	7,097.33	3,468.00	3,467.40	54.57	72.13	-19.93	-139.61	-2,869.27	14,700.76	14,576.22	124.54	118.044	
18,300.00	7,097.41	3,468.00	3,467.40	54.87	72.13	-19.93	-139.61	-2,869.27	14,797.34	14,672.47	124.86	118.507	
18,400.00	7,097.49	3,468.00	3,467.40	55.17	72.13	-19.93	-139.61	-2,869.27	14,893.96	14,768.77	125.19	118.968	
18,500.00	7,097.57	3,468.00	3,467.40	55.47	72.13	-19.93	-139.61	-2,869.27	14,990.63	14,865.11	125.52	119.428	
18,600.00	7,097.64	3,468.00	3,467.40	55.78	72.13	-19.93	-139.61	-2,869.27	15,087.34	14,961.49	125.85	119.886	
18,700.00	7,097.72	3,468.00	3,467.40	56.08	72.13	-19.93	-139.61	-2,869.27	15,184.09	15,057.92	126.17	120.343	
18,800.00	7,097.80	3,468.00	3,467.40	56.38	72.13	-19.93	-139.61	-2,869.27	15,280.89	15,154.39	126.50	120.798	
18,900.00	7,097.88	3,468.00	3,467.40	56.68	72.13	-19.93	-139.61	-2,869.27	15,377.72	15,250.90	126.83	121.251	
19,000.00	7,097.96	3,468.00	3,467.40	56.98	72.13	-19.93	-139.61	-2,869.27	15,474.60	15,347.45	127.15	121.703	
19,100.00	7,098.04	3,468.00	3,467.40	57.28	72.13	-19.93	-139.61	-2,869.27	15,571.51	15,444.04	127.47	122.154	
19,200.00	7,098.12	3,468.00	3,467.40	57.58	72.13	-19.93	-139.61	-2,869.27	15,668.47	15,540.67	127.80	122.603	
19,300.00	7,098.19	3,468.00	3,467.40	57.88	72.13	-19.93	-139.61	-2,869.27	15,765.46	15,637.34	128.12	123.050	
19,400.00	7,098.27	3,468.00	3,467.40	58.18	72.13	-19.93	-139.61	-2,869.27	15,862.49	15,734.05	128.45	123.496	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Survey Program: 334-A027Ua_INC-ONLY

Offset Site Error: 0.00 usft

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,500.00	7,098.35	3,468.00	3,467.40	58.48	72.13	-19.93	-139.61	-2,869.27	15,959.56	15,830.79	128.77	123.940	
19,600.00	7,098.43	3,468.00	3,467.40	58.78	72.13	-19.93	-139.61	-2,869.27	16,056.66	15,927.57	129.09	124.383	
19,700.00	7,098.51	3,468.00	3,467.40	59.08	72.13	-19.93	-139.61	-2,869.27	16,153.80	16,024.39	129.41	124.824	
19,800.00	7,098.59	3,468.00	3,467.40	59.38	72.13	-19.93	-139.61	-2,869.27	16,250.97	16,121.24	129.73	125.264	
19,900.00	7,098.66	3,468.00	3,467.40	59.68	72.13	-19.93	-139.61	-2,869.27	16,348.18	16,218.12	130.06	125.702	
20,000.00	7,098.74	3,468.00	3,467.40	59.98	72.13	-19.93	-139.61	-2,869.27	16,445.42	16,315.04	130.38	126.138	
20,100.00	7,098.82	3,468.00	3,467.40	60.28	72.13	-19.93	-139.61	-2,869.27	16,542.69	16,412.00	130.70	126.573	
20,200.00	7,098.90	3,468.00	3,467.40	60.58	72.13	-19.93	-139.61	-2,869.27	16,640.00	16,508.98	131.02	127.007	
20,300.00	7,098.98	3,468.00	3,467.40	60.88	72.13	-19.93	-139.61	-2,869.27	16,737.34	16,606.00	131.34	127.439	
20,328.16	7,099.00	3,468.00	3,467.40	60.96	72.13	-19.93	-139.61	-2,869.27	16,764.75	16,633.33	131.43	127.560	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #337 (Offset) - 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
0.00	0.00	0.00	0.00	0.00	0.00	-97.22	-604.59	-4,773.31	4,811.56				
100.00	100.00	66.51	66.51	0.23	0.66	-97.22	-604.59	-4,773.31	4,811.44	4,810.56	0.88	5,456.655	
200.00	200.00	166.52	166.51	0.53	1.73	-97.22	-604.59	-4,773.31	4,811.44	4,809.19	2.26	2,131.905	
300.00	300.00	266.52	266.51	0.83	3.77	-97.22	-604.59	-4,773.31	4,811.44	4,806.84	4.60	1,045.750	
335.47	335.47	301.98	301.98	0.93	4.50	-97.21	-604.12	-4,773.31	4,811.38	4,805.95	5.43	885.701	
400.00	400.00	364.80	364.79	1.13	5.78	-97.21	-604.21	-4,773.31	4,811.39	4,804.48	6.91	696.310	
500.00	500.00	466.55	466.51	1.43	7.86	-97.22	-604.59	-4,773.31	4,811.44	4,802.15	9.29	517.918	
600.00	599.98	566.53	566.49	1.73	9.91	88.23	-604.59	-4,773.31	4,811.39	4,799.75	11.63	413.544	
700.00	699.84	666.39	666.35	2.03	11.95	88.30	-604.59	-4,773.31	4,811.23	4,797.25	13.98	344.236	
800.00	799.45	766.00	765.97	2.33	13.99	88.41	-604.59	-4,773.31	4,810.98	4,794.66	16.31	294.905	
900.00	898.70	865.25	865.21	2.63	16.02	88.56	-604.59	-4,773.31	4,810.65	4,792.01	18.64	258.037	
1,000.00	997.47	963.51	963.45	2.93	18.03	88.77	-602.57	-4,773.30	4,810.04	4,789.09	20.95	229.568	
1,100.00	1,095.62	1,060.72	1,060.66	3.23	20.01	89.00	-602.75	-4,773.30	4,809.69	4,786.45	23.24	206.953	
1,157.34	1,151.58	1,116.18	1,116.12	3.40	21.15	89.14	-602.93	-4,773.30	4,809.50	4,784.95	24.55	195.934	
1,200.00	1,193.13	1,157.37	1,157.31	3.53	21.99	89.25	-603.10	-4,773.30	4,809.38	4,783.86	25.52	188.478	
1,300.00	1,290.51	1,253.99	1,253.91	3.83	23.97	89.51	-603.62	-4,773.31	4,809.18	4,781.39	27.79	173.038	
1,400.00	1,387.89	1,350.68	1,350.60	4.13	25.94	89.76	-604.32	-4,773.31	4,809.11	4,779.04	30.07	159.930	
1,488.13	1,473.71	1,440.37	1,440.22	4.39	27.78	90.00	-604.59	-4,773.31	4,809.09	4,776.93	32.17	149.497 CC	
1,500.00	1,485.27	1,451.93	1,451.78	4.43	28.01	90.03	-604.59	-4,773.31	4,809.09	4,776.65	32.44	148.244	
1,600.00	1,582.65	1,549.31	1,549.16	4.73	30.01	90.30	-604.59	-4,773.31	4,809.16	4,774.43	34.73	138.465	
1,700.00	1,680.02	1,646.32	1,646.16	5.03	31.99	90.57	-603.85	-4,773.31	4,809.27	4,772.26	37.02	129.925	
1,800.00	1,777.40	1,742.68	1,742.52	5.33	33.96	90.83	-604.07	-4,773.31	4,809.58	4,770.29	39.29	122.424	
1,900.00	1,874.78	1,839.16	1,839.00	5.63	35.93	91.08	-604.56	-4,773.31	4,810.00	4,768.44	41.56	115.738	
2,000.00	1,972.16	1,938.88	1,938.67	5.93	37.97	91.35	-604.59	-4,773.31	4,810.50	4,766.60	43.90	109.582	
2,100.00	2,069.54	2,036.26	2,036.05	6.23	39.96	91.61	-604.59	-4,773.31	4,811.11	4,764.92	46.19	104.159	
2,200.00	2,166.92	2,133.24	2,133.02	6.53	41.95	91.89	-603.54	-4,773.31	4,811.75	4,763.28	48.47	99.266	
2,300.00	2,264.30	2,229.75	2,229.53	6.83	43.92	92.15	-603.83	-4,773.31	4,812.59	4,761.85	50.75	94.835	
2,400.00	2,361.68	2,326.42	2,326.19	7.13	45.90	92.40	-604.45	-4,773.31	4,813.56	4,760.53	53.02	90.781	
2,500.00	2,459.06	2,425.83	2,425.57	7.43	47.93	92.67	-604.59	-4,773.31	4,814.60	4,759.24	55.36	86.974	
2,600.00	2,556.44	2,523.21	2,522.95	7.73	49.92	92.93	-604.59	-4,773.31	4,815.74	4,758.09	57.65	83.537	
2,700.00	2,653.82	2,620.54	2,620.27	8.03	51.91	93.20	-603.73	-4,773.31	4,816.95	4,757.01	59.94	80.365	
2,800.00	2,751.19	2,717.56	2,717.29	8.33	53.90	93.46	-603.87	-4,773.31	4,818.32	4,756.09	62.22	77.437	
2,900.00	2,848.57	2,814.69	2,814.41	8.63	55.88	93.72	-604.24	-4,773.31	4,819.79	4,755.28	64.51	74.715	
3,000.00	2,945.95	2,912.79	2,912.47	8.93	57.92	93.98	-604.59	-4,773.31	4,821.37	4,754.53	66.85	72.127	
3,100.00	3,043.33	3,010.17	3,009.84	9.23	59.99	94.25	-604.59	-4,773.31	4,823.05	4,753.83	69.21	69.683	
3,200.00	3,140.71	3,107.35	3,107.02	9.53	62.05	94.51	-603.94	-4,773.31	4,824.82	4,753.24	71.58	67.406	
3,300.00	3,238.09	3,204.60	3,204.26	9.83	64.12	94.77	-604.47	-4,773.31	4,826.72	4,752.77	73.95	65.274	
3,400.00	3,335.47	3,302.36	3,301.98	10.13	66.20	95.03	-604.59	-4,773.31	4,828.71	4,752.39	76.32	63.267 ES	
3,500.00	3,432.85	3,351.00	3,350.60	10.43	67.23	95.16	-604.59	-4,773.31	4,831.06	4,753.41	77.65	62.214	
3,600.00	3,530.23	3,351.00	3,350.60	10.73	67.23	95.16	-604.59	-4,773.31	4,835.23	4,757.30	77.93	62.049	
3,700.00	3,627.61	3,351.00	3,350.60	11.03	67.23	95.16	-604.59	-4,773.31	4,841.46	4,763.29	78.17	61.932	
3,800.00	3,724.99	3,351.00	3,350.60	11.33	67.23	95.16	-604.59	-4,773.31	4,849.75	4,771.36	78.39	61.864	
3,900.00	3,822.36	3,351.00	3,350.60	11.63	67.23	95.16	-604.59	-4,773.31	4,860.08	4,781.49	78.59	61.842 SF	
4,000.00	3,919.74	3,351.00	3,350.60	11.93	67.23	95.16	-604.59	-4,773.31	4,872.44	4,793.68	78.76	61.865	
4,100.00	4,017.12	3,351.00	3,350.60	12.23	67.23	95.16	-604.59	-4,773.31	4,886.82	4,807.92	78.90	61.934	
4,200.00	4,114.50	3,351.00	3,350.60	12.53	67.23	95.16	-604.59	-4,773.31	4,903.20	4,824.17	79.02	62.046	
4,300.00	4,211.88	3,351.00	3,350.60	12.83	67.23	95.16	-604.59	-4,773.31	4,921.55	4,842.43	79.12	62.202	
4,400.00	4,309.26	3,351.00	3,350.60	13.13	67.23	95.16	-604.59	-4,773.31	4,941.86	4,862.66	79.20	62.400	
4,500.00	4,406.64	3,351.00	3,350.60	13.43	67.23	95.16	-604.59	-4,773.31	4,964.10	4,884.85	79.25	62.638	
4,600.00	4,504.02	3,351.00	3,350.60	13.73	67.23	95.16	-604.59	-4,773.31	4,988.24	4,908.96	79.28	62.917	
4,700.00	4,601.40	3,351.00	3,350.60	14.03	67.23	95.16	-604.59	-4,773.31	5,014.27	4,934.97	79.29	63.236	
4,800.00	4,698.78	3,351.00	3,350.60	14.33	67.23	95.16	-604.59	-4,773.31	5,042.14	4,962.85	79.29	63.592	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #337 (Offset) - 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
4,900.00	4,796.16	3,351.00	3,350.60	14.63	67.23	95.16	-604.59	-4,773.31	5,071.83	4,992.57	79.26	63.986	
5,000.00	4,893.53	3,351.00	3,350.60	14.93	67.23	95.16	-604.59	-4,773.31	5,103.31	5,024.09	79.22	64.417	
5,100.00	4,990.91	3,351.00	3,350.60	15.23	67.23	95.16	-604.59	-4,773.31	5,136.55	5,057.38	79.17	64.883	
5,200.00	5,088.29	3,351.00	3,350.60	15.53	67.23	95.16	-604.59	-4,773.31	5,171.50	5,092.41	79.10	65.383	
5,300.00	5,185.67	3,351.00	3,350.60	15.83	67.23	95.16	-604.59	-4,773.31	5,208.14	5,129.13	79.01	65.917	
5,400.00	5,283.05	3,351.00	3,350.60	16.13	67.23	95.16	-604.59	-4,773.31	5,246.43	5,167.52	78.91	66.484	
5,500.00	5,380.43	3,351.00	3,350.60	16.43	67.23	95.16	-604.59	-4,773.31	5,286.34	5,207.53	78.80	67.082	
5,600.00	5,477.81	3,351.00	3,350.60	16.73	67.23	95.16	-604.59	-4,773.31	5,327.82	5,249.14	78.68	67.711	
5,700.00	5,575.19	3,351.00	3,350.60	17.03	67.23	95.16	-604.59	-4,773.31	5,370.85	5,292.29	78.56	68.370	
5,800.00	5,672.57	3,351.00	3,350.60	17.33	67.23	95.16	-604.59	-4,773.31	5,415.38	5,336.96	78.42	69.057	
5,900.00	5,769.95	3,351.00	3,350.60	17.63	67.23	95.16	-604.59	-4,773.31	5,461.37	5,383.10	78.27	69.772	
6,000.00	5,867.33	3,351.00	3,350.60	17.93	67.23	95.16	-604.59	-4,773.31	5,508.80	5,430.68	78.12	70.514	
6,100.00	5,964.70	3,351.00	3,350.60	18.23	67.23	95.16	-604.59	-4,773.31	5,557.63	5,479.66	77.97	71.282	
6,200.00	6,062.08	3,351.00	3,350.60	18.53	67.23	95.16	-604.59	-4,773.31	5,607.81	5,530.01	77.81	72.074	
6,300.00	6,159.46	3,351.00	3,350.60	18.83	67.23	95.16	-604.59	-4,773.31	5,659.32	5,581.68	77.64	72.891	
6,400.00	6,256.84	3,351.00	3,350.60	19.13	67.23	95.16	-604.59	-4,773.31	5,712.11	5,634.63	77.47	73.730	
6,500.00	6,354.22	3,351.00	3,350.60	19.43	67.23	95.16	-604.59	-4,773.31	5,766.15	5,688.85	77.30	74.592	
6,600.00	6,451.60	3,351.00	3,350.60	19.73	67.23	95.16	-604.59	-4,773.31	5,821.41	5,744.28	77.13	75.475	
6,694.27	6,543.40	3,351.00	3,350.60	20.02	67.23	95.16	-604.59	-4,773.31	5,874.58	5,797.61	76.97	76.325	
6,700.00	6,548.98	3,351.00	3,350.60	20.03	67.23	97.59	-604.59	-4,773.31	5,877.87	5,800.91	76.96	76.378	
6,750.00	6,597.52	3,351.00	3,350.60	20.18	67.23	116.82	-604.59	-4,773.31	5,908.67	5,831.78	76.88	76.852	
6,800.00	6,645.56	3,351.00	3,350.60	20.33	67.23	131.08	-604.59	-4,773.31	5,943.01	5,866.18	76.83	77.357	
6,850.00	6,692.73	3,351.00	3,350.60	20.48	67.23	140.85	-604.59	-4,773.31	5,980.57	5,903.79	76.79	77.885	
6,900.00	6,738.66	3,351.00	3,350.60	20.63	67.23	147.54	-604.59	-4,773.31	6,021.03	5,944.26	76.77	78.430	
6,950.00	6,783.02	3,351.00	3,350.60	20.78	67.23	152.21	-604.59	-4,773.31	6,064.00	5,987.23	76.77	78.986	
7,000.00	6,825.45	3,351.00	3,350.60	20.94	67.23	155.56	-604.59	-4,773.31	6,109.12	6,032.32	76.80	79.546	
7,050.00	6,865.65	3,351.00	3,350.60	21.09	67.23	157.96	-604.59	-4,773.31	6,156.00	6,079.15	76.85	80.102	
7,100.00	6,903.29	3,351.00	3,350.60	21.24	67.23	159.61	-604.59	-4,773.31	6,204.24	6,127.31	76.93	80.650	
7,150.00	6,938.11	3,351.00	3,350.60	21.39	67.23	160.38	-604.59	-4,773.31	6,253.46	6,176.43	77.03	81.183	
7,200.00	6,969.82	3,351.00	3,350.60	21.54	67.23	157.70	-604.59	-4,773.31	6,303.25	6,226.09	77.15	81.696	
7,250.00	6,998.19	3,351.00	3,350.60	21.69	67.23	-9.80	-604.59	-4,773.31	6,353.23	6,275.93	77.31	82.184	
7,300.00	7,023.01	3,351.00	3,350.60	21.84	67.23	-12.85	-604.59	-4,773.31	6,403.03	6,325.55	77.48	82.641	
7,350.00	7,044.08	3,351.00	3,350.60	21.99	67.23	-13.03	-604.59	-4,773.31	6,452.26	6,374.58	77.68	83.065	
7,400.00	7,061.25	3,351.00	3,350.60	22.14	67.23	-12.92	-604.59	-4,773.31	6,500.58	6,422.68	77.90	83.451	
7,450.00	7,074.38	3,351.00	3,350.60	22.29	67.23	-12.78	-604.59	-4,773.31	6,547.63	6,469.49	78.14	83.796	
7,500.00	7,083.37	3,351.00	3,350.60	22.44	67.23	-12.68	-604.59	-4,773.31	6,593.10	6,514.70	78.40	84.098	
7,550.00	7,088.16	3,351.00	3,350.60	22.59	67.23	-12.65	-604.59	-4,773.31	6,636.66	6,557.99	78.68	84.354	
7,581.00	7,089.00	3,351.00	3,350.60	22.68	67.23	-12.66	-604.59	-4,773.31	6,662.59	6,583.73	78.86	84.488	
7,600.00	7,089.02	3,351.00	3,350.60	22.74	67.23	-12.66	-604.59	-4,773.31	6,678.22	6,599.25	78.97	84.564	
7,700.00	7,089.09	3,351.00	3,350.60	23.04	67.23	-12.66	-604.59	-4,773.31	6,760.77	6,681.20	79.56	84.972	
7,800.00	7,089.17	3,351.00	3,350.60	23.34	67.23	-12.66	-604.59	-4,773.31	6,843.78	6,763.63	80.15	85.391	
7,900.00	7,089.25	3,351.00	3,350.60	23.64	67.23	-12.66	-604.59	-4,773.31	6,927.24	6,846.52	80.72	85.820	
8,000.00	7,089.33	3,351.00	3,350.60	23.94	67.23	-12.66	-604.59	-4,773.31	7,011.13	6,929.85	81.28	86.258	
8,100.00	7,089.41	3,351.00	3,350.60	24.24	67.23	-12.66	-604.59	-4,773.31	7,095.44	7,013.61	81.83	86.706	
8,200.00	7,089.49	3,351.00	3,350.60	24.54	67.23	-12.66	-604.59	-4,773.31	7,180.15	7,097.77	82.38	87.161	
8,300.00	7,089.56	3,351.00	3,350.60	24.84	67.23	-12.66	-604.59	-4,773.31	7,265.25	7,182.34	82.91	87.624	
8,400.00	7,089.64	3,351.00	3,350.60	25.14	67.23	-12.66	-604.59	-4,773.31	7,350.73	7,267.29	83.44	88.094	
8,500.00	7,089.72	3,351.00	3,350.60	25.44	67.23	-12.66	-604.59	-4,773.31	7,436.57	7,352.61	83.96	88.570	
8,600.00	7,089.80	3,351.00	3,350.60	25.75	67.23	-12.66	-604.59	-4,773.31	7,522.76	7,438.28	84.48	89.053	
8,700.00	7,089.88	3,351.00	3,350.60	26.05	67.23	-12.66	-604.59	-4,773.31	7,609.28	7,524.30	84.98	89.541	
8,800.00	7,089.96	3,351.00	3,350.60	26.35	67.23	-12.66	-604.59	-4,773.31	7,696.14	7,610.66	85.48	90.035	
8,900.00	7,090.03	3,351.00	3,350.60	26.65	67.23	-12.66	-604.59	-4,773.31	7,783.30	7,697.33	85.97	90.533	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 158-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	7,090.11	3,351.00	3,350.60	26.95	67.23	-12.66	-604.59	-4,773.31	7,870.78	7,784.32	86.46	91.036	
9,100.00	7,090.19	3,351.00	3,350.60	27.25	67.23	-12.66	-604.59	-4,773.31	7,958.55	7,871.61	86.94	91.543	
9,200.00	7,090.27	3,351.00	3,350.60	27.55	67.23	-12.66	-604.59	-4,773.31	8,046.60	7,959.19	87.41	92.054	
9,300.00	7,090.35	3,351.00	3,350.60	27.85	67.23	-12.66	-604.59	-4,773.31	8,134.93	8,047.05	87.88	92.568	
9,400.00	7,090.43	3,351.00	3,350.60	28.15	67.23	-12.66	-604.59	-4,773.31	8,223.53	8,135.19	88.34	93.085	
9,500.00	7,090.51	3,351.00	3,350.60	28.45	67.23	-12.66	-604.59	-4,773.31	8,312.39	8,223.58	88.80	93.606	
9,600.00	7,090.58	3,351.00	3,350.60	28.75	67.23	-12.66	-604.59	-4,773.31	8,401.49	8,312.24	89.26	94.129	
9,700.00	7,090.66	3,351.00	3,350.60	29.05	67.23	-12.66	-604.59	-4,773.31	8,490.84	8,401.14	89.70	94.654	
9,800.00	7,090.74	3,351.00	3,350.60	29.35	67.23	-12.66	-604.59	-4,773.31	8,580.43	8,490.28	90.15	95.182	
9,900.00	7,090.82	3,351.00	3,350.60	29.65	67.23	-12.66	-604.59	-4,773.31	8,670.24	8,579.65	90.59	95.712	
10,000.00	7,090.90	3,351.00	3,350.60	29.95	67.23	-12.66	-604.59	-4,773.31	8,760.27	8,669.25	91.02	96.244	
10,100.00	7,090.98	3,351.00	3,350.60	30.25	67.23	-12.66	-604.59	-4,773.31	8,850.52	8,759.07	91.45	96.777	
10,200.00	7,091.05	3,351.00	3,350.60	30.55	67.23	-12.66	-604.59	-4,773.31	8,940.97	8,849.09	91.88	97.311	
10,300.00	7,091.13	3,351.00	3,350.60	30.85	67.23	-12.66	-604.59	-4,773.31	9,031.63	8,939.33	92.30	97.847	
10,400.00	7,091.21	3,351.00	3,350.60	31.15	67.23	-12.66	-604.59	-4,773.31	9,122.48	9,029.76	92.72	98.384	
10,500.00	7,091.29	3,351.00	3,350.60	31.45	67.23	-12.66	-604.59	-4,773.31	9,213.52	9,120.38	93.14	98.922	
10,600.00	7,091.37	3,351.00	3,350.60	31.76	67.23	-12.66	-604.59	-4,773.31	9,304.75	9,211.19	93.55	99.460	
10,700.00	7,091.45	3,351.00	3,350.60	32.06	67.23	-12.66	-604.59	-4,773.31	9,396.15	9,302.19	93.96	99.999	
10,800.00	7,091.53	3,351.00	3,350.60	32.36	67.23	-12.66	-604.59	-4,773.31	9,487.73	9,393.36	94.37	100.539	
10,900.00	7,091.60	3,351.00	3,350.60	32.66	67.23	-12.66	-604.59	-4,773.31	9,579.47	9,484.70	94.77	101.079	
11,000.00	7,091.68	3,351.00	3,350.60	32.96	67.23	-12.66	-604.59	-4,773.31	9,671.38	9,576.21	95.17	101.619	
11,100.00	7,091.76	3,351.00	3,350.60	33.26	67.23	-12.66	-604.59	-4,773.31	9,763.45	9,667.88	95.57	102.160	
11,200.00	7,091.84	3,351.00	3,350.60	33.56	67.23	-12.66	-604.59	-4,773.31	9,855.67	9,759.70	95.97	102.700	
11,300.00	7,091.92	3,351.00	3,350.60	33.86	67.23	-12.66	-604.59	-4,773.31	9,948.04	9,851.69	96.36	103.240	
11,400.00	7,092.00	3,351.00	3,350.60	34.16	67.23	-12.66	-604.59	-4,773.31	10,040.56	9,943.81	96.75	103.781	
11,500.00	7,092.07	3,351.00	3,350.60	34.46	67.23	-12.66	-604.59	-4,773.31	10,133.22	10,036.09	97.14	104.321	
11,600.00	7,092.15	3,351.00	3,350.60	34.76	67.23	-12.66	-604.59	-4,773.31	10,226.02	10,128.50	97.52	104.860	
11,700.00	7,092.23	3,351.00	3,350.60	35.06	67.23	-12.66	-604.59	-4,773.31	10,318.96	10,221.05	97.90	105.399	
11,800.00	7,092.31	3,351.00	3,350.60	35.36	67.23	-12.66	-604.59	-4,773.31	10,412.02	10,313.74	98.28	105.938	
11,900.00	7,092.39	3,351.00	3,350.60	35.66	67.23	-12.66	-604.59	-4,773.31	10,505.21	10,406.55	98.66	106.476	
12,000.00	7,092.47	3,351.00	3,350.60	35.96	67.23	-12.66	-604.59	-4,773.31	10,598.53	10,499.49	99.04	107.014	
12,100.00	7,092.55	3,351.00	3,350.60	36.26	67.23	-12.66	-604.59	-4,773.31	10,691.97	10,592.55	99.41	107.550	
12,200.00	7,092.62	3,351.00	3,350.60	36.56	67.23	-12.66	-604.59	-4,773.31	10,785.52	10,685.73	99.79	108.086	
12,300.00	7,092.70	3,351.00	3,350.60	36.86	67.23	-12.66	-604.59	-4,773.31	10,879.19	10,779.03	100.16	108.621	
12,400.00	7,092.78	3,351.00	3,350.60	37.16	67.23	-12.66	-604.59	-4,773.31	10,972.97	10,872.45	100.53	109.156	
12,500.00	7,092.86	3,351.00	3,350.60	37.46	67.23	-12.66	-604.59	-4,773.31	11,066.86	10,965.97	100.89	109.689	
12,600.00	7,092.94	3,351.00	3,350.60	37.76	67.23	-12.66	-604.59	-4,773.31	11,160.86	11,059.60	101.26	110.221	
12,700.00	7,093.02	3,351.00	3,350.60	38.06	67.23	-12.66	-604.59	-4,773.31	11,254.96	11,153.33	101.62	110.753	
12,800.00	7,093.09	3,351.00	3,350.60	38.36	67.23	-12.66	-604.59	-4,773.31	11,349.16	11,247.17	101.98	111.283	
12,900.00	7,093.17	3,351.00	3,350.60	38.66	67.23	-12.66	-604.59	-4,773.31	11,443.46	11,341.11	102.35	111.812	
13,000.00	7,093.25	3,351.00	3,350.60	38.96	67.23	-12.66	-604.59	-4,773.31	11,537.85	11,435.15	102.71	112.340	
13,100.00	7,093.33	3,351.00	3,350.60	39.26	67.23	-12.66	-604.59	-4,773.31	11,632.34	11,529.28	103.06	112.866	
13,200.00	7,093.41	3,351.00	3,350.60	39.56	67.23	-12.66	-604.59	-4,773.31	11,726.92	11,623.50	103.42	113.392	
13,300.00	7,093.49	3,351.00	3,350.60	39.86	67.23	-12.66	-604.59	-4,773.31	11,821.59	11,717.82	103.77	113.916	
13,400.00	7,093.57	3,351.00	3,350.60	40.16	67.23	-12.66	-604.59	-4,773.31	11,916.35	11,812.22	104.13	114.439	
13,500.00	7,093.64	3,351.00	3,350.60	40.47	67.23	-12.66	-604.59	-4,773.31	12,011.19	11,906.71	104.48	114.960	
13,600.00	7,093.72	3,351.00	3,350.60	40.77	67.23	-12.66	-604.59	-4,773.31	12,106.11	12,001.28	104.83	115.480	
13,700.00	7,093.80	3,351.00	3,350.60	41.07	67.23	-12.66	-604.59	-4,773.31	12,201.12	12,095.94	105.18	115.999	
13,800.00	7,093.88	3,351.00	3,350.60	41.37	67.23	-12.66	-604.59	-4,773.31	12,296.20	12,190.67	105.53	116.517	
13,900.00	7,093.96	3,351.00	3,350.60	41.67	67.23	-12.66	-604.59	-4,773.31	12,391.37	12,285.49	105.88	117.032	
14,000.00	7,094.04	3,351.00	3,350.60	41.97	67.23	-12.66	-604.59	-4,773.31	12,486.60	12,380.38	106.23	117.547	
14,100.00	7,094.11	3,351.00	3,350.60	42.27	67.23	-12.66	-604.59	-4,773.31	12,581.91	12,475.34	106.57	118.060	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Offset Design Rosa Unit 32 - RU #337 (Offset) - 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
14,200.00	7,094.19	3,351.00	3,350.60	42.57	67.23	-12.66	-604.59	-4,773.31	12,677.30	12,570.38	106.92	118.571	
14,300.00	7,094.27	3,351.00	3,350.60	42.87	67.23	-12.66	-604.59	-4,773.31	12,772.75	12,665.49	107.26	119.081	
14,400.00	7,094.35	3,351.00	3,350.60	43.17	67.23	-12.66	-604.59	-4,773.31	12,868.28	12,760.67	107.60	119.589	
14,500.00	7,094.43	3,351.00	3,350.60	43.47	67.23	-12.66	-604.59	-4,773.31	12,963.87	12,855.92	107.95	120.096	
14,600.00	7,094.51	3,351.00	3,350.60	43.77	67.23	-12.66	-604.59	-4,773.31	13,059.52	12,951.24	108.29	120.601	
14,700.00	7,094.58	3,351.00	3,350.60	44.07	67.23	-12.66	-604.59	-4,773.31	13,155.25	13,046.62	108.63	121.105	
14,800.00	7,094.66	3,351.00	3,350.60	44.37	67.23	-12.66	-604.59	-4,773.31	13,251.03	13,142.07	108.97	121.607	
14,900.00	7,094.74	3,351.00	3,350.60	44.67	67.23	-12.66	-604.59	-4,773.31	13,346.88	13,237.57	109.30	122.108	
15,000.00	7,094.82	3,351.00	3,350.60	44.97	67.23	-12.66	-604.59	-4,773.31	13,442.79	13,333.14	109.64	122.606	
15,100.00	7,094.90	3,351.00	3,350.60	45.27	67.23	-12.66	-604.59	-4,773.31	13,538.75	13,428.77	109.98	123.103	
15,200.00	7,094.98	3,351.00	3,350.60	45.57	67.23	-12.66	-604.59	-4,773.31	13,634.78	13,524.46	110.31	123.599	
15,300.00	7,095.06	3,351.00	3,350.60	45.87	67.23	-12.66	-604.59	-4,773.31	13,730.86	13,620.21	110.65	124.093	
15,400.00	7,095.13	3,351.00	3,350.60	46.17	67.23	-12.66	-604.59	-4,773.31	13,826.99	13,716.01	110.98	124.585	
15,500.00	7,095.21	3,351.00	3,350.60	46.47	67.23	-12.66	-604.59	-4,773.31	13,923.19	13,811.87	111.32	125.075	
15,600.00	7,095.29	3,351.00	3,350.60	46.77	67.23	-12.66	-604.59	-4,773.31	14,019.43	13,907.78	111.65	125.564	
15,700.00	7,095.37	3,351.00	3,350.60	47.07	67.23	-12.66	-604.59	-4,773.31	14,115.73	14,003.74	111.98	126.051	
15,800.00	7,095.45	3,351.00	3,350.60	47.37	67.23	-12.66	-604.59	-4,773.31	14,212.07	14,099.76	112.32	126.537	
15,900.00	7,095.53	3,351.00	3,350.60	47.67	67.23	-12.66	-604.59	-4,773.31	14,308.47	14,195.83	112.65	127.021	
16,000.00	7,095.60	3,351.00	3,350.60	47.97	67.23	-12.66	-604.59	-4,773.31	14,404.92	14,291.94	112.98	127.503	
16,100.00	7,095.68	3,351.00	3,350.60	48.27	67.23	-12.66	-604.59	-4,773.31	14,501.41	14,388.11	113.31	127.983	
16,200.00	7,095.76	3,351.00	3,350.60	48.57	67.23	-12.66	-604.59	-4,773.31	14,597.96	14,484.32	113.64	128.462	
16,300.00	7,095.84	3,351.00	3,350.60	48.87	67.23	-12.66	-604.59	-4,773.31	14,694.55	14,580.58	113.97	128.939	
16,400.00	7,095.92	3,351.00	3,350.60	49.17	67.23	-12.66	-604.59	-4,773.31	14,791.18	14,676.89	114.29	129.414	
16,500.00	7,096.00	3,351.00	3,350.60	49.47	67.23	-12.66	-604.59	-4,773.31	14,887.86	14,773.24	114.62	129.887	
16,600.00	7,096.08	3,351.00	3,350.60	49.77	67.23	-12.66	-604.59	-4,773.31	14,984.58	14,869.63	114.95	130.359	
16,700.00	7,096.15	3,351.00	3,350.60	50.07	67.23	-12.66	-604.59	-4,773.31	15,081.34	14,966.07	115.28	130.829	
16,800.00	7,096.23	3,351.00	3,350.60	50.37	67.23	-12.66	-604.59	-4,773.31	15,178.15	15,062.55	115.60	131.297	
16,900.00	7,096.31	3,351.00	3,350.60	50.67	67.23	-12.66	-604.59	-4,773.31	15,275.00	15,159.07	115.93	131.764	
17,000.00	7,096.39	3,351.00	3,350.60	50.97	67.23	-12.66	-604.59	-4,773.31	15,371.89	15,255.64	116.25	132.229	
17,100.00	7,096.47	3,351.00	3,350.60	51.27	67.23	-12.66	-604.59	-4,773.31	15,468.82	15,352.24	116.58	132.692	
17,200.00	7,096.55	3,351.00	3,350.60	51.57	67.23	-12.66	-604.59	-4,773.31	15,565.78	15,448.88	116.90	133.153	
17,300.00	7,096.62	3,351.00	3,350.60	51.87	67.23	-12.66	-604.59	-4,773.31	15,662.79	15,545.56	117.22	133.613	
17,400.00	7,096.70	3,351.00	3,350.60	52.17	67.23	-12.66	-604.59	-4,773.31	15,759.83	15,642.28	117.55	134.071	
17,500.00	7,096.78	3,351.00	3,350.60	52.47	67.23	-12.66	-604.59	-4,773.31	15,856.91	15,739.04	117.87	134.527	
17,600.00	7,096.86	3,351.00	3,350.60	52.77	67.23	-12.66	-604.59	-4,773.31	15,954.02	15,835.83	118.19	134.982	
17,700.00	7,096.94	3,351.00	3,350.60	53.07	67.23	-12.66	-604.59	-4,773.31	16,051.17	15,932.66	118.52	135.435	
17,800.00	7,097.02	3,351.00	3,350.60	53.37	67.23	-12.66	-604.59	-4,773.31	16,148.36	16,029.52	118.84	135.886	
17,900.00	7,097.10	3,351.00	3,350.60	53.67	67.23	-12.66	-604.59	-4,773.31	16,245.58	16,126.42	119.16	136.336	
18,000.00	7,097.17	3,351.00	3,350.60	53.97	67.23	-12.66	-604.59	-4,773.31	16,342.83	16,223.35	119.48	136.783	
18,100.00	7,097.25	3,351.00	3,350.60	54.27	67.23	-12.66	-604.59	-4,773.31	16,440.12	16,320.32	119.80	137.229	
18,200.00	7,097.33	3,351.00	3,350.60	54.57	67.23	-12.66	-604.59	-4,773.31	16,537.44	16,417.32	120.12	137.674	
18,300.00	7,097.41	3,351.00	3,350.60	54.87	67.23	-12.66	-604.59	-4,773.31	16,634.79	16,514.35	120.44	138.116	
18,400.00	7,097.49	3,351.00	3,350.60	55.17	67.23	-12.66	-604.59	-4,773.31	16,732.17	16,611.41	120.76	138.557	
18,500.00	7,097.57	3,351.00	3,350.60	55.47	67.23	-12.66	-604.59	-4,773.31	16,829.58	16,708.50	121.08	138.996	
18,600.00	7,097.64	3,351.00	3,350.60	55.78	67.23	-12.66	-604.59	-4,773.31	16,927.02	16,805.62	121.40	139.434	
18,700.00	7,097.72	3,351.00	3,350.60	56.08	67.23	-12.66	-604.59	-4,773.31	17,024.49	16,902.78	121.72	139.870	
18,800.00	7,097.80	3,351.00	3,350.60	56.38	67.23	-12.66	-604.59	-4,773.31	17,122.00	16,999.96	122.03	140.304	
18,900.00	7,097.88	3,351.00	3,350.60	56.68	67.23	-12.66	-604.59	-4,773.31	17,219.53	17,097.17	122.35	140.737	
19,000.00	7,097.96	3,351.00	3,350.60	56.98	67.23	-12.66	-604.59	-4,773.31	17,317.08	17,194.41	122.67	141.168	
19,100.00	7,098.04	3,351.00	3,350.60	57.28	67.23	-12.66	-604.59	-4,773.31	17,414.67	17,291.68	122.99	141.597	
19,200.00	7,098.12	3,351.00	3,350.60	57.58	67.23	-12.66	-604.59	-4,773.31	17,512.28	17,388.98	123.30	142.024	
19,300.00	7,098.19	3,351.00	3,350.60	57.88	67.23	-12.66	-604.59	-4,773.31	17,609.92	17,486.30	123.62	142.450	

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

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

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

Offset Site Error: 0.00 usft

Survey Program: 158-A027Ua_INC-ONLY

Offset Well Error: 0.00 usft

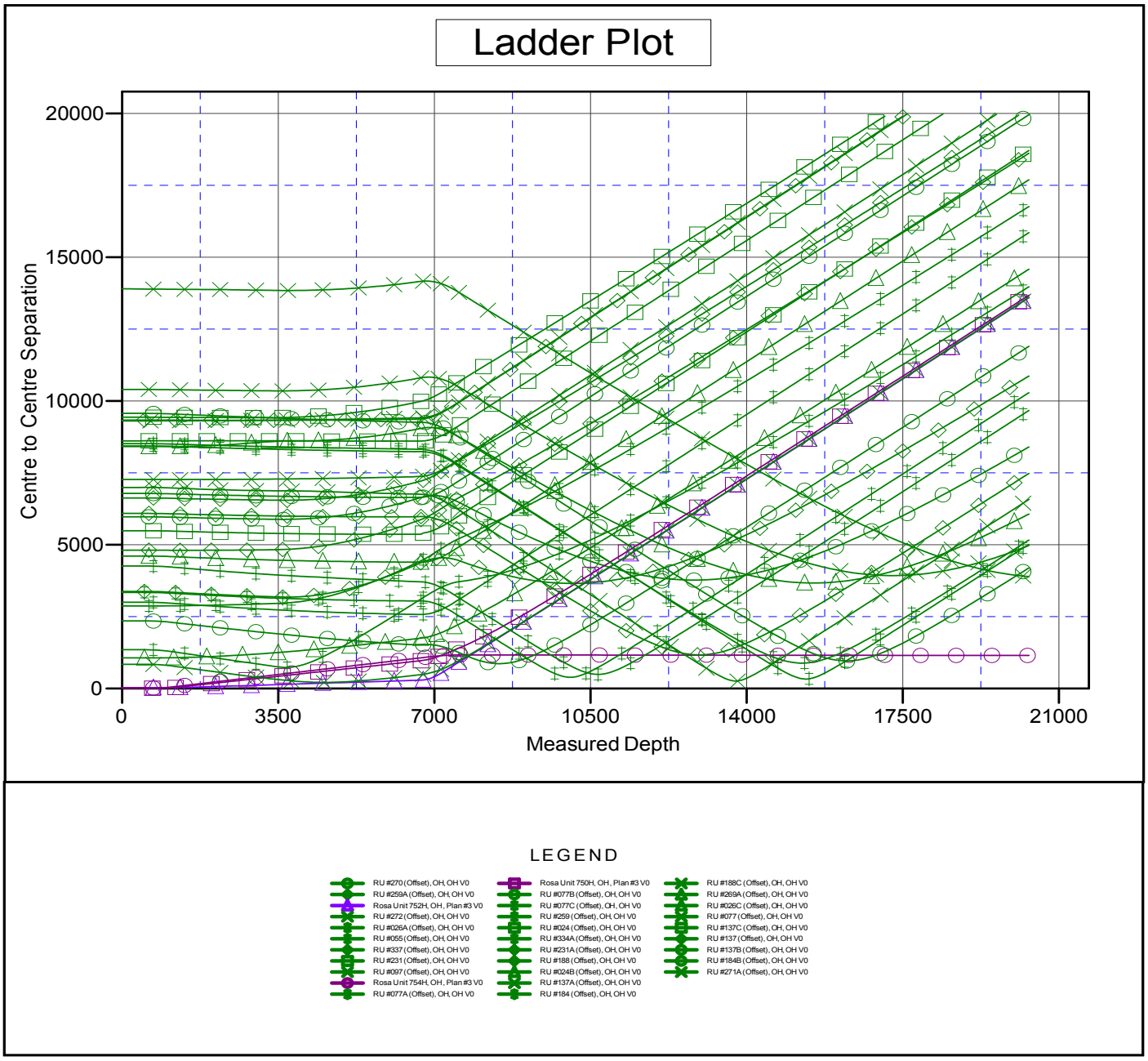
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,400.00	7,098.27	3,351.00	3,350.60	58.18	67.23	-12.66	-604.59	-4,773.31	17,707.59	17,583.65	123.94	142.875	
19,500.00	7,098.35	3,351.00	3,350.60	58.48	67.23	-12.66	-604.59	-4,773.31	17,805.28	17,681.03	124.25	143.297	
19,600.00	7,098.43	3,351.00	3,350.60	58.78	67.23	-12.66	-604.59	-4,773.31	17,903.00	17,778.43	124.57	143.718	
19,700.00	7,098.51	3,351.00	3,350.60	59.08	67.23	-12.66	-604.59	-4,773.31	18,000.74	17,875.85	124.89	144.138	
19,800.00	7,098.59	3,351.00	3,350.60	59.38	67.23	-12.66	-604.59	-4,773.31	18,098.51	17,973.31	125.20	144.555	
19,900.00	7,098.66	3,351.00	3,350.60	59.68	67.23	-12.66	-604.59	-4,773.31	18,196.30	18,070.78	125.52	144.971	
20,000.00	7,098.74	3,351.00	3,350.60	59.98	67.23	-12.66	-604.59	-4,773.31	18,294.11	18,168.28	125.83	145.386	
20,100.00	7,098.82	3,351.00	3,350.60	60.28	67.23	-12.66	-604.59	-4,773.31	18,391.95	18,265.81	126.15	145.799	
20,200.00	7,098.90	3,351.00	3,350.60	60.58	67.23	-12.66	-604.59	-4,773.31	18,489.81	18,363.35	126.46	146.210	
20,300.00	7,098.98	3,351.00	3,350.60	60.88	67.23	-12.66	-604.59	-4,773.31	18,587.70	18,460.92	126.77	146.620	
20,328.16	7,099.00	3,351.00	3,350.60	60.96	67.23	-12.66	-604.59	-4,773.31	18,615.27	18,488.40	126.86	146.735	

Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6534+24.5 @ 6558.49usft (Ensign 22
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit 756H - Slot B04
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°



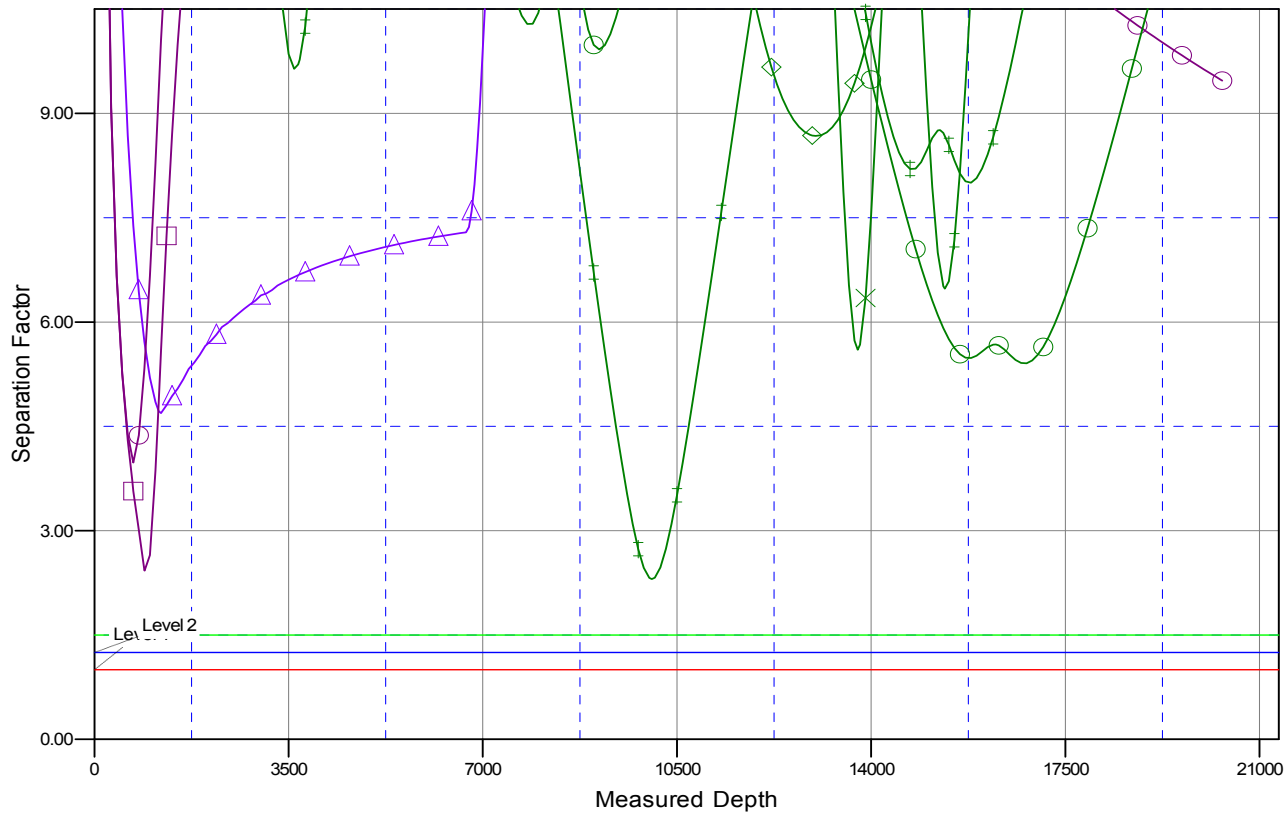
Anticollision Report

Company:	Logos Operating LLC	**Local Co-ordinate Reference:**	Well Rosa Unit 756H - Slot B04
Project:	Rio Arriba, NM NAD83	**TVD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Reference Site:	Rosa Unit 32	**MD Reference:**	6534+24.5 @ 6558.49usft (Ensign 223)
Site Error:	0.00 usft	**North Reference:**	True
Reference Well:	Rosa Unit 756H	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	Well Planning
Reference Design:	Plan #3	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to 6534+24.5 @ 6558.49usft (Ensign 22
Offset Depths are relative to Offset Datum
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit 756H - Slot B04
Coordinate System is US State Plane 1983, New Mexico Western Zone
Grid Convergence at Surface is: 0.28°

Separation Factor Plot



LEGEND

RU #270 (Offset), OH, OH V0
RU #259A (Offset), OH, OH V0
Rosa Unit 752H, OH, Plan #3 V0
RU #272 (Offset), OH, OH V0
RU #026A (Offset), OH, OH V0
RU #055 (Offset), OH, OH V0
RU #337 (Offset), OH, OH V0
RU #231 (Offset), OH, OH V0
RU #097 (Offset), OH, OH V0
Rosa Unit 754H, OH, Plan #3 V0
RU #077A (Offset), OH, OH V0
Rosa Unit 750H, OH, Plan #3 V0
RU #077B (Offset), OH, OH V0
RU #077C (Offset), OH, OH V0
RU #259 (Offset), OH, OH V0
RU #024 (Offset), OH, OH V0
RU #334A (Offset), OH, OH V0
RU #231A (Offset), OH, OH V0
RU #188 (Offset), OH, OH V0
RU #024B (Offset), OH, OH V0
RU #137A (Offset), OH, OH V0
RU #184 (Offset), OH, OH V0
RU #188C (Offset), OH, OH V0
RU #269A (Offset), OH, OH V0
RU #026C (Offset), OH, OH V0
RU #077 (Offset), OH, OH V0
RU #137C (Offset), OH, OH V0
RU #137 (Offset), OH, OH V0
RU #137B (Offset), OH, OH V0
RU #184B (Offset), OH, OH V0
RU #271A (Offset), OH, OH V0

Conditions of Approval

Operator:	Logos Operating, LLC
Well Names:	Rosa Unit Pad 32 (750H, 752H, 754H, & 756H + 4 futures)
Legal Location:	Sec 33, T31N, R05W, Rio Arriba County, NM
NEPA Log Number:	DOI-BLM-NM-F010-2023-0014-EA
Inspection Date:	November 17, 2022
Lease Number:	NMSF078773

The following conditions of approval will apply to Logos Operating's Rosa Unit Pad 32 Project, and other associated facilities, unless a particular Surface Managing Agency or private surface owner has supplied to Bureau of Land Management and the operator a contradictory environmental stipulation. The failure of the operator to comply with these requirements may result in an assessment or civil penalties pursuant to 43 CFR 3163.1 or 3163.2.

Disclaimers: BLM's approval of the APD does not relieve the lessee and operator from obtaining any other authorizations that may be required by the BIA, BOR, Tribes, State, or other jurisdictional entities.

Copy of Plans: A complete copy of the APD package, including Surface Use Plan of Operations, Bare Soil Reclamation Plan, Plan of Development (if required), Conditions of Approval, Cultural Resource Record of Review, Cultural Resources Compliance Form (if required), and Project Stipulations (if required) shall be at the project area at all times and available to all persons.

Review of NEPA documents: It is the responsibility of the operator to follow all the design features, best management practices, and mitigation measures as contained in the Environmental Assessment DOI-BLM-NM-F010-2023-0014-EA, which contains additional design features and best management practices that must be followed. Copies of the EA, Decision Record, and Finding of No Significant Impact may be obtained from the BLM FFO public room, or online at: EplanningUi (blm.gov).

Best Management Practices (BMPs): Farmington Field Office established environmental Best Management Practices (BMP's) will be followed during construction and reclamation of well site pads, access roads, pipeline ties, facility placement or any other surface disturbing activity associated with this project. Bureau wide standard BMP's are found in the Gold Book, Fourth Edition-Revised 2007 and at https://www.blm.gov/programs/energy-and-minerals/oil-and-gas/operations-and-production/the-gold-book. Farmington Field Office BMPs are integrated into the Environmental Assessment, Surface Use Plan of Operations, Bare Soil Reclamation Plan, and COAs.

Construction, Production, Facilities, Reclamation & Maintenance

Construction & Reclamation Notification: The operator or their contractor will contact the Bureau of Land Management, Farmington Field Office Surface and Environmental Protection Staff at (505) 564-7600 or by email, at least 48 hours prior to any construction or reclamation on this project.

Production Facilities: design and layout of facilities will be deferred until an onsite with BLM-FFO surface protection staff is conducted to determine the best location. Logos or their contractor will contact the Bureau of Land Management, Farmington Field Office Surface and Environmental Protection Staff at (505) 564-7600 or by email to schedule a facility layout onsite.

Berms: Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of 110% of the largest tank, or 110% of the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction. Metal containment barriers, used for secondary containment, will be properly installed, per the manufacturer directions.

Painting of Equipment: Within 90 days of installation, all above ground structures not subject to safety requirements shall be painted by the Holder to blend with the natural color of the landscape. A reflective material may be used to reduce hazards that may occur when such structures are near roads. Otherwise, the paint use shall be a non-glare, non-reflective, non-chalking color of: **Juniper Green.**

Staking: The holder shall place slope stakes, culvert location and grade stakes, and other construction control stakes as deemed necessary by the authorized officer to ensure construction in accordance with the application. If stakes are disturbed, they shall be replaced before proceeding with construction.

Weather: No construction or routine maintenance activities shall be performed during periods when the soil is too wet to adequately support construction equipment. If such equipment creates ruts more than 6 inches deep, the soil shall be deemed too wet.

Stockpile of Soil: The top 6 inches of soil material will be stripped and stockpiled in the construction zones around the pad [construction zones may be restricted or deleted to provide resource avoidance]. The stockpiled soil will be free of brush and tree limbs, trunks, and roots. The stockpiled soil material will be spread on the reclaimed portions of the pad [including the reserve pit, cut and fill slopes] prior to re-seeding. Spreading shall not be done when the ground or topsoil is frozen or wet.

Storage Tanks: All open top permanent production or storage tanks regardless of diameter made of fiberglass, steel, or other material used for the containment of oil, condensate, produced or recycled water and or other production waste shall be screened, netted, or otherwise covered to protect migratory birds and other wildlife from access.

Compressors: Compressor units on this well location not equipped with a drip pan for containment of fluids shall be lined with an impervious material at least 8 mils thick and a 12-inch berm. The compressor will be painted to match the well facilities. Any variance to this will be approved by the Authorized Officer (AO). Noise mitigation may be required at the time of compressor installation.

Culverts: Silt Traps/Bell Holes will be built upstream of all culvert locations.

Driving Surface Area: All activities associated within the construction, operation, maintenance, and abandonment of the well location is limited to areas approved in the APD or ROW permit. During the production of the well, vehicular traffic is limited to the daily driving surface area established during interim reclamation construction operations. This area typically forms a keyhole or teardrop driving surface from which all production facilities may be serviced or inspected. A v-type ditch will be constructed on the outside of the driving surface to further define the driving surface and to deter vehicular traffic from entering onto the interim reclamation areas.

Contouring of Cut and Fill Slopes: The interim cut and fill slope grade shall be as close to the original contour as possible. To obtain this ratio, pits and slopes shall be back sloped into the pad during interim reclamation. Only subsurface soil and material shall be utilized in the contouring of the cut and fill slopes. Under no circumstances shall topsoil be utilized as substrate material for contouring of cut and fill slopes.

Maintenance: In order to perform subsequent well operations, right-of-way (ROW) operations, or install new/additional equipment, it may be necessary to drive, park, and operate on restored, interim vegetation within the previously disturbed area. This is generally acceptable provided damage is promptly repaired and reclaimed following use. Where vehicular travel has occurred as a "convenience" and interim reclamation/vegetation has been compromised, immediate remediation of the affected areas is required. Additionally, where erosion has occurred and compromised the reclamation of the well location, the affected area must be promptly remediated so that future erosion is prevented, and the landform is stabilized.

Layflat Lines: Layflat lines used for development of the wells may be on the ground for a maximum of 6 months and shall be retrieved within 30 days of ending completion operations. If the layflat lines are needed for longer than 6 months or cannot be retrieved within 30 days of ending completion operations, a Sundry NOI shall be submitted to the BLM FFO for review and decision that includes a rationale for the time extension.

"Hotwork" and Construction Affecting Fire Safety: The holder or its contractors will notify the BLM of any fires and comply with all rules and regulations administered by the BLM concerning the use, prevention and suppression of fires on federal lands, including any fire prevention orders that may be in effect at the time of the permitted activity. The holder or its contractors may be held liable for the cost of fire suppression, stabilization and rehabilitation. In the event of a fire, personal safety will be the first priority of the holder or its contractors. The holder or its contractors shall:

1. Operate all internal and external combustion engines (including off-highway vehicles, chainsaws, generators, heavy equipment, etc.) with a qualified spark arrester. Qualified spark arresters are maintained and not modified, and meet the Society of Automotive Engineers (SAE) Recommended Practices J335 or J350. Refer to 43 CFR §8343.1.
    a. *Refueling of any combustible engine equipment must be minimum of 3 meters away from any ignition source (open flame, smoking, etc.).*
2. Maintain and clean all equipment regularly to remove flammable debris buildup and prevent fluid leaks that can lead to ignitions.
3. Carry at least one shovel or wildland fire hand tool (combi, Pulaski, McLeod) per person working, minimum 5 gallons of water, and a fire extinguisher rated at a minimum as ABC - 10 pound on each piece of equipment and each vehicle.
4. When conducting "hotwork" such as, but not limited to welding, grinding, cutting, spark-producing work with metal, work that creates hot material or slag; choose an area large enough to contain all hot material that is naturally free of all flammable vegetation or remove the flammable vegetation in a manner compliant with the permitted activity. If adequate clearance cannot be made, wet an area large enough to contain all hot material prior to the activity and periodically throughout the activity to reduce the risk of wildfire ignition. Regardless of clearance, maintain readiness to respond to an ignition at all times. In addition, keep one hand tool per person and at least one fire extinguisher ready, minimum, as specified earlier (#3) during this activity.
5. Keep apprised of current and forecasted weather at https://www.weather.gov/abq/forecasts-fireweather-links and fire conditions at www.wfas.net and take additional fire precautions when fire danger is rated High or greater. Red Flag Warnings are issued by the National Weather Service when fire conditions are most dangerous, and ignitions escape control quickly. Extra precautions are required during these warnings such as additional water, designate a fire watch/patrol and tools. If work is being conducted in an area that is not clear of vegetation within 50 feet of work area; then, when fire danger is rated High or greater and 1. There is a predicted Red Flag warning for your area or 2. If winds are predicted to be greater than 10 mph, stop all hotwork activities for the day at 10 am.
6. In the event of an ignition, initiate fire suppression actions in the work area to prevent fire spread to or on federally administered lands. If a fire spreads beyond the capability of workers with the stipulated tools, all will cease fire suppression action and leave the area immediately via pre-identified escape routes.
7. Call **911** or the **Taos Interagency Fire Dispatch Center (575-758-6208)** immediately of the location and status of any fire.

AND

Notify the respective BLM field office for which the permit or contract was issued immediately of the incident.
Farmington Field Office at 505-564-7600

Noxious Weeds

Inventory the proposed site for the presence of noxious and invasive weeds. Noxious weeds are those listed on the New Mexico Noxious Weed List and USDA's Federal Noxious Weed List. The New Mexico Noxious Weed List or USDA's Noxious Weed List can be updated at any time and should be regularly check for any changes. Invasive species may or may not be listed as a noxious weed but have been identified to likely cause economic or environmental harm or harm to human health. The following noxious weeds have been identified as occurring on lands within the boundaries of the Farmington Field Office (FFO). There are numerous invasive species on the FFO such as Russian thistle (*Salsola spp.)* and field bindweed (*Convolvulus arvensis*).

Russian Knapweed (*Centaurea repens*)	Musk Thistle (*Carduss nutans*)
Bull Thistle (*Cirsium vulgare*)	Canada Thistle (*Cirsium arvense*)
Scotch Thistle (*Onopordum acanthium)*	Hoary Cress (*Cardaria draba*)
Perennial Pepperweed (*Lepdium latiofolfium*)	Halogeton (*Halogeton glomeratus*)
Spotted Knapweed (*Centaurea maculosa*)	Dalmation Toadflax (*Linaria genistifolia*)
Yellow Toadflax (*Linaria vulgaris*)	Camelthorn (*Alhagi pseudalhagi*)
African Rue (*Penganum harmala*)	Salt Cedar (*Tamarix spp*.)
Diffuse Knapweed (*Centaurea diffusa*)	Leafy Spurge (*Euphorbia esula*)

a. Identified weeds will be treated prior to new surface disturbance if determined by the FFO Noxious Weed Coordinator. A Pesticide Use Proposal (PUP) must be submitted to and approved by the FFO Noxious Weed Coordinator prior to application of pesticide. The FFO Noxious Weeds Coordinator (505-564-7600) can provide assistance in the development of the PUP.

b. Vehicles and equipment should be inspected and cleaned prior to coming onto the work site. This is especially important on vehicles from out of state or if coming from a weed-infested site.

c. Fill dirt or gravel may be needed for excavation, road construction/repair, or for spill remediation. If fill dirt or gravel will be required, the source shall be noxious weed free and approved by the FFO Noxious Weed Coordinator.

d. The site shall be monitored for the life of the project for the presence of noxious weeds (includes maintenance and construction activities). If weeds are found the FFO Coordinator shall be notified at (505) 564-7600 and provided with a Weed Management Plan and if necessary, a Pesticide Use Proposal (PUP). The FFO Coordinator can provide assistance developing the Weed Management Plan and/or the Pesticide Use Proposal.

e. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and

state laws and used only in accordance with their registered use and limitations. Logos's weed-control contractor would contact the BLM-FFO prior to using these chemicals.

f. Noxious/invasive weed treatments must be reported to the FFO Noxious Weed Coordinator. A Pesticide Use Report (PUR) is required to report any mechanical, chemical, biological, or cultural treatments used to eradicate, and/or control noxious or invasive species. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

Bare ground vegetation trim-out: If bare ground vegetation treatment (trim-out) is desired around facility structures, the operator will submit a bare ground/trim-out design included in their Surface Use Plan of Operations (SUPO). The design will address vegetation safety concerns of the operator and BLM while minimizing impacts to interim reclamation efforts. The design must include what structures to be treated and buffer distances of trim-out. Pesticide use for vegetation control around anchor structures is not approved. If pesticides are used for bare ground trim-out, the trim-out will not exceed three feet from the edge of any eligible permanent structure (i.e., well heads, fences, tanks). Additional distance/areas may be requested and must be approved by the FFO authorized officer. The additional information below must also be provided to the FFO:

a. Pesticide use for trim out will require a Pesticide Use Proposal (PUP). A PUP is required ***prior*** to any treatment and must be approved by the FFO Noxious Weed Coordinator. Only pesticides authorized for use on BLM lands would be used and applied by a licensed pesticide applicator. The use of pesticides would comply with federal and state laws and used only in accordance with their registered use and limitations. Logos's weed-control contractor would contact the BLM-FFO prior to using these chemicals and provide Pesticide Use Reports (PURs) post treatment.

b. A Pesticide Use Report (PUR) or a Biological Use Report (BUR) is required to report any chemical, or biological treatments used to eradicate, or control vegetation on site. Reporting will be required quarterly and annually or per request from the FFO Noxious Weed Coordinator.

Paleontology

Any paleontological resource discovered by the Operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant scientific values. The Holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the Holder.

Visual Resources

All permanent lighting will use full cutoff luminaires, which are fully shielded (i.e., not emitting direct or indirect light above an imaginary horizontal plane passing through the lowest part of the light source). All permanent lighting will be pointed straight down at the ground in order to prevent light spill to the sides. All permanent lighting will be 4000° Kelvin or less with 3000° Kelvin preferred. Warmer light colors are less noticeable by humans and cause less impact to wildlife. All permanent lighting will be controlled by a switch and/or timer which allows the lights to be turned on when workers are on location during dark periods but will keep the lights off the majority of the time.

Wildlife Resources

Wildlife: F-4 Timing Limitation Stipulation-Important Seasonal Wildlife Habitat Rosa Mesa Wildlife SDA. No surface use is allowed during the following time period: December 1 - March 31.

Wildlife Stock Pond: the stock pond just south of the proposed well pad is to be cleaned out during construction to benefit wildlife and livestock in the area.

Hazards: Wildlife hazards associated with the proposed project would be fenced, covered, and/or contained in covered storage tanks, as necessary.

Migratory Bird: Any new disturbance over 4.0 acres within nesting season (5/15-7/31) will require a migratory bird nest survey to be conducted by BLM/FFO biologist. Once drilling and completion activities are complete, any open water that could be harmful to birds and wildlife. must be covered, screened, or netted to prevent entry.

Threatened, Endangered or Sensitive Species: If, in operations the operator/holder discovers any Threatened, Endangered, or Sensitive species, work in the vicinity of the discovery will be suspended and the discovery promptly reported to the BLM-FFO T&E specialist at (505) 564-7600. The BLM-FFO will then specify what action is to be taken. Failure to notify the BLM-FFO about a discovery may result in civil or criminal penalties in accordance with The Endangered Species Act (as amended).

Noise: This well is located within a designated Noise Sensitive Area (NSA). Once proposed project activities are complete, noise from pumpjack, compressor or other facilities cannot exceed 48.6 db at edge of Bald eagle ACEC core area. Any compressor that emits noise > 48.6db may require a 'noise wall' to deflect sound away from ACEC.

Nesting: If a bird nest containing eggs or young is encountered in the path of construction the operator will cease construction and consult with BLM to determine appropriate actions.

Grazing Permittee Notification and Concerns: The operator will notify the grazing lease operator(s) at least ten business days prior to beginning any construction activity to ensure there

will be no conflicts between construction activities and livestock grazing operations. The operator is not obligated to cease or delay construction unless directed by the Authorized Officer (AO). Any range improvement (fences, pipelines, ponds, etc.) disturbed by construction activities will be repaired immediately following construction and will be repaired to the condition the improvement was in prior to disturbance. Cattle guards will be installed to replace any livestock fencing or gates removed for road construction.

Soil, Air, Water

Land Farming: No excavation, remediation or closure activities will be authorized without prior approval, on any federal or Indian mineral estate, federal surface, or federal ROW. A Sundry Notice (DOI, BLM Form 3160-5) must be submitted with an explanation of the remediation or closure plan for on-lease actions.

Emission Control Standard: Compressor engines 300 horsepower or less used during well production must be rated by the manufacturer as emitting NOx at 2 grams per horsepower hour or less to comply with the New Mexico Environmental Department, Air Quality Bureau's guidance.

Waste Disposal: All fluids (i.e., scrubber cleaners) used during washing of production equipment, including compressors, will be properly disposed of to avoid ground contamination, or hazard to livestock or wildlife.

Cultural Resources

Non-Permitted Disturbance: Construction, construction maintenance or any other activity outside the areas permitted by the APD will require additional approval and may require a new cultural survey and clearance.

Employee Education: All employees of the project, including the Project Sponsor and its contractors and sub-contractors will be informed that cultural sites are to be avoided by all personnel, personal vehicles, and company equipment. They will also be notified that it is illegal to collect, damage, or disturb cultural resources, and that such activities are punishable by criminal and or administrative penalties under the provisions of the Archaeological Resources Protection Act (16 U.S.C. 470aa-mm) when on federal land and the New Mexico Cultural Properties Act NMSA 1978 when on state land.

Discovery of Cultural Resources in the Absence of Monitoring: Discovery of Cultural Resources in the Absence of Monitoring: If, in its operations, operator/holder discovers any previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the discovery promptly reported to BLM Field Manager. BLM will then specify what action is to be taken. If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in

consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, **or in accordance with an approved program alternative.** Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive **archaeological or alternative mitigation,** likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any **mitigations determined appropriate through the agency's Section 106 consultation are completed**. Failure to notify the BLM about a discovery may result in civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, **the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws**.

Discovery of Cultural Resources during Monitoring: If monitoring confirms the presence of previously unidentified historic or prehistoric cultural resources, then work in the vicinity of the discovery will be suspended and the monitor will promptly report the discovery to the BLM Field Manager. BLM will then specify what action is to be taken. **If there is an approved "discovery plan" in place for the project, then the plan will be executed. In the absence of an approved plan, the BLM will evaluate the significance of the discovery in accordance with 36 CFR Section 800.13, in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property, or in accordance with an approved program alternative. Minor recordation, stabilization, or data recovery may be performed by BLM or a third party acting on its behalf, such as a permitted cultural resources consultant. If warranted, more extensive archaeological or alternative mitigation, likely implemented by a permitted cultural resources consultant, may be required of the operator/holder prior to allowing the project to proceed. Further damage to significant cultural resources will not be allowed until any mitigations determined appropriate through the agency's Section 106 consultation are completed.**

Damage to Sites: If, in its operations, operator/holder damages, or is found to have damaged any previously documented or undocumented historic or prehistoric cultural resources, excluding "discoveries" as noted above, the operator/holder agrees at his/her expense to have a permitted cultural resources consultant prepare a BLM approved damage assessment and/or data recovery plan. The operator/holder agrees at his/her expense to implement a **mitigation** that the agency finds appropriate given the significance of the site, which the agency determines in consultation with the appropriate State or Tribal Historic Preservation Officer(s) and Indian tribe(s) that might attach religious and cultural significance to the affected property. **This mitigation may entail execution of the data recovery plan by a permitted cultural resources consultant and/or alternative mitigations.** Damage to cultural resources may result in **civil or criminal penalties in accordance with the Archeological Resources Protection Act (ARPA) of 1979, as amended, the Native American Graves Protection and Repatriation Act (NAGRPA) of 1990, as amended, and other applicable laws.**

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
6251 College Blvd, Suite A
Farmington, New Mexico 87402

In Reply Refer To:
3162.3-1(NMF0110)

* LOGOS OPERATING LLC

#756H ROSA UNIT

Lease: NMSF78773 Unit: NMNM78407E
SH: SW¼NW¼ Section 33, T.31 N., R.5 W.
Rio Arriba County, New Mexico
BH: SW¼SE¼ Section 35, T.31 N., R.6 W.
Rio Arriba County, New Mexico
***Above Data Required on Well Sign**

GENERAL REQUIREMENTS FOR OIL AND GAS OPERATIONS ON FEDERAL AND INDIAN LEASES

The following special requirements apply and are effective when **checked**:

A. ☒ Note all surface/drilling conditions of approval attached.

B. ☒ The required wait on cement (WOC) time will be a minimum of 500 psi compressive strength at 60 degrees. Blowout preventor (BOP) nipple-up operations may then be initiated

C. ☐ Test the surface casing to a minimum of _____ psi for 30 minutes.

D. ☐ Test all casing strings below the surface casing to .22 psi/ft. of casing string length or 1500 psi, whichever is greater, but not to exceed 70% of the minimum internal yield burst) for a minimum of 30 minutes.

E. ☐ Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the Bureau of Land Management, New Mexico State Office, Reservoir Management Group, 301 Dinosaur Trail, Santa Fe, New Mexico 87508.
The effective date of the agreement must be **prior** to any sales.

F. ☐ The use of co-flex hose is authorized contingent upon the following:
1. From the BOP to the choke manifold: the co-flex hose must be hobbled on both ends and saddle to prevent whip.
2. From the choke manifold to the discharge tank: the co-flex hoses must be as straight as practical, hobbled on both ends and anchored to prevent whip.
3. The co-flex hose pressure rating must be at least commensurate with approved BOPE.

I. GENERAL

A. Full compliance with all applicable laws, regulations, and Onshore Orders, with the approved Permit to drill, and with the approved Surface Use and Operations Plan is required. Lessees and/or operators are fully accountable for the actions of their contractors and subcontractors. Failure to comply with these requirements and the filing of required reports will result in strict enforcement pursuant to 43 CFR 3163.1 or 3163.2.

B. Each well shall have a well sign in legible condition from spud date to final abandonment. The sign should show the operator's name, lease serial number, or unit name, well number, location of the well, and whether lease is Tribal or Allotted, (See 43 CFR 3162.6(b)).

C. A complete copy of the approved Application for Permit to Drill, along with any conditions of approval, shall be available to authorized personnel at the drill site whenever active drilling operations are under way.

D. For Wildcat wells only, a drilling operations progress report is to be submitted, to the BLM-Field Office, weekly from the spud date until the well is completed and the Well Completion Report (Form 3160-4) is filed. The report should be on 8-1/2 x 11 inch paper, and each page should identify the well by; operator's name, well number, location and lease number.

E. As soon as practical, notice is required of all blowouts, fires and accidents involving life-threatening injuries or loss of life. (See NTL-3A).

F. Prior approval by the BLM-Authorized Office (Drilling and Production Section) is required for variance from the approved drilling program and before commencing plugging operations, plug back work casing repair work, corrective cementing operations, or suspending drilling operations indefinitely. Emergency approval may be obtained orally, but such approval is contingent upon filing of a notice of intent (on a Sundry Notice, Form 3160-5) within three business days (original and three copies of Federal leases and an original and four copies on Indian leases). **Any changes to the approved plan or any questions regarding drilling operations should be directed to BLM during regular business hours at 505-564-7600. Emergency program changes after hours should be directed to at Virgil Lucero at 505-793-1836.**

G. The Inspection and Enforcement Section (I&E), phone number (505-564-7750) is to be notified at least 24 hours in advance of BOP test, spudding, cementing, or plugging operations so that a BLM representative may witness the operations.

H. Unless drilling operations are commenced within two years, approval of the Application for Permit to Drill will expire. A written request for a two years extension may be granted if submitted prior to expiration.

I. From the time drilling operations are initiated and until drilling operations are completed, a member of the drilling crew or the tool pusher shall maintain rig surveillance at all time, unless the well is secured with blowout preventers or cement plugs.

J. If for any reason, drilling operations are suspended for more than 90 days, a written notice must be provided to this office outlining your plans for this well.

II. REPORTING REQUIREMENTS

A. For reporting purposes, all well Sundry notices, well completion and other well actions shall be referenced by the appropriate lease, communitization agreement and/or unit agreement numbers.

B. The following reports shall be filed with the BLM-Authorized Officer within 30 days after the work is completed.

1 .Original and three copies on Federal and an Original and five copies on Indian leases of Sundry Notice (Form 3150-5), giving complete information concerning.

a. Setting of each string of casing. Show size and depth of hole, grade and weight of casing, depth set, depth of any and all cementing tools that are used, amount (in cubic feet) and types of cement used, whether cement circulated to surface and all cement tops in the casing annulus, casing test method and results, and the date work was done. Show spud date on first report submitted.

b. Intervals tested, perforated (include; size, number and location of perforations), acidized, or fractured; and results obtained. Provide date work was done on well completion report and completion sundry notice.

c. Subsequent Report of Abandonment, show the manner in which the well was plugged, including depths where casing was cut and pulled, intervals (by depths) where cement plugs were replaced, and dates of the operations.

2. Well Completion Report (Form 3160-4) will be submitted with 30 days after well has been completed.

a. Initial Bottom Hole Pressure (BHP) for the producing formations. Show the BHP on the completion report. The pressure may be: 1) measured with a bottom hole bomb, or; 2) calculated based on shut in surface pressures (minimum seven day buildup) and fluid level shot.

3. Submit a cement evaluation log, if cement is not circulated to surface.

III. DRILLER'S LOG

The following shall be entered in the daily driller's log: 1) Blowout preventer pressures tests, including test pressures and results. 2) Blowout preventer tests for proper functioning, 3) Blowout prevention drills conducted, 4) Casing run, including size, grade, weight, and depth set, 5) How pipe was cemented, including amount of cement, type, whether cement circulated to surface, location of cementing tools, etc., 6) Waiting on cement time for each casing string, 7) Casing pressure tests after cementing, including test pressure and results and 8) Estimated amounts of oil and gas recovered and/or produced during drill stem test.

IV. GAS FLARING

Gas produced from this well may not be vented or flared beyond an initial, authorized test period of * Days or 50 MMCF following its (completion)(recompletion), whichever first occurs, without the prior, written approval of the authorized officer. Should gas be vented or flared without approval beyond the test period authorized above, you may be directed to shut-in the well until the gas can be captured or approval to continue venting or flaring as uneconomic is granted. You shall be required to compensate the lessor for the portion of the gas vented or flared without approval which is determined to have been avoidably lost.

*30 days, unless a longer test period is specifically approved by the authorized officer. The 30-day period will commence upon the first gas to surface.

V. SAFETY

A. All rig heating stoves are to be of the explosion-proof type.

B. Rig safety lines are to be installed.

C. Hard hats and other Personal Protective Equipment (PPE) must be utilized.

VI. CHANGE OF PLANS OR ABANDONMENT

A. Any changes of plans required in order to mitigate unanticipated conditions encountered during drilling operations, will require approval as set forth in Section 1.F.

B. If the well is dry, it is to be plugged in accordance with 43 CFR 3162.3-4, approval of the proposed plugging program is required as set forth in Section 1.F. The report should show the total depth reached, the reason for plugging, and the proposed intervals, by depths, where cement plugs are to be placed, type of plugging mud, etc. A Subsequent Report of Abandonment is required as set forth in Section II.B.1c.

C. Unless a well has been properly cased and cemented, or properly plugged, the drilling rig must not be moved from the drill site without prior approval from the BLM-Authorized Officer.

VII. PHONE NUMBERS

A. For BOPE tests, cementing, and plugging operations the phone number is 505-564-7750 and must be called 24 hours in advance in order that a BLM representative may witness the operations.

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 327985

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 327985
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
ward.rikala	Notify OCD 24 hours prior to casing & cement	4/16/2024
ward.rikala	Will require a File As Drilled C-102 and a Directional Survey with the C-104	4/16/2024
ward.rikala	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	4/16/2024
ward.rikala	Cement is required to circulate on both surface and intermediate1 strings of casing	4/16/2024
ward.rikala	If cement does not circulate on any string, a CBL is required for that string of casing	4/16/2024
ward.rikala	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system	4/16/2024