

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 33 / SWNW / 36.856127 / -107.37341	County or Parish/State: RIO ARRIBA / NM
Well Number: 756H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078773	Unit or CA Name:	Unit or CA Number: NMNM078407E
US Well Number: 3003931458	Operator: LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2787332

Type of Submission: Notice of Intent

Type of Action: Other

Date Sundry Submitted: 04/29/2024

Time Sundry Submitted: 09:17

Date proposed operation will begin: 04/29/2024

Procedure Description: LOGOS Operating request a change in plans for the following (based on KB elevation): Original surface-hole location from 2631' FNL & 951' FWL to new surface-hole location 2612' FSL & 952' FWL Original bottom-hole location from 1125' FSL & 1427' FEL to new bottom-hole location 362' FSL & 1072' FWL Original TD @ 20,328' (MD) 7,099' (TVD) to new TD @ 22,987' (MD) 7,096' (TVD). Geology tops have been updated per changes. Original KOP @ 6,694' MD 6,543' TVD to new KOP @ 6,790' MD 6,540' TVD Original Landing point @ 7,581' MD 7,089' TVD to new Landing point @ 7,719' MD 7,085' TVD Original 13.375" Surface casing @ 320' MD to new 20" Surface casing @ 350' MD Original 9.625" casing Intermediate @ 6,494' MD to new 9.625" Intermediate casing @ 6,585' MD Original 5.5" casing Production casing @ 20,328' MD to new 5.5" Production casing @ 22,987' MD All cementing bbls and sacks have been updated per casing depth changes. Attached: New C102, Operation and Directional Drill plans.

Surface Disturbance

Is any additional surface disturbance proposed?: No

NOI Attachments

Procedure Description

3160_005_Rosa_Unit_756H_Change_in_Plan_6__20240429_20240429091645.pdf

Well Name: ROSA UNIT

Well Location: T31N / R5W / SEC 33 /
SWNW / 36.856127 / -107.37341County or Parish/State: RIO
ARRIBA / NM

Well Number: 756H

Type of Well: CONVENTIONAL GAS
WELL

Allottee or Tribe Name:

Lease Number: NMSF078773

Unit or CA Name:

Unit or CA Number:
NMNM078407E

US Well Number: 3003931458

Operator: LOGOS OPERATING LLC

Operator

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

Operator Electronic Signature: ETTA TRUJILLO

Signed on: APR 29, 2024 09:17 AM

Name: LOGOS OPERATING LLC

Title: Regulatory Specialist

Street Address: 2010 AFTON PLACE

City: Farmington

State: NM

Phone: (505) 324-4154

Email address: ETRUJILLO@LOGOSRESOURCESLLC.COM

Field

Representative Name:

Street Address:

City:

State:

Zip:

Phone:

Email address:

BLM Point of Contact

BLM POC Name: DAVE J MANKIEWICZ

BLM POC Title: AFM-Minerals

BLM POC Phone: 5055647761

BLM POC Email Address: DMANKIEW@BLM.GOV

Disposition: Approved

Disposition Date: 05/02/2024

Signature: Dave J Mankiewicz

Form 3160-5
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS
**Do not use this form for proposals to drill or to re-enter an
abandoned well. Use Form 3160-3 (APD) for such proposals.**

5. Lease Serial No.
NMSF078773

6. If Indian, Allottee or Tribe Name

SUBMIT IN TRIPLICATE - Other instructions on page 2		7. If Unit of CA/Agreement, Name and/or No.
1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		8. Well Name and No. ROSA UNIT 756H
2. Name of Operator LOGOS OPERATING, LLC		9. API Well No. 30-039-31458
3a. Address 2010 AFTON PLACE FARMINGTON, NM 87401	3b. Phone No. (include area code) (505) 278-8720	10. Field and Pool or Exploratory Area BASIN MANCOS
4. Location of Well (Footage, Sec., T.,R.,M., or Survey Description) UNIT L SEC 33 T31N 5W 2612' FSL 952' FWL		11. Country or Parish, State RIO ARRIBA, NEW MEXICO

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT OR OTHER DATA					
TYPE OF SUBMISSION		TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off	
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity	
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☐ Other	
	☒ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon		
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal		

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

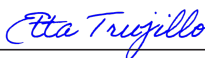
LOGOS Operating request a change in plans for the following (based on KB elevation):

Original surface-hole location from 2631' FNL & 951' FWL to **new surface-hole location 2612' FSL & 952' FWL**
Original bottom-hole location from 1125' FSL & 1427' FEL to **new bottom-hole location 362' FSL & 1072' FWL**
Original TD @ 20,328' (MD) 7,099' (TVD) to **new TD @ 22,987' (MD) 7,096' (TVD).**

Geology tops have been updated per changes.
Original KOP @ 6,694' MD 6,543' TVD to **new KOP @ 6,790' MD 6,540' TVD**
Original Landing point @ 7,581' MD 7,089' TVD to **new Landing point @ 7,719' MD 7,085' TVD**

Original 13.375" Surface casing @ 320' MD to **new 20" Surface casing @ 350' MD**
Original 9.625" casing Intermediate @ 6,494' MD to **new 9.625" Intermediate casing @ 6,585' MD**
Original 5.5" casing Production casing @ 20,328' MD to **new 5.5" Production casing @ 22,987' MD**

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

14. I hereby certify that the foregoing is true and correct. Name (Printed/Typed)		Title	
Etta Trujillo		Regulatory Specialist	
Signature 		Date 4/29/2024	

THE SPACE FOR FEDERAL OR STATE OFFICE USE		
Approved by	Title	Date
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.	Office	

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

(Instructions on page 2)

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

OIL CONSERVATION DIVISION

1220 South St. Francis Drive Santa Fe. NM 87505

Form C-102 (Revised August 1, 2011)

Submit one copy to Appropriate District Office

[X] AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-039-31458		² Pool Code 97232	³ Pool Name BASIN MANCOS	
⁴ Property Code 320608	⁵ Property Name ROSA UNIT		⁶ Well Number 756H	
⁷ OGRID No. 289408	⁸ Operator Name LOGOS OPERATING, LLC		⁹ Elevation 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
L	33	31N	5W		2612	SOUTH	952	WEST	RIO ARTRA

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
M	36	31N	5W		362	SOUTH	1072	WEST	RIO ARIZONA

¹² Dedicated Acres	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.
1280.00 S/2 - Sections 33, 34, 35, 36			R-13457

17 OPERATOR CERTIFICATION

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

Etta Trujillo 4/22/2024
Signature Date

Printed Name _____
E-mail Address etrujillo@logosresourcesllc.com

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

18 SURVEYOR CERTIFICATION

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

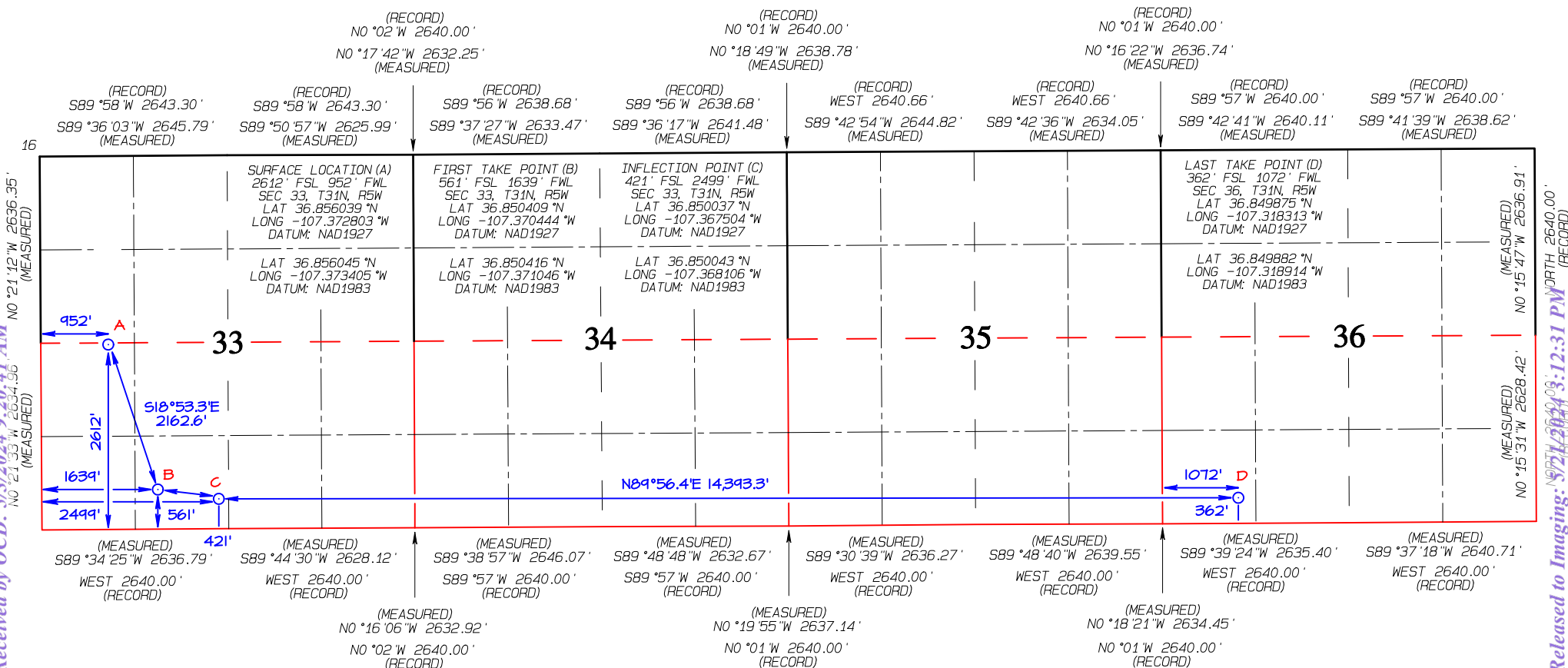
Date Revised: APRIL 18, 2024
Date of Survey: JUNE 28, 2022

Signature and Seal of Professional Surveyor



JASON C. EDWARDS
Certificate Number 15269

Certificate Number	15269
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Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Unit 32

Rosa Unit 756H

OH

Plan #6

Anticollision Report

12 April, 2024

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Reference	Plan #6		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Max. Cent. Dist. of 200.00usft or Max. SF of 10	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	4/12/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	22,986.76	Plan #6 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Rosa Unit 32						
(O) RU #024 - OH - OH	6,100.00	5,844.03	5,354.81	4,816.12	9.940	CC
(O) RU #024 - OH - OH	6,200.00	5,939.66	5,356.53	4,808.99	9.783	ES
(O) RU #024 - OH - OH	6,300.00	5,952.00	5,359.06	4,810.00	9.760	SF
(O) RU #024B - OH - OH-INC						Out of range
(O) RU #026A - OH - OH-INC						Out of range
(O) RU #026C - OH - OH-INC						Out of range
(O) RU #055 - OH - OH-SVY	15,461.63	7,127.69	1,084.78	942.30	7.613	CC, ES, SF
(O) RU #077 - OH - OH-SVY	3,650.71	3,519.82	200.20	179.23	9.548	CC, ES
(O) RU #077 - OH - OH-SVY	3,800.00	3,663.33	204.56	182.90	9.444	SF
(O) RU #077A - OH - OH-INC	10,200.00	7,027.16	1,151.45	954.01	5.832	SF
(O) RU #077A - OH - OH-INC	10,211.50	7,027.17	1,151.40	954.00	5.833	CC, ES
(O) RU #077B - OH - OH	6,600.00	6,219.00	1,446.93	1,292.62	9.377	SF
(O) RU #077B - OH - OH	8,100.00	6,219.00	1,043.35	937.22	9.830	CC, ES
(O) RU #077C - OH - OH-SVY	10,800.00	7,244.32	263.57	190.26	3.595	ES, SF
(O) RU #077C - OH - OH-SVY	10,824.00	7,244.39	262.38	190.51	3.651	CC
(O) RU #097 - OH - OH-INC						Out of range
(O) RU #137 - OH - OH						Out of range
(O) RU #137A - OH - OH						Out of range
(O) RU #137B - OH - OH						Out of range
(O) RU #137C - OH - OH						Out of range
(O) RU #184 - OH - OH	15,397.78	6,308.00	1,367.67	1,149.10	6.257	CC, ES, SF
(O) RU #184B - OH - OH	15,900.00	6,298.00	984.54	775.72	4.715	SF
(O) RU #184B - OH - OH	16,400.00	6,298.00	847.35	693.70	5.515	CC, ES
(O) RU #188 - OH - OH	13,094.39	6,476.00	1,795.16	1,589.34	8.722	CC, ES
(O) RU #188 - OH - OH	13,100.00	6,476.00	1,795.17	1,589.35	8.722	SF
(O) RU #188C - OH - OH-SVY	13,900.00	7,259.10	498.49	379.74	4.198	ES, SF
(O) RU #188C - OH - OH-SVY	13,912.64	7,259.09	498.33	379.94	4.209	CC
(O) RU #231 - OH - OH						Out of range
(O) RU #231A - OH - OH						Out of range
(O) RU #259 - OH - OH-INC	3,600.00	3,392.00	542.04	423.08	4.557	SF
(O) RU #259 - OH - OH-INC	3,695.74	3,392.00	533.51	417.72	4.607	CC, ES
(O) RU #259A - OH - OH						Out of range
(O) RU #269A - OH - OH						Out of range
(O) RU #270 - OH - OH						Out of range

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Rosa Unit 32						
(O) RU #271A - OH - OH						Out of range
(O) RU #272 - OH - OH						Out of range
(O) RU #334A - OH - OH						Out of range
(O) RU #337 - OH - OH						Out of range
Rosa Unit #746H - OH - OH	17,906.02	17,020.07	2,710.60	2,373.16	8.033	CC
Rosa Unit #746H - OH - OH	21,838.30	20,952.96	2,735.45	2,265.19	5.817	ES, SF
Rosa Unit 750H - OH - Plan #4	500.00	500.00	75.07	67.69	10.179	CC
Rosa Unit 750H - OH - Plan #4	600.00	602.45	75.18	67.47	9.748	ES
Rosa Unit 750H - OH - Plan #4	800.00	805.41	77.23	68.74	9.094	SF
Rosa Unit 752H - OH - Plan #4	1,208.07	1,220.37	49.21	38.81	4.732	CC, ES
Rosa Unit 752H - OH - Plan #4	1,300.00	1,312.38	50.51	39.56	4.611	SF
Rosa Unit 754H - OH - Plan #4-1300	669.78	671.27	25.14	17.18	3.160	CC
Rosa Unit 754H - OH - Plan #4-1300	800.00	802.62	25.16	16.69	2.972	ES
Rosa Unit 754H - OH - Plan #4-1300	900.00	903.01	25.74	16.83	2.889	SF

Offset Design: Rosa Unit 32 - (O) RU #024 - OH - OH													Offset Site Error:	0.00 usft
Survey Program: 5952-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error:	3.28 usft
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
6,100.00	5,880.03	5,844.03	5,844.03	29.56	509.14	93.08	-1,628.68	-5,234.70	5,354.81	4,816.12	538.69	9.940	CC	
6,200.00	5,975.66	5,939.66	5,939.66	30.08	517.47	93.38	-1,628.68	-5,234.70	5,356.53	4,808.99	547.54	9.783	ES	
6,300.00	6,071.29	5,952.00	5,952.00	30.60	518.55	93.42	-1,628.68	-5,234.70	5,359.06	4,810.00	549.06	9.760	SF	
6,400.00	6,166.92	5,952.00	5,952.00	31.13	518.55	93.42	-1,628.68	-5,234.70	5,363.44	4,814.11	549.33	9.764		
6,500.00	6,262.55	5,952.00	5,952.00	31.65	518.55	93.42	-1,628.68	-5,234.70	5,369.68	4,820.24	549.43	9.773		
6,600.00	6,358.18	5,952.00	5,952.00	32.17	518.55	93.42	-1,628.68	-5,234.70	5,377.77	4,828.41	549.36	9.789		
6,700.00	6,453.81	5,952.00	5,952.00	32.69	518.55	93.42	-1,628.68	-5,234.70	5,387.70	4,838.59	549.12	9.812		
6,790.12	6,540.00	5,952.00	5,952.00	33.17	518.55	93.42	-1,628.68	-5,234.70	5,398.23	4,849.48	548.75	9.837		
6,800.00	6,549.44	5,952.00	5,952.00	33.22	518.55	96.04	-1,628.68	-5,234.70	5,399.54	4,850.84	548.70	9.841		
6,850.00	6,596.88	5,952.00	5,952.00	33.49	518.55	107.49	-1,628.68	-5,234.70	5,408.68	4,860.23	548.45	9.862		
6,900.00	6,643.55	5,952.00	5,952.00	33.76	518.55	116.06	-1,628.68	-5,234.70	5,421.89	4,873.71	548.18	9.891		
6,950.00	6,689.17	5,952.00	5,952.00	34.05	518.55	122.24	-1,628.68	-5,234.70	5,439.06	4,891.17	547.89	9.927		
7,000.00	6,733.45	5,952.00	5,952.00	34.34	518.55	126.61	-1,628.68	-5,234.70	5,460.05	4,912.46	547.59	9.971		

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
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Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #055 - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 100-Standard Keeper 104												Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,800.00	7,089.95	7,126.30	7,126.15	128.47	7.02	-90.57	-1,126.19	8,422.53	1,270.63	1,143.25	127.37	9.976	
14,900.00	7,090.02	7,126.51	7,126.36	130.00	7.02	-90.58	-1,126.20	8,422.53	1,221.55	1,090.25	131.30	9.304	
15,000.00	7,090.09	7,126.71	7,126.56	131.53	7.02	-90.59	-1,126.20	8,422.53	1,178.92	1,044.01	134.90	8.739	
15,100.00	7,090.17	7,126.92	7,126.77	133.06	7.02	-90.60	-1,126.20	8,422.53	1,143.47	1,005.45	138.02	8.285	
15,200.00	7,090.24	7,127.13	7,126.98	134.60	7.02	-90.61	-1,126.20	8,422.53	1,115.88	975.43	140.46	7.945	
15,300.00	7,090.31	7,127.34	7,127.19	136.14	7.02	-90.62	-1,126.21	8,422.53	1,096.75	954.71	142.04	7.721	
15,400.00	7,090.38	7,127.55	7,127.40	137.67	7.02	-90.63	-1,126.21	8,422.53	1,086.53	943.89	142.64	7.617	
15,461.63	7,090.42	7,127.69	7,127.54	138.62	7.02	-90.64	-1,126.21	8,422.53	1,084.78	942.30	142.48	7.613	CC, ES, SF
15,500.00	7,090.45	7,127.77	7,127.62	139.21	7.02	-90.64	-1,126.21	8,422.53	1,085.46	943.28	142.18	7.634	
15,600.00	7,090.52	7,127.99	7,127.84	140.75	7.02	-90.66	-1,126.21	8,422.53	1,093.57	952.90	140.66	7.774	
15,700.00	7,090.59	7,128.21	7,128.06	142.30	7.02	-90.67	-1,126.22	8,422.53	1,110.66	972.48	138.18	8.038	
15,800.00	7,090.66	7,128.43	7,128.28	143.84	7.02	-90.68	-1,126.22	8,422.53	1,136.33	1,001.46	134.87	8.426	
15,900.00	7,090.74	7,128.66	7,128.50	145.39	7.02	-90.69	-1,126.22	8,422.53	1,170.00	1,039.09	130.92	8.937	
16,000.00	7,090.81	7,128.88	7,128.73	146.93	7.02	-90.70	-1,126.22	8,422.53	1,211.03	1,084.50	126.53	9.571	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077 - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 100-Standard Keeper 104												Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (")	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
3,600.00	3,489.27	3,470.92	3,470.75	16.61	4.85	85.94	-810.96	-136.91	200.66	179.96	20.70	9.696	
3,650.71	3,537.77	3,519.82	3,519.64	16.87	4.89	89.88	-811.50	-136.95	200.20	179.23	20.97	9.548 CC, ES	
3,700.00	3,584.90	3,567.19	3,567.01	17.12	4.94	93.70	-812.01	-136.91	200.65	179.44	21.21	9.459	
3,800.00	3,680.53	3,663.33	3,663.14	17.63	5.03	101.29	-813.12	-136.90	204.56	182.90	21.66	9.444 SF	
3,900.00	3,776.16	3,758.75	3,758.56	18.14	5.13	108.47	-814.11	-136.93	212.21	190.17	22.04	9.627	
4,000.00	3,871.79	3,854.81	3,854.61	18.66	5.22	115.11	-815.23	-136.87	223.08	200.69	22.39	9.963	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077A - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		120-A027Ua_INC-ONLY						Rule Assigned:				Offset Well Error:	3.28 usft
Measured Depth	Vertical	Measured	Vertical	Semi Major Axis	Offset	Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor	
8,800.00	7,085.68	7,026.07	7,025.33	46.87	140.33	-89.98	-1,039.79	3,172.68	1,821.54	1,634.48	187.06	9.738	
8,900.00	7,085.75	7,026.15	7,025.41	47.77	140.34	-89.99	-1,039.79	3,172.68	1,745.19	1,557.22	187.97	9.285	
9,000.00	7,085.82	7,026.23	7,025.49	48.71	140.34	-89.99	-1,039.79	3,172.68	1,671.35	1,482.42	188.93	8.846	
9,100.00	7,085.89	7,026.31	7,025.56	49.68	140.34	-89.99	-1,039.79	3,172.68	1,600.35	1,410.41	189.94	8.426	
9,200.00	7,085.97	7,026.38	7,025.64	50.68	140.34	-90.00	-1,039.79	3,172.68	1,532.58	1,341.60	190.98	8.025	
9,300.00	7,086.04	7,026.46	7,025.72	51.72	140.34	-90.00	-1,039.79	3,172.68	1,468.51	1,276.45	192.05	7.646	
9,400.00	7,086.11	7,026.54	7,025.80	52.78	140.34	-90.01	-1,039.79	3,172.68	1,408.62	1,215.49	193.13	7.294	
9,500.00	7,086.18	7,026.62	7,025.87	53.88	140.35	-90.01	-1,039.79	3,172.68	1,353.48	1,159.30	194.18	6.970	
9,600.00	7,086.25	7,026.69	7,025.95	55.00	140.35	-90.01	-1,039.79	3,172.68	1,303.70	1,108.52	195.18	6.679	
9,700.00	7,086.32	7,026.77	7,026.03	56.14	140.35	-90.02	-1,039.79	3,172.68	1,259.89	1,063.81	196.08	6.425	
9,800.00	7,086.39	7,026.85	7,026.11	57.31	140.35	-90.02	-1,039.79	3,172.68	1,222.71	1,025.88	196.83	6.212	
9,900.00	7,086.46	7,026.93	7,026.18	58.50	140.35	-90.02	-1,039.79	3,172.68	1,192.78	995.40	197.38	6.043	
10,000.00	7,086.54	7,027.01	7,026.26	59.71	140.35	-90.03	-1,039.79	3,172.68	1,170.66	972.96	197.69	5.922	
10,100.00	7,086.61	7,027.08	7,026.34	60.93	140.36	-90.03	-1,039.79	3,172.68	1,156.78	959.06	197.72	5.851	
10,200.00	7,086.68	7,027.16	7,026.42	62.18	140.36	-90.04	-1,039.79	3,172.68	1,151.45	954.01	197.44	5.832 SF	
10,211.50	7,086.69	7,027.17	7,026.43	62.32	140.36	-90.04	-1,039.79	3,172.68	1,151.40	954.00	197.39	5.833 CC, ES	
10,300.00	7,086.75	7,027.24	7,026.50	63.44	140.36	-90.04	-1,039.79	3,172.68	1,154.79	957.93	196.86	5.866	
10,400.00	7,086.82	7,027.32	7,026.57	64.72	140.36	-90.04	-1,039.79	3,172.68	1,166.73	970.72	196.01	5.953	
10,500.00	7,086.89	7,027.39	7,026.65	66.01	140.36	-90.05	-1,039.79	3,172.68	1,186.99	992.09	194.91	6.090	
10,600.00	7,086.96	7,027.47	7,026.73	67.32	140.36	-90.05	-1,039.79	3,172.68	1,215.18	1,021.55	193.63	6.276	
10,700.00	7,087.03	7,027.55	7,026.81	68.64	140.37	-90.06	-1,039.79	3,172.68	1,250.75	1,058.52	192.22	6.507	
10,800.00	7,087.10	7,027.63	7,026.88	69.97	140.37	-90.06	-1,039.79	3,172.68	1,293.08	1,102.34	190.75	6.779	
10,900.00	7,087.18	7,027.71	7,026.96	71.31	140.37	-90.06	-1,039.79	3,172.68	1,341.56	1,152.29	189.26	7.088	
11,000.00	7,087.25	7,027.78	7,027.04	72.67	140.37	-90.07	-1,039.79	3,172.68	1,395.52	1,207.72	187.80	7.431	
11,100.00	7,087.32	7,027.86	7,027.12	74.03	140.37	-90.07	-1,039.79	3,172.68	1,454.37	1,267.97	186.40	7.803	
11,200.00	7,087.39	7,027.94	7,027.20	75.40	140.37	-90.08	-1,039.79	3,172.68	1,517.52	1,332.45	185.07	8.200	
11,300.00	7,087.46	7,028.02	7,027.27	76.79	140.38	-90.08	-1,039.79	3,172.68	1,584.48	1,400.65	183.84	8.619	
11,400.00	7,087.53	7,028.09	7,027.35	78.18	140.38	-90.08	-1,039.79	3,172.68	1,654.78	1,472.08	182.70	9.057	
11,500.00	7,087.60	7,028.17	7,027.43	79.58	140.38	-90.09	-1,039.79	3,172.68	1,728.00	1,546.34	181.66	9.512	
11,600.00	7,087.67	7,028.25	7,027.51	80.98	140.38	-90.09	-1,039.79	3,172.68	1,803.80	1,623.08	180.72	9.981	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077B - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 295-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
6,300.00	6,071.29	6,009.78	6,009.29	30.60	117.96	-79.92	-1,720.76	1,573.59	1,458.29	1,309.89	148.39	9.827	
6,400.00	6,166.92	6,105.41	6,104.92	31.13	119.99	-81.01	-1,720.76	1,573.59	1,453.23	1,302.25	150.98	9.626	
6,500.00	6,262.55	6,201.04	6,200.55	31.65	122.02	-82.10	-1,720.76	1,573.59	1,448.74	1,295.19	153.56	9.435	
6,577.82	6,336.97	6,219.00	6,218.33	32.06	122.40	-82.30	-1,720.76	1,573.59	1,446.76	1,292.48	154.28	9.378	
6,600.00	6,358.18	6,219.00	6,218.33	32.17	122.40	-82.30	-1,720.76	1,573.59	1,446.93	1,292.62	154.31	9.377 SF	
6,700.00	6,453.81	6,219.00	6,218.33	32.69	122.40	-82.30	-1,720.76	1,573.59	1,451.91	1,297.87	154.04	9.426	
6,790.12	6,540.00	6,219.00	6,218.33	33.17	122.40	-82.30	-1,720.76	1,573.59	1,462.25	1,309.00	153.25	9.541	
6,800.00	6,549.44	6,219.00	6,218.33	33.22	122.40	-79.62	-1,720.76	1,573.59	1,463.65	1,310.51	153.14	9.558	
6,850.00	6,596.88	6,219.00	6,218.33	33.49	122.40	-67.78	-1,720.76	1,573.59	1,469.44	1,316.98	152.46	9.638	
6,900.00	6,643.55	6,219.00	6,218.33	33.76	122.40	-58.75	-1,720.76	1,573.59	1,473.11	1,321.46	151.65	9.714	
6,950.00	6,689.17	6,219.00	6,218.33	34.05	122.40	-52.00	-1,720.76	1,573.59	1,474.66	1,323.97	150.69	9.786	
7,000.00	6,733.45	6,219.00	6,218.33	34.34	122.40	-46.95	-1,720.76	1,573.59	1,474.09	1,324.48	149.61	9.853	
7,050.00	6,776.12	6,219.00	6,218.33	34.64	122.40	-43.14	-1,720.76	1,573.59	1,471.39	1,323.00	148.39	9.916	
7,100.00	6,816.92	6,219.00	6,218.33	34.93	122.40	-40.24	-1,720.76	1,573.59	1,466.57	1,319.52	147.05	9.973	
7,700.00	7,084.62	6,219.00	6,218.33	38.65	122.40	-35.43	-1,720.76	1,573.59	1,250.71	1,125.59	125.12	9.996	
7,719.23	7,084.91	6,219.00	6,218.33	38.77	122.40	-35.85	-1,720.76	1,573.59	1,239.34	1,114.95	124.39	9.963	
7,800.00	7,084.97	6,219.00	6,218.33	39.30	122.40	-34.91	-1,720.76	1,573.59	1,192.24	1,071.07	121.17	9.839	
7,900.00	7,085.04	6,219.00	6,218.33	39.97	122.40	-33.83	-1,720.76	1,573.59	1,137.63	1,020.95	116.68	9.750	
8,000.00	7,085.11	6,219.00	6,218.33	40.67	122.40	-32.86	-1,720.76	1,573.59	1,087.76	976.11	111.64	9.743	
8,100.00	7,085.18	6,219.00	6,218.33	41.38	122.40	-32.03	-1,720.76	1,573.59	1,043.35	937.22	106.13	9.830 CC, ES	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #077C - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 100-Standard Keeper 104												Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	7,086.75	7,242.86	7,242.06	63.44	6.04	-90.20	-1,931.11	3,782.82	586.89	526.87	60.02	9.778	
10,400.00	7,086.82	7,243.15	7,242.35	64.72	6.04	-90.27	-1,931.11	3,782.82	499.44	436.36	63.08	7.917	
10,500.00	7,086.89	7,243.44	7,242.64	66.01	6.04	-90.33	-1,931.11	3,782.82	417.67	350.75	66.92	6.241	
10,600.00	7,086.96	7,243.74	7,242.93	67.32	6.04	-90.40	-1,931.11	3,782.82	345.62	274.33	71.29	4.848	
10,700.00	7,087.03	7,244.03	7,243.23	68.64	6.04	-90.46	-1,931.12	3,782.82	290.62	215.95	74.67	3.892	
10,800.00	7,087.10	7,244.32	7,243.52	69.97	6.04	-90.52	-1,931.12	3,782.82	263.57	190.26	73.30	3.595 ES, SF	
10,824.00	7,087.12	7,244.39	7,243.59	70.29	6.04	-90.54	-1,931.12	3,782.82	262.38	190.51	71.87	3.651 CC	
10,900.00	7,087.18	7,244.62	7,243.82	71.31	6.04	-90.59	-1,931.12	3,782.82	272.90	207.98	64.92	4.204	
11,000.00	7,087.25	7,244.91	7,244.11	72.67	6.04	-90.65	-1,931.12	3,782.82	315.40	261.33	54.07	5.833	
11,100.00	7,087.32	7,245.21	7,244.41	74.03	6.04	-90.72	-1,931.13	3,782.82	380.11	334.31	45.80	8.299	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184 - OH - OH											Offset Site Error: 0.00 usft		
Survey Program: 293-A027Ua_INC-ONLY				Offset				Rule Assigned:				Offset Well Error: 0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,000.00	7,089.38	6,308.00	6,307.08	116.29	129.21	-54.29	-1,100.17	8,359.35	1,955.58	1,751.24	204.35	9.570	
14,100.00	7,089.45	6,308.00	6,307.08	117.81	129.21	-54.29	-1,100.17	8,359.35	1,885.40	1,679.45	205.95	9.155	
14,200.00	7,089.52	6,308.00	6,307.08	119.32	129.21	-54.29	-1,100.17	8,359.35	1,818.02	1,610.45	207.57	8.759	
14,300.00	7,089.60	6,308.00	6,307.08	120.84	129.21	-54.29	-1,100.17	8,359.35	1,753.75	1,544.57	209.18	8.384	
14,400.00	7,089.67	6,308.00	6,307.08	122.36	129.21	-54.29	-1,100.17	8,359.35	1,692.95	1,482.20	210.76	8.033	
14,500.00	7,089.74	6,308.00	6,307.08	123.89	129.21	-54.29	-1,100.17	8,359.35	1,636.01	1,423.73	212.28	7.707	
14,600.00	7,089.81	6,308.00	6,307.08	125.41	129.21	-54.29	-1,100.17	8,359.35	1,583.34	1,369.62	213.72	7.409	
14,700.00	7,089.88	6,308.00	6,307.08	126.94	129.21	-54.29	-1,100.17	8,359.35	1,535.39	1,320.35	215.04	7.140	
14,800.00	7,089.95	6,308.00	6,307.08	128.47	129.21	-54.29	-1,100.17	8,359.35	1,492.60	1,276.39	216.21	6.903	
14,900.00	7,090.02	6,308.00	6,307.08	130.00	129.21	-54.29	-1,100.17	8,359.35	1,455.44	1,238.23	217.21	6.701	
15,000.00	7,090.09	6,308.00	6,307.08	131.53	129.21	-54.29	-1,100.17	8,359.35	1,424.34	1,206.36	217.98	6.534	
15,100.00	7,090.17	6,308.00	6,307.08	133.06	129.21	-54.29	-1,100.17	8,359.35	1,399.71	1,181.19	218.52	6.405	
15,200.00	7,090.24	6,308.00	6,307.08	134.60	129.21	-54.29	-1,100.17	8,359.35	1,381.90	1,163.09	218.81	6.316	
15,300.00	7,090.31	6,308.00	6,307.08	136.14	129.21	-54.29	-1,100.17	8,359.35	1,371.16	1,152.34	218.82	6.266	
15,397.78	7,090.38	6,308.00	6,307.08	137.64	129.21	-54.29	-1,100.17	8,359.35	1,367.67	1,149.10	218.57	6.257	CC, ES, SF
15,400.00	7,090.38	6,308.00	6,307.08	137.67	129.21	-54.29	-1,100.17	8,359.35	1,367.67	1,149.11	218.57	6.257	
15,500.00	7,090.45	6,308.00	6,307.08	139.21	129.21	-54.29	-1,100.17	8,359.35	1,371.48	1,153.44	218.04	6.290	
15,600.00	7,090.52	6,308.00	6,307.08	140.75	129.21	-54.29	-1,100.17	8,359.35	1,382.54	1,165.28	217.26	6.364	
15,700.00	7,090.59	6,308.00	6,307.08	142.30	129.21	-54.29	-1,100.17	8,359.35	1,400.66	1,184.42	216.24	6.477	
15,800.00	7,090.66	6,308.00	6,307.08	143.84	129.21	-54.29	-1,100.17	8,359.35	1,425.59	1,210.59	215.00	6.631	
15,900.00	7,090.74	6,308.00	6,307.08	145.39	129.21	-54.29	-1,100.17	8,359.35	1,456.97	1,243.39	213.58	6.822	
16,000.00	7,090.81	6,308.00	6,307.08	146.93	129.21	-54.29	-1,100.17	8,359.35	1,494.39	1,282.39	212.00	7.049	
16,100.00	7,090.88	6,308.00	6,307.08	148.48	129.21	-54.29	-1,100.17	8,359.35	1,537.41	1,327.12	210.29	7.311	
16,200.00	7,090.95	6,308.00	6,307.08	150.03	129.21	-54.29	-1,100.17	8,359.35	1,585.59	1,377.09	208.50	7.605	
16,300.00	7,091.02	6,308.00	6,307.08	151.58	129.21	-54.29	-1,100.17	8,359.35	1,638.45	1,431.81	206.65	7.929	
16,400.00	7,091.09	6,308.00	6,307.08	153.13	129.21	-54.29	-1,100.17	8,359.35	1,695.57	1,490.80	204.77	8.280	
16,500.00	7,091.16	6,308.00	6,307.08	154.68	129.21	-54.29	-1,100.17	8,359.35	1,756.53	1,553.64	202.89	8.658	
16,600.00	7,091.23	6,308.00	6,307.08	156.23	129.21	-54.29	-1,100.17	8,359.35	1,820.95	1,619.92	201.03	9.058	
16,700.00	7,091.30	6,308.00	6,307.08	157.79	129.21	-54.29	-1,100.17	8,359.35	1,888.47	1,689.25	199.22	9.479	
16,800.00	7,091.38	6,308.00	6,307.08	159.34	129.21	-54.29	-1,100.17	8,359.35	1,958.76	1,761.31	197.45	9.920	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #184B - OH - OH												Offset Site Error: 0.00 usft	
Survey Program: 350-A027Ua_INC-ONLY		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned:			Offset Well Error: 0.00 usft	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,900.00	7,089.31	6,298.00	6,287.56	114.78	228.47	-17.41	-1,960.91	9,359.66	2,640.94	2,374.45	266.49	9.910	
14,000.00	7,089.38	6,298.00	6,287.56	116.29	228.47	-17.41	-1,960.91	9,359.66	2,546.43	2,280.21	266.22	9.565	
14,100.00	7,089.45	6,298.00	6,287.56	117.81	228.47	-17.41	-1,960.91	9,359.66	2,452.35	2,186.46	265.89	9.223	
14,200.00	7,089.52	6,298.00	6,287.56	119.32	228.47	-17.41	-1,960.91	9,359.66	2,358.77	2,093.26	265.51	8.884	
14,300.00	7,089.60	6,298.00	6,287.56	120.84	228.47	-17.41	-1,960.91	9,359.66	2,265.73	2,000.68	265.04	8.549	
14,400.00	7,089.67	6,298.00	6,287.56	122.36	228.47	-17.41	-1,960.91	9,359.66	2,173.30	1,908.81	264.49	8.217	
14,500.00	7,089.74	6,298.00	6,287.56	123.89	228.47	-17.41	-1,960.91	9,359.66	2,081.58	1,817.75	263.83	7.890	
14,600.00	7,089.81	6,298.00	6,287.56	125.41	228.47	-17.41	-1,960.91	9,359.66	1,990.66	1,727.63	263.03	7.568	
14,700.00	7,089.88	6,298.00	6,287.56	126.94	228.47	-17.41	-1,960.91	9,359.66	1,900.65	1,638.57	262.08	7.252	
14,800.00	7,089.95	6,298.00	6,287.56	128.47	228.47	-17.41	-1,960.91	9,359.66	1,811.69	1,550.76	260.92	6.943	
14,900.00	7,090.02	6,298.00	6,287.56	130.00	228.47	-17.41	-1,960.91	9,359.66	1,723.93	1,464.41	259.52	6.643	
15,000.00	7,090.09	6,298.00	6,287.56	131.53	228.47	-17.41	-1,960.91	9,359.66	1,637.58	1,379.77	257.81	6.352	
15,100.00	7,090.17	6,298.00	6,287.56	133.06	228.47	-17.41	-1,960.91	9,359.66	1,552.87	1,297.14	255.73	6.072	
15,200.00	7,090.24	6,298.00	6,287.56	134.60	228.47	-17.41	-1,960.91	9,359.66	1,470.09	1,216.91	253.18	5.807	
15,300.00	7,090.31	6,298.00	6,287.56	136.14	228.47	-17.41	-1,960.91	9,359.66	1,389.57	1,139.53	250.03	5.558	
15,400.00	7,090.38	6,298.00	6,287.56	137.67	228.47	-17.41	-1,960.91	9,359.66	1,311.73	1,065.57	246.16	5.329	
15,500.00	7,090.45	6,298.00	6,287.56	139.21	228.47	-17.41	-1,960.91	9,359.66	1,237.08	995.71	241.37	5.125	
15,600.00	7,090.52	6,298.00	6,287.56	140.75	228.47	-17.41	-1,960.91	9,359.66	1,166.24	930.77	235.47	4.953	
15,700.00	7,090.59	6,298.00	6,287.56	142.30	228.47	-17.41	-1,960.91	9,359.66	1,099.93	871.72	228.21	4.820	
15,800.00	7,090.66	6,298.00	6,287.56	143.84	228.47	-17.41	-1,960.91	9,359.66	1,039.03	819.65	219.38	4.736	
15,900.00	7,090.74	6,298.00	6,287.56	145.39	228.47	-17.41	-1,960.91	9,359.66	984.54	775.72	208.82	4.715 SF	
16,000.00	7,090.81	6,298.00	6,287.56	146.93	228.47	-17.41	-1,960.91	9,359.66	937.58	741.03	196.55	4.770	
16,100.00	7,090.88	6,298.00	6,287.56	148.48	228.47	-17.41	-1,960.91	9,359.66	899.33	716.28	183.05	4.913	
16,200.00	7,090.95	6,298.00	6,287.56	150.03	228.47	-17.41	-1,960.91	9,359.66	870.94	701.37	169.57	5.136	
16,300.00	7,091.02	6,298.00	6,287.56	151.58	228.47	-17.41	-1,960.91	9,359.66	853.39	694.78	158.61	5.380	
16,400.00	7,091.09	6,298.00	6,287.56	153.13	228.47	-17.41	-1,960.91	9,359.66	847.35	693.70	153.65	5.515 CC, ES	
16,404.45	7,091.09	6,298.00	6,287.56	153.20	228.47	-17.41	-1,960.91	9,359.66	847.36	693.74	153.62	5.516	
16,500.00	7,091.16	6,298.00	6,287.56	154.68	228.47	-17.41	-1,960.91	9,359.66	853.08	696.40	156.68	5.445	
16,600.00	7,091.23	6,298.00	6,287.56	156.23	228.47	-17.41	-1,960.91	9,359.66	870.33	704.42	165.91	5.246	
16,700.00	7,091.30	6,298.00	6,287.56	157.79	228.47	-17.41	-1,960.91	9,359.66	898.45	720.51	177.94	5.049	
16,800.00	7,091.38	6,298.00	6,287.56	159.34	228.47	-17.41	-1,960.91	9,359.66	936.46	746.20	190.26	4.922	
16,900.00	7,091.45	6,298.00	6,287.56	160.90	228.47	-17.41	-1,960.91	9,359.66	983.21	781.62	201.58	4.877	
17,000.00	7,091.52	6,298.00	6,287.56	162.45	228.47	-17.41	-1,960.91	9,359.66	1,037.51	826.08	211.44	4.907	
17,100.00	7,091.59	6,298.00	6,287.56	164.01	228.47	-17.41	-1,960.91	9,359.66	1,098.26	878.50	219.75	4.998	
17,200.00	7,091.66	6,298.00	6,287.56	165.57	228.47	-17.41	-1,960.91	9,359.66	1,164.43	937.77	226.66	5.137	
17,300.00	7,091.73	6,298.00	6,287.56	167.13	228.47	-17.41	-1,960.91	9,359.66	1,235.17	1,002.80	232.37	5.316	
17,400.00	7,091.80	6,298.00	6,287.56	168.69	228.47	-17.41	-1,960.91	9,359.66	1,309.73	1,072.66	237.07	5.525	
17,500.00	7,091.87	6,298.00	6,287.56	170.25	228.47	-17.41	-1,960.91	9,359.66	1,387.49	1,146.53	240.95	5.758	
17,600.00	7,091.95	6,298.00	6,287.56	171.81	228.47	-17.41	-1,960.91	9,359.66	1,467.94	1,223.76	244.18	6.012	
17,700.00	7,092.02	6,298.00	6,287.56	173.37	228.47	-17.41	-1,960.91	9,359.66	1,550.68	1,303.79	246.88	6.281	
17,800.00	7,092.09	6,298.00	6,287.56	174.93	228.47	-17.41	-1,960.91	9,359.66	1,635.34	1,386.18	249.16	6.563	
17,900.00	7,092.16	6,298.00	6,287.56	176.50	228.47	-17.41	-1,960.91	9,359.66	1,721.65	1,470.55	251.10	6.857	
18,000.00	7,092.23	6,298.00	6,287.56	178.06	228.47	-17.41	-1,960.91	9,359.66	1,809.37	1,556.61	252.76	7.159	
18,100.00	7,092.30	6,298.00	6,287.56	179.63	228.47	-17.41	-1,960.91	9,359.66	1,898.30	1,644.11	254.19	7.468	
18,200.00	7,092.37	6,298.00	6,287.56	181.19	228.47	-17.41	-1,960.91	9,359.66	1,988.29	1,732.85	255.44	7.784	
18,300.00	7,092.44	6,298.00	6,287.56	182.76	228.47	-17.41	-1,960.91	9,359.66	2,079.19	1,822.65	256.54	8.105	
18,400.00	7,092.51	6,298.00	6,287.56	184.33	228.47	-17.41	-1,960.91	9,359.66	2,170.89	1,913.38	257.51	8.430	
18,500.00	7,092.59	6,298.00	6,287.56	185.89	228.47	-17.41	-1,960.91	9,359.66	2,263.29	2,004.92	258.37	8.760	
18,600.00	7,092.66	6,298.00	6,287.56	187.46	228.47	-17.41	-1,960.91	9,359.66	2,356.32	2,097.17	259.15	9.093	
18,700.00	7,092.73	6,298.00	6,287.56	189.03	228.47	-17.41	-1,960.91	9,359.66	2,449.89	2,190.04	259.85	9.428	
18,800.00	7,092.80	6,298.00	6,287.56	190.60	228.47	-17.41	-1,960.91	9,359.66	2,543.96	2,283.47	260.49	9.766	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188 - OH - OH											Offset Site Error:	0.00 usft
Survey Program: 280-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
12,300.00	7,088.17	6,476.00	6,475.22	91.02	129.41	-64.12	-586.88	6,057.87	1,963.07	1,762.31	200.76	9.778
12,400.00	7,088.24	6,476.00	6,475.22	92.47	129.41	-64.12	-586.88	6,057.87	1,924.78	1,723.00	201.78	9.539
12,500.00	7,088.31	6,476.00	6,475.22	93.93	129.41	-64.12	-586.88	6,057.87	1,891.00	1,688.28	202.72	9.328
12,600.00	7,088.39	6,476.00	6,475.22	95.40	129.41	-64.12	-586.88	6,057.87	1,861.99	1,658.43	203.57	9.147
12,700.00	7,088.46	6,476.00	6,475.22	96.87	129.41	-64.12	-586.88	6,057.87	1,837.97	1,633.68	204.29	8.997
12,800.00	7,088.53	6,476.00	6,475.22	98.34	129.41	-64.12	-586.88	6,057.87	1,819.14	1,614.25	204.89	8.878
12,900.00	7,088.60	6,476.00	6,475.22	99.82	129.41	-64.12	-586.88	6,057.87	1,805.65	1,600.30	205.35	8.793
13,000.00	7,088.67	6,476.00	6,475.22	101.30	129.41	-64.12	-586.88	6,057.87	1,797.64	1,591.97	205.67	8.741
13,094.39	7,088.74	6,476.00	6,475.22	102.70	129.41	-64.12	-586.88	6,057.87	1,795.16	1,589.34	205.82	8.722 CC, ES
13,100.00	7,088.74	6,476.00	6,475.22	102.79	129.41	-64.12	-586.88	6,057.87	1,795.17	1,589.35	205.82	8.722 SF
13,200.00	7,088.81	6,476.00	6,475.22	104.27	129.41	-64.12	-586.88	6,057.87	1,798.26	1,592.44	205.82	8.737
13,300.00	7,088.88	6,476.00	6,475.22	105.77	129.41	-64.12	-586.88	6,057.87	1,806.90	1,601.23	205.67	8.785
13,400.00	7,088.96	6,476.00	6,475.22	107.26	129.41	-64.12	-586.88	6,057.87	1,820.99	1,615.62	205.36	8.867
13,500.00	7,089.03	6,476.00	6,475.22	108.76	129.41	-64.12	-586.88	6,057.87	1,840.41	1,635.49	204.92	8.981
13,600.00	7,089.10	6,476.00	6,475.22	110.26	129.41	-64.12	-586.88	6,057.87	1,865.00	1,660.66	204.34	9.127
13,700.00	7,089.17	6,476.00	6,475.22	111.77	129.41	-64.12	-586.88	6,057.87	1,894.56	1,690.91	203.65	9.303
13,800.00	7,089.24	6,476.00	6,475.22	113.27	129.41	-64.12	-586.88	6,057.87	1,928.86	1,726.01	202.85	9.509
13,900.00	7,089.31	6,476.00	6,475.22	114.78	129.41	-64.12	-586.88	6,057.87	1,967.64	1,765.67	201.97	9.742

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #188C - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 100-Standard Keeper 104											Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
13,200.00	7,088.81	7,259.44	7,257.04	104.27	6.93	-90.43	-1,706.78	6,871.35	869.59	781.32	88.27	9.851
13,300.00	7,088.88	7,259.39	7,256.99	105.77	6.93	-90.42	-1,706.78	6,871.35	789.72	696.40	93.32	8.462
13,400.00	7,088.96	7,259.34	7,256.94	107.26	6.93	-90.42	-1,706.78	6,871.35	714.93	615.95	98.99	7.223
13,500.00	7,089.03	7,259.29	7,256.89	108.76	6.93	-90.41	-1,706.78	6,871.35	646.99	541.91	105.09	6.157
13,600.00	7,089.10	7,259.24	7,256.84	110.26	6.93	-90.40	-1,706.78	6,871.35	588.28	477.10	111.18	5.291
13,700.00	7,089.17	7,259.20	7,256.79	111.77	6.93	-90.40	-1,706.78	6,871.35	541.80	425.43	116.37	4.656
13,800.00	7,089.24	7,259.15	7,256.74	113.27	6.93	-90.39	-1,706.78	6,871.35	510.90	391.57	119.33	4.282
13,900.00	7,089.31	7,259.10	7,256.70	114.78	6.93	-90.39	-1,706.78	6,871.35	498.49	379.74	118.75	4.198 ES, SF
13,912.64	7,089.32	7,259.09	7,256.69	114.97	6.93	-90.39	-1,706.78	6,871.35	498.33	379.94	118.39	4.209 CC
14,000.00	7,089.38	7,259.05	7,256.65	116.29	6.93	-90.38	-1,706.78	6,871.35	505.93	391.73	114.19	4.430
14,100.00	7,089.45	7,259.01	7,256.60	117.81	6.93	-90.38	-1,706.78	6,871.35	532.39	425.89	106.50	4.999
14,200.00	7,089.52	7,258.96	7,256.55	119.32	6.93	-90.37	-1,706.78	6,871.35	575.25	477.97	97.28	5.913
14,300.00	7,089.60	7,258.91	7,256.51	120.84	6.93	-90.37	-1,706.78	6,871.35	631.17	543.17	88.00	7.172
14,400.00	7,089.67	7,258.87	7,256.46	122.36	6.93	-90.36	-1,706.77	6,871.35	697.03	617.49	79.54	8.763

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - (O) RU #259 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 235-A027Ua_INC-ONLY												Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
2,900.00	2,819.86	2,777.27	2,775.86	13.06	64.38	12.22	-1,308.46	-47.11	737.71	662.16	75.55	9.765	
3,000.00	2,915.49	2,873.34	2,871.49	13.56	71.05	12.72	-1,308.46	-47.11	709.11	626.50	82.60	8.585	
3,100.00	3,011.12	2,969.94	2,967.12	14.07	78.29	13.26	-1,308.46	-47.11	680.56	590.32	90.23	7.542	
3,200.00	3,106.75	3,055.06	3,051.90	14.57	84.37	13.80	-1,307.16	-47.11	650.87	554.14	96.73	6.729	
3,300.00	3,202.38	3,159.61	3,155.87	15.08	91.28	14.50	-1,306.78	-47.11	621.99	517.97	104.02	5.979	
3,400.00	3,298.01	3,258.25	3,254.01	15.59	97.41	15.19	-1,308.46	-47.11	595.30	484.75	110.55	5.385	
3,500.00	3,393.64	3,353.88	3,349.64	16.10	103.12	15.96	-1,308.46	-47.11	567.05	450.38	116.67	4.860	
3,600.00	3,489.27	3,392.00	3,387.10	16.61	105.40	16.29	-1,308.46	-47.11	542.04	423.08	118.96	4.557 SF	
3,695.74	3,580.83	3,392.00	3,387.10	17.10	105.40	16.29	-1,308.46	-47.11	533.51	417.72	115.80	4.607 CC, ES	
3,700.00	3,584.90	3,392.00	3,387.10	17.12	105.40	16.29	-1,308.46	-47.11	533.53	417.96	115.57	4.616	
3,800.00	3,680.53	3,392.00	3,387.10	17.63	105.40	16.29	-1,308.46	-47.11	543.60	435.22	108.38	5.016	
3,900.00	3,776.16	3,392.00	3,387.10	18.14	105.40	16.29	-1,308.46	-47.11	571.28	472.80	98.47	5.801	
4,000.00	3,871.79	3,392.00	3,387.10	18.66	105.40	16.29	-1,308.46	-47.11	614.17	526.75	87.42	7.025	
4,100.00	3,967.42	3,392.00	3,387.10	19.17	105.40	16.29	-1,308.46	-47.11	669.37	592.83	76.54	8.745	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH												Offset Site Error:	0.00 usft
Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND												Offset Well Error:	3.28 usft
Reference												Rule Assigned:	
Offset												Warning	
Semi Major Axis												Distance	
Offset Wellbore Centre												Between	
Between Centres												Ellipses	
Minimum Separation												Separation Factor	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
16,000.00	7,090.81	15,057.06	7,064.05	146.93	132.80	-90.32	516.03	8,911.11	2,729.40	2,453.80	275.60	9.904	
16,100.00	7,090.88	15,147.24	7,065.01	148.48	134.20	-90.34	517.61	9,001.28	2,731.54	2,453.12	278.41	9.811	
16,200.00	7,090.95	15,246.38	7,065.82	150.03	135.74	-90.35	519.87	9,100.38	2,734.20	2,452.67	281.53	9.712	
16,300.00	7,091.02	15,357.20	7,066.97	151.58	137.46	-90.38	521.75	9,211.18	2,736.25	2,451.22	285.03	9.600	
16,400.00	7,091.09	15,467.14	7,068.13	153.13	139.17	-90.40	523.47	9,321.10	2,738.21	2,449.71	288.50	9.491	
16,500.00	7,091.16	15,556.74	7,069.16	154.68	140.56	-90.42	524.72	9,410.69	2,740.00	2,448.69	291.30	9.406	
16,600.00	7,091.23	15,707.25	7,071.33	156.23	142.90	-90.46	526.14	9,561.17	2,741.42	2,445.36	296.06	9.260	
16,700.00	7,091.30	15,821.69	7,073.15	157.79	144.69	-90.50	525.33	9,675.59	2,741.06	2,441.40	299.66	9.147	
16,800.00	7,091.38	15,948.24	7,073.00	159.34	146.67	-90.49	524.21	9,802.14	2,740.63	2,437.02	303.60	9.027	
16,900.00	7,091.45	16,033.50	7,073.03	160.90	148.01	-90.49	522.94	9,887.38	2,739.53	2,433.22	306.32	8.943	
17,000.00	7,091.52	16,156.52	7,073.08	162.45	149.94	-90.49	521.24	10,010.40	2,738.56	2,428.41	310.15	8.830	
17,100.00	7,091.59	16,241.97	7,073.64	164.01	151.28	-90.50	519.78	10,095.83	2,737.23	2,424.36	312.88	8.749	
17,200.00	7,091.66	16,336.97	7,074.56	165.57	152.77	-90.52	518.48	10,190.81	2,736.25	2,420.37	315.88	8.662	
17,300.00	7,091.73	16,605.55	7,073.10	167.13	157.00	-90.49	505.83	10,459.00	2,731.25	2,407.75	323.50	8.443	
17,400.00	7,091.80	16,683.24	7,071.39	168.69	158.22	-90.45	500.33	10,536.47	2,724.54	2,398.41	326.13	8.354	
17,500.00	7,091.87	16,749.97	7,069.81	170.25	159.28	-90.42	496.30	10,603.07	2,718.88	2,390.42	328.46	8.278	
17,600.00	7,091.95	16,808.97	7,068.43	171.81	160.21	-90.39	493.52	10,661.98	2,714.57	2,384.03	330.55	8.212	
17,700.00	7,092.02	16,862.44	7,067.27	173.37	161.05	-90.36	491.86	10,715.42	2,711.88	2,379.48	332.39	8.159	
17,800.00	7,092.09	16,923.01	7,066.10	174.93	162.00	-90.34	491.15	10,775.97	2,710.97	2,376.60	334.37	8.108	
17,900.00	7,092.16	17,016.24	7,064.65	176.50	163.47	-90.31	490.46	10,869.18	2,710.60	2,373.29	337.31	8.036	
17,906.02	7,092.16	17,020.07	7,064.59	176.59	163.53	-90.31	490.44	10,873.01	2,710.60	2,373.16	337.44	8.033 CC	
18,000.00	7,092.23	17,092.97	7,063.59	178.06	164.67	-90.28	490.74	10,945.90	2,711.24	2,371.51	339.73	7.980	
18,100.00	7,092.30	17,155.33	7,062.69	179.63	165.65	-90.26	491.66	11,008.25	2,712.95	2,371.30	341.65	7.941	
18,200.00	7,092.37	17,244.95	7,061.23	181.19	167.05	-90.23	493.52	11,097.84	2,715.39	2,370.94	344.45	7.883	
18,300.00	7,092.44	17,353.82	7,059.89	182.76	168.75	-90.20	495.80	11,206.68	2,717.86	2,369.95	347.91	7.812	
18,400.00	7,092.51	17,457.28	7,060.03	184.33	170.37	-90.20	497.60	11,310.12	2,719.97	2,368.78	351.19	7.745	
18,500.00	7,092.59	17,579.96	7,060.64	185.89	172.30	-90.21	499.15	11,432.78	2,721.61	2,366.51	355.10	7.664	
18,600.00	7,092.66	17,670.08	7,061.27	187.46	173.71	-90.22	500.11	11,522.90	2,723.05	2,365.11	357.94	7.607	
18,700.00	7,092.73	17,754.96	7,061.92	189.03	175.04	-90.24	501.29	11,607.77	2,724.84	2,364.24	360.60	7.556	
18,800.00	7,092.80	17,848.96	7,062.77	190.60	176.52	-90.25	503.01	11,701.75	2,727.05	2,363.49	363.56	7.501	
18,900.00	7,092.87	17,971.40	7,064.21	192.17	178.44	-90.28	504.88	11,824.16	2,728.95	2,361.46	367.48	7.426	
19,000.00	7,092.94	18,084.81	7,065.63	193.74	180.22	-90.31	506.17	11,937.56	2,730.49	2,359.40	371.09	7.358	
19,100.00	7,093.01	18,194.36	7,066.95	195.31	181.95	-90.33	506.49	12,047.10	2,731.15	2,356.58	374.57	7.291	
19,200.00	7,093.08	18,330.08	7,067.73	196.88	184.09	-90.35	506.40	12,182.82	2,731.54	2,352.69	378.85	7.210	
19,300.00	7,093.16	18,430.13	7,067.13	198.45	185.67	-90.34	505.40	12,282.86	2,730.91	2,348.90	382.02	7.149	
19,361.43	7,093.20	18,475.77	7,066.58	199.42	186.39	-90.32	505.10	12,328.50	2,730.74	2,347.26	383.48	7.121	
19,400.00	7,093.23	18,511.96	7,066.11	200.02	186.96	-90.31	505.05	12,364.69	2,730.82	2,346.20	384.62	7.100	
19,500.00	7,093.30	18,633.01	7,064.79	201.59	188.87	-90.28	504.30	12,485.72	2,730.58	2,342.14	388.44	7.030	
19,600.00	7,093.37	18,727.29	7,063.97	203.17	190.35	-90.26	503.36	12,580.00	2,729.96	2,338.53	391.43	6.974	
19,700.00	7,093.44	18,815.38	7,063.06	204.74	191.75	-90.24	502.83	12,668.08	2,729.72	2,335.49	394.23	6.924	
19,713.95	7,093.45	18,828.30	7,062.91	204.96	191.95	-90.24	502.78	12,680.99	2,729.72	2,335.07	394.64	6.917	
19,800.00	7,093.51	18,913.30	7,061.93	206.31	193.29	-90.22	502.54	12,765.99	2,729.80	2,332.46	397.33	6.870	
19,900.00	7,093.58	19,031.25	7,060.65	207.89	195.15	-90.19	501.74	12,883.93	2,729.49	2,328.43	401.05	6.806	
20,000.00	7,093.65	19,138.66	7,059.85	209.46	196.85	-90.17	500.47	12,991.33	2,728.67	2,324.23	404.45	6.747	
20,100.00	7,093.72	19,245.93	7,059.10	211.04	198.55	-90.15	499.01	13,098.58	2,727.68	2,319.85	407.83	6.688	
20,200.00	7,093.80	19,346.68	7,058.64	212.61	200.14	-90.14	497.42	13,199.32	2,726.48	2,315.45	411.03	6.633	
20,300.00	7,093.87	19,431.22	7,058.65	214.19	201.48	-90.14	496.30	13,283.86	2,725.54	2,311.80	413.74	6.588	
20,400.00	7,093.94	19,532.30	7,058.53	215.77	203.08	-90.14	495.38	13,384.93	2,725.01	2,308.07	416.94	6.536	
20,500.00	7,094.01	19,616.96	7,058.34	217.34	204.42	-90.13	494.67	13,469.59	2,724.55	2,304.90	419.65	6.492	
20,512.28	7,094.02	19,626.68	7,058.33	217.54	204.57	-90.13	494.62	13,479.31	2,724.55	2,304.59	419.96	6.488	
20,600.00	7,094.08	19,687.61	7,058.42	218.92	205.53	-90.13	494.66	13,540.23	2,724.94	2,303.05	421.89	6.459	
20,700.00	7,094.15	19,760.75	7,059.19	220.50	206.69	-90.15	495.57	13,613.37	2,726.53	2,302.36	424.16	6.428	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit #746H - OH - OH												Offset Site Error: 0.00 usft	
Survey Program: 100-A020Ga_GYRO-NS, 450-B001Mb_MWD+HRGM, 6613-MWD+HRGM+MS, 20953-A026Ua_BLIND												Offset Well Error: 3.28 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance			Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
20,800.00	7,094.22	19,894.59	7,061.38	222.07	208.80	-90.19	497.23	13,747.18	2,728.24	2,299.78	428.46	6.367	
20,900.00	7,094.29	20,008.75	7,064.71	223.65	210.60	-90.26	497.05	13,861.28	2,728.43	2,296.34	432.10	6.314	
21,000.00	7,094.37	20,084.14	7,067.17	225.23	211.79	-90.31	497.19	13,936.64	2,729.03	2,294.55	434.48	6.281	
21,100.00	7,094.44	20,218.94	7,069.10	226.81	213.92	-90.35	497.88	14,071.42	2,730.08	2,291.31	438.77	6.222	
21,106.50	7,094.44	20,231.64	7,069.18	226.91	214.12	-90.35	497.80	14,084.12	2,730.06	2,290.89	439.17	6.216	
21,200.00	7,094.51	20,285.77	7,069.49	228.39	214.98	-90.36	498.00	14,138.24	2,730.59	2,289.71	440.89	6.193	
21,300.00	7,094.58	20,411.95	7,070.10	229.97	216.97	-90.37	498.57	14,264.42	2,731.49	2,286.59	444.90	6.140	
21,400.00	7,094.65	20,496.96	7,070.69	231.55	218.32	-90.38	498.47	14,349.43	2,731.77	2,284.16	447.61	6.103	
21,500.00	7,094.72	20,591.96	7,071.33	233.13	219.82	-90.39	498.75	14,444.43	2,732.45	2,281.83	450.62	6.064	
21,600.00	7,094.79	20,685.94	7,072.08	234.71	221.31	-90.40	499.38	14,538.40	2,733.50	2,279.90	453.60	6.026	
21,700.00	7,094.86	20,770.28	7,072.83	236.29	222.64	-90.42	500.19	14,622.73	2,734.83	2,278.57	456.26	5.994	
21,800.00	7,094.94	20,915.45	7,074.42	237.87	228.88	-90.45	500.62	14,767.89	2,735.46	2,270.59	464.87	5.884	
21,838.30	7,094.96	20,952.96	7,074.90	238.47	233.63	-90.46	500.46	14,805.40	2,735.45	2,265.19	470.26	5.817	ES, SF
21,900.00	7,095.01	20,952.96	7,074.90	239.45	233.63	-90.46	500.46	14,805.40	2,736.14	2,265.95	470.20	5.819	
22,000.00	7,095.08	20,952.96	7,074.90	241.03	233.63	-90.46	500.46	14,805.40	2,740.22	2,270.62	469.61	5.835	
22,100.00	7,095.15	20,952.96	7,074.90	242.61	233.63	-90.46	500.46	14,805.40	2,747.94	2,279.52	468.42	5.866	
22,200.00	7,095.22	20,952.96	7,074.90	244.19	233.63	-90.46	500.46	14,805.40	2,759.25	2,292.61	466.64	5.913	
22,300.00	7,095.29	20,952.96	7,074.90	245.77	233.63	-90.46	500.46	14,805.40	2,774.13	2,309.83	464.30	5.975	
22,400.00	7,095.36	20,952.96	7,074.90	247.36	233.63	-90.46	500.46	14,805.40	2,792.51	2,331.09	461.42	6.052	
22,500.00	7,095.43	20,952.96	7,074.90	248.94	233.63	-90.46	500.46	14,805.40	2,814.33	2,356.29	458.04	6.144	
22,600.00	7,095.50	20,952.96	7,074.90	250.52	233.63	-90.46	500.46	14,805.40	2,839.51	2,385.31	454.20	6.252	
22,700.00	7,095.58	20,952.96	7,074.90	252.10	233.63	-90.46	500.46	14,805.40	2,867.95	2,418.03	449.92	6.374	
22,800.00	7,095.65	20,952.96	7,074.90	253.69	233.63	-90.46	500.46	14,805.40	2,899.56	2,454.30	445.26	6.512	
22,900.00	7,095.72	20,952.96	7,074.90	255.27	233.63	-90.46	500.46	14,805.40	2,934.24	2,493.99	440.26	6.665	
22,986.76	7,095.78	20,952.96	7,074.90	256.64	233.63	-90.46	500.46	14,805.40	2,966.74	2,531.07	435.67	6.810	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 750H - OH - Plan #4												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS							Rule Assigned:					Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	3.28	3.28	-2.46	75.00	-3.22	75.07				
100.00	100.00	100.00	100.00	3.29	3.29	-2.46	75.00	-3.22	75.07	68.49	6.58	11.410	
200.00	200.00	200.00	200.00	3.34	3.34	-2.46	75.00	-3.22	75.07	68.39	6.67	11.250	
300.00	300.00	300.00	300.00	3.42	3.42	-2.46	75.00	-3.22	75.07	68.23	6.84	10.975	
400.00	400.00	400.00	400.00	3.54	3.54	-2.46	75.00	-3.22	75.07	67.99	7.08	10.608	
500.00	500.00	500.00	500.00	3.69	3.69	-2.46	75.00	-3.22	75.07	67.69	7.37	10.179 CC	
600.00	599.98	602.45	602.43	3.86	3.86	-178.57	73.29	-3.89	75.18	67.47	7.71	9.748 ES	
700.00	699.84	704.85	704.68	4.04	4.05	179.60	68.18	-5.90	75.57	67.49	8.08	9.356	
800.00	799.45	805.41	804.92	4.25	4.26	177.00	60.73	-8.83	77.23	68.74	8.49	9.094 SF	
900.00	898.70	905.22	904.40	4.48	4.50	174.72	53.22	-11.78	82.41	73.46	8.95	9.205	
1,000.00	997.47	1,004.80	1,003.66	4.74	4.75	172.97	45.73	-14.73	91.16	81.71	9.45	9.648	
1,100.00	1,095.62	1,104.03	1,102.55	5.03	5.01	171.80	38.26	-17.66	103.41	93.43	9.97	10.367	
1,200.00	1,193.06	1,202.77	1,200.98	5.35	5.29	171.12	30.83	-20.59	119.10	108.57	10.53	11.313	
1,300.00	1,289.64	1,300.93	1,298.81	5.70	5.57	170.81	23.45	-23.49	138.20	127.09	11.10	12.446	
1,350.00	1,337.58	1,349.74	1,347.47	5.88	5.72	170.76	19.77	-24.94	149.01	137.61	11.40	13.069	
1,400.00	1,385.40	1,398.46	1,396.03	6.07	5.87	170.77	16.11	-26.38	160.25	148.55	11.70	13.696	
1,500.00	1,481.03	1,495.91	1,493.15	6.47	6.17	170.79	8.77	-29.26	182.72	170.41	12.31	14.844	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #4												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	3.28 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	0.00	0.00	3.28	3.28	-2.69	49.87	-2.34	49.93				
100.00	100.00	100.00	100.00	3.29	3.29	-2.69	49.87	-2.34	49.93	43.35	6.58	7.589	
200.00	200.00	200.00	200.00	3.34	3.34	-2.69	49.87	-2.34	49.93	43.25	6.67	7.483	
300.00	300.00	300.00	300.00	3.42	3.42	-2.69	49.87	-2.34	49.93	43.09	6.84	7.300	
400.00	400.00	400.00	400.00	3.54	3.54	-2.69	49.87	-2.34	49.93	42.85	7.08	7.056	
500.00	500.00	500.00	500.00	3.69	3.69	-2.69	49.87	-2.34	49.93	42.55	7.37	6.770	
600.00	599.98	601.77	601.75	3.86	3.86	-178.38	48.06	-2.37	49.90	42.19	7.71	6.472	
700.00	699.84	703.54	703.36	4.04	4.05	-178.96	42.65	-2.45	49.82	41.75	8.07	6.173	
800.00	799.45	805.29	804.72	4.25	4.26	-179.92	33.62	-2.58	49.69	41.23	8.47	5.869	
900.00	898.70	907.04	905.67	4.48	4.50	178.72	21.01	-2.77	49.54	40.65	8.90	5.568	
1,000.00	997.47	1,008.77	1,006.10	4.74	4.77	176.96	4.82	-3.01	49.39	40.04	9.36	5.279	
1,100.00	1,095.62	1,110.48	1,105.87	5.03	5.06	174.81	-14.92	-3.30	49.27	39.43	9.84	5.006	
1,200.00	1,193.06	1,212.17	1,204.86	5.35	5.39	172.26	-38.18	-3.64	49.21	38.86	10.36	4.752	
1,208.07	1,200.88	1,220.37	1,212.81	5.38	5.42	172.04	-40.21	-3.67	49.21	38.81	10.40	4.732 CC, ES	
1,300.00	1,289.64	1,312.38	1,301.87	5.70	5.74	169.77	-63.30	-4.02	50.51	39.56	10.96	4.611 SF	
1,350.00	1,337.58	1,362.34	1,350.22	5.88	5.92	168.84	-75.85	-4.20	52.46	41.19	11.27	4.654	
1,400.00	1,385.40	1,412.27	1,398.56	6.07	6.10	168.09	-88.38	-4.39	54.85	43.25	11.59	4.731	
1,500.00	1,481.03	1,512.15	1,495.24	6.47	6.49	166.76	-113.46	-4.76	59.65	47.39	12.26	4.867	
1,600.00	1,576.66	1,612.03	1,591.92	6.89	6.88	165.63	-138.53	-5.13	64.48	51.53	12.94	4.982	
1,700.00	1,672.29	1,711.90	1,688.59	7.32	7.29	164.66	-163.60	-5.50	69.32	55.68	13.65	5.080	
1,800.00	1,767.92	1,811.78	1,785.27	7.77	7.71	163.81	-188.68	-5.87	74.19	59.82	14.37	5.163	
1,900.00	1,863.55	1,911.65	1,881.95	8.22	8.13	163.07	-213.75	-6.25	79.07	63.96	15.11	5.234	
2,000.00	1,959.18	2,011.53	1,978.62	8.68	8.56	162.42	-238.82	-6.62	83.96	68.11	15.86	5.295	
2,100.00	2,054.81	2,111.41	2,075.30	9.15	9.00	161.83	-263.90	-6.99	88.86	72.25	16.62	5.348	
2,200.00	2,150.44	2,211.28	2,171.98	9.63	9.44	161.31	-288.97	-7.36	93.77	76.38	17.39	5.393	
2,300.00	2,246.07	2,311.16	2,268.65	10.11	9.89	160.84	-314.04	-7.73	98.69	80.52	18.17	5.432	
2,400.00	2,341.70	2,411.03	2,365.33	10.59	10.34	160.42	-339.12	-8.10	103.61	84.66	18.95	5.466	
2,500.00	2,437.33	2,510.91	2,462.01	11.08	10.80	160.03	-364.19	-8.47	108.54	88.79	19.75	5.496	
2,600.00	2,532.96	2,610.79	2,558.68	11.57	11.25	159.68	-389.26	-8.85	113.47	92.92	20.55	5.522	
2,700.00	2,628.59	2,710.66	2,655.36	12.07	11.71	159.36	-414.34	-9.22	118.41	97.05	21.35	5.545	
2,800.00	2,724.23	2,810.54	2,752.04	12.56	12.17	159.06	-439.41	-9.59	123.35	101.18	22.16	5.565	
2,900.00	2,819.86	2,910.41	2,848.71	13.06	12.64	158.78	-464.48	-9.96	128.29	105.31	22.98	5.583	
3,000.00	2,915.49	3,010.29	2,945.39	13.56	13.10	158.53	-489.56	-10.33	133.24	109.44	23.80	5.599	
3,100.00	3,011.12	3,110.17	3,042.07	14.07	13.57	158.29	-514.63	-10.70	138.18	113.56	24.62	5.613	
3,200.00	3,106.75	3,210.04	3,138.74	14.57	14.04	158.07	-539.70	-11.07	143.13	117.69	25.44	5.625	
3,300.00	3,202.38	3,309.92	3,235.42	15.08	14.51	157.87	-564.78	-11.45	148.09	121.81	26.27	5.637	
3,400.00	3,298.01	3,409.79	3,332.10	15.59	14.98	157.68	-589.85	-11.82	153.04	125.94	27.10	5.647	
3,500.00	3,393.64	3,509.67	3,428.77	16.10	15.45	157.50	-614.92	-12.19	157.99	130.06	27.94	5.656	
3,600.00	3,489.27	3,609.55	3,525.45	16.61	15.93	157.33	-640.00	-12.56	162.95	134.18	28.77	5.664	
3,700.00	3,584.90	3,709.42	3,622.13	17.12	16.40	157.17	-665.07	-12.93	167.91	138.30	29.61	5.671	
3,800.00	3,680.53	3,809.30	3,718.80	17.63	16.87	157.02	-690.14	-13.30	172.87	142.42	30.45	5.678	
3,900.00	3,776.16	3,909.17	3,815.48	18.14	17.35	156.88	-715.22	-13.67	177.83	146.54	31.29	5.684	
4,000.00	3,871.79	4,009.05	3,912.16	18.66	17.83	156.74	-740.29	-14.05	182.79	150.66	32.13	5.689	
4,100.00	3,967.42	4,108.93	4,008.83	19.17	18.30	156.62	-765.37	-14.42	187.75	154.78	32.97	5.694	
4,200.00	4,063.05	4,208.80	4,105.51	19.69	18.78	156.50	-790.44	-14.79	192.72	158.90	33.82	5.698	
4,300.00	4,158.68	4,308.68	4,202.19	20.20	19.26	156.38	-815.51	-15.16	197.68	163.01	34.67	5.702	
4,400.00	4,254.31	4,408.55	4,298.86	20.72	19.74	156.27	-840.59	-15.53	202.65	167.13	35.51	5.706	
4,500.00	4,349.94	4,508.43	4,395.54	21.24	20.22	156.17	-865.66	-15.90	207.61	171.25	36.36	5.709	
4,600.00	4,445.57	4,608.31	4,492.22	21.76	20.70	156.07	-890.73	-16.27	212.58	175.37	37.21	5.713	
4,700.00	4,541.20	4,708.18	4,588.89	22.27	21.18	155.98	-915.81	-16.65	217.54	179.48	38.06	5.715	
4,800.00	4,636.83	4,808.06	4,685.57	22.79	21.66	155.89	-940.88	-17.02	222.51	183.60	38.91	5.718	
4,900.00	4,732.47	4,907.93	4,782.25	23.31	22.14	155.80	-965.95	-17.39	227.48	187.71	39.77	5.720	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 752H - OH - Plan #4													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+HRGM+MS					Rule Assigned:							Offset Well Error:	3.28 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)				
5,000.00	4,828.10	5,007.81	4,878.92	23.83	22.62	155.72	-991.03	-17.76	232.45	191.83	40.62	5.722			
5,100.00	4,923.73	5,107.69	4,975.60	24.35	23.10	155.64	-1,016.10	-18.13	237.42	195.94	41.47	5.724			
5,200.00	5,019.36	5,207.56	5,072.28	24.87	23.58	155.57	-1,041.17	-18.50	242.39	200.06	42.33	5.726			
5,300.00	5,114.99	5,307.44	5,168.96	25.39	24.06	155.49	-1,066.25	-18.87	247.36	204.17	43.18	5.728			
5,400.00	5,210.62	5,407.31	5,265.63	25.91	24.55	155.42	-1,091.32	-19.25	252.33	208.29	44.04	5.729			
5,500.00	5,306.25	5,507.19	5,362.31	26.43	25.03	155.36	-1,116.39	-19.62	257.30	212.40	44.90	5.731			
5,600.00	5,401.88	5,607.07	5,458.99	26.95	25.51	155.29	-1,141.47	-19.99	262.27	216.51	45.75	5.732			
5,700.00	5,497.51	5,706.94	5,555.66	27.47	26.00	155.23	-1,166.54	-20.36	267.24	220.63	46.61	5.733			
5,800.00	5,593.14	5,806.82	5,652.34	27.99	26.48	155.17	-1,191.61	-20.73	272.21	224.74	47.47	5.734			
5,900.00	5,688.77	5,906.69	5,749.02	28.52	26.96	155.11	-1,216.69	-21.10	277.18	228.85	48.33	5.736			
6,000.00	5,784.40	6,006.57	5,845.69	29.04	27.45	155.06	-1,241.76	-21.47	282.15	232.97	49.19	5.736			
6,100.00	5,880.03	6,106.44	5,942.37	29.56	27.93	155.00	-1,266.83	-21.85	287.12	237.08	50.05	5.737			
6,200.00	5,975.66	6,206.32	6,039.05	30.08	28.41	154.95	-1,291.91	-22.22	292.10	241.19	50.91	5.738			
6,300.00	6,071.29	6,306.20	6,135.72	30.60	28.90	154.90	-1,316.98	-22.59	297.07	245.30	51.77	5.739			
6,400.00	6,166.92	6,406.07	6,232.40	31.13	29.38	154.85	-1,342.05	-22.96	302.04	249.42	52.63	5.739			
6,500.00	6,262.55	6,505.95	6,329.08	31.65	29.87	154.81	-1,367.13	-23.33	307.02	253.53	53.49	5.740			
6,600.00	6,358.18	6,605.82	6,425.75	32.17	30.35	154.76	-1,392.20	-23.70	311.99	257.64	54.35	5.741			
6,700.00	6,453.81	6,694.81	6,511.85	32.69	30.78	154.49	-1,414.52	-25.53	317.90	262.72	55.18	5.761			
6,790.12	6,540.00	6,765.42	6,579.62	33.17	31.12	153.13	-1,432.06	-34.51	328.12	272.18	55.93	5.866			
6,800.00	6,549.44	6,772.98	6,586.81	33.22	31.15	155.66	-1,433.92	-35.93	329.62	273.61	56.02	5.884			
6,850.00	6,596.88	6,810.03	6,621.78	33.49	31.33	166.58	-1,442.96	-44.17	340.08	283.64	56.45	6.025			
6,900.00	6,643.55	6,850.00	6,658.91	33.76	31.51	174.29	-1,452.54	-55.39	355.42	298.36	57.05	6.230			
6,950.00	6,689.17	6,875.65	6,682.36	34.05	31.62	-179.47	-1,458.59	-63.85	375.53	318.33	57.20	6.565			
7,000.00	6,733.45	6,900.00	6,704.30	34.34	31.73	-174.65	-1,464.24	-72.78	400.55	343.26	57.30	6.991			
7,050.00	6,776.12	6,927.07	6,728.27	34.64	31.85	-171.08	-1,470.41	-83.71	430.12	372.53	57.58	7.469			
7,100.00	6,816.92	6,950.00	6,748.22	34.93	31.95	-167.78	-1,475.55	-93.79	463.89	406.12	57.77	8.030			
7,150.00	6,855.59	6,963.65	6,759.93	35.23	32.00	-163.69	-1,478.55	-100.14	501.30	443.70	57.60	8.703			
7,200.00	6,891.90	6,976.77	6,771.04	35.54	32.06	-159.30	-1,481.41	-106.48	541.82	484.29	57.53	9.418			

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 754H - OH - Plan #4-1300												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	3.28 usft
Reference												Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.00	0.00	0.00	0.00	3.28	3.28	-2.67	25.12	-1.17	25.14				
100.00	100.00	100.00	100.00	3.29	3.29	-2.67	25.12	-1.17	25.14	18.56	6.58	3.822	
200.00	200.00	200.00	200.00	3.34	3.34	-2.67	25.12	-1.17	25.14	18.47	6.67	3.768	
300.00	300.00	300.00	300.00	3.42	3.42	-2.67	25.12	-1.17	25.14	18.30	6.84	3.676	
400.00	400.00	400.00	400.00	3.54	3.54	-2.67	25.12	-1.17	25.14	18.07	7.08	3.553	
500.00	500.00	500.00	500.00	3.69	3.69	-2.67	25.12	-1.17	25.14	17.77	7.37	3.409	
600.00	599.98	600.88	600.86	3.86	3.86	-177.80	23.37	-0.87	25.14	17.43	7.71	3.261	
669.78	669.68	671.27	671.17	3.98	3.99	-177.11	20.07	-0.31	25.14	17.18	7.96	3.160 CC	
700.00	699.84	701.75	701.59	4.04	4.05	-176.69	18.12	0.03	25.14	17.07	8.07	3.116	
800.00	799.45	802.62	802.06	4.25	4.26	-174.86	9.38	1.52	25.16	16.69	8.46	2.972 ES	
900.00	898.70	903.01	901.75	4.48	4.49	-172.57	-2.27	3.51	25.74	16.83	8.91	2.889 SF	
1,000.00	997.47	1,002.93	1,000.94	4.74	4.75	-171.35	-14.22	5.56	29.45	20.05	9.41	3.131	
1,100.00	1,095.62	1,102.67	1,099.94	5.03	5.02	-171.29	-26.15	7.60	36.62	26.68	9.93	3.687	
1,200.00	1,193.06	1,202.10	1,198.63	5.35	5.31	-171.88	-38.04	9.63	47.22	36.73	10.49	4.503	
1,300.00	1,289.64	1,301.10	1,296.90	5.70	5.61	-172.68	-49.87	11.66	61.26	50.20	11.07	5.536	
1,350.00	1,337.58	1,350.41	1,345.84	5.88	5.76	-173.08	-55.77	12.66	69.57	58.21	11.37	6.121	
1,400.00	1,385.40	1,399.63	1,394.70	6.07	5.92	-173.45	-61.66	13.67	78.31	66.64	11.67	6.712	
1,500.00	1,481.03	1,498.09	1,492.43	6.47	6.24	-173.99	-73.43	15.68	95.79	83.51	12.28	7.800	
1,600.00	1,576.66	1,596.55	1,590.16	6.89	6.56	-174.36	-85.20	17.70	113.28	100.37	12.91	8.772	
1,700.00	1,672.29	1,695.00	1,687.89	7.32	6.89	-174.63	-96.98	19.71	130.78	117.22	13.56	9.644	
1,800.00	1,767.92	1,793.46	1,785.62	7.77	7.23	-174.84	-108.75	21.73	148.27	134.05	14.22	10.427	
1,900.00	1,863.55	1,891.92	1,883.35	8.22	7.57	-175.01	-120.52	23.74	165.77	150.88	14.89	11.133	
2,000.00	1,959.18	1,990.37	1,981.08	8.68	7.92	-175.14	-132.30	25.75	183.27	167.70	15.57	11.771	
11,300.00	7,087.46	11,050.71	7,104.00	76.79	72.30	-90.67	-771.95	4,264.61	1,423.44	1,278.79	144.64	9.841	
11,400.00	7,087.53	11,150.71	7,104.00	78.18	73.79	-90.66	-772.50	4,364.61	1,423.27	1,275.66	147.61	9.642	
11,500.00	7,087.60	11,250.71	7,104.00	79.58	75.28	-90.66	-773.04	4,464.60	1,423.10	1,272.51	150.59	9.450	
11,600.00	7,087.67	11,350.70	7,104.00	80.98	76.77	-90.66	-773.58	4,564.60	1,422.93	1,269.35	153.58	9.265	
11,700.00	7,087.75	11,450.70	7,104.00	82.40	78.27	-90.65	-774.13	4,664.60	1,422.76	1,266.19	156.57	9.087	
11,800.00	7,087.82	11,550.70	7,104.00	83.82	79.78	-90.65	-774.67	4,764.60	1,422.59	1,263.01	159.58	8.915	
11,900.00	7,087.89	11,650.70	7,104.00	85.25	81.29	-90.65	-775.22	4,864.60	1,422.42	1,259.83	162.59	8.749	
12,000.00	7,087.96	11,750.70	7,104.00	86.68	82.80	-90.65	-775.76	4,964.60	1,422.25	1,256.65	165.61	8.588	
12,100.00	7,088.03	11,850.70	7,104.00	88.12	84.31	-90.64	-776.31	5,064.59	1,422.08	1,253.45	168.63	8.433	
12,200.00	7,088.10	11,950.70	7,104.00	89.57	85.83	-90.64	-776.85	5,164.59	1,421.91	1,250.25	171.66	8.283	
12,300.00	7,088.17	12,050.70	7,104.00	91.02	87.35	-90.64	-777.39	5,264.59	1,421.74	1,247.04	174.70	8.138	
12,400.00	7,088.24	12,150.70	7,104.00	92.47	88.87	-90.64	-777.94	5,364.59	1,421.58	1,243.83	177.74	7.998	
12,500.00	7,088.31	12,250.70	7,104.00	93.93	90.40	-90.63	-778.48	5,464.59	1,421.41	1,240.61	180.79	7.862	
12,600.00	7,088.39	12,350.70	7,104.00	95.40	91.93	-90.63	-779.03	5,564.59	1,421.24	1,237.39	183.85	7.731	
12,700.00	7,088.46	12,450.70	7,104.00	96.87	93.46	-90.63	-779.57	5,664.58	1,421.07	1,234.16	186.90	7.603	
12,800.00	7,088.53	12,550.70	7,104.00	98.34	94.99	-90.62	-780.12	5,764.58	1,420.90	1,230.93	189.97	7.480	
12,900.00	7,088.60	12,650.70	7,104.00	99.82	96.53	-90.62	-780.66	5,864.58	1,420.73	1,227.69	193.04	7.360	
13,000.00	7,088.67	12,750.70	7,104.00	101.30	98.06	-90.62	-781.20	5,964.58	1,420.56	1,224.45	196.11	7.244	
13,100.00	7,088.74	12,850.70	7,104.00	102.79	99.60	-90.62	-781.75	6,064.58	1,420.39	1,221.21	199.18	7.131	
13,200.00	7,088.81	12,950.70	7,104.00	104.27	101.14	-90.61	-782.29	6,164.58	1,420.22	1,217.96	202.26	7.022	
13,300.00	7,088.88	13,050.70	7,104.00	105.77	102.69	-90.61	-782.84	6,264.58	1,420.05	1,214.70	205.35	6.915	
13,400.00	7,088.96	13,150.70	7,104.00	107.26	104.23	-90.61	-783.38	6,364.57	1,419.88	1,211.45	208.44	6.812	
13,500.00	7,089.03	13,250.70	7,104.00	108.76	105.78	-90.60	-783.93	6,464.57	1,419.71	1,208.19	211.53	6.712	
13,600.00	7,089.10	13,350.70	7,104.00	110.26	107.33	-90.60	-784.47	6,564.57	1,419.54	1,204.92	214.62	6.614	
13,700.00	7,089.17	13,450.70	7,104.00	111.77	108.88	-90.60	-785.01	6,664.57	1,419.38	1,201.66	217.72	6.519	
13,800.00	7,089.24	13,550.70	7,104.00	113.27	110.43	-90.60	-785.56	6,764.57	1,419.21	1,198.39	220.82	6.427	
13,900.00	7,089.31	13,650.70	7,104.00	114.78	111.98	-90.59	-786.10	6,864.57	1,419.04	1,195.12	223.92	6.337	
14,000.00	7,089.38	13,750.70	7,104.00	116.29	113.54	-90.59	-786.65	6,964.56	1,418.87	1,191.84	227.03	6.250	
14,100.00	7,089.45	13,850.70	7,104.00	117.81	115.09	-90.59	-787.19	7,064.56	1,418.70	1,188.56	230.14	6.165	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 754H - OH - Plan #4-1300												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	3.28 usft
Rule Assigned:												Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
14,200.00	7,089.52	13,950.70	7,104.00	119.32	116.65	-90.58	-787.74	7,164.56	1,418.53	1,185.28	233.25	6.082	
14,300.00	7,089.60	14,050.70	7,104.00	120.84	118.21	-90.58	-788.28	7,264.56	1,418.36	1,182.00	236.36	6.001	
14,400.00	7,089.67	14,150.70	7,104.00	122.36	119.76	-90.58	-788.83	7,364.56	1,418.19	1,178.71	239.48	5.922	
14,500.00	7,089.74	14,250.70	7,104.00	123.89	121.32	-90.58	-789.37	7,464.56	1,418.02	1,175.43	242.59	5.845	
14,600.00	7,089.81	14,350.70	7,104.00	125.41	122.89	-90.57	-789.91	7,564.55	1,417.85	1,172.14	245.71	5.770	
14,700.00	7,089.88	14,450.70	7,104.00	126.94	124.45	-90.57	-790.46	7,664.55	1,417.68	1,168.85	248.84	5.697	
14,800.00	7,089.95	14,550.70	7,104.00	128.47	126.01	-90.57	-791.00	7,764.55	1,417.51	1,165.55	251.96	5.626	
14,900.00	7,090.02	14,650.70	7,104.00	130.00	127.57	-90.56	-791.55	7,864.55	1,417.35	1,162.26	255.09	5.556	
15,000.00	7,090.09	14,750.70	7,104.00	131.53	129.14	-90.56	-792.09	7,964.55	1,417.18	1,158.96	258.22	5.488	
15,100.00	7,090.17	14,850.70	7,104.00	133.06	130.71	-90.56	-792.64	8,064.55	1,417.01	1,155.66	261.34	5.422	
15,200.00	7,090.24	14,950.70	7,104.00	134.60	132.27	-90.56	-793.18	8,164.54	1,416.84	1,152.36	264.48	5.357	
15,300.00	7,090.31	15,050.70	7,104.00	136.14	133.84	-90.55	-793.72	8,264.54	1,416.67	1,149.06	267.61	5.294	
15,400.00	7,090.38	15,150.70	7,104.00	137.67	135.41	-90.55	-794.27	8,364.54	1,416.50	1,145.76	270.74	5.232	
15,500.00	7,090.45	15,250.70	7,104.00	139.21	136.98	-90.55	-794.81	8,464.54	1,416.33	1,142.45	273.88	5.171	
15,600.00	7,090.52	15,350.70	7,104.00	140.75	138.55	-90.55	-795.36	8,564.54	1,416.16	1,139.14	277.02	5.112	
15,700.00	7,090.59	15,450.70	7,104.00	142.30	140.12	-90.54	-795.90	8,664.54	1,415.99	1,135.83	280.16	5.054	
15,800.00	7,090.66	15,550.70	7,104.00	143.84	141.69	-90.54	-796.45	8,764.53	1,415.82	1,132.52	283.30	4.998	
15,900.00	7,090.74	15,650.70	7,104.00	145.39	143.26	-90.54	-796.99	8,864.53	1,415.65	1,129.21	286.44	4.942	
16,000.00	7,090.81	15,750.70	7,104.00	146.93	144.83	-90.53	-797.53	8,964.53	1,415.48	1,125.90	289.58	4.888	
16,100.00	7,090.88	15,850.70	7,104.00	148.48	146.41	-90.53	-798.08	9,064.53	1,415.32	1,122.59	292.73	4.835	
16,200.00	7,090.95	15,950.70	7,104.00	150.03	147.98	-90.53	-798.62	9,164.53	1,415.15	1,119.27	295.87	4.783	
16,300.00	7,091.02	16,050.70	7,104.00	151.58	149.55	-90.53	-799.17	9,264.53	1,414.98	1,115.96	299.02	4.732	
16,400.00	7,091.09	16,150.70	7,104.00	153.13	151.13	-90.52	-799.71	9,364.52	1,414.81	1,112.64	302.17	4.682	
16,500.00	7,091.16	16,250.70	7,104.00	154.68	152.70	-90.52	-800.26	9,464.52	1,414.64	1,109.32	305.32	4.633	
16,600.00	7,091.23	16,350.70	7,104.00	156.23	154.28	-90.52	-800.80	9,564.52	1,414.47	1,106.00	308.47	4.585	
16,700.00	7,091.30	16,450.70	7,104.00	157.79	155.86	-90.51	-801.34	9,664.52	1,414.30	1,102.68	311.62	4.539	
16,800.00	7,091.38	16,550.70	7,104.00	159.34	157.43	-90.51	-801.89	9,764.52	1,414.13	1,099.36	314.77	4.493	
16,900.00	7,091.45	16,650.70	7,104.00	160.90	159.01	-90.51	-802.43	9,864.52	1,413.96	1,096.04	317.93	4.447	
17,000.00	7,091.52	16,750.70	7,104.00	162.45	160.59	-90.51	-802.98	9,964.51	1,413.79	1,092.71	321.08	4.403	
17,100.00	7,091.59	16,850.70	7,104.00	164.01	162.17	-90.50	-803.52	10,064.51	1,413.62	1,089.39	324.24	4.360	
17,200.00	7,091.66	16,950.70	7,104.00	165.57	163.75	-90.50	-804.07	10,164.51	1,413.46	1,086.06	327.39	4.317	
17,300.00	7,091.73	17,050.70	7,104.00	167.13	165.33	-90.50	-804.61	10,264.51	1,413.29	1,082.74	330.55	4.276	
17,400.00	7,091.80	17,150.70	7,104.00	168.69	166.91	-90.49	-805.15	10,364.51	1,413.12	1,079.41	333.71	4.235	
17,500.00	7,091.87	17,250.70	7,104.00	170.25	168.49	-90.49	-805.70	10,464.51	1,412.95	1,076.08	336.87	4.194	
17,600.00	7,091.95	17,350.69	7,104.00	171.81	170.07	-90.49	-806.24	10,564.50	1,412.78	1,072.75	340.03	4.155	
17,700.00	7,092.02	17,450.69	7,104.00	173.37	171.65	-90.49	-806.79	10,664.50	1,412.61	1,069.42	343.19	4.116	
17,800.00	7,092.09	17,550.69	7,104.00	174.93	173.23	-90.48	-807.33	10,764.50	1,412.44	1,066.09	346.35	4.078	
17,900.00	7,092.16	17,650.69	7,104.00	176.50	174.81	-90.48	-807.88	10,864.50	1,412.27	1,062.76	349.51	4.041	
18,000.00	7,092.23	17,750.69	7,104.00	178.06	176.39	-90.48	-808.42	10,964.50	1,412.10	1,059.43	352.67	4.004	
18,100.00	7,092.30	17,850.69	7,104.00	179.63	177.97	-90.47	-808.96	11,064.50	1,411.93	1,056.10	355.83	3.968	
18,200.00	7,092.37	17,950.69	7,104.00	181.19	179.56	-90.47	-809.51	11,164.49	1,411.76	1,052.77	359.00	3.933	
18,300.00	7,092.44	18,050.69	7,104.00	182.76	181.14	-90.47	-810.05	11,264.49	1,411.60	1,049.43	362.16	3.898	
18,400.00	7,092.51	18,150.69	7,104.00	184.33	182.72	-90.47	-810.60	11,364.49	1,411.43	1,046.10	365.33	3.863	
18,500.00	7,092.59	18,250.69	7,104.00	185.89	184.31	-90.46	-811.14	11,464.49	1,411.26	1,042.76	368.49	3.830	
18,600.00	7,092.66	18,350.69	7,104.00	187.46	185.89	-90.46	-811.69	11,564.49	1,411.09	1,039.43	371.66	3.797	
18,700.00	7,092.73	18,450.69	7,104.00	189.03	187.47	-90.46	-812.23	11,664.49	1,410.92	1,036.09	374.83	3.764	
18,800.00	7,092.80	18,550.69	7,104.00	190.60	189.06	-90.45	-812.77	11,764.48	1,410.75	1,032.75	378.00	3.732	
18,900.00	7,092.87	18,650.69	7,104.00	192.17	190.64	-90.45	-813.32	11,864.48	1,410.58	1,029.42	381.16	3.701	
19,000.00	7,092.94	18,750.69	7,104.00	193.74	192.23	-90.45	-813.86	11,964.48	1,410.41	1,026.08	384.33	3.670	
19,100.00	7,093.01	18,850.69	7,104.00	195.31	193.81	-90.45	-814.41	12,064.48	1,410.24	1,022.74	387.50	3.639	
19,200.00	7,093.08	18,950.69	7,104.00	196.88	195.40	-90.44	-814.95	12,164.48	1,410.07	1,019.40	390.67	3.609	
19,300.00	7,093.16	19,050.69	7,104.00	198.45	196.98	-90.44	-815.50	12,264.48	1,409.91	1,016.06	393.84	3.580	

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

SDT
Anticollision Report

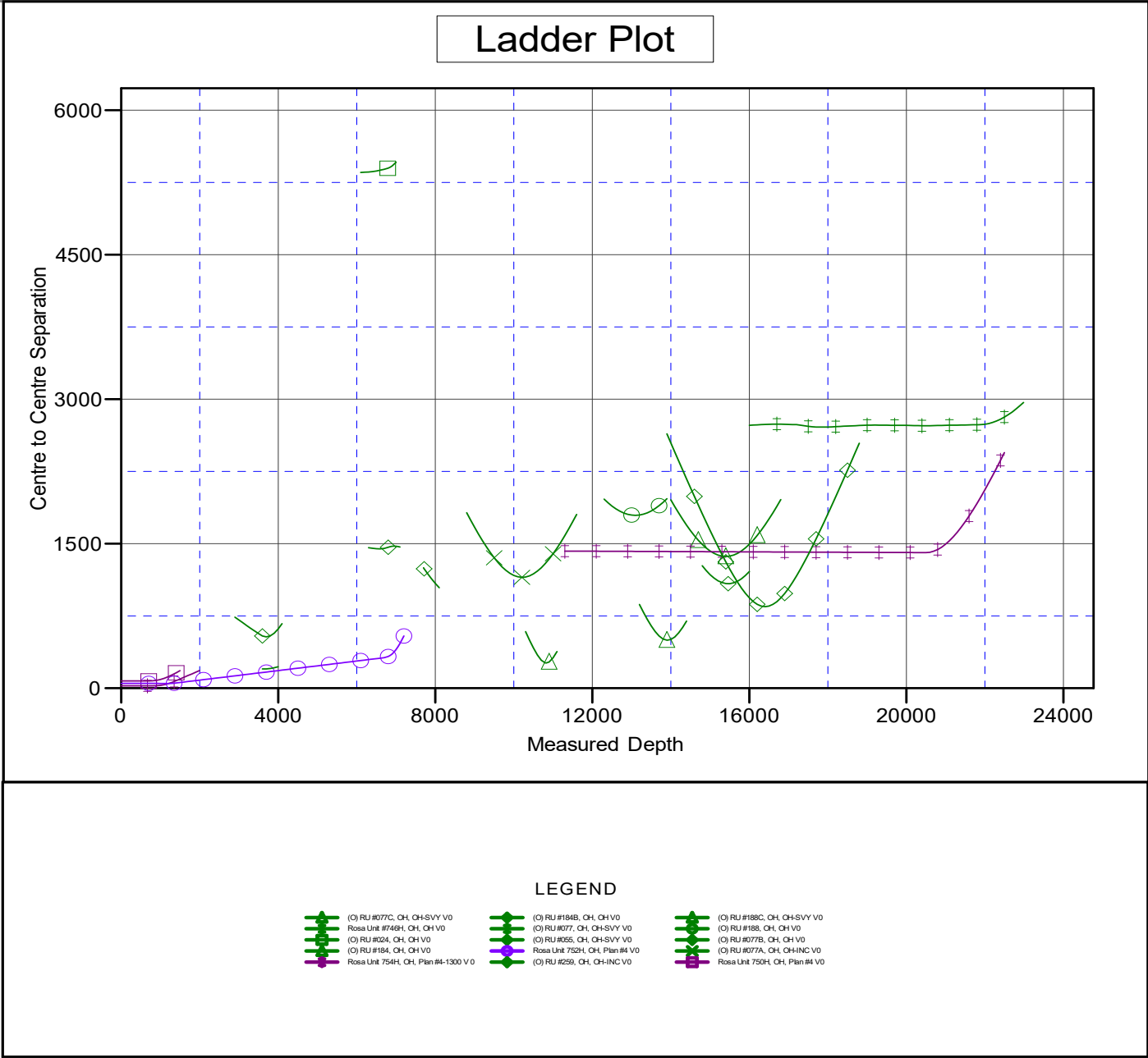
Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Unit 32 - Rosa Unit 754H - OH - Plan #4-1300											Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS											Offset Well Error:	3.28 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
19,400.00	7,093.23	19,150.69	7,104.00	200.02	198.57	-90.44	-816.04	12,364.47	1,409.74	1,012.72	397.01	3.551
19,500.00	7,093.30	19,250.69	7,104.00	201.59	200.16	-90.43	-816.59	12,464.47	1,409.57	1,009.38	400.19	3.522
19,600.00	7,093.37	19,350.69	7,104.00	203.17	201.74	-90.43	-817.13	12,564.47	1,409.40	1,006.04	403.36	3.494
19,700.00	7,093.44	19,450.69	7,104.00	204.74	203.33	-90.43	-817.67	12,664.47	1,409.23	1,002.70	406.53	3.466
19,800.00	7,093.51	19,550.69	7,104.00	206.31	204.92	-90.43	-818.22	12,764.47	1,409.06	999.36	409.70	3.439
19,900.00	7,093.58	19,650.69	7,104.00	207.89	206.50	-90.42	-818.76	12,864.47	1,408.89	996.02	412.88	3.412
20,000.00	7,093.65	19,750.69	7,104.00	209.46	208.09	-90.42	-819.31	12,964.46	1,408.72	992.67	416.05	3.386
20,100.00	7,093.72	19,850.69	7,104.00	211.04	209.68	-90.42	-819.85	13,064.46	1,408.55	989.33	419.22	3.360
20,200.00	7,093.80	19,950.69	7,104.00	212.61	211.27	-90.42	-820.40	13,164.46	1,408.38	985.99	422.40	3.334
20,300.00	7,093.87	20,050.69	7,104.00	214.19	212.86	-90.41	-820.94	13,264.46	1,408.22	982.64	425.57	3.309
20,400.00	7,093.94	20,150.69	7,104.00	215.77	214.44	-90.41	-821.48	13,364.46	1,408.05	979.30	428.75	3.284
20,499.68	7,094.01	20,247.85	7,104.00	217.34	215.99	-90.41	-822.01	13,461.62	1,407.88	976.06	431.82	3.260
20,500.00	7,094.01	20,247.85	7,104.00	217.34	215.99	-90.41	-822.01	13,461.62	1,407.88	976.07	431.81	3.260
20,600.00	7,094.08	20,247.85	7,104.00	218.92	215.99	-90.41	-822.01	13,461.62	1,411.46	981.43	430.03	3.282
20,700.00	7,094.15	20,247.85	7,104.00	220.50	215.99	-90.41	-822.01	13,461.62	1,422.08	995.89	426.19	3.337
20,800.00	7,094.22	20,247.85	7,104.00	222.07	215.99	-90.41	-822.01	13,461.62	1,439.58	1,019.14	420.45	3.424
20,900.00	7,094.29	20,247.85	7,104.00	223.65	215.99	-90.41	-822.01	13,461.62	1,463.73	1,050.71	413.02	3.544
21,000.00	7,094.37	20,247.85	7,104.00	225.23	215.99	-90.41	-822.01	13,461.62	1,494.18	1,090.01	404.18	3.697
21,100.00	7,094.44	20,247.85	7,104.00	226.81	215.99	-90.41	-822.01	13,461.62	1,530.58	1,136.37	394.21	3.883
21,200.00	7,094.51	20,247.85	7,104.00	228.39	215.99	-90.41	-822.01	13,461.62	1,572.50	1,189.10	383.41	4.101
21,300.00	7,094.58	20,247.85	7,104.00	229.97	215.99	-90.41	-822.01	13,461.62	1,619.53	1,247.48	372.05	4.353
21,400.00	7,094.65	20,247.85	7,104.00	231.55	215.99	-90.41	-822.01	13,461.62	1,671.21	1,310.84	360.37	4.637
21,500.00	7,094.72	20,247.85	7,104.00	233.13	215.99	-90.41	-822.01	13,461.62	1,727.15	1,378.56	348.59	4.955
21,600.00	7,094.79	20,247.85	7,104.00	234.71	215.99	-90.41	-822.01	13,461.62	1,786.94	1,450.06	336.88	5.304
21,700.00	7,094.86	20,247.85	7,104.00	236.29	215.99	-90.41	-822.01	13,461.62	1,850.20	1,524.84	325.36	5.687
21,800.00	7,094.94	20,247.85	7,104.00	237.87	215.99	-90.41	-822.01	13,461.62	1,916.59	1,602.46	314.14	6.101
21,900.00	7,095.01	20,247.85	7,104.00	239.45	215.99	-90.41	-822.01	13,461.62	1,985.80	1,682.52	303.28	6.548
22,000.00	7,095.08	20,247.85	7,104.00	241.03	215.99	-90.41	-822.01	13,461.62	2,057.55	1,764.71	292.84	7.026
22,100.00	7,095.15	20,247.85	7,104.00	242.61	215.99	-90.41	-822.01	13,461.62	2,131.57	1,848.72	282.85	7.536
22,200.00	7,095.22	20,247.85	7,104.00	244.19	215.99	-90.41	-822.01	13,461.62	2,207.64	1,934.33	273.31	8.077
22,300.00	7,095.29	20,247.85	7,104.00	245.77	215.99	-90.41	-822.01	13,461.62	2,285.56	2,021.31	264.25	8.649
22,400.00	7,095.36	20,247.85	7,104.00	247.36	215.99	-90.41	-822.01	13,461.62	2,365.14	2,109.50	255.64	9.252
22,500.00	7,095.43	20,247.85	7,104.00	248.94	215.99	-90.41	-822.01	13,461.62	2,446.21	2,198.74	247.47	9.885

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 6534+30 @ 6564.00usft (H&P 530)	Coordinates are relative to: Rosa Unit 756H
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, New Mexico Western Zone
Central Meridian is -107.833334	Grid Convergence at Surface is: 0.28°



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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit 756H
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Reference Site:	Rosa Unit 32	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Well Error:	3.28 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Plan #6	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 6534+30 @ 6564.00usft (H&P 530)

Coordinates are relative to: Rosa Unit 756H

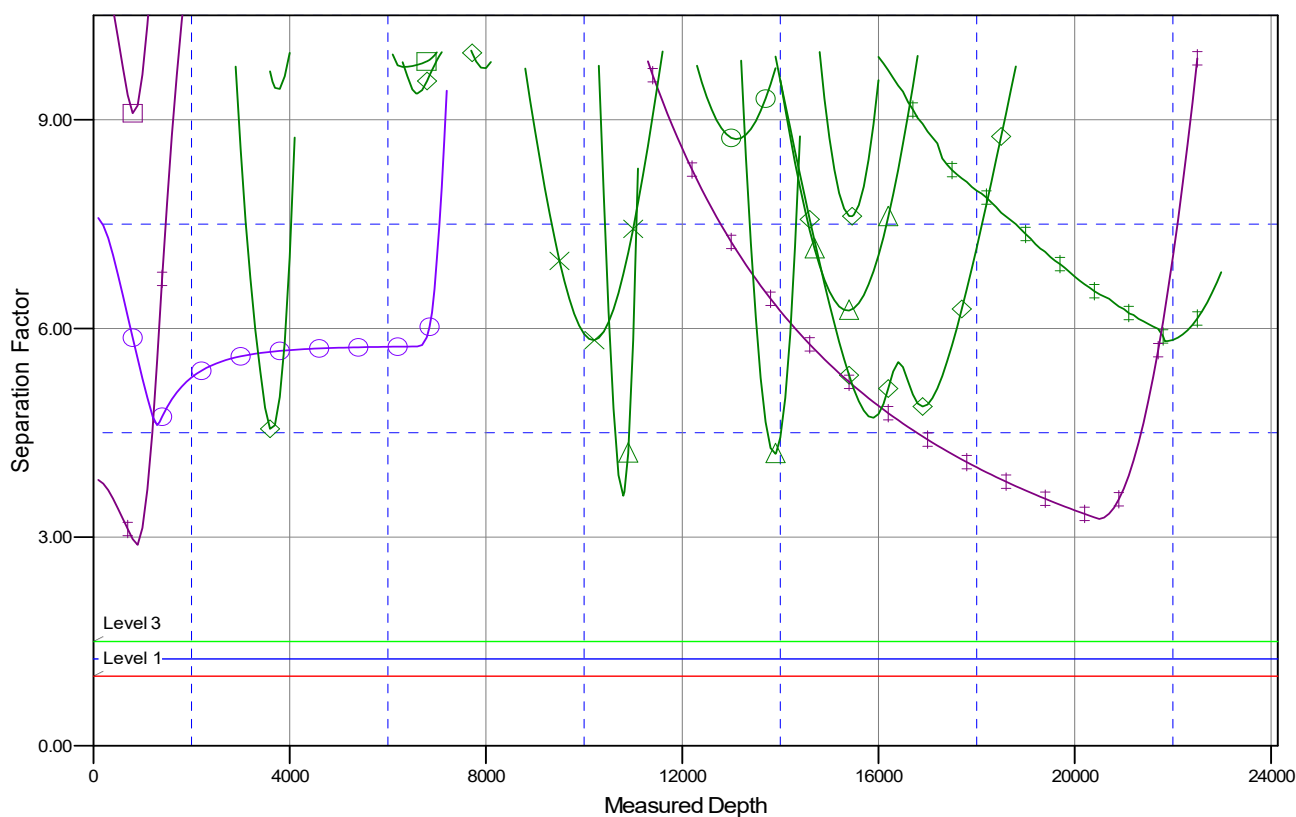
Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, New Mexico Western Zone

Central Meridian is -107.833334

Grid Convergence at Surface is: 0.28°

Separation Factor Plot



LEGEND

(C) RU #077C, CH, OH-SVY V0	(C) RU #184B, CH, OH V0	(C) RU #188C, CH, OH-SVY V0
Rosa Unit #748H, CH, OH V0	(C) RU #077, CH, OH-SVY V0	(C) RU #188, CH, OH V0
(C) RU #024, CH, OH V0	(C) RU #055, CH, OH-SVY V0	(C) RU #077B, CH, OH V0
(C) RU #184, CH, OH V0	Rosa Unit 752H, CH, Plan #4 V0	(C) RU #077A, CH, OH-INC V0
Rosa Unit 754H, CH, Plan #4-1300 V0	(C) RU #259, CH, OH-INC V0	Rosa Unit 750H, CH, Plan #4 V0

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

Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Unit 32

Rosa Unit 756H

OH

Plan: Plan #6

Standard Planning Report

12 April, 2024

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Project	Rio Arriba, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	Rosa Unit 32				
Site Position:		Northing:	2,131,320.20 usft	Latitude:	36.856242
From:	Lat/Long	Easting:	2,857,795.25 usft	Longitude:	-107.372900
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Rosa Unit 756H					
Well Position	+N/-S	0.00 usft	Northing:	2,131,247.92 usft	Latitude:	36.856045
	+E/-W	0.00 usft	Easting:	2,857,647.65 usft	Longitude:	-107.373405
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	6,534.00 usft
Grid Convergence:		0.28 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	11/21/2022	8.56	63.43	49,565.62626623

Design	Plan #6				
Audit Notes:					
Version:		Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	90.22	

Plan Survey Tool Program	Date	4/12/2024			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	22,986.76 Plan #6 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station	

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,350.00	17.00	175.50	1,337.58	-124.79	9.82	2.00	2.00	0.00	175.50	
6,790.12	17.00	175.50	6,540.00	-1,710.43	134.61	0.00	0.00	0.00	0.00	
7,719.23	89.96	107.70	7,084.91	-2,049.50	690.12	9.00	7.85	-7.30	-68.69	
8,593.46	89.96	90.22	7,085.53	-2,185.10	1,550.34	2.00	0.00	-2.00	-90.01	
22,986.76	89.96	90.22	7,095.78	-2,239.20	15,943.54	0.00	0.00	0.00	0.00	756H NSL PBHL

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
600.00	2.00	175.50	599.98	-1.74	0.14	0.14	2.00	2.00	0.00
700.00	4.00	175.50	699.84	-6.96	0.55	0.57	2.00	2.00	0.00
800.00	6.00	175.50	799.45	-15.65	1.23	1.29	2.00	2.00	0.00
900.00	8.00	175.50	898.70	-27.79	2.19	2.29	2.00	2.00	0.00
1,000.00	10.00	175.50	997.47	-43.39	3.41	3.58	2.00	2.00	0.00
1,100.00	12.00	175.50	1,095.62	-62.41	4.91	5.15	2.00	2.00	0.00
1,200.00	14.00	175.50	1,193.06	-84.83	6.68	7.00	2.00	2.00	0.00
1,300.00	16.00	175.50	1,289.64	-110.63	8.71	9.13	2.00	2.00	0.00
1,350.00	17.00	175.50	1,337.58	-124.79	9.82	10.30	2.00	2.00	0.00
Start 5440.12 hold at 1350.00 MD									
1,400.00	17.00	175.50	1,385.40	-139.37	10.97	11.50	0.00	0.00	0.00
1,500.00	17.00	175.50	1,481.03	-168.51	13.26	13.91	0.00	0.00	0.00
1,600.00	17.00	175.50	1,576.66	-197.66	15.56	16.31	0.00	0.00	0.00
1,700.00	17.00	175.50	1,672.29	-226.81	17.85	18.72	0.00	0.00	0.00
1,800.00	17.00	175.50	1,767.92	-255.95	20.14	21.13	0.00	0.00	0.00
1,900.00	17.00	175.50	1,863.55	-285.10	22.44	23.53	0.00	0.00	0.00
2,000.00	17.00	175.50	1,959.18	-314.25	24.73	25.94	0.00	0.00	0.00
2,100.00	17.00	175.50	2,054.81	-343.39	27.03	28.34	0.00	0.00	0.00
2,200.00	17.00	175.50	2,150.44	-372.54	29.32	30.75	0.00	0.00	0.00
2,300.00	17.00	175.50	2,246.07	-401.69	31.61	33.16	0.00	0.00	0.00
2,400.00	17.00	175.50	2,341.70	-430.84	33.91	35.56	0.00	0.00	0.00
2,500.00	17.00	175.50	2,437.33	-459.98	36.20	37.97	0.00	0.00	0.00
2,600.00	17.00	175.50	2,532.96	-489.13	38.50	40.37	0.00	0.00	0.00
2,700.00	17.00	175.50	2,628.59	-518.28	40.79	42.78	0.00	0.00	0.00
2,757.94	17.00	175.50	2,684.00	-535.16	42.12	44.17	0.00	0.00	0.00
Ojo Alamo									
2,800.00	17.00	175.50	2,724.23	-547.42	43.08	45.18	0.00	0.00	0.00
2,900.00	17.00	175.50	2,819.86	-576.57	45.38	47.59	0.00	0.00	0.00
2,909.56	17.00	175.50	2,829.00	-579.36	45.60	47.82	0.00	0.00	0.00
Kirtland									
3,000.00	17.00	175.50	2,915.49	-605.72	47.67	50.00	0.00	0.00	0.00
3,100.00	17.00	175.50	3,011.12	-634.87	49.96	52.40	0.00	0.00	0.00
3,200.00	17.00	175.50	3,106.75	-664.01	52.26	54.81	0.00	0.00	0.00
3,286.01	17.00	175.50	3,189.00	-689.08	54.23	56.88	0.00	0.00	0.00
Fruitland									
3,300.00	17.00	175.50	3,202.38	-693.16	54.55	57.21	0.00	0.00	0.00
3,359.21	17.00	175.50	3,259.00	-710.42	55.91	58.64	0.00	0.00	0.00
T/Coals									
3,400.00	17.00	175.50	3,298.01	-722.31	56.85	59.62	0.00	0.00	0.00
3,496.20	17.00	175.50	3,390.00	-750.34	59.05	61.93	0.00	0.00	0.00
B/Coals									
3,500.00	17.00	175.50	3,393.64	-751.45	59.14	62.03	0.00	0.00	0.00
3,600.00	17.00	175.50	3,489.27	-780.60	61.43	64.43	0.00	0.00	0.00
3,664.55	17.00	175.50	3,551.00	-799.42	62.92	65.98	0.00	0.00	0.00
Pictured Cliffs									
3,700.00	17.00	175.50	3,584.90	-809.75	63.73	66.84	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
3,778.53	17.00	175.50	3,660.00	-832.64	65.53	68.73	0.00	0.00	0.00
Lewis									
3,800.00	17.00	175.50	3,680.53	-838.89	66.02	69.24	0.00	0.00	0.00
3,900.00	17.00	175.50	3,776.16	-868.04	68.32	71.65	0.00	0.00	0.00
4,000.00	17.00	175.50	3,871.79	-897.19	70.61	74.05	0.00	0.00	0.00
4,100.00	17.00	175.50	3,967.42	-926.34	72.90	76.46	0.00	0.00	0.00
4,200.00	17.00	175.50	4,063.05	-955.48	75.20	78.87	0.00	0.00	0.00
4,300.00	17.00	175.50	4,158.68	-984.63	77.49	81.27	0.00	0.00	0.00
4,400.00	17.00	175.50	4,254.31	-1,013.78	79.79	83.68	0.00	0.00	0.00
4,500.00	17.00	175.50	4,349.94	-1,042.92	82.08	86.08	0.00	0.00	0.00
4,600.00	17.00	175.50	4,445.57	-1,072.07	84.37	88.49	0.00	0.00	0.00
4,700.00	17.00	175.50	4,541.20	-1,101.22	86.67	90.90	0.00	0.00	0.00
4,800.00	17.00	175.50	4,636.83	-1,130.36	88.96	93.30	0.00	0.00	0.00
4,895.33	17.00	175.50	4,728.00	-1,158.15	91.15	95.59	0.00	0.00	0.00
Chacra									
4,900.00	17.00	175.50	4,732.47	-1,159.51	91.26	95.71	0.00	0.00	0.00
5,000.00	17.00	175.50	4,828.10	-1,188.66	93.55	98.11	0.00	0.00	0.00
5,100.00	17.00	175.50	4,923.73	-1,217.81	95.84	100.52	0.00	0.00	0.00
5,200.00	17.00	175.50	5,019.36	-1,246.95	98.14	102.92	0.00	0.00	0.00
5,300.00	17.00	175.50	5,114.99	-1,276.10	100.43	105.33	0.00	0.00	0.00
5,400.00	17.00	175.50	5,210.62	-1,305.25	102.73	107.74	0.00	0.00	0.00
5,423.41	17.00	175.50	5,233.00	-1,312.07	103.26	108.30	0.00	0.00	0.00
U/Cliff House									
5,500.00	17.00	175.50	5,306.25	-1,334.39	105.02	110.14	0.00	0.00	0.00
5,600.00	17.00	175.50	5,401.88	-1,363.54	107.31	112.55	0.00	0.00	0.00
5,700.00	17.00	175.50	5,497.51	-1,392.69	109.61	114.95	0.00	0.00	0.00
5,765.35	17.00	175.50	5,560.00	-1,411.73	111.11	116.53	0.00	0.00	0.00
Cliff House									
5,794.63	17.00	175.50	5,588.00	-1,420.27	111.78	117.23	0.00	0.00	0.00
Menefee									
5,800.00	17.00	175.50	5,593.14	-1,421.84	111.90	117.36	0.00	0.00	0.00
5,900.00	17.00	175.50	5,688.77	-1,450.98	114.19	119.77	0.00	0.00	0.00
6,000.00	17.00	175.50	5,784.40	-1,480.13	116.49	122.17	0.00	0.00	0.00
6,017.36	17.00	175.50	5,801.00	-1,485.19	116.89	122.59	0.00	0.00	0.00
Point Lookout									
6,100.00	17.00	175.50	5,880.03	-1,509.28	118.78	124.58	0.00	0.00	0.00
6,200.00	17.00	175.50	5,975.66	-1,538.42	121.08	126.98	0.00	0.00	0.00
6,300.00	17.00	175.50	6,071.29	-1,567.57	123.37	129.39	0.00	0.00	0.00
6,400.00	17.00	175.50	6,166.92	-1,596.72	125.66	131.79	0.00	0.00	0.00
6,500.00	17.00	175.50	6,262.55	-1,625.86	127.96	134.20	0.00	0.00	0.00
6,509.88	17.00	175.50	6,272.00	-1,628.74	128.18	134.44	0.00	0.00	0.00
Mancos									
6,600.00	17.00	175.50	6,358.18	-1,655.01	130.25	136.61	0.00	0.00	0.00
6,700.00	17.00	175.50	6,453.81	-1,684.16	132.55	139.01	0.00	0.00	0.00
6,790.12	17.00	175.50	6,540.00	-1,710.43	134.61	141.18	0.00	0.00	0.00
Start DLS 9.00 TFO -68.69									
6,800.00	17.34	172.72	6,549.44	-1,713.33	134.91	141.49	9.00	3.46	-28.14
6,850.00	19.59	160.38	6,596.88	-1,728.62	138.67	145.31	9.00	4.50	-24.69
6,900.00	22.50	150.79	6,643.55	-1,744.88	146.16	152.86	9.00	5.82	-19.17
6,950.00	25.85	143.43	6,689.17	-1,762.00	157.33	164.10	9.00	6.70	-14.71
7,000.00	29.49	137.72	6,733.45	-1,779.87	172.12	178.95	9.00	7.28	-11.43
7,050.00	33.33	133.19	6,776.12	-1,798.38	190.42	197.32	9.00	7.67	-9.06
7,100.00	37.29	129.51	6,816.92	-1,817.43	212.13	219.11	9.00	7.93	-7.36

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,150.00	41.36	126.45	6,855.59	-1,836.89	237.12	244.17	9.00	8.12	-6.12
7,200.00	45.49	123.85	6,891.90	-1,856.65	265.23	272.35	9.00	8.26	-5.20
7,227.82	47.81	122.56	6,911.00	-1,867.72	282.15	289.32	9.00	8.34	-4.64
Black Top									
7,250.00	49.67	121.60	6,925.63	-1,876.57	296.28	303.48	9.00	8.39	-4.34
7,300.00	53.89	119.61	6,956.56	-1,896.54	330.09	337.37	9.00	8.44	-3.98
7,350.00	58.14	117.82	6,984.50	-1,916.44	366.45	373.80	9.00	8.50	-3.57
7,400.00	62.41	116.20	7,009.29	-1,936.14	405.13	412.56	9.00	8.55	-3.25
7,450.00	66.70	114.69	7,030.77	-1,955.53	445.89	453.40	9.00	8.58	-3.01
7,500.00	71.01	113.28	7,048.80	-1,974.47	488.49	496.07	9.00	8.61	-2.82
7,550.00	75.32	111.94	7,063.28	-1,992.86	532.66	540.31	9.00	8.63	-2.68
7,600.00	79.64	110.66	7,074.12	-2,010.58	578.13	585.84	9.00	8.64	-2.57
7,650.00	83.97	109.40	7,081.25	-2,027.52	624.61	632.39	9.00	8.65	-2.50
7,700.00	88.30	108.17	7,084.62	-2,043.58	671.83	679.67	9.00	8.66	-2.46
7,719.23	89.96	107.70	7,084.91	-2,049.50	690.12	697.98	9.00	8.66	-2.45
Start DLS 2.00 TFO -90.01									
7,800.00	89.96	106.08	7,084.97	-2,072.97	767.40	775.36	2.00	0.00	-2.00
7,900.00	89.96	104.08	7,085.04	-2,099.00	863.95	872.00	2.00	0.00	-2.00
8,000.00	89.96	102.08	7,085.11	-2,121.63	961.35	969.49	2.00	0.00	-2.00
8,100.00	89.96	100.08	7,085.18	-2,140.86	1,059.48	1,067.69	2.00	0.00	-2.00
8,200.00	89.96	98.08	7,085.25	-2,156.65	1,158.22	1,166.49	2.00	0.00	-2.00
8,300.00	89.96	96.08	7,085.32	-2,168.98	1,257.45	1,265.77	2.00	0.00	-2.00
8,400.00	89.96	94.08	7,085.40	-2,177.84	1,357.05	1,365.41	2.00	0.00	-2.00
8,500.00	89.96	92.08	7,085.47	-2,183.22	1,456.90	1,465.28	2.00	0.00	-2.00
8,593.46	89.96	90.22	7,085.53	-2,185.10	1,550.34	1,558.72	2.00	0.00	-2.00
Start 14393.30 hold at 8593.46 MD									
8,600.00	89.96	90.22	7,085.54	-2,185.12	1,556.88	1,565.26	0.00	0.00	0.00
8,700.00	89.96	90.22	7,085.61	-2,185.50	1,656.88	1,665.26	0.00	0.00	0.00
8,800.00	89.96	90.22	7,085.68	-2,185.87	1,756.88	1,765.26	0.00	0.00	0.00
8,900.00	89.96	90.22	7,085.75	-2,186.25	1,856.88	1,865.26	0.00	0.00	0.00
9,000.00	89.96	90.22	7,085.82	-2,186.63	1,956.88	1,965.26	0.00	0.00	0.00
9,100.00	89.96	90.22	7,085.89	-2,187.00	2,056.88	2,065.26	0.00	0.00	0.00
9,200.00	89.96	90.22	7,085.97	-2,187.38	2,156.88	2,165.26	0.00	0.00	0.00
9,300.00	89.96	90.22	7,086.04	-2,187.75	2,256.88	2,265.26	0.00	0.00	0.00
9,400.00	89.96	90.22	7,086.11	-2,188.13	2,356.87	2,365.26	0.00	0.00	0.00
9,500.00	89.96	90.22	7,086.18	-2,188.51	2,456.87	2,465.26	0.00	0.00	0.00
9,600.00	89.96	90.22	7,086.25	-2,188.88	2,556.87	2,565.26	0.00	0.00	0.00
9,700.00	89.96	90.22	7,086.32	-2,189.26	2,656.87	2,665.26	0.00	0.00	0.00
9,800.00	89.96	90.22	7,086.39	-2,189.63	2,756.87	2,765.26	0.00	0.00	0.00
9,900.00	89.96	90.22	7,086.46	-2,190.01	2,856.87	2,865.26	0.00	0.00	0.00
10,000.00	89.96	90.22	7,086.54	-2,190.38	2,956.87	2,965.26	0.00	0.00	0.00
10,100.00	89.96	90.22	7,086.61	-2,190.76	3,056.87	3,065.26	0.00	0.00	0.00
10,200.00	89.96	90.22	7,086.68	-2,191.14	3,156.87	3,165.26	0.00	0.00	0.00
10,300.00	89.96	90.22	7,086.75	-2,191.51	3,256.87	3,265.26	0.00	0.00	0.00
10,400.00	89.96	90.22	7,086.82	-2,191.89	3,356.87	3,365.26	0.00	0.00	0.00
10,500.00	89.96	90.22	7,086.89	-2,192.26	3,456.87	3,465.26	0.00	0.00	0.00
10,600.00	89.96	90.22	7,086.96	-2,192.64	3,556.87	3,565.26	0.00	0.00	0.00
10,700.00	89.96	90.22	7,087.03	-2,193.02	3,656.86	3,665.26	0.00	0.00	0.00
10,800.00	89.96	90.22	7,087.10	-2,193.39	3,756.86	3,765.26	0.00	0.00	0.00
10,900.00	89.96	90.22	7,087.18	-2,193.77	3,856.86	3,865.26	0.00	0.00	0.00
11,000.00	89.96	90.22	7,087.25	-2,194.14	3,956.86	3,965.26	0.00	0.00	0.00
11,100.00	89.96	90.22	7,087.32	-2,194.52	4,056.86	4,065.26	0.00	0.00	0.00
11,200.00	89.96	90.22	7,087.39	-2,194.90	4,156.86	4,165.26	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,300.00	89.96	90.22	7,087.46	-2,195.27	4,256.86	4,265.26	0.00	0.00	0.00
11,400.00	89.96	90.22	7,087.53	-2,195.65	4,356.86	4,365.26	0.00	0.00	0.00
11,500.00	89.96	90.22	7,087.60	-2,196.02	4,456.86	4,465.26	0.00	0.00	0.00
11,600.00	89.96	90.22	7,087.67	-2,196.40	4,556.86	4,565.26	0.00	0.00	0.00
11,700.00	89.96	90.22	7,087.75	-2,196.77	4,656.86	4,665.26	0.00	0.00	0.00
11,800.00	89.96	90.22	7,087.82	-2,197.15	4,756.86	4,765.26	0.00	0.00	0.00
11,900.00	89.96	90.22	7,087.89	-2,197.53	4,856.86	4,865.26	0.00	0.00	0.00
12,000.00	89.96	90.22	7,087.96	-2,197.90	4,956.86	4,965.26	0.00	0.00	0.00
12,100.00	89.96	90.22	7,088.03	-2,198.28	5,056.85	5,065.26	0.00	0.00	0.00
12,200.00	89.96	90.22	7,088.10	-2,198.65	5,156.85	5,165.26	0.00	0.00	0.00
12,300.00	89.96	90.22	7,088.17	-2,199.03	5,256.85	5,265.26	0.00	0.00	0.00
12,400.00	89.96	90.22	7,088.24	-2,199.41	5,356.85	5,365.26	0.00	0.00	0.00
12,500.00	89.96	90.22	7,088.31	-2,199.78	5,456.85	5,465.26	0.00	0.00	0.00
12,600.00	89.96	90.22	7,088.39	-2,200.16	5,556.85	5,565.26	0.00	0.00	0.00
12,700.00	89.96	90.22	7,088.46	-2,200.53	5,656.85	5,665.26	0.00	0.00	0.00
12,800.00	89.96	90.22	7,088.53	-2,200.91	5,756.85	5,765.26	0.00	0.00	0.00
12,900.00	89.96	90.22	7,088.60	-2,201.28	5,856.85	5,865.26	0.00	0.00	0.00
13,000.00	89.96	90.22	7,088.67	-2,201.66	5,956.85	5,965.26	0.00	0.00	0.00
13,100.00	89.96	90.22	7,088.74	-2,202.04	6,056.85	6,065.26	0.00	0.00	0.00
13,200.00	89.96	90.22	7,088.81	-2,202.41	6,156.85	6,165.26	0.00	0.00	0.00
13,300.00	89.96	90.22	7,088.88	-2,202.79	6,256.85	6,265.26	0.00	0.00	0.00
13,400.00	89.96	90.22	7,088.96	-2,203.16	6,356.85	6,365.26	0.00	0.00	0.00
13,500.00	89.96	90.22	7,089.03	-2,203.54	6,456.84	6,465.26	0.00	0.00	0.00
13,600.00	89.96	90.22	7,089.10	-2,203.92	6,556.84	6,565.26	0.00	0.00	0.00
13,700.00	89.96	90.22	7,089.17	-2,204.29	6,656.84	6,665.26	0.00	0.00	0.00
13,800.00	89.96	90.22	7,089.24	-2,204.67	6,756.84	6,765.26	0.00	0.00	0.00
13,900.00	89.96	90.22	7,089.31	-2,205.04	6,856.84	6,865.26	0.00	0.00	0.00
14,000.00	89.96	90.22	7,089.38	-2,205.42	6,956.84	6,965.26	0.00	0.00	0.00
14,100.00	89.96	90.22	7,089.45	-2,205.79	7,056.84	7,065.26	0.00	0.00	0.00
14,200.00	89.96	90.22	7,089.52	-2,206.17	7,156.84	7,165.26	0.00	0.00	0.00
14,300.00	89.96	90.22	7,089.60	-2,206.55	7,256.84	7,265.26	0.00	0.00	0.00
14,400.00	89.96	90.22	7,089.67	-2,206.92	7,356.84	7,365.26	0.00	0.00	0.00
14,500.00	89.96	90.22	7,089.74	-2,207.30	7,456.84	7,465.26	0.00	0.00	0.00
14,600.00	89.96	90.22	7,089.81	-2,207.67	7,556.84	7,565.26	0.00	0.00	0.00
14,700.00	89.96	90.22	7,089.88	-2,208.05	7,656.84	7,665.26	0.00	0.00	0.00
14,800.00	89.96	90.22	7,089.95	-2,208.43	7,756.83	7,765.26	0.00	0.00	0.00
14,900.00	89.96	90.22	7,090.02	-2,208.80	7,856.83	7,865.26	0.00	0.00	0.00
15,000.00	89.96	90.22	7,090.09	-2,209.18	7,956.83	7,965.26	0.00	0.00	0.00
15,100.00	89.96	90.22	7,090.17	-2,209.55	8,056.83	8,065.26	0.00	0.00	0.00
15,200.00	89.96	90.22	7,090.24	-2,209.93	8,156.83	8,165.26	0.00	0.00	0.00
15,300.00	89.96	90.22	7,090.31	-2,210.31	8,256.83	8,265.26	0.00	0.00	0.00
15,400.00	89.96	90.22	7,090.38	-2,210.68	8,356.83	8,365.26	0.00	0.00	0.00
15,500.00	89.96	90.22	7,090.45	-2,211.06	8,456.83	8,465.26	0.00	0.00	0.00
15,600.00	89.96	90.22	7,090.52	-2,211.43	8,556.83	8,565.26	0.00	0.00	0.00
15,700.00	89.96	90.22	7,090.59	-2,211.81	8,656.83	8,665.26	0.00	0.00	0.00
15,800.00	89.96	90.22	7,090.66	-2,212.18	8,756.83	8,765.26	0.00	0.00	0.00
15,900.00	89.96	90.22	7,090.74	-2,212.56	8,856.83	8,865.26	0.00	0.00	0.00
16,000.00	89.96	90.22	7,090.81	-2,212.94	8,956.83	8,965.26	0.00	0.00	0.00
16,100.00	89.96	90.22	7,090.88	-2,213.31	9,056.83	9,065.26	0.00	0.00	0.00
16,200.00	89.96	90.22	7,090.95	-2,213.69	9,156.82	9,165.26	0.00	0.00	0.00
16,300.00	89.96	90.22	7,091.02	-2,214.06	9,256.82	9,265.26	0.00	0.00	0.00
16,400.00	89.96	90.22	7,091.09	-2,214.44	9,356.82	9,365.26	0.00	0.00	0.00
16,500.00	89.96	90.22	7,091.16	-2,214.82	9,456.82	9,465.26	0.00	0.00	0.00
16,600.00	89.96	90.22	7,091.23	-2,215.19	9,556.82	9,565.26	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,700.00	89.96	90.22	7,091.30	-2,215.57	9,656.82	9,665.26	0.00	0.00	0.00
16,800.00	89.96	90.22	7,091.38	-2,215.94	9,756.82	9,765.26	0.00	0.00	0.00
16,900.00	89.96	90.22	7,091.45	-2,216.32	9,856.82	9,865.26	0.00	0.00	0.00
17,000.00	89.96	90.22	7,091.52	-2,216.69	9,956.82	9,965.26	0.00	0.00	0.00
17,100.00	89.96	90.22	7,091.59	-2,217.07	10,056.82	10,065.26	0.00	0.00	0.00
17,200.00	89.96	90.22	7,091.66	-2,217.45	10,156.82	10,165.26	0.00	0.00	0.00
17,300.00	89.96	90.22	7,091.73	-2,217.82	10,256.82	10,265.26	0.00	0.00	0.00
17,400.00	89.96	90.22	7,091.80	-2,218.20	10,356.82	10,365.26	0.00	0.00	0.00
17,500.00	89.96	90.22	7,091.87	-2,218.57	10,456.82	10,465.26	0.00	0.00	0.00
17,600.00	89.96	90.22	7,091.95	-2,218.95	10,556.81	10,565.26	0.00	0.00	0.00
17,700.00	89.96	90.22	7,092.02	-2,219.33	10,656.81	10,665.26	0.00	0.00	0.00
17,800.00	89.96	90.22	7,092.09	-2,219.70	10,756.81	10,765.26	0.00	0.00	0.00
17,900.00	89.96	90.22	7,092.16	-2,220.08	10,856.81	10,865.26	0.00	0.00	0.00
18,000.00	89.96	90.22	7,092.23	-2,220.45	10,956.81	10,965.26	0.00	0.00	0.00
18,100.00	89.96	90.22	7,092.30	-2,220.83	11,056.81	11,065.26	0.00	0.00	0.00
18,200.00	89.96	90.22	7,092.37	-2,221.21	11,156.81	11,165.26	0.00	0.00	0.00
18,300.00	89.96	90.22	7,092.44	-2,221.58	11,256.81	11,265.26	0.00	0.00	0.00
18,400.00	89.96	90.22	7,092.51	-2,221.96	11,356.81	11,365.26	0.00	0.00	0.00
18,500.00	89.96	90.22	7,092.59	-2,222.33	11,456.81	11,465.26	0.00	0.00	0.00
18,600.00	89.96	90.22	7,092.66	-2,222.71	11,556.81	11,565.26	0.00	0.00	0.00
18,700.00	89.96	90.22	7,092.73	-2,223.08	11,656.81	11,665.26	0.00	0.00	0.00
18,800.00	89.96	90.22	7,092.80	-2,223.46	11,756.81	11,765.26	0.00	0.00	0.00
18,900.00	89.96	90.22	7,092.87	-2,223.84	11,856.81	11,865.26	0.00	0.00	0.00
19,000.00	89.96	90.22	7,092.94	-2,224.21	11,956.80	11,965.26	0.00	0.00	0.00
19,100.00	89.96	90.22	7,093.01	-2,224.59	12,056.80	12,065.26	0.00	0.00	0.00
19,200.00	89.96	90.22	7,093.08	-2,224.96	12,156.80	12,165.26	0.00	0.00	0.00
19,300.00	89.96	90.22	7,093.16	-2,225.34	12,256.80	12,265.26	0.00	0.00	0.00
19,400.00	89.96	90.22	7,093.23	-2,225.72	12,356.80	12,365.26	0.00	0.00	0.00
19,500.00	89.96	90.22	7,093.30	-2,226.09	12,456.80	12,465.26	0.00	0.00	0.00
19,600.00	89.96	90.22	7,093.37	-2,226.47	12,556.80	12,565.26	0.00	0.00	0.00
19,700.00	89.96	90.22	7,093.44	-2,226.84	12,656.80	12,665.26	0.00	0.00	0.00
19,800.00	89.96	90.22	7,093.51	-2,227.22	12,756.80	12,765.26	0.00	0.00	0.00
19,900.00	89.96	90.22	7,093.58	-2,227.59	12,856.80	12,865.26	0.00	0.00	0.00
20,000.00	89.96	90.22	7,093.65	-2,227.97	12,956.80	12,965.26	0.00	0.00	0.00
20,100.00	89.96	90.22	7,093.72	-2,228.35	13,056.80	13,065.26	0.00	0.00	0.00
20,200.00	89.96	90.22	7,093.80	-2,228.72	13,156.80	13,165.26	0.00	0.00	0.00
20,300.00	89.96	90.22	7,093.87	-2,229.10	13,256.79	13,265.26	0.00	0.00	0.00
20,400.00	89.96	90.22	7,093.94	-2,229.47	13,356.79	13,365.26	0.00	0.00	0.00
20,500.00	89.96	90.22	7,094.01	-2,229.85	13,456.79	13,465.26	0.00	0.00	0.00
20,600.00	89.96	90.22	7,094.08	-2,230.23	13,556.79	13,565.26	0.00	0.00	0.00
20,700.00	89.96	90.22	7,094.15	-2,230.60	13,656.79	13,665.26	0.00	0.00	0.00
20,800.00	89.96	90.22	7,094.22	-2,230.98	13,756.79	13,765.26	0.00	0.00	0.00
20,900.00	89.96	90.22	7,094.29	-2,231.35	13,856.79	13,865.26	0.00	0.00	0.00
21,000.00	89.96	90.22	7,094.37	-2,231.73	13,956.79	13,965.26	0.00	0.00	0.00
21,100.00	89.96	90.22	7,094.44	-2,232.10	14,056.79	14,065.26	0.00	0.00	0.00
21,200.00	89.96	90.22	7,094.51	-2,232.48	14,156.79	14,165.26	0.00	0.00	0.00
21,300.00	89.96	90.22	7,094.58	-2,232.86	14,256.79	14,265.26	0.00	0.00	0.00
21,400.00	89.96	90.22	7,094.65	-2,233.23	14,356.79	14,365.26	0.00	0.00	0.00
21,500.00	89.96	90.22	7,094.72	-2,233.61	14,456.79	14,465.26	0.00	0.00	0.00
21,600.00	89.96	90.22	7,094.79	-2,233.98	14,556.79	14,565.26	0.00	0.00	0.00
21,700.00	89.96	90.22	7,094.86	-2,234.36	14,656.78	14,665.26	0.00	0.00	0.00
21,800.00	89.96	90.22	7,094.94	-2,234.74	14,756.78	14,765.26	0.00	0.00	0.00
21,900.00	89.96	90.22	7,095.01	-2,235.11	14,856.78	14,865.26	0.00	0.00	0.00
22,000.00	89.96	90.22	7,095.08	-2,235.49	14,956.78	14,965.26	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
22,100.00	89.96	90.22	7,095.15	-2,235.86	15,056.78	15,065.26	0.00	0.00	0.00	
22,200.00	89.96	90.22	7,095.22	-2,236.24	15,156.78	15,165.26	0.00	0.00	0.00	
22,300.00	89.96	90.22	7,095.29	-2,236.62	15,256.78	15,265.26	0.00	0.00	0.00	
22,400.00	89.96	90.22	7,095.36	-2,236.99	15,356.78	15,365.26	0.00	0.00	0.00	
22,500.00	89.96	90.22	7,095.43	-2,237.37	15,456.78	15,465.26	0.00	0.00	0.00	
22,600.00	89.96	90.22	7,095.50	-2,237.74	15,556.78	15,565.26	0.00	0.00	0.00	
22,700.00	89.96	90.22	7,095.58	-2,238.12	15,656.78	15,665.26	0.00	0.00	0.00	
22,800.00	89.96	90.22	7,095.65	-2,238.49	15,756.78	15,765.26	0.00	0.00	0.00	
22,900.00	89.96	90.22	7,095.72	-2,238.87	15,856.78	15,865.26	0.00	0.00	0.00	
22,986.76	89.96	90.22	7,095.78	-2,239.20	15,943.54	15,952.02	0.00	0.00	0.00	
TD at 22986.76										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Rosa Unit 756H SHL	0.00	0.00	0.00	0.00	0.00	2,131,247.92	2,857,647.65	36.856045	-107.373405	
- plan hits target center										
- Point										
756H NSL POE	0.00	0.00	7,084.91	-2,049.50	690.12	2,129,201.76	2,858,347.63	36.850416	-107.371047	
- plan hits target center										
- Point										
756H NSL IP	0.00	0.00	7,085.53	-2,185.10	1,550.34	2,129,070.31	2,859,208.50	36.850043	-107.368107	
- plan hits target center										
- Point										
756H NSL PBHL	0.00	0.00	7,095.78	-2,239.20	15,943.54	2,129,085.52	2,873,601.79	36.849882	-107.318914	
- plan hits target center										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,757.94	2,684.00	Ojo Alamo		0.00	0.00	
2,909.56	2,829.00	Kirtland		0.00	0.00	
3,286.01	3,189.00	Fruitland		0.00	0.00	
3,359.21	3,259.00	T/Coals		0.00	0.00	
3,496.20	3,390.00	B/Coals		0.00	0.00	
3,664.55	3,551.00	Pictured Cliffs		0.00	0.00	
3,778.53	3,660.00	Lewis		0.00	0.00	
4,895.33	4,728.00	Chacra		0.00	0.00	
5,423.41	5,233.00	U/Cliff House		0.00	0.00	
5,765.35	5,560.00	Cliff House		0.00	0.00	
5,794.63	5,588.00	Menefee				
6,017.36	5,801.00	Point Lookout				
6,509.88	6,272.00	Mancos				
7,227.82	6,911.00	Black Top				

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit 756H
Company:	Logos Operating LLC	TVD Reference:	6534+30 @ 6564.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6534+30 @ 6564.00usft (H&P 530)
Site:	Rosa Unit 32	North Reference:	True
Well:	Rosa Unit 756H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #6		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	Start Build 2.00
1,350.00	1,337.58	-124.79	9.82	Start 5440.12 hold at 1350.00 MD
6,790.12	6,540.00	-1,710.43	134.61	Start DLS 9.00 TFO -68.69
7,719.23	7,084.91	-2,049.50	690.12	Start DLS 2.00 TFO -90.01
8,593.46	7,085.53	-2,185.10	1,550.34	Start 14393.30 hold at 8593.46 MD
22,986.76	7,095.78	-2,239.20	15,943.54	TD at 22986.76



LOGOS Operating, LLC Operations Plan

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

Date:	April 26, 2024	Pool:	Basin Mancos
Well Name:	Rosa Unit 756H	GL Elevation:	6,534'
Surface Location:	Sec 33, T31N, R5W 2612' FSL, 952' FWL (36.856045° N, -170.373405° W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 36, T31N, R5W 362' FSL, 1072' FWL (36.849882° N, -107.318914° W – NAD83)	Measured Depth:	22,987' (KB)
Lease Serial CA Serial	# NMSF78773 # NMNM78407E	County:	Rio Arriba

I. GEOLOGY

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

NAME	MD	TVD	NAME	MD	TVD
OJO ALAMO	2758'	2684'	*POINT LOOKOUT	6017'	5801'
KIRTLAND	2910'	2829'	*MANCOS	6510'	6272'
*FRUITLAND	3286'	3189'	KICKOFF POINT	6790'	6540'
*PICTURED CLIFFS	3665'	3551'	LANDING POINT	7719'	7085'
LEWIS	3779'	3660'	TD	22987'	7096'
CHACRA	4895'	4728'			
*CLIFF HOUSE	5765'	5560'			
MENEFEE	5795'	5588'			

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

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

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

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

II. DRILLING

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

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



- B. BOP TESTING:** The BOPE will be tested to **250 psi (Low) for 5 minutes** and **3000 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. BOP equipment will be tested every 30 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe and blind rams shall be activated each trip or but not more than once a day. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when initially installed for the first well on the pad or if seals subject to test pressure are broken, following related repairs and at a minimum of 30 day intervals. A BOPE Shell Test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken or repaired and fall within the 30 day interval of first full test.
- C. GeoHazards:** There are no Geohazards
- D. Maximum Anticipated Pressure:** 7,096' TVD x 0.43 = 3,052 psi
- E. H2S Concerns:** There is no record of any naturally occurring H2S in any formation in the Rosa Unit. No H2S is anticipated in this formation or this well.

III. MATERIALS

A. CASING EQUIPMENT:

CASING TYPE	OH SIZE (IN)	DEPTH (MD)	CSG SIZE	WEIGHT	GRADE	CONN
SURFACE	26" or 24"	350' or greater	20"	94 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,585'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	22,987'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

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

B. FLOAT EQUIPMENT:

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

C. CEMENTING:

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



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

Surface - 20" csg	Top	Footage	Cement (ft3/ft) Annular Capacity	Cement (bbl/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Type G	-	350	0.9599	0.171	1.3	487	87	1.11	438	15.8
or Type III		350	0.9599	0.171	1.3	487	87	1.39	350	14.6

24" hole

Set Depth, ft RKB 350

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

Intermediate - 9-5/8" csg	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)	
Stage 1 Tail	6,085	500	0.3132	1.3	221	39	1.10	201	15.8	
Stage 1 Lead	4,945	1,140	0.3132	1.3	464	83	1.90	244	12.4	
					685	122		445		
Stage 2 Tail	4,345	600	0.3132	1.3	244	44	1.58	155	13.2	
Stage 2 Lead	3,336	1,009	0.3132	1.3	411	73	1.90	216	12.4	
					655	117		371		
Stage 3 Tail	2,686	650	0.3132	1.3	265	47	1.58	168	13.2	
Stage 3 Lead	350	2,336	0.3132	1.3	951	169	1.58	602	12.4	
Stage 3 Lead	-	350	1.4895	0.2653	1	521	93	1.90	274	12.4
					1,737	309		1,044		
					3,078	548		1,860		
Set Depth, ft RKB	6585									

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

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

Production - 5-1/2"	Top	ft	Cement (ft3/ft) Annular Capacity	Excess (15%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Cased hole Tail	6,485	100	0.2531	1	25	5	1.59	16	13.2
Open Hole Tail	6,585	16,402	0.2291	1.15	4,332	772	1.59	2,724	13.2
					4,357	776		2,740	

Set Depth, ft RKB 22987

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 * 7,096' 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.

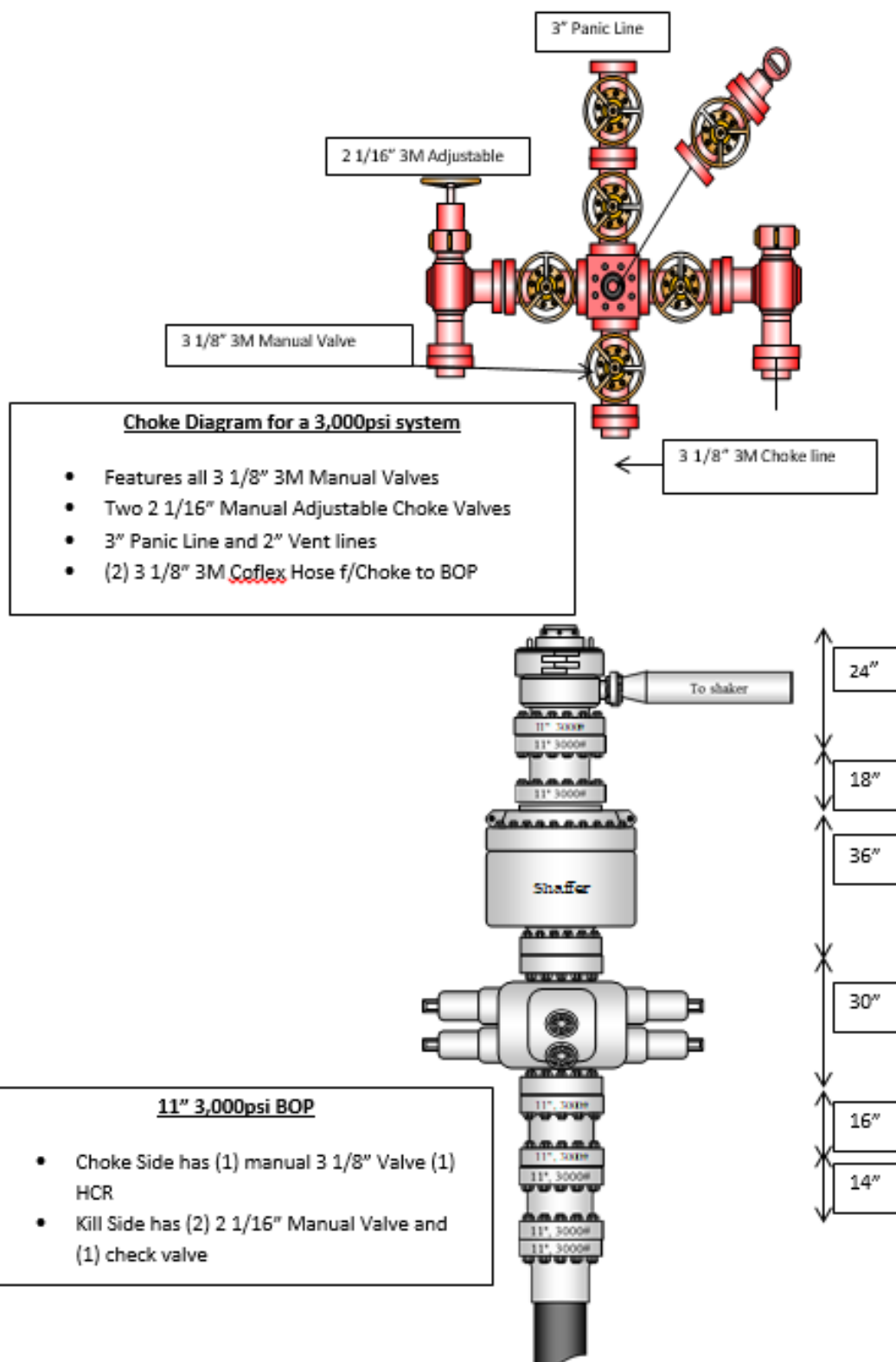
E. PRODUCTION TUBING

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 12-36 months after completion.

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



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



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 340614

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 340614
	Action Type: [C-103] NOI Change of Plans (C-103A)

CONDITIONS

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