

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 17 / SWNW / 36.900755 / -107.392824	County or Parish/State: RIO ARRIBA / NM
Well Number: 720H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF0078764	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number:	Operator: LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2814063

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 09/26/2024	Time Sundry Submitted: 02:30
Date proposed operation will begin: 09/26/2024	

Procedure Description: LOGOS Operating request a change in plans for the following: Change to 4-string design. Original SHL: Sec 17, T31N, R5W 2195' FNL, 555' FWL to Sec 17, T31N, R5W 2195' FNL, 555' FWL Original BHL: Sec 13, T31N, R6W 2560' FSL, 34' FWL to Sec 15, T31N, R5W 795' FNL, 1305' FEL Original TD @ 15,330' (MD) 6,940' (TVD) to new TD @ 20,809' (MD) 6,942' (TVD) Geology tops have been updated per changes. Original KOP @ 6,420' (MD) 6,396' (TVD) to new KOP @ 6,522' (MD) 6,336' (TVD) Original Landing point @ 7,299' (MD) 6,945' (TVD) to new Landing point @ 7,521' (MD) 6,950' (TVD) Add Conductor: Add Conductor: 20" casing, set @ 320' or greater All cementing bbls and sacks have been updated per casing depth changes. Original surface depth 320' to 3,487' Original intermediate depth 6,305' to 6,423' Original production depth 15,330' to 20,809' Attached: New C102, Operation and Directional Drill plans.

NOI Attachments

Procedure Description

- Logos__Rosa_Unit_720H_5_Wall_Prelim_1_20240926142915.pdf
- Rosa_Unit_720H_Operations_Plan_4_string_Prelim_WP1._9.23.2024_RH_20240926142915.pdf
- Logos__Rosa_Unit_720H_5_AC_Report_Prelim_1_20240926142915.pdf
- Logos__Rosa_Unit_720H_5_Plan_Data_Prelim_1_20240926142915.pdf
- 720H_ROSA_UNIT_CIP_1_20240926_signed_20240926142915.PDF

Received by OCD: 9/27/2024 11:20:06 AM

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Well Number: 720H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF0078764	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number:	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: LACEY GRANILLO	Signed on: SEP 26, 2024 02:30 PM
Name: LOGOS OPERATING LLC	
Title: REGULATORY SPECIALIST	
Street Address: 2010 AFTON PLACE	
City: FARMINGTON	State: NM
Phone: (505) 324-4145	
Email address: LGRANILLO@LOGOSRESOURCESLLC.COM	

Field

Representative Name:		
Street Address:		
City:	State:	Zip:
Phone:		
Email address:		

BLM Point of Contact

BLM POC Name: KENNETH G RENNICK	BLM POC Title: Petroleum Engineer
BLM POC Phone: 5055647742	BLM POC Email Address: krennick@blm.gov
Disposition: Approved	Disposition Date: 09/27/2024
Signature: Kenneth Rennick	

C-102 Submit Electronically Via OCD Permitting	State of New Mexico Energy, Minerals & Natural Resources Department OIL CONSERVATION DIVISION	Revised July 9, 2024	
		Submittal Type	☐ Initial Submittal
			☒ Amended Report
		☐ As Drilled	

WELL LOCATION INFORMATION

API Number 30-039-31473	Pool Code 97232	Pool Name BASIN MANCOS
Property Code 320608	Property Name ROSA UNIT	Well Number 720H
OGRID No. 289408	Operator Name LOGOS OPERATING, LLC	Ground Level Elevation 6300'
Surface Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal		Mineral Owner: ☐ State ☐ Fee ☐ Tribal ☒ Federal

Surface Location

UL E	Section 17	Township 31N	Range 5W	Lot	Feet from N/S Line 2195' NORTH	Feet from E/W Line 555' WEST	Latitude 36.900755 °N	Longitude -107.392824 °W	County RIO ARRIBA
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Bottom Hole Location

UL A	Section 15	Township 31N	Range 5W	Lot	Feet from N/S Line 795' NORTH	Feet from E/W Line 1305' EAST	Latitude 36.904580 °N	Longitude -107.345089 °W	County RIO ARRIBA
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Penetrated Spacing Unit:

Dedicated Acres 960.00	N/2 - Section 15, T31N, R5W N/2 - Section 16, T31N, R5W N/2 - Section 17, T31N, R5W	Infill or Defining Well Infill	Defining Well API	Overlapping Spacing Unit ☐ Yes ☒ No	Consolidation Code Unitization
Order Numbers R-13457	Well setbacks are under Common Ownership: ☐ Yes ☒ No				

Kick Off Point (KOP)

UL D	Section 17	Township 31N	Range 5W	Lot	Feet from N/S Line 742' NORTH	Feet from E/W Line 587' WEST	Latitude 36.904746 °N	Longitude -107.392718 °W	County RIO ARRIBA
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First Take Point (FTP)

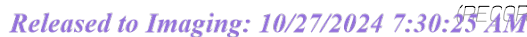
UL D	Section 17	Township 31N	Range 5W	Lot	Feet from N/S Line 588' NORTH	Feet from E/W Line 1226' WEST	Latitude 36.905168 °N	Longitude -107.390531 °W	County RIO ARRIBA
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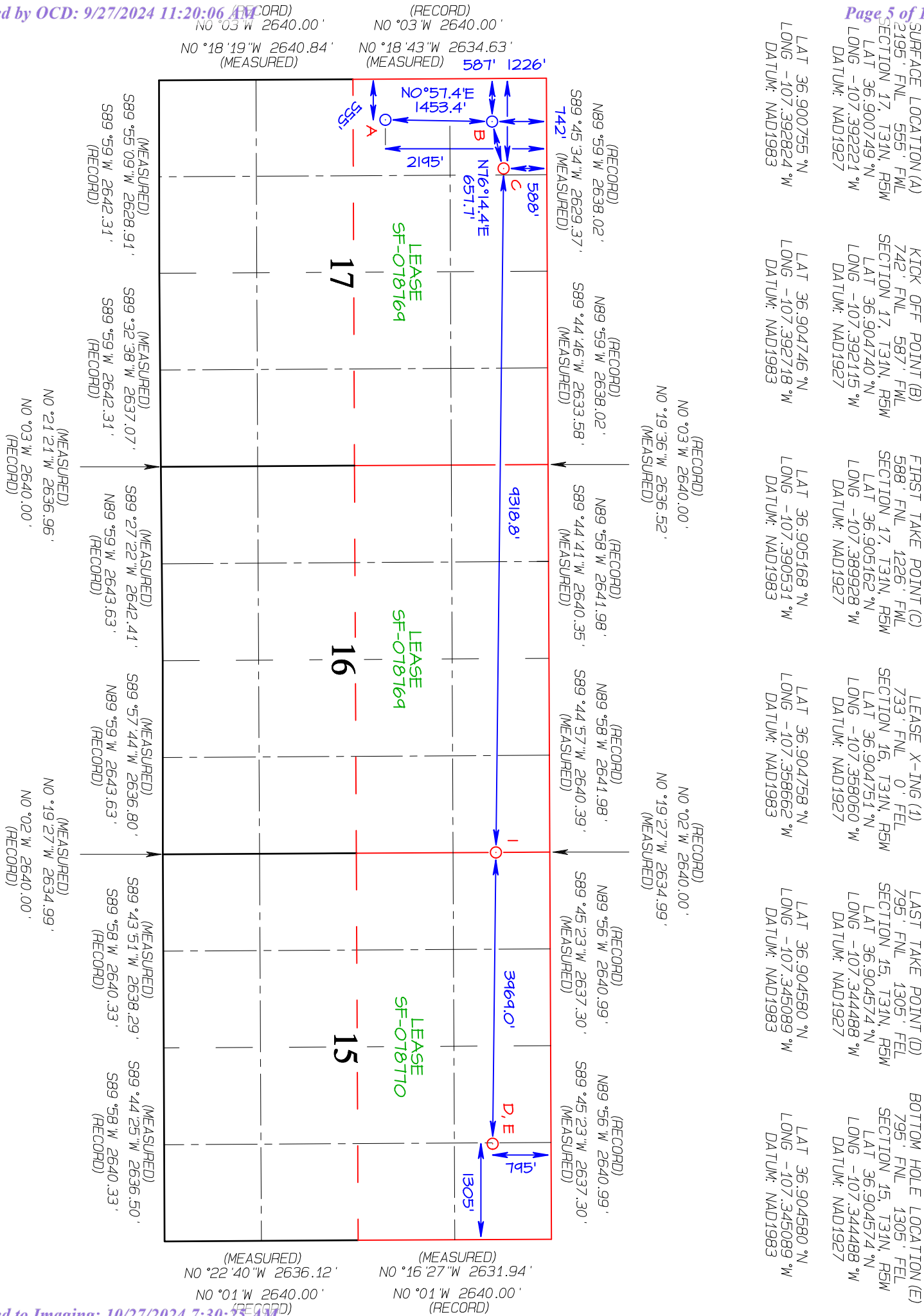
Last Take Point (LTP)

UL A	Section 15	Township 31N	Range 5W	Lot	Feet from N/S Line 795' NORTH	Feet from E/W Line 1305' EAST	Latitude 36.904580 °N	Longitude -107.345089 °W	County RIO ARRIBA
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Unitized Area or Area of Uniform Interest ROSA UNIT	Spacing Unit Type ☒ Horizontal ☐ Vertical ☐ Directional	Ground Floor Elevation
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OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and, if the well is a vertical or directional well, 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 a working interest or unleased mineral interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. If this well is a horizontal well, I further certify that this organization has received the consent of at least one lessee or owner of a working interest or unleased mineral interest in each tract (in the target pool or formation) in which any part of the well's completed interval will be located or obtained a compulsory pooling order from the division. <u>Lacey Granillo</u> Signature Lacey Granillo Printed Name lgranillo@logosresourcesllc.com E-mail Address 9/26/24 Date	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.  JASON C. EDWARDS Signature and Seal of Professional Surveyor Certificate Number 15269 Date of Survey JUNE 22, 2022
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Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Pad 26 - 5 Well

Rosa Unit #720H

OH

Prelim #1

Anticollision Report

30 August, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Reference	Prelim #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCSWA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Max. Cent. Dist. of 99,999.00usft or Max. SF of 100	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	8/30/2024		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	20,808.63	Prelim #1 (OH)	MWD+HRGM+MS	MWD + HRGM + Multi-Station Correction	

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 Pad 26						
(O) RU 009C - OH - OH-SVY+INC	0.00	0.00	13,287.01			
(O) RU 009C - OH - OH-SVY+INC	400.00	300.03	13,289.67	13,285.21	2,975.986	ES
(O) RU 009C - OH - OH-SVY+INC	7,300.00	6,994.82	14,306.13	14,167.57	103.248	SF
(O) RU 012D - OH - OH-SVY	581.05	550.06	14,744.95	14,741.64	4,451.003	CC
(O) RU 012D - OH - OH-SVY	700.00	595.88	14,745.23	14,741.32	3,771.794	ES
(O) RU 012D - OH - OH-SVY	7,150.00	7,100.35	15,220.99	15,163.66	265.494	SF
(O) RU 016D - OH - OH-SVY	2,929.31	3,632.94	12,305.80	12,273.96	386.460	CC
(O) RU 016D - OH - OH-SVY	6,550.00	6,702.36	12,450.80	12,047.36	30.862	ES
(O) RU 016D - OH - OH-SVY	7,350.00	7,271.13	12,936.56	12,458.53	27.062	SF
(O) RU 020D - OH - OH-SVY	4,667.91	5,038.54	9,433.29	9,389.82	217.039	CC
(O) RU 020D - OH - OH-SVY	4,700.00	5,047.37	9,433.33	9,389.70	216.237	ES
(O) RU 020D - OH - OH-SVY	6,850.00	6,735.39	9,594.61	9,541.80	181.662	SF
(O) RU 020D - ST01 - ST01-SVY	4,684.69	5,039.18	9,434.33	9,393.02	228.389	CC
(O) RU 020D - ST01 - ST01-SVY	5,800.00	6,067.82	9,446.83	9,392.26	173.118	ES
(O) RU 020D - ST01 - ST01-SVY	6,950.00	7,049.36	9,612.12	9,547.32	148.322	SF
(O) RU 022B - OH - OH-SVY	0.00	127.58	2,233.68			
(O) RU 022B - OH - OH-SVY	200.00	316.56	2,234.83	2,231.01	583.716	ES
(O) RU 022B - OH - OH-SVY	7,000.00	6,960.67	3,199.37	2,778.20	7.596	SF
(O) RU 030B - OH - OH-INC	6,537.79	6,508.76	6,587.72	6,413.51	37.815	CC
(O) RU 030B - OH - OH-INC	6,550.00	6,520.55	6,587.83	6,413.27	37.738	ES
(O) RU 030B - OH - OH-INC	7,050.00	6,946.80	6,783.30	6,595.85	36.187	SF
(O) RU 031 - OH - OH-TD	6,300.00	5,973.00	1,235.42	946.74	4.280	SF
(O) RU 031 - OH - OH-TD	8,090.87	5,973.00	976.63	830.66	6.690	CC, ES
(O) RU 031A - OH - OH-INC	534.47	515.48	1,211.81	1,200.96	111.643	CC
(O) RU 031A - OH - OH-INC	600.00	579.23	1,213.14	1,200.79	98.278	ES
(O) RU 031A - OH - OH-INC	6,200.00	6,006.49	2,470.70	2,324.35	16.883	SF
(O) RU 031B - OH - OH-INC	6,709.90	6,501.17	164.59	-1.40	0.992	Level 3, CC, ES, SF
(O) RU 046A - OH - OH-SVY	9,854.59	7,106.77	1,658.70	1,561.28	17.027	CC
(O) RU 046A - OH - OH-SVY	9,900.00	7,106.58	1,659.32	1,561.00	16.877	ES
(O) RU 046A - OH - OH-SVY	10,300.00	7,105.01	1,717.46	1,612.38	16.344	SF
(O) RU 065 - OH - OH-INC	10,700.00	6,919.34	487.47	226.86	1.871	ES, SF
(O) RU 065 - OH - OH-INC	10,707.26	6,919.34	487.42	226.92	1.871	CC
(O) RU 066 - OH - OH-INC	488.49	504.49	8,132.30	8,124.13	995.376	CC
(O) RU 066 - OH - OH-INC	900.00	911.65	8,136.76	8,119.08	460.365	ES
(O) RU 066 - OH - OH-INC	7,200.00	6,895.40	8,842.55	8,611.33	38.243	SF
(O) RU 066M - OH - OH-SVY	0.00	0.00	6,528.51			
(O) RU 066M - OH - OH-SVY	1,100.00	1,077.00	6,538.60	6,521.90	391.468	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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	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 Pad 26						
(O) RU 066M - OH - OH-SVY	6,900.00	5,472.70	7,173.30	7,004.38	42.467	SF
(O) RU 067 - OH - OH-INC	2,717.21	2,694.80	10,385.72	10,326.74	176.078	CC
(O) RU 067 - OH - OH-INC	6,521.58	6,371.23	10,431.87	10,279.09	68.277	ES
(O) RU 067 - OH - OH-INC	7,150.00	6,884.18	10,729.94	10,564.05	64.683	SF
(O) RU 068 - OH - OH-INC	500.00	481.01	1,260.39	1,252.76	165.291	CC
(O) RU 068 - OH - OH-INC	600.00	580.99	1,262.10	1,252.21	127.655	ES
(O) RU 068 - OH - OH-INC	7,350.00	6,909.79	2,855.15	2,691.22	17.417	SF
(O) RU 119 - OH - OH-INC	346.91	352.84	3,944.14	3,939.07	778.576	CC
(O) RU 119 - OH - OH-INC	600.00	603.16	3,945.01	3,934.52	376.230	ES
(O) RU 119 - OH - OH-INC	7,050.00	6,800.85	5,122.63	4,899.97	23.006	SF
(O) RU 125 - OH - OH-INC	5,250.80	5,274.90	5,612.89	5,445.99	33.631	CC
(O) RU 125 - OH - OH-INC	6,550.00	6,526.08	5,623.68	5,402.06	25.376	ES
(O) RU 125 - OH - OH-INC	7,000.00	6,920.97	5,801.25	5,562.90	24.340	SF
(O) RU 125E - OH - OH-INC	431.72	446.37	5,575.97	5,566.78	606.875	CC
(O) RU 125E - OH - OH-INC	800.00	814.51	5,580.30	5,562.27	309.366	ES
(O) RU 125E - OH - OH-INC	7,100.00	6,838.44	6,403.56	6,200.91	31.598	SF
(O) RU 153B - OH - OH-INC	11,039.62	6,951.82	2,015.76	1,685.43	6.102	CC, ES
(O) RU 153B - OH - OH-INC	11,100.00	6,951.78	2,016.67	1,685.92	6.097	SF
(O) RU 153C - OH - OH-SVY	9,323.30	7,183.83	1,044.96	885.33	6.547	CC, ES, SF
(O) RU 181D - OH - OH-SVY	444.99	383.00	14,914.31	14,912.12	6,809.934	CC
(O) RU 181D - OH - OH-SVY	600.00	445.00	14,914.66	14,911.69	5,026.220	ES
(O) RU 181D - OH - OH-SVY	7,200.00	7,007.32	16,006.27	15,942.04	249.213	SF
(O) RU 207 - OH - OH-INC	504.97	475.98	1,199.57	1,190.69	134.962	CC
(O) RU 207 - OH - OH-INC	600.00	567.44	1,201.22	1,190.19	108.927	ES
(O) RU 207 - OH - OH-INC	3,200.00	3,038.00	1,745.07	1,676.55	25.467	SF
(O) RU 207A - OH - OH-INC	2,972.27	2,809.00	366.78	301.51	5.619	CC, ES, SF
(O) RU 251 - OH - OH-TD	10,482.46	6,920.22	1,270.20	904.94	3.478	CC, ES
(O) RU 251 - OH - OH-TD	10,500.00	6,920.21	1,270.32	905.01	3.477	SF
(O) RU 374 - OH - OH-INC	14,542.59	3,574.00	3,715.21	3,632.73	45.047	CC
(O) RU 374 - OH - OH-INC	14,600.00	3,574.00	3,715.65	3,632.69	44.789	ES
(O) RU 374 - OH - OH-INC	17,100.00	3,574.00	4,510.33	4,365.19	31.076	SF
Rosa Pad 26 - 5 Well						
Rosa Unit #712H - OH - Prelim #1	500.00	500.00	39.92	36.55	11.848	CC
Rosa Unit #712H - OH - Prelim #1	1,000.00	993.16	41.01	34.11	5.945	ES
Rosa Unit #712H - OH - Prelim #1	6,521.58	6,507.92	210.47	152.14	3.608	SF
Rosa Unit #714H - OH - Prelim 1	754.67	754.27	10.86	5.71	2.110	CC, ES, SF
Rosa Unit #722H - OH - Prelim #1	500.00	500.00	20.00	16.63	5.935	CC, ES
Rosa Unit #722H - OH - Prelim #1	20,808.89	20,564.28	1,791.84	1,344.34	4.004	SF
Rosa Unit #724H - OH - Prelim #1	500.00	500.00	40.00	36.63	11.870	CC, ES
Rosa Unit #724H - OH - Prelim #1	20,808.89	20,617.65	3,593.22	3,146.91	8.051	SF

Offset Design:	Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC										Offset Site Error:	0.00 usft
Survey Program:	300-MWD OWSG Rev5, 8115-A027Ua, INC-ONLY										Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	Distance	Rule Assigned:	Minimum Separation	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)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-78.64	2,617.06	-13,026.61	13,287.01			
100.00	100.00	100.62	100.62	0.25	1.06	-78.64	2,617.42	-13,026.75	13,287.22	13,285.92	1.30	N/A
200.00	200.00	165.12	165.11	0.61	1.74	-78.64	2,618.03	-13,026.99	13,287.77	13,285.43	2.34	5,685.337
300.00	300.00	229.61	229.59	0.97	2.42	-78.63	2,618.94	-13,027.35	13,288.59	13,285.22	3.37	3,942.763

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC												Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5, 8115-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Rule Assigned:													
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)			
400.00	400.00	300.03	300.00	1.33	3.16	-78.63	2,620.28	-13,027.87	13,289.67	13,285.21	4.47	2,975.986	ES
500.00	500.00	364.00	363.95	1.68	3.33	-78.62	2,621.79	-13,028.46	13,291.03	13,286.05	4.98	2,668.542	
600.00	599.98	421.00	420.93	2.04	3.39	-79.82	2,623.08	-13,029.18	13,292.37	13,286.98	5.38	2,469.572	
700.00	699.84	452.00	451.93	2.41	3.43	-79.80	2,623.51	-13,029.66	13,293.40	13,287.63	5.77	2,304.892	
800.00	799.45	482.00	481.92	2.77	3.46	-79.79	2,623.77	-13,030.34	13,294.36	13,288.20	6.16	2,158.845	
900.00	898.70	512.00	511.90	3.13	3.50	-79.79	2,623.89	-13,031.31	13,295.33	13,288.78	6.56	2,027.151	
1,000.00	997.47	525.34	525.23	3.50	3.51	-79.78	2,623.91	-13,031.82	13,296.24	13,289.29	6.95	1,913.317	
1,100.00	1,095.62	542.00	541.88	3.89	3.53	-79.78	2,623.91	-13,032.54	13,297.14	13,289.79	7.36	1,807.551	
1,200.00	1,193.06	559.16	559.01	4.30	3.55	-79.78	2,623.89	-13,033.39	13,298.05	13,290.27	7.78	1,708.487	
1,245.21	1,236.83	572.00	571.83	4.48	3.57	-79.78	2,623.85	-13,034.11	13,298.48	13,290.49	7.99	1,664.463	
1,300.00	1,289.78	572.00	571.83	4.72	3.57	-79.78	2,623.85	-13,034.11	13,299.08	13,290.86	8.22	1,617.875	
1,400.00	1,386.42	602.00	601.77	5.15	3.61	-79.82	2,623.67	-13,036.06	13,300.72	13,292.02	8.70	1,528.910	
1,500.00	1,483.05	602.00	601.77	5.59	3.61	-79.82	2,623.67	-13,036.06	13,302.93	13,293.80	9.14	1,456.210	
1,600.00	1,579.69	633.00	632.68	6.04	3.66	-79.86	2,623.42	-13,038.43	13,305.81	13,296.18	9.63	1,381.524	
1,700.00	1,676.32	633.00	632.68	6.49	3.66	-79.86	2,623.42	-13,038.43	13,309.30	13,299.22	10.08	1,320.808	
1,800.00	1,772.96	663.00	662.57	6.94	3.70	-79.89	2,623.16	-13,041.02	13,313.37	13,302.79	10.58	1,258.394	
1,900.00	1,869.60	678.01	677.51	7.40	3.73	-79.91	2,623.02	-13,042.43	13,318.10	13,307.03	11.06	1,204.116	
2,000.00	1,966.23	693.00	692.42	7.86	3.76	-79.93	2,622.87	-13,043.93	13,323.45	13,311.91	11.54	1,154.234	
2,100.00	2,062.87	722.00	721.26	8.33	3.81	-79.96	2,622.66	-13,047.00	13,329.43	13,317.37	12.06	1,105.549	
2,200.00	2,159.50	722.00	721.26	8.79	3.81	-79.96	2,622.66	-13,047.00	13,336.02	13,323.51	12.51	1,065.866	
2,300.00	2,256.14	753.00	752.05	9.26	3.88	-80.00	2,622.66	-13,050.62	13,343.27	13,330.23	13.04	1,023.241	
2,400.00	2,352.77	753.00	752.05	9.73	3.88	-80.00	2,622.66	-13,050.62	13,351.14	13,337.64	13.50	989.252	
2,500.00	2,449.41	783.00	781.79	10.20	3.96	-80.03	2,622.91	-13,054.48	13,359.69	13,345.66	14.03	952.347	
2,600.00	2,546.05	783.00	781.79	10.67	3.96	-80.03	2,622.91	-13,054.48	13,368.82	13,354.34	14.48	922.998	
2,700.00	2,642.68	814.00	812.49	11.14	4.04	-80.07	2,623.37	-13,058.79	13,378.61	13,363.59	15.02	890.576	
2,800.00	2,739.32	814.00	812.49	11.61	4.04	-80.07	2,623.37	-13,058.79	13,389.01	13,373.53	15.48	865.056	
2,900.00	2,835.95	844.00	842.14	12.08	4.12	-80.10	2,623.73	-13,063.36	13,400.08	13,384.06	16.02	836.520	
3,000.00	2,932.59	844.00	842.14	12.55	4.12	-80.10	2,623.73	-13,063.36	13,411.73	13,395.26	16.47	814.179	
3,100.00	3,029.22	875.00	872.71	13.03	4.21	-80.14	2,623.85	-13,068.51	13,424.08	13,407.06	17.02	788.670	
3,200.00	3,125.86	875.00	872.71	13.50	4.21	-80.14	2,623.85	-13,068.51	13,436.98	13,419.51	17.47	769.002	
3,300.00	3,222.50	875.00	872.71	13.97	4.21	-80.14	2,623.85	-13,068.51	13,450.61	13,432.69	17.92	750.416	
3,400.00	3,319.13	890.28	887.73	14.45	4.26	-80.16	2,623.83	-13,071.26	13,464.86	13,446.43	18.43	730.612	
3,500.00	3,415.77	905.00	902.18	14.92	4.31	-80.18	2,623.75	-13,074.12	13,479.84	13,460.91	18.93	712.022	
3,600.00	3,512.40	905.00	902.18	15.40	4.31	-80.18	2,623.75	-13,074.12	13,495.44	13,476.06	19.38	696.399	
3,700.00	3,609.04	936.00	932.51	15.88	4.41	-80.22	2,623.34	-13,080.49	13,511.72	13,491.78	19.94	677.612	
3,800.00	3,705.67	936.00	932.51	16.35	4.41	-80.22	2,623.34	-13,080.49	13,528.55	13,508.16	20.38	663.667	
3,900.00	3,802.31	967.00	962.76	16.83	4.51	-80.26	2,622.60	-13,087.22	13,546.00	13,525.06	20.94	647.029	
4,000.00	3,898.95	967.00	962.76	17.30	4.51	-80.26	2,622.60	-13,087.22	13,564.04	13,542.66	21.38	634.514	
4,100.00	3,995.58	997.00	991.97	17.78	4.60	-80.30	2,621.88	-13,094.03	13,582.67	13,560.74	21.92	619.551	
4,200.00	4,092.22	1,009.81	1,004.42	18.26	4.65	-80.32	2,621.63	-13,097.02	13,601.89	13,579.49	22.41	607.032	
4,300.00	4,188.85	1,027.00	1,021.11	18.73	4.70	-80.34	2,621.29	-13,101.12	13,621.72	13,598.81	22.91	594.613	
4,400.00	4,285.49	1,027.00	1,021.11	19.21	4.70	-80.34	2,621.29	-13,101.12	13,642.19	13,618.84	23.34	584.416	
4,500.00	4,382.12	1,058.00	1,051.11	19.69	4.82	-80.38	2,620.48	-13,108.91	13,663.27	13,639.37	23.90	571.605	
4,600.00	4,478.76	1,058.00	1,051.11	20.17	4.82	-80.38	2,620.48	-13,108.91	13,684.93	13,660.59	24.33	562.368	
4,700.00	4,575.40	1,058.00	1,051.11	20.64	4.82	-80.38	2,620.48	-13,108.91	13,707.28	13,682.52	24.76	553.527	
4,800.00	4,672.03	1,089.00	1,080.96	21.12	4.93	-80.43	2,619.40	-13,117.19	13,730.15	13,704.83	25.32	542.170	
4,900.00	4,768.67	1,089.00	1,080.96	21.60	4.93	-80.43	2,619.40	-13,117.19	13,753.68	13,727.93	25.75	534.131	
5,000.00	4,865.30	1,119.00	1,109.73	22.08	5.05	-80.47	2,618.32	-13,125.64	13,777.84	13,751.54	26.30	523.795	
5,100.00	4,961.94	1,119.00	1,109.73	22.55	5.05	-80.47	2,618.32	-13,125.64	13,802.54	13,775.81	26.73	516.462	
5,200.00	5,058.57	1,119.00	1,109.73	23.03	5.05	-80.47	2,618.32	-13,125.64	13,827.91	13,800.76	27.14	509.425	
5,300.00	5,155.21	1,150.00	1,139.30	23.51	5.17	-80.51	2,617.34	-13,134.88	13,853.90	13,826.19	27.70	500.060	
5,400.00	5,251.85	1,150.00	1,139.30	23.99	5.17	-80.51	2,617.34	-13,134.88	13,880.42	13,852.30	28.12	493.625	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC												Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5, 8115-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference												Rule Assigned:	
Offset												Warning	
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	
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,500.00	5,348.48	1,189.23	1,176.62	24.47	5.32	-80.57	2,616.09	-13,146.94	13,907.49	13,878.78	28.71	484.422	
5,600.00	5,445.12	1,231.01	1,216.29	24.94	5.48	-80.63	2,614.44	-13,159.91	13,934.93	13,905.62	29.31	475.407	
5,700.00	5,541.75	1,245.00	1,229.56	25.42	5.53	-80.65	2,613.86	-13,164.30	13,962.84	13,933.06	29.79	468.772	
5,800.00	5,638.39	1,262.88	1,246.50	25.90	5.60	-80.67	2,613.15	-13,169.99	13,991.31	13,961.03	30.28	462.068	
5,900.00	5,735.02	1,277.00	1,259.84	26.38	5.66	-80.69	2,612.65	-13,174.59	14,020.37	13,989.61	30.75	455.892	
6,000.00	5,831.66	1,277.00	1,259.84	26.86	5.66	-80.69	2,612.65	-13,174.59	14,050.02	14,018.86	31.16	450.949	
6,100.00	5,928.30	6,098.49	5,971.80	27.34	81.02	-86.06	2,625.14	-13,811.68	13,899.50	13,791.46	108.04	128.653	
6,200.00	6,024.93	6,186.70	6,059.99	27.82	83.55	-86.15	2,625.12	-13,811.78	13,897.81	13,786.77	111.04	125.158	
6,300.00	6,121.57	6,274.91	6,148.19	28.29	86.08	-86.25	2,625.09	-13,811.94	13,896.23	13,782.19	114.05	121.848	
6,400.00	6,218.20	6,363.11	6,236.38	28.77	88.61	-86.34	2,625.06	-13,812.16	13,894.76	13,777.72	117.05	118.709	
6,500.00	6,314.84	6,451.31	6,324.57	29.25	91.14	-86.43	2,625.02	-13,812.43	13,893.40	13,773.35	120.05	115.728	
6,521.58	6,335.69	6,470.35	6,343.60	29.36	91.68	-86.46	2,625.00	-13,812.50	13,893.12	13,772.42	120.70	115.105	
6,529.74	6,343.58	6,477.54	6,350.79	29.39	91.89	-89.22	2,625.00	-13,812.52	13,893.07	13,772.12	120.94	114.871	
6,550.00	6,363.15	6,495.40	6,368.65	29.49	92.40	-95.99	2,624.99	-13,812.59	13,893.39	13,771.84	121.55	114.299	
6,600.00	6,411.28	6,539.31	6,412.55	29.73	93.66	-111.23	2,624.96	-13,812.76	13,896.96	13,773.91	123.05	112.938	
6,650.00	6,458.93	6,582.77	6,456.01	29.96	94.91	-123.36	2,624.93	-13,812.94	13,904.44	13,779.91	124.53	111.654	
6,700.00	6,505.83	6,625.52	6,498.75	30.19	96.13	-132.42	2,624.90	-13,813.13	13,915.80	13,789.81	125.99	110.453	
6,750.00	6,551.67	6,667.27	6,540.50	30.42	97.33	-139.08	2,624.87	-13,813.32	13,930.96	13,803.55	127.41	109.338	
6,800.00	6,596.17	6,707.78	6,581.00	30.64	98.49	-143.99	2,624.84	-13,813.53	13,949.83	13,821.04	128.79	108.313	
6,850.00	6,639.06	6,746.80	6,620.01	30.85	99.61	-147.66	2,624.81	-13,813.74	13,972.29	13,842.17	130.12	107.380	
6,900.00	6,680.07	6,784.07	6,657.27	31.05	100.68	-150.43	2,624.77	-13,813.95	13,998.19	13,866.80	131.39	106.541	
6,950.00	6,718.96	6,819.37	6,692.57	31.24	101.69	-152.53	2,624.74	-13,814.15	14,027.38	13,894.80	132.59	105.796	
7,000.00	6,755.47	6,852.48	6,725.67	31.43	102.64	-154.10	2,624.71	-13,814.35	14,059.68	13,925.97	133.71	105.147	
7,050.00	6,789.40	6,883.19	6,756.38	31.61	103.52	-155.25	2,624.68	-13,814.55	14,094.88	13,960.12	134.76	104.594	
7,100.00	6,820.52	6,911.32	6,784.51	31.79	104.33	-156.01	2,624.65	-13,814.73	14,132.75	13,997.04	135.71	104.136	
7,150.00	6,848.64	6,936.70	6,809.88	31.97	105.06	-156.42	2,624.62	-13,814.90	14,173.08	14,036.50	136.58	103.773	
7,200.00	6,873.60	6,959.16	6,832.34	32.14	105.70	-156.46	2,624.59	-13,815.05	14,215.59	14,078.25	137.34	103.505	
7,250.00	6,895.24	6,978.57	6,851.75	32.31	106.26	-156.05	2,624.57	-13,815.19	14,260.03	14,122.03	138.00	103.330	
7,300.00	6,913.42	6,994.82	6,867.99	32.49	106.72	-155.03	2,624.55	-13,815.31	14,306.13	14,167.57	138.56	103.248 SF	
7,350.00	6,928.03	7,007.80	6,880.97	32.67	107.10	-153.02	2,624.54	-13,815.40	14,353.58	14,214.57	139.01	103.256	
7,400.00	6,938.98	7,017.45	6,890.61	32.86	107.37	-149.07	2,624.53	-13,815.47	14,402.11	14,262.76	139.35	103.354	
7,450.00	6,946.22	7,023.69	6,896.85	33.06	107.55	-140.02	2,624.52	-13,815.52	14,451.41	14,311.83	139.57	103.539	
7,500.00	6,949.68	7,026.50	6,899.67	33.26	107.63	-110.88	2,624.52	-13,815.54	14,501.16	14,361.47	139.69	103.808	
7,521.05	6,950.00	7,026.65	6,899.82	33.35	107.64	-81.71	2,624.52	-13,815.54	14,522.18	14,382.47	139.71	103.947	
7,600.00	6,949.95	7,026.08	6,899.24	33.72	107.62	-81.67	2,624.52	-13,815.54	14,601.01	14,461.28	139.73	104.494	
7,700.00	6,949.89	7,025.35	6,898.52	34.24	107.60	-81.61	2,624.52	-13,815.53	14,700.86	14,561.10	139.76	105.187	
7,800.00	6,949.83	7,024.63	6,897.79	34.84	107.58	-81.56	2,624.52	-13,815.52	14,800.71	14,660.92	139.79	105.879	
7,900.00	6,949.77	7,023.90	6,897.07	35.50	107.56	-81.51	2,624.52	-13,815.52	14,900.57	14,760.75	139.82	106.570	
8,000.00	6,949.71	7,023.18	6,896.34	36.23	107.54	-81.46	2,624.52	-13,815.51	15,000.43	14,860.58	139.85	107.262	
8,100.00	6,949.65	7,022.46	6,895.62	37.02	107.52	-81.41	2,624.52	-13,815.51	15,100.29	14,960.41	139.88	107.952	
8,200.00	6,949.59	7,021.73	6,894.90	37.85	107.50	-81.36	2,624.52	-13,815.50	15,200.15	15,060.24	139.91	108.642	
8,300.00	6,949.53	7,021.01	6,894.18	38.74	107.47	-81.30	2,624.52	-13,815.50	15,300.01	15,160.07	139.94	109.332	
8,400.00	6,949.47	7,020.29	6,893.46	39.68	107.45	-81.25	2,624.52	-13,815.49	15,399.88	15,259.90	139.97	110.021	
8,500.00	6,949.41	7,019.57	6,892.74	40.66	107.43	-81.20	2,624.53	-13,815.49	15,499.74	15,359.74	140.00	110.709	
8,600.00	6,949.35	7,018.85	6,892.02	41.67	107.41	-81.15	2,624.53	-13,815.48	15,599.61	15,459.58	140.04	111.397	
8,700.00	6,949.29	7,018.14	6,891.30	42.73	107.39	-81.10	2,624.53	-13,815.48	15,699.48	15,559.41	140.07	112.085	
8,800.00	6,949.23	7,017.42	6,890.58	43.82	107.37	-81.05	2,624.53	-13,815.47	15,799.35	15,659.25	140.10	112.771	
8,900.00	6,949.17	7,016.70	6,889.87	44.94	107.35	-81.00	2,624.53	-13,815.47	15,899.23	15,759.09	140.13	113.458	
9,000.00	6,949.11	7,015.99	6,889.15	46.09	107.33	-80.95	2,624.53	-13,815.46	15,999.10	15,858.93	140.17	114.143	
9,100.00	6,949.05	7,015.27	6,888.44	47.26	107.31	-80.90	2,624.53	-13,815.46	16,098.98	15,958.78	140.20	114.828	
9,200.00	6,948.99	7,014.56	6,887.73	48.46	107.29	-80.85	2,624.53	-13,815.45	16,198.85	16,058.62	140.23	115.513	
9,300.00	6,948.93	7,013.85	6,887.01	49.68	107.27	-80.80	2,624.53	-13,815.44	16,298.73	16,158.47	140.27	116.197	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC											Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5, 8115-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
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
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,400.00	6,948.87	7,013.14	6,886.30	50.93	107.25	-80.75	2,624.53	-13,815.44	16,398.61	16,258.31	140.30	116.880
9,500.00	6,948.81	7,012.43	6,885.59	52.19	107.23	-80.70	2,624.53	-13,815.43	16,498.50	16,358.16	140.34	117.563
9,600.00	6,948.75	7,011.72	6,884.88	53.47	107.21	-80.65	2,624.53	-13,815.43	16,598.38	16,458.01	140.37	118.245
9,700.00	6,948.69	7,011.01	6,884.17	54.77	107.19	-80.60	2,624.54	-13,815.42	16,698.26	16,557.86	140.41	118.927
9,800.00	6,948.63	7,010.30	6,883.47	56.08	107.17	-80.55	2,624.54	-13,815.42	16,798.15	16,657.71	140.44	119.607
9,900.00	6,948.57	7,009.59	6,882.76	57.41	107.15	-80.50	2,624.54	-13,815.41	16,898.04	16,757.56	140.48	120.288
10,000.00	6,948.51	7,008.89	6,882.05	58.76	107.13	-80.45	2,624.54	-13,815.41	16,997.93	16,857.41	140.52	120.967
10,100.00	6,948.45	7,008.18	6,881.35	60.11	107.11	-80.40	2,624.54	-13,815.40	17,097.82	16,957.26	140.55	121.646
10,200.00	6,948.39	7,007.48	6,880.64	61.48	107.09	-80.35	2,624.54	-13,815.40	17,197.71	17,057.12	140.59	122.325
10,300.00	6,948.33	7,006.78	6,879.94	62.86	107.07	-80.30	2,624.54	-13,815.39	17,297.60	17,156.97	140.63	123.002
10,400.00	6,948.27	7,006.07	6,879.24	64.24	107.05	-80.25	2,624.54	-13,815.39	17,397.49	17,256.83	140.67	123.679
10,500.00	6,948.21	7,005.37	6,878.54	65.64	107.03	-80.20	2,624.54	-13,815.38	17,497.39	17,356.68	140.70	124.356
10,600.00	6,948.15	7,004.67	6,877.84	67.05	107.01	-80.15	2,624.54	-13,815.38	17,597.28	17,456.54	140.74	125.031
10,700.00	6,948.09	7,003.97	6,877.14	68.47	106.99	-80.10	2,624.54	-13,815.37	17,697.18	17,556.40	140.78	125.706
10,800.00	6,948.03	7,003.27	6,876.44	69.89	106.97	-80.05	2,624.54	-13,815.37	17,797.08	17,656.26	140.82	126.381
10,900.00	6,947.97	7,002.57	6,875.74	71.32	106.95	-80.00	2,624.55	-13,815.36	17,896.98	17,756.12	140.86	127.054
11,000.00	6,947.91	7,001.88	6,875.04	72.76	106.93	-79.95	2,624.55	-13,815.36	17,996.88	17,855.98	140.90	127.727
11,100.00	6,947.85	7,001.18	6,874.35	74.21	106.91	-79.90	2,624.55	-13,815.35	18,096.78	17,955.84	140.94	128.399
11,200.00	6,947.79	7,000.48	6,873.65	75.66	106.89	-79.85	2,624.55	-13,815.35	18,196.68	18,055.70	140.98	129.071
11,300.00	6,947.73	6,999.79	6,872.96	77.12	106.87	-79.80	2,624.55	-13,815.34	18,296.59	18,155.56	141.02	129.742
11,400.00	6,947.66	6,999.10	6,872.26	78.58	106.85	-79.76	2,624.55	-13,815.34	18,396.49	18,255.43	141.06	130.412
11,500.00	6,947.60	6,998.40	6,871.57	80.05	106.83	-79.71	2,624.55	-13,815.33	18,496.40	18,355.29	141.11	131.081
11,600.00	6,947.54	6,997.71	6,870.88	81.52	106.81	-79.66	2,624.55	-13,815.33	18,596.30	18,455.16	141.15	131.750
11,700.00	6,947.48	6,997.02	6,870.19	83.00	106.79	-79.61	2,624.55	-13,815.32	18,696.21	18,555.02	141.19	132.418
11,800.00	6,947.42	6,996.33	6,869.50	84.48	106.77	-79.56	2,624.55	-13,815.32	18,796.12	18,654.89	141.23	133.085
11,900.00	6,947.36	6,995.64	6,868.81	85.97	106.75	-79.51	2,624.55	-13,815.31	18,896.03	18,754.75	141.28	133.751
12,000.00	6,947.30	6,994.95	6,868.12	87.46	106.73	-79.46	2,624.55	-13,815.31	18,995.94	18,854.62	141.32	134.417
12,100.00	6,947.24	6,994.26	6,867.43	88.96	106.71	-79.42	2,624.55	-13,815.30	19,095.85	18,954.49	141.36	135.082
12,200.00	6,947.18	6,993.58	6,866.75	90.46	106.69	-79.37	2,624.56	-13,815.30	19,195.76	19,054.36	141.41	135.746
12,300.00	6,947.12	6,992.89	6,866.06	91.96	106.67	-79.32	2,624.56	-13,815.29	19,295.68	19,154.22	141.45	136.410
12,400.00	6,947.06	6,992.21	6,865.37	93.47	106.65	-79.27	2,624.56	-13,815.29	19,395.59	19,254.09	141.50	137.072
12,500.00	6,947.00	6,991.52	6,864.69	94.97	106.63	-79.22	2,624.56	-13,815.28	19,495.51	19,353.96	141.54	137.734
12,600.00	6,946.94	6,990.84	6,864.01	96.49	106.61	-79.18	2,624.56	-13,815.28	19,595.42	19,453.83	141.59	138.395
12,700.00	6,946.88	6,990.16	6,863.32	98.00	106.59	-79.13	2,624.56	-13,815.27	19,695.34	19,553.70	141.64	139.056
12,800.00	6,946.82	6,989.47	6,862.64	99.52	106.57	-79.08	2,624.56	-13,815.27	19,795.26	19,653.57	141.68	139.715
12,900.00	6,946.76	6,988.79	6,861.96	101.04	106.55	-79.03	2,624.56	-13,815.26	19,895.17	19,753.44	141.73	140.374
13,000.00	6,946.70	6,988.11	6,861.28	102.56	106.53	-78.98	2,624.56	-13,815.26	19,995.09	19,853.32	141.78	141.032
13,100.00	6,946.64	6,987.43	6,860.60	104.09	106.51	-78.94	2,624.56	-13,815.25	20,095.01	19,953.19	141.82	141.689
13,200.00	6,946.58	6,986.75	6,859.92	105.61	106.49	-78.89	2,624.56	-13,815.25	20,194.93	20,053.06	141.87	142.346
13,300.00	6,946.52	6,986.08	6,859.25	107.14	106.47	-78.84	2,624.56	-13,815.24	20,294.85	20,152.93	141.92	143.001
13,400.00	6,946.46	6,985.40	6,858.57	108.67	106.45	-78.80	2,624.57	-13,815.24	20,394.78	20,252.81	141.97	143.656
13,500.00	6,946.40	6,984.72	6,857.89	110.21	106.43	-78.75	2,624.57	-13,815.23	20,494.70	20,352.68	142.02	144.310
13,600.00	6,946.34	6,984.05	6,857.22	111.74	106.41	-78.70	2,624.57	-13,815.23	20,594.62	20,452.55	142.07	144.963
13,700.00	6,946.28	6,983.37	6,856.55	113.28	106.40	-78.65	2,624.57	-13,815.22	20,694.55	20,552.43	142.12	145.615
13,800.00	6,946.22	6,982.70	6,855.87	114.82	106.38	-78.61	2,624.57	-13,815.22	20,794.47	20,652.30	142.17	146.267
13,900.00	6,946.16	6,982.03	6,855.20	116.36	106.36	-78.56	2,624.57	-13,815.22	20,894.40	20,752.18	142.22	146.917
14,000.00	6,946.10	6,981.36	6,854.53	117.90	106.34	-78.51	2,624.57	-13,815.21	20,994.32	20,852.05	142.27	147.567
14,100.00	6,946.04	6,980.69	6,853.86	119.45	106.32	-78.47	2,624.57	-13,815.21	21,094.25	20,951.93	142.32	148.216
14,200.00	6,945.98	6,980.02	6,853.19	120.99	106.30	-78.42	2,624.57	-13,815.20	21,194.18	21,051.80	142.37	148.864
14,300.00	6,945.92	6,979.35	6,852.52	122.54	106.28	-78.37	2,624.57	-13,815.20	21,294.11	21,151.68	142.42	149.511
14,400.00	6,945.86	6,978.68	6,851.85	124.09	106.26	-78.33	2,624.57	-13,815.19	21,394.03	21,251.56	142.48	150.158
14,500.00	6,945.80	6,978.01	6,851.18	125.64	106.24	-78.28	2,624.57	-13,815.19	21,493.96	21,351.43	142.53	150.803

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC											Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5, 8115-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
14,600.00	6,945.74	6,977.34	6,850.51	127.19	106.22	-78.23	2,624.57	-13,815.18	21,593.89	21,451.31	142.58	151.448
14,700.00	6,945.68	6,976.68	6,849.85	128.74	106.20	-78.19	2,624.58	-13,815.18	21,693.82	21,551.19	142.64	152.092
14,800.00	6,945.62	6,976.01	6,849.18	130.30	106.18	-78.14	2,624.58	-13,815.17	21,793.76	21,651.07	142.69	152.735
14,900.00	6,945.56	6,975.35	6,848.52	131.85	106.17	-78.09	2,624.58	-13,815.17	21,893.69	21,750.94	142.74	153.377
15,000.00	6,945.50	6,974.68	6,847.86	133.41	106.15	-78.05	2,624.58	-13,815.16	21,993.62	21,850.82	142.80	154.018
15,100.00	6,945.44	6,974.02	6,847.19	134.96	106.13	-78.00	2,624.58	-13,815.16	22,093.55	21,950.70	142.85	154.658
15,200.00	6,945.38	6,973.36	6,846.53	136.52	106.11	-77.96	2,624.58	-13,815.15	22,193.49	22,050.58	142.91	155.298
15,300.00	6,945.32	6,972.70	6,845.87	138.08	106.09	-77.91	2,624.58	-13,815.15	22,293.42	22,150.46	142.96	155.936
15,400.00	6,945.26	6,972.04	6,845.21	139.64	106.07	-77.86	2,624.58	-13,815.14	22,393.36	22,250.34	143.02	156.574
15,500.00	6,945.20	6,971.38	6,844.55	141.20	106.05	-77.82	2,624.58	-13,815.14	22,493.29	22,350.21	143.08	157.211
15,600.00	6,945.14	6,970.72	6,843.89	142.76	106.03	-77.77	2,624.58	-13,815.14	22,593.23	22,450.09	143.13	157.847
15,700.00	6,945.08	6,970.06	6,843.23	144.33	106.01	-77.73	2,624.58	-13,815.13	22,693.16	22,549.97	143.19	158.482
15,800.00	6,945.02	6,969.40	6,842.58	145.89	105.99	-77.68	2,624.58	-13,815.13	22,793.10	22,649.85	143.25	159.116
15,900.00	6,944.96	6,968.75	6,841.92	147.46	105.98	-77.64	2,624.58	-13,815.12	22,893.04	22,749.73	143.31	159.749
16,000.00	6,944.90	6,968.09	6,841.26	149.02	105.96	-77.59	2,624.58	-13,815.12	22,992.98	22,849.61	143.36	160.381
16,100.00	6,944.84	6,967.44	6,840.61	150.59	105.94	-77.55	2,624.59	-13,815.11	23,092.92	22,949.49	143.42	161.012
16,200.00	6,944.77	6,966.78	6,839.96	152.15	105.92	-77.50	2,624.59	-13,815.11	23,192.86	23,049.37	143.48	161.643
16,300.00	6,944.71	6,966.13	6,839.30	153.72	105.90	-77.45	2,624.59	-13,815.10	23,292.79	23,149.25	143.54	162.272
16,400.00	6,944.65	6,965.48	6,838.65	155.29	105.88	-77.41	2,624.59	-13,815.10	23,392.73	23,249.13	143.60	162.901
16,500.00	6,944.59	6,964.82	6,838.00	156.86	105.86	-77.36	2,624.59	-13,815.09	23,492.68	23,349.01	143.66	163.529
16,600.00	6,944.53	6,964.17	6,837.35	158.43	105.84	-77.32	2,624.59	-13,815.09	23,592.62	23,448.90	143.72	164.155
16,700.00	6,944.47	6,963.52	6,836.70	160.00	105.83	-77.27	2,624.59	-13,815.08	23,692.56	23,548.78	143.78	164.781
16,800.00	6,944.41	6,962.87	6,836.05	161.57	105.81	-77.23	2,624.59	-13,815.08	23,792.50	23,648.66	143.84	165.406
16,900.00	6,944.35	6,962.22	6,835.40	163.14	105.79	-77.18	2,624.59	-13,815.08	23,892.44	23,748.54	143.90	166.030
17,000.00	6,944.29	6,961.58	6,834.75	164.71	105.77	-77.14	2,624.59	-13,815.07	23,992.39	23,848.42	143.97	166.653
17,100.00	6,944.23	6,960.93	6,834.10	166.29	105.75	-77.10	2,624.59	-13,815.07	24,092.33	23,948.30	144.03	167.275
17,200.00	6,944.17	6,960.28	6,833.46	167.86	105.73	-77.05	2,624.59	-13,815.06	24,192.27	24,048.18	144.09	167.896
17,300.00	6,944.11	6,959.64	6,832.81	169.43	105.71	-77.01	2,624.59	-13,815.06	24,292.22	24,148.06	144.15	168.516
17,400.00	6,944.05	1,027.00	1,021.11	171.01	4.70	-7.57	2,621.29	-13,101.12	24,421.54	24,373.82	47.72	511.806
17,500.00	6,943.99	1,027.00	1,021.11	172.58	4.70	-7.57	2,621.29	-13,101.12	24,518.44	24,470.59	47.85	512.431
17,600.00	6,943.93	1,027.00	1,021.11	174.16	4.70	-7.57	2,621.29	-13,101.12	24,615.36	24,567.39	47.98	513.055
17,700.00	6,943.87	1,027.00	1,021.11	175.73	4.70	-7.57	2,621.29	-13,101.12	24,712.31	24,664.20	48.11	513.678
17,800.00	6,943.81	1,027.00	1,021.11	177.31	4.70	-7.57	2,621.29	-13,101.12	24,809.29	24,761.05	48.24	514.299
17,900.00	6,943.75	1,027.00	1,021.11	178.89	4.70	-7.57	2,621.29	-13,101.12	24,906.28	24,857.91	48.37	514.920
18,000.00	6,943.69	1,027.00	1,021.11	180.46	4.70	-7.57	2,621.29	-13,101.12	25,003.30	24,954.80	48.50	515.539
18,100.00	6,943.63	1,027.00	1,021.11	182.04	4.70	-7.57	2,621.29	-13,101.12	25,100.35	25,051.72	48.63	516.157
18,200.00	6,943.57	1,027.00	1,021.11	183.62	4.70	-7.57	2,621.29	-13,101.12	25,197.42	25,148.66	48.76	516.773
18,300.00	6,943.51	1,027.00	1,021.11	185.20	4.70	-7.57	2,621.29	-13,101.12	25,294.51	25,245.62	48.89	517.389
18,400.00	6,943.45	1,027.00	1,021.11	186.78	4.70	-7.57	2,621.29	-13,101.12	25,391.62	25,342.60	49.02	518.003
18,500.00	6,943.39	1,011.70	1,006.26	188.36	4.65	-7.55	2,621.60	-13,097.47	25,488.71	25,439.59	49.12	518.929
18,600.00	6,943.33	997.00	991.97	189.94	4.60	-7.54	2,621.88	-13,094.03	25,585.88	25,536.66	49.22	519.804
18,700.00	6,943.27	997.00	991.97	191.52	4.60	-7.54	2,621.88	-13,094.03	25,683.03	25,633.68	49.35	520.409
18,800.00	6,943.21	997.00	991.97	193.10	4.60	-7.54	2,621.88	-13,094.03	25,780.20	25,730.72	49.48	521.012
18,900.00	6,943.15	997.00	991.97	194.68	4.60	-7.54	2,621.88	-13,094.03	25,877.40	25,827.79	49.61	521.615
19,000.00	6,943.09	997.00	991.97	196.26	4.60	-7.54	2,621.88	-13,094.03	25,974.62	25,924.88	49.74	522.216
19,100.00	6,943.03	997.00	991.97	197.84	4.60	-7.54	2,621.88	-13,094.03	26,071.85	26,021.98	49.87	522.816
19,200.00	6,942.97	997.00	991.97	199.42	4.60	-7.54	2,621.88	-13,094.03	26,169.11	26,119.11	50.00	523.414
19,300.00	6,942.91	997.00	991.97	201.01	4.60	-7.54	2,621.88	-13,094.03	26,266.39	26,216.26	50.13	524.012
19,400.00	6,942.85	997.00	991.97	202.59	4.60	-7.54	2,621.88	-13,094.03	26,363.69	26,313.43	50.25	524.608
19,500.00	6,942.79	997.00	991.97	204.17	4.60	-7.54	2,621.88	-13,094.03	26,461.01	26,410.62	50.38	525.202
19,600.00	6,942.73	997.00	991.97	205.75	4.60	-7.54	2,621.88	-13,094.03	26,558.35	26,507.83	50.51	525.796
19,700.00	6,942.67	982.37	977.73	207.34	4.56	-7.53	2,622.20	-13,090.68	26,655.67	26,605.05	50.62	526.620

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC													Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5, 8115-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	Warning	
19,800.00	6,942.61	967.00	962.76	208.92	4.51	-7.51	2,622.60	-13,087.22	26,753.06	26,702.34	50.72	527.461		
19,900.00	6,942.55	967.00	962.76	210.51	4.51	-7.51	2,622.60	-13,087.22	26,850.43	26,799.58	50.85	528.046		
20,000.00	6,942.49	967.00	962.76	212.09	4.51	-7.51	2,622.60	-13,087.22	26,947.82	26,896.85	50.98	528.629		
20,100.00	6,942.43	967.00	962.76	213.68	4.51	-7.51	2,622.60	-13,087.22	27,045.23	26,994.13	51.10	529.211		
20,200.00	6,942.37	967.00	962.76	215.26	4.51	-7.51	2,622.60	-13,087.22	27,142.66	27,091.43	51.23	529.792		
20,300.00	6,942.31	967.00	962.76	216.85	4.51	-7.51	2,622.60	-13,087.22	27,240.11	27,188.75	51.36	530.371		
20,400.00	6,942.25	967.00	962.76	218.43	4.51	-7.51	2,622.60	-13,087.22	27,337.58	27,286.09	51.49	530.949		
20,500.00	6,942.19	967.00	962.76	220.02	4.51	-7.51	2,622.60	-13,087.22	27,435.06	27,383.45	51.62	531.526		
20,600.00	6,942.13	967.00	962.76	221.60	4.51	-7.51	2,622.60	-13,087.22	27,532.57	27,480.82	51.74	532.101		
20,700.00	6,942.07	967.00	962.76	223.19	4.51	-7.51	2,622.60	-13,087.22	27,630.09	27,578.22	51.87	532.675		
20,808.89	6,942.00	967.00	962.76	224.92	4.51	-7.51	2,622.60	-13,087.22	27,736.29	27,684.28	52.01	533.298		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 012D - OH - OH-SVY													Offset Site Error: 0.00 usft
Survey Program: 360-B001Mb_MWD+HRGM													Offset Well Error: 0.00 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	0.00	0.00	-88.70	335.36	-14,743.57	14,747.41				
100.00	100.00	95.12	95.12	0.25	0.17	-88.70	335.20	-14,743.48	14,747.32	14,746.90	0.42	N/A	
200.00	200.00	232.97	232.97	0.61	0.42	-88.70	334.45	-14,743.08	14,747.01	14,745.98	1.03	N/A	
300.00	300.00	370.87	370.86	0.97	0.69	-88.71	333.05	-14,742.34	14,746.45	14,744.80	1.65	8,915.487	
400.00	400.00	478.00	477.92	1.33	1.08	-88.72	329.50	-14,741.61	14,745.70	14,743.30	2.40	6,145.248	
500.00	500.00	525.10	524.92	1.68	1.25	-88.73	326.44	-14,741.38	14,745.10	14,742.17	2.93	5,031.426	
581.05	581.04	550.06	549.80	1.98	1.34	-89.97	324.55	-14,741.38	14,744.95	14,741.64	3.31	4,451.003 CC	
600.00	599.98	559.15	558.87	2.04	1.37	-89.97	323.82	-14,741.40	14,744.96	14,741.54	3.41	4,318.697	
700.00	699.84	595.88	595.45	2.41	1.51	-89.98	320.64	-14,741.57	14,745.23	14,741.32	3.91	3,771.794 ES	
800.00	799.45	626.00	625.43	2.77	1.62	-89.99	317.64	-14,741.84	14,745.96	14,741.58	4.38	3,364.629	
900.00	898.70	668.87	668.02	3.13	1.79	-90.01	312.77	-14,742.40	14,747.10	14,742.19	4.91	3,001.845	
1,000.00	997.47	707.80	706.57	3.50	1.94	-90.02	307.42	-14,743.12	14,748.70	14,743.26	5.44	2,711.124	
1,100.00	1,095.62	751.00	749.21	3.89	2.11	-90.04	300.55	-14,744.04	14,750.67	14,744.67	6.00	2,457.979	
1,200.00	1,193.06	783.00	780.64	4.30	2.25	-90.04	294.62	-14,744.87	14,753.11	14,746.57	6.54	2,256.643	
1,245.21	1,236.83	812.93	809.94	4.48	2.37	-90.06	288.57	-14,745.75	14,754.37	14,747.51	6.85	2,152.932	
1,300.00	1,289.78	833.46	830.00	4.72	2.46	-90.10	284.22	-14,746.36	14,755.97	14,748.80	7.17	2,056.704	
1,400.00	1,386.42	928.49	922.38	5.15	2.89	-90.28	262.18	-14,749.31	14,759.11	14,751.07	8.04	1,836.582	
1,500.00	1,483.05	981.23	973.48	5.59	3.14	-90.38	249.22	-14,750.97	14,762.44	14,753.72	8.72	1,692.298	
1,600.00	1,579.69	1,148.39	1,135.37	6.04	3.94	-90.69	207.91	-14,755.99	14,765.80	14,755.83	9.97	1,480.871	
1,700.00	1,676.32	1,162.00	1,148.56	6.49	4.01	-90.72	204.55	-14,756.37	14,769.29	14,758.80	10.49	1,408.389	
1,800.00	1,772.96	1,224.00	1,208.63	6.94	4.31	-90.84	189.35	-14,758.42	14,773.23	14,761.99	11.24	1,314.110	
1,900.00	1,869.60	1,235.67	1,219.94	7.40	4.36	-90.86	186.54	-14,758.87	14,777.68	14,765.93	11.75	1,257.225	
2,000.00	1,966.23	1,368.84	1,349.51	7.86	5.00	-91.10	156.19	-14,764.01	14,782.43	14,769.58	12.85	1,150.352	
2,100.00	2,062.87	1,462.81	1,441.14	8.33	5.45	-91.27	135.64	-14,767.46	14,787.12	14,773.37	13.76	1,074.915	
2,200.00	2,159.50	1,539.00	1,515.33	8.79	5.81	-91.41	118.53	-14,770.24	14,791.95	14,777.36	14.58	1,014.274	
2,300.00	2,256.14	1,791.00	1,760.45	9.26	7.04	-91.87	60.66	-14,778.37	14,796.70	14,780.43	16.27	909.397	
2,400.00	2,352.77	1,824.53	1,793.01	9.73	7.20	-91.93	52.69	-14,779.24	14,801.00	14,784.10	16.90	875.748	
2,500.00	2,449.41	1,854.00	1,821.59	10.20	7.35	-91.99	45.55	-14,780.18	14,805.88	14,788.37	17.51	845.493	
2,600.00	2,546.05	1,881.18	1,847.91	10.67	7.49	-92.04	38.85	-14,781.16	14,811.26	14,793.14	18.11	817.694	
2,700.00	2,642.68	1,929.14	1,894.28	11.14	7.73	-92.13	26.72	-14,782.99	14,817.07	14,798.25	18.82	787.265	
2,800.00	2,739.32	2,293.00	2,247.71	11.61	9.52	-92.80	-58.89	-14,794.09	14,822.24	14,801.16	21.08	703.002	
2,900.00	2,835.95	2,320.36	2,274.36	12.08	9.66	-92.85	-65.06	-14,794.72	14,826.99	14,805.31	21.68	683.766	
3,000.00	2,932.59	2,355.00	2,308.09	12.55	9.82	-92.91	-72.91	-14,795.74	14,832.31	14,809.99	22.32	664.538	
3,100.00	3,029.22	2,399.18	2,351.09	13.03	10.04	-92.99	-82.90	-14,797.18	14,838.07	14,815.07	23.00	645.093	
3,200.00	3,125.86	2,499.68	2,448.94	13.50	10.53	-93.17	-105.65	-14,800.36	14,843.96	14,820.00	23.96	619.579	
3,300.00	3,222.50	2,570.17	2,517.60	13.97	10.87	-93.30	-121.44	-14,802.71	14,850.13	14,825.36	24.77	599.575	
3,400.00	3,319.13	2,830.60	2,771.70	14.45	12.12	-93.76	-178.04	-14,809.63	14,855.63	14,829.15	26.49	560.904	
3,500.00	3,415.77	3,232.00	3,167.34	14.92	13.85	-94.40	-244.45	-14,814.80	14,859.37	14,830.68	28.69	517.912	
3,600.00	3,512.40	3,279.39	3,214.40	15.40	14.03	-94.47	-250.01	-14,815.26	14,863.16	14,833.81	29.35	506.480	
3,700.00	3,609.04	3,694.18	3,628.43	15.88	15.35	-94.94	-267.70	-14,816.88	14,865.86	14,834.72	31.14	477.376	
3,800.00	3,705.67	3,795.57	3,729.83	16.35	15.66	-95.04	-267.59	-14,816.53	14,867.81	14,835.88	31.93	465.630	
3,900.00	3,802.31	3,896.97	3,831.22	16.83	15.98	-95.14	-267.46	-14,816.15	14,869.77	14,837.05	32.72	454.448	
4,000.00	3,898.95	3,998.37	3,932.62	17.30	16.29	-95.24	-267.32	-14,815.73	14,871.75	14,838.23	33.51	443.792	
4,100.00	3,995.58	4,099.78	4,034.03	17.78	16.60	-95.34	-267.17	-14,815.28	14,873.73	14,839.43	34.30	433.625	
4,200.00	4,092.22	4,201.19	4,135.45	18.26	16.92	-95.44	-267.01	-14,814.80	14,875.73	14,840.64	35.09	423.914	
4,300.00	4,188.85	4,302.61	4,236.87	18.73	17.23	-95.54	-266.84	-14,814.29	14,877.75	14,841.86	35.88	414.630	
4,400.00	4,285.49	4,404.04	4,338.29	19.21	17.54	-95.64	-266.65	-14,813.75	14,879.77	14,843.10	36.67	405.745	
4,500.00	4,382.12	4,505.47	4,439.72	19.69	17.86	-95.74	-266.46	-14,813.18	14,881.81	14,844.35	37.46	397.235	
4,600.00	4,478.76	4,606.91	4,541.16	20.17	18.17	-95.84	-266.26	-14,812.57	14,883.86	14,845.61	38.25	389.076	
4,700.00	4,575.40	4,708.35	4,642.60	20.64	18.49	-95.94	-266.05	-14,811.93	14,885.93	14,846.88	39.05	381.247	
4,800.00	4,672.03	4,809.80	4,744.04	21.12	18.80	-96.04	-265.82	-14,811.26	14,888.00	14,848.17	39.84	373.728	
4,900.00	4,768.67	4,911.26	4,845.49	21.60	19.11	-96.14	-265.59	-14,810.56	14,890.09	14,849.46	40.63	366.502	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 012D - OH - OH-SVY											Offset Site Error: 0.00 usft	
Survey Program: 360-B001Mb_MWD+HRGM											Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		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)		
5,000.00	4,865.30	5,012.71	4,946.95	22.08	19.43	-96.24	-265.34	-14,809.83	14,892.19	14,850.77	41.42	359.552
5,100.00	4,961.94	5,114.18	5,048.41	22.55	19.74	-96.33	-265.09	-14,809.07	14,894.31	14,852.10	42.21	352.862
5,200.00	5,058.57	5,215.65	5,149.88	23.03	20.06	-96.43	-264.82	-14,808.27	14,896.43	14,853.43	43.00	346.419
5,300.00	5,155.21	5,317.13	5,251.35	23.51	20.37	-96.53	-264.54	-14,807.44	14,898.57	14,854.78	43.79	340.208
5,400.00	5,251.85	5,418.61	5,352.83	23.99	20.69	-96.63	-264.26	-14,806.58	14,900.72	14,856.14	44.58	334.218
5,500.00	5,348.48	5,520.09	5,454.31	24.47	21.00	-96.73	-263.96	-14,805.69	14,902.89	14,857.51	45.38	328.437
5,600.00	5,445.12	5,621.59	5,555.80	24.94	21.32	-96.83	-263.65	-14,804.77	14,905.06	14,858.89	46.17	322.854
5,700.00	5,541.75	5,723.08	5,657.29	25.42	21.63	-96.93	-263.33	-14,803.82	14,907.25	14,860.29	46.96	317.460
5,800.00	5,638.39	5,824.59	5,758.79	25.90	21.95	-97.03	-263.00	-14,802.83	14,909.45	14,861.70	47.75	312.244
5,900.00	5,735.02	5,926.09	5,860.29	26.38	22.26	-97.13	-262.66	-14,801.81	14,911.66	14,863.12	48.54	307.199
6,000.00	5,831.66	6,027.61	5,961.80	26.86	22.57	-97.22	-262.31	-14,800.77	14,913.88	14,864.55	49.33	302.316
6,100.00	5,928.30	6,129.13	6,063.31	27.34	22.89	-97.32	-261.95	-14,799.68	14,916.11	14,865.99	50.12	297.588
6,200.00	6,024.93	6,230.65	6,164.83	27.82	23.20	-97.42	-261.57	-14,798.57	14,918.36	14,867.44	50.91	293.007
6,300.00	6,121.57	6,332.18	6,266.35	28.29	23.52	-97.52	-261.19	-14,797.43	14,920.62	14,868.91	51.71	288.566
6,400.00	6,218.20	6,433.71	6,367.87	28.77	23.83	-97.62	-260.80	-14,796.25	14,922.89	14,870.39	52.50	284.260
6,500.00	6,314.84	6,535.25	6,469.41	29.25	24.15	-97.72	-260.39	-14,795.04	14,925.17	14,871.88	53.29	280.081
6,521.58	6,335.69	6,557.17	6,491.32	29.36	24.22	-97.74	-260.31	-14,794.78	14,925.66	14,872.20	53.46	279.196
6,550.00	6,363.15	6,586.02	6,520.17	29.49	24.31	-107.29	-260.19	-14,794.43	14,926.94	14,873.26	53.68	278.053
6,600.00	6,411.28	6,636.65	6,570.80	29.73	24.46	-122.61	-259.98	-14,793.81	14,932.24	14,878.16	54.07	276.141
6,650.00	6,458.93	6,686.84	6,620.98	29.96	24.62	-134.90	-259.77	-14,793.18	14,941.38	14,886.92	54.46	274.364
6,700.00	6,505.83	6,736.27	6,670.41	30.19	24.77	-144.19	-259.56	-14,792.56	14,954.32	14,899.49	54.83	272.734
6,750.00	6,551.67	6,784.66	6,718.79	30.42	24.92	-151.15	-259.36	-14,791.94	14,970.98	14,915.79	55.19	271.259
6,800.00	6,596.17	6,831.69	6,765.82	30.64	25.07	-156.47	-259.15	-14,791.34	14,991.24	14,935.70	55.53	269.945
6,850.00	6,639.06	6,877.09	6,811.22	30.85	25.21	-160.65	-258.95	-14,790.74	15,014.98	14,959.12	55.86	268.795
6,900.00	6,680.07	6,920.57	6,854.69	31.05	25.35	-164.07	-258.76	-14,790.17	15,042.07	14,985.90	56.17	267.815
6,950.00	6,718.96	6,961.87	6,895.98	31.24	25.47	-166.96	-258.58	-14,789.62	15,072.31	15,015.87	56.45	267.005
7,000.00	6,755.47	7,000.72	6,934.83	31.43	25.59	-169.53	-258.41	-14,789.10	15,105.55	15,048.84	56.71	266.368
7,050.00	6,789.40	7,036.90	6,971.01	31.61	25.71	-171.93	-258.24	-14,788.61	15,141.55	15,084.61	56.94	265.904
7,100.00	6,820.52	7,070.18	7,004.28	31.79	25.81	-174.29	-258.09	-14,788.16	15,180.11	15,122.96	57.15	265.613
7,150.00	6,848.64	7,100.35	7,034.45	31.97	25.90	-176.77	-257.95	-14,787.74	15,220.99	15,163.66	57.33	265.494 SF
7,200.00	6,873.60	7,127.22	7,061.32	32.14	25.99	-179.56	-257.83	-14,787.37	15,263.94	15,206.45	57.48	265.543
7,250.00	6,895.24	7,150.64	7,084.74	32.31	26.06	177.06	-257.72	-14,787.05	15,308.68	15,251.08	57.60	265.757
7,300.00	6,913.42	7,170.45	7,104.54	32.49	26.12	172.60	-257.62	-14,786.77	15,354.95	15,297.26	57.70	266.133
7,350.00	6,928.03	7,186.53	7,120.62	32.67	26.17	166.19	-257.55	-14,786.54	15,402.46	15,344.71	57.76	266.664
7,400.00	6,938.98	7,198.78	7,132.87	32.86	26.21	155.99	-257.49	-14,786.37	15,450.93	15,393.13	57.79	267.343
7,450.00	6,946.22	7,207.12	7,141.21	33.06	26.23	138.39	-257.45	-14,786.25	15,500.04	15,442.24	57.80	268.163
7,500.00	6,949.68	7,211.50	7,145.59	33.26	26.25	109.76	-257.43	-14,786.19	15,549.51	15,491.73	57.78	269.112
7,521.05	6,950.00	7,212.15	7,146.24	33.35	26.25	95.90	-257.43	-14,786.18	15,570.37	15,512.60	57.76	269.548
7,600.00	6,949.95	7,213.27	7,147.36	33.72	26.25	95.93	-257.42	-14,786.17	15,648.59	15,590.89	57.70	271.223
7,700.00	6,949.89	7,214.69	7,148.78	34.24	26.26	95.97	-257.42	-14,786.15	15,747.67	15,690.06	57.61	273.337
7,800.00	6,949.83	7,216.11	7,150.19	34.84	26.26	96.01	-257.41	-14,786.13	15,846.77	15,789.23	57.53	275.443
7,900.00	6,949.77	7,217.52	7,151.61	35.50	26.27	96.05	-257.40	-14,786.11	15,945.87	15,888.42	57.45	277.541
8,000.00	6,949.71	7,218.94	7,153.03	36.23	26.27	96.08	-257.40	-14,786.09	16,044.99	15,987.61	57.38	279.631
8,100.00	6,949.65	7,220.36	7,154.45	37.02	26.28	96.12	-257.39	-14,786.07	16,144.12	16,086.81	57.31	281.712
8,200.00	6,949.59	7,221.78	7,155.87	37.85	26.28	96.16	-257.38	-14,786.05	16,243.26	16,186.02	57.24	283.785
8,300.00	6,949.53	7,223.20	7,157.29	38.74	26.28	96.20	-257.38	-14,786.03	16,342.41	16,285.23	57.17	285.849
8,400.00	6,949.47	7,224.63	7,158.72	39.68	26.29	96.24	-257.37	-14,786.01	16,441.56	16,384.46	57.11	287.905
8,500.00	6,949.41	7,226.05	7,160.14	40.66	26.29	96.27	-257.36	-14,785.99	16,540.73	16,483.69	57.05	289.951
8,600.00	6,949.35	7,227.48	7,161.56	41.67	26.30	96.31	-257.36	-14,785.97	16,639.91	16,582.92	56.99	291.988
8,700.00	6,949.29	7,228.90	7,162.99	42.73	26.30	96.35	-257.35	-14,785.95	16,739.10	16,682.17	56.93	294.017
8,800.00	6,949.23	7,230.33	7,164.41	43.82	26.31	96.39	-257.34	-14,785.93	16,838.30	16,781.42	56.88	296.036
8,900.00	6,949.17	7,231.75	7,165.84	44.94	26.31	96.43	-257.34	-14,785.91	16,937.51	16,880.68	56.83	298.045

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 012D - OH - OH-SVY													Offset Site Error:	0.00 usft	
Survey Program:		360-B001Mb_MWD+HRGM			Semi Major Axis			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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
9,000.00	6,949.11	7,233.18	7,167.27	46.09	26.32	96.47	-257.33	-14,785.88	17,036.72	16,979.94	56.78	300.045			
9,100.00	6,949.05	7,234.61	7,168.70	47.26	26.32	96.50	-257.32	-14,785.86	17,135.95	17,079.22	56.73	302.036			
9,200.00	6,948.99	7,236.04	7,170.13	48.46	26.32	96.54	-257.31	-14,785.84	17,235.18	17,178.49	56.69	304.016			
9,300.00	6,948.93	7,237.47	7,171.56	49.68	26.33	96.58	-257.31	-14,785.82	17,334.43	17,277.78	56.65	305.987			
9,400.00	6,948.87	7,238.90	7,172.99	50.93	26.33	96.62	-257.30	-14,785.80	17,433.68	17,377.07	56.61	307.948			
9,500.00	6,948.81	7,240.34	7,174.42	52.19	26.34	96.66	-257.29	-14,785.78	17,532.94	17,476.36	56.58	309.900			
9,600.00	6,948.75	7,241.77	7,175.86	53.47	26.34	96.70	-257.29	-14,785.76	17,632.21	17,575.67	56.54	311.841			
9,700.00	6,948.69	7,243.20	7,177.29	54.77	26.35	96.74	-257.28	-14,785.74	17,731.48	17,674.97	56.51	313.771			
9,800.00	6,948.63	7,244.64	7,178.73	56.08	26.35	96.77	-257.27	-14,785.72	17,830.77	17,774.29	56.48	315.692			
9,900.00	6,948.57	7,246.08	7,180.16	57.41	26.36	96.81	-257.27	-14,785.70	17,930.06	17,873.61	56.45	317.603			
10,000.00	6,948.51	7,247.51	7,181.60	58.76	26.36	96.85	-257.26	-14,785.68	18,029.36	17,972.93	56.43	319.503			
10,100.00	6,948.45	7,248.95	7,183.04	60.11	26.36	96.89	-257.25	-14,785.66	18,128.67	18,072.26	56.41	321.392			
10,200.00	6,948.39	7,250.39	7,184.48	61.48	26.37	96.93	-257.25	-14,785.64	18,227.98	18,171.60	56.39	323.271			
10,300.00	6,948.33	7,251.83	7,185.92	62.86	26.37	96.97	-257.24	-14,785.62	18,327.31	18,270.94	56.37	325.140			
10,400.00	6,948.27	7,253.27	7,187.36	64.24	26.38	97.00	-257.23	-14,785.60	18,426.64	18,370.29	56.35	326.998			
10,500.00	6,948.21	7,254.72	7,188.80	65.64	26.38	97.04	-257.23	-14,785.58	18,525.97	18,469.64	56.34	328.845			
10,600.00	6,948.15	7,256.16	7,190.24	67.05	26.39	97.08	-257.22	-14,785.56	18,625.32	18,568.99	56.32	330.681			
10,700.00	6,948.09	7,257.60	7,191.69	68.47	26.39	97.12	-257.21	-14,785.54	18,724.67	18,668.35	56.31	332.507			
10,800.00	6,948.03	7,259.05	7,193.13	69.89	26.40	97.16	-257.21	-14,785.52	18,824.02	18,767.72	56.31	334.322			
10,900.00	6,947.97	7,260.49	7,194.58	71.32	26.40	97.20	-257.20	-14,785.50	18,923.39	18,867.09	56.30	336.126			
11,000.00	6,947.91	7,261.94	7,196.02	72.76	26.40	97.24	-257.19	-14,785.48	19,022.76	18,966.47	56.29	337.920			
11,100.00	6,947.85	7,263.39	7,197.47	74.21	26.41	97.28	-257.18	-14,785.45	19,122.14	19,065.85	56.29	339.702			
11,200.00	6,947.79	7,264.84	7,198.92	75.66	26.41	97.31	-257.18	-14,785.43	19,221.52	19,165.23	56.29	341.473			
11,300.00	6,947.73	7,266.29	7,200.37	77.12	26.42	97.35	-257.17	-14,785.41	19,320.91	19,264.62	56.29	343.234			
11,400.00	6,947.66	7,267.74	7,201.82	78.58	26.42	97.39	-257.16	-14,785.39	19,420.31	19,364.01	56.29	344.983			
11,500.00	6,947.60	7,269.19	7,203.27	80.05	26.43	97.43	-257.16	-14,785.37	19,519.71	19,463.41	56.30	346.722			
11,600.00	6,947.54	7,270.64	7,204.72	81.52	26.43	97.47	-257.15	-14,785.35	19,619.12	19,562.81	56.30	348.449			
11,700.00	6,947.48	7,272.09	7,206.18	83.00	26.44	97.51	-257.14	-14,785.33	19,718.53	19,662.22	56.31	350.166			
11,800.00	6,947.42	7,273.55	7,207.63	84.48	26.44	97.55	-257.14	-14,785.31	19,817.95	19,761.63	56.32	351.871			
11,900.00	6,947.36	7,275.00	7,209.09	85.97	26.45	97.59	-257.13	-14,785.29	19,917.37	19,861.04	56.33	353.565			
12,000.00	6,947.30	7,276.46	7,210.54	87.46	26.45	97.63	-257.12	-14,785.27	20,016.81	19,960.46	56.35	355.248			
12,100.00	6,947.24	7,277.92	7,212.00	88.96	26.45	97.66	-257.11	-14,785.25	20,116.24	20,059.88	56.36	356.920			
12,200.00	6,947.18	7,279.37	7,213.46	90.46	26.46	97.70	-257.11	-14,785.23	20,215.68	20,159.31	56.38	358.581			
12,300.00	6,947.12	7,280.83	7,214.92	91.96	26.46	97.74	-257.10	-14,785.21	20,315.13	20,258.74	56.39	360.231			
12,400.00	6,947.06	7,282.29	7,216.38	93.47	26.47	97.78	-257.09	-14,785.18	20,414.58	20,358.17	56.41	361.870			
12,500.00	6,947.00	7,283.75	7,217.84	94.97	26.47	97.82	-257.09	-14,785.16	20,514.04	20,457.61	56.44	363.498			
12,600.00	6,946.94	7,285.22	7,219.30	96.49	26.48	97.86	-257.08	-14,785.14	20,613.50	20,557.05	56.46	365.115			
12,700.00	6,946.88	7,286.68	7,220.76	98.00	26.48	97.90	-257.07	-14,785.12	20,712.97	20,656.49	56.48	366.720			
12,800.00	6,946.82	7,288.14	7,222.22	99.52	26.49	97.94	-257.07	-14,785.10	20,812.45	20,755.94	56.51	368.315			
12,900.00	6,946.76	7,289.61	7,223.69	101.04	26.49	97.98	-257.06	-14,785.08	20,911.92	20,855.39	56.53	369.898			
13,000.00	6,946.70	7,291.07	7,225.15	102.56	26.50	98.02	-257.05	-14,785.06	21,011.41	20,954.84	56.56	371.471			
13,100.00	6,946.64	7,292.54	7,226.62	104.09	26.50	98.05	-257.04	-14,785.04	21,110.89	21,054.30	56.59	373.033			
13,200.00	6,946.58	7,294.01	7,228.09	105.61	26.50	98.09	-257.04	-14,785.02	21,210.39	21,153.76	56.62	374.583			
13,300.00	6,946.52	7,295.48	7,229.56	107.14	26.51	98.13	-257.03	-14,784.99	21,309.88	21,253.23	56.66	376.123			
13,400.00	6,946.46	7,296.95	7,231.03	108.67	26.51	98.17	-257.02	-14,784.97	21,409.39	21,352.69	56.69	377.652			
13,500.00	6,946.40	7,298.42	7,232.50	110.21	26.52	98.21	-257.02	-14,784.95	21,508.89	21,452.17	56.73	379.170			
13,600.00	6,946.34	7,299.89	7,233.97	111.74	26.52	98.25	-257.01	-14,784.93	21,608.40	21,551.64	56.76	380.677			
13,700.00	6,946.28	7,301.36	7,235.44	113.28	26.53	98.29	-257.00	-14,784.91	21,707.92	21,651.12	56.80	382.173			
13,800.00	6,946.22	7,302.83	7,236.91	114.82	26.53	98.33	-256.99	-14,784.89	21,807.44	21,750.60	56.84	383.658			
13,900.00	6,946.16	7,304.31	7,238.39	116.36	26.54	98.37	-256.99	-14,784.87	21,906.96	21,850.08	56.88	385.133			
14,000.00	6,946.10	7,305.78	7,239.86	117.90	26.54	98.41	-256.98	-14,784.85	22,006.49	21,949.56	56.92	386.597			
14,100.00	6,946.04	7,307.26	7,241.34	119.45	26.55	98.45	-256.97	-14,784.83	22,106.02	22,049.05	56.97	388.050			

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 012D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		360-B001Mb_MWD+HRGM					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)	Distance Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,200.00	6,945.98	7,308.74	7,242.82	120.99	26.55	98.49	-256.97	-14,784.80	22,205.56	22,148.54	57.01	389.493		
14,300.00	6,945.92	7,310.22	7,244.29	122.54	26.55	98.52	-256.96	-14,784.78	22,305.10	22,248.04	57.06	390.925		
14,400.00	6,945.86	7,311.70	7,245.77	124.09	26.56	98.56	-256.95	-14,784.76	22,404.64	22,347.54	57.10	392.346		
14,500.00	6,945.80	7,313.18	7,247.25	125.64	26.56	98.60	-256.95	-14,784.74	22,504.19	22,447.04	57.15	393.757		
14,600.00	6,945.74	7,314.66	7,248.73	127.19	26.57	98.64	-256.94	-14,784.72	22,603.74	22,546.54	57.20	395.158		
14,700.00	6,945.68	7,316.14	7,250.22	128.74	26.57	98.68	-256.93	-14,784.70	22,703.30	22,646.04	57.25	396.548		
14,800.00	6,945.62	7,317.62	7,251.70	130.30	26.58	98.72	-256.92	-14,784.68	22,802.86	22,745.55	57.30	397.928		
14,900.00	6,945.56	7,319.11	7,253.18	131.85	26.58	98.76	-256.92	-14,784.65	22,902.42	22,845.06	57.36	399.297		
15,000.00	6,945.50	7,320.59	7,254.67	133.41	26.59	98.80	-256.91	-14,784.63	23,001.99	22,944.58	57.41	400.656		
15,100.00	6,945.44	7,322.08	7,256.15	134.96	26.59	98.84	-256.90	-14,784.61	23,101.56	23,044.09	57.47	402.005		
15,200.00	6,945.38	7,323.56	7,257.64	136.52	26.60	98.88	-256.89	-14,784.59	23,201.13	23,143.61	57.52	403.343		
15,300.00	6,945.32	7,325.05	7,259.13	138.08	26.60	98.92	-256.89	-14,784.57	23,300.71	23,243.13	57.58	404.672		
15,400.00	6,945.26	7,326.54	7,260.62	139.64	26.61	98.96	-256.88	-14,784.55	23,400.29	23,342.65	57.64	405.990		
15,500.00	6,945.20	7,328.03	7,262.11	141.20	26.61	99.00	-256.87	-14,784.52	23,499.88	23,442.18	57.70	407.298		
15,600.00	6,945.14	7,329.52	7,263.60	142.76	26.61	99.04	-256.87	-14,784.50	23,599.47	23,541.71	57.76	408.597		
15,700.00	6,945.08	7,331.01	7,265.09	144.33	26.62	99.08	-256.86	-14,784.48	23,699.06	23,641.24	57.82	409.885		
15,800.00	6,945.02	7,332.51	7,266.58	145.89	26.62	99.12	-256.85	-14,784.46	23,798.65	23,740.77	57.88	411.164		
15,900.00	6,944.96	7,334.00	7,268.08	147.46	26.63	99.16	-256.84	-14,784.44	23,898.25	23,840.31	57.94	412.433		
16,000.00	6,944.90	7,335.50	7,269.57	149.02	26.63	99.20	-256.84	-14,784.42	23,997.85	23,939.84	58.01	413.692		
16,100.00	6,944.84	7,336.99	7,271.07	150.59	26.64	99.24	-256.83	-14,784.39	24,097.46	24,039.38	58.07	414.941		
16,200.00	6,944.77	7,338.49	7,272.56	152.15	26.64	99.28	-256.82	-14,784.37	24,197.07	24,138.92	58.14	416.181		
16,300.00	6,944.71	7,339.99	7,274.06	153.72	26.65	99.32	-256.82	-14,784.35	24,296.68	24,238.47	58.21	417.411		
16,400.00	6,944.65	7,341.49	7,275.56	155.29	26.65	99.35	-256.81	-14,784.33	24,396.29	24,338.01	58.28	418.632		
16,500.00	6,944.59	7,342.99	7,277.06	156.86	26.66	99.39	-256.80	-14,784.31	24,495.91	24,437.56	58.35	419.843		
16,600.00	6,944.53	7,344.49	7,278.56	158.43	26.66	99.43	-256.79	-14,784.29	24,595.53	24,537.11	58.42	421.045		
16,700.00	6,944.47	7,345.99	7,280.06	160.00	26.67	99.47	-256.79	-14,784.26	24,695.15	24,636.67	58.49	422.238		
16,800.00	6,944.41	7,347.49	7,281.57	161.57	26.67	99.51	-256.78	-14,784.24	24,794.78	24,736.22	58.56	423.421		
16,900.00	6,944.35	7,349.00	7,283.07	163.14	26.68	99.55	-256.77	-14,784.22	24,894.41	24,835.78	58.63	424.595		
17,000.00	6,944.29	7,350.50	7,284.57	164.71	26.68	99.59	-256.76	-14,784.20	24,994.04	24,935.33	58.70	425.760		
17,100.00	6,944.23	7,352.01	7,286.08	166.29	26.68	99.63	-256.76	-14,784.18	25,093.67	25,034.90	58.78	426.916		
17,200.00	6,944.17	7,353.51	7,287.59	167.86	26.69	99.67	-256.75	-14,784.15	25,193.31	25,134.46	58.85	428.063		
17,300.00	6,944.11	7,355.02	7,289.09	169.43	26.69	99.71	-256.74	-14,784.13	25,292.95	25,234.02	58.93	429.201		
17,400.00	6,944.05	7,356.53	7,290.60	171.01	26.70	99.75	-256.73	-14,784.11	25,392.60	25,333.59	59.01	430.330		
17,500.00	6,943.99	7,358.04	7,292.11	172.58	26.70	99.79	-256.73	-14,784.09	25,492.24	25,433.16	59.09	431.450		
17,600.00	6,943.93	7,359.55	7,293.62	174.16	26.71	99.83	-256.72	-14,784.07	25,591.89	25,532.73	59.16	432.561		
17,700.00	6,943.87	7,361.06	7,295.14	175.73	26.71	99.87	-256.71	-14,784.04	25,691.54	25,632.30	59.24	433.664		
17,800.00	6,943.81	7,362.58	7,296.65	177.31	26.72	99.91	-256.71	-14,784.02	25,791.20	25,731.87	59.32	434.758		
17,900.00	6,943.75	7,364.09	7,298.16	178.89	26.72	99.95	-256.70	-14,784.00	25,890.85	25,831.45	59.40	435.844		
18,000.00	6,943.69	7,365.60	7,299.68	180.46	26.73	99.99	-256.69	-14,783.98	25,990.51	25,931.03	59.49	436.921		
18,100.00	6,943.63	7,367.12	7,301.19	182.04	26.73	100.03	-256.68	-14,783.96	26,090.17	26,030.60	59.57	437.989		
18,200.00	6,943.57	7,368.64	7,302.71	183.62	26.74	100.07	-256.68	-14,783.93	26,189.84	26,130.19	59.65	439.050		
18,300.00	6,943.51	7,370.15	7,304.23	185.20	26.74	100.11	-256.67	-14,783.91	26,289.50	26,229.77	59.74	440.102		
18,400.00	6,943.45	7,371.67	7,305.75	186.78	26.75	100.15	-256.66	-14,783.89	26,389.17	26,329.35	59.82	441.145		
18,500.00	6,943.39	7,373.19	7,307.26	188.36	26.75	100.19	-256.65	-14,783.87	26,488.84	26,428.94	59.90	442.181		
18,600.00	6,943.33	7,374.71	7,308.79	189.94	26.75	100.23	-256.65	-14,783.85	26,588.52	26,528.53	59.99	443.208		
18,700.00	6,943.27	7,376.24	7,310.31	191.52	26.76	100.27	-256.64	-14,783.82	26,688.19	26,628.12	60.08	444.228		
18,800.00	6,943.21	7,377.76	7,311.83	193.10	26.76	100.31	-256.63	-14,783.80	26,787.87	26,727.71	60.17	445.239		
18,900.00	6,943.15	7,379.28	7,313.35	194.68	26.77	100.35	-256.62	-14,783.78	26,887.55	26,827.30	60.25	446.242		
19,000.00	6,943.09	7,380.81	7,314.88	196.26	26.77	100.39	-256.62	-14,783.76	26,987.24	26,926.89	60.34	447.238		
19,100.00	6,943.03	7,382.33	7,316.40	197.84	26.78	100.43	-256.61	-14,783.73	27,086.92	27,026.49	60.43	448.226		
19,200.00	6,942.97	7,383.86	7,317.93	199.42	26.78	100.47	-256.60	-14,783.71	27,186.61	27,126.09	60.52	449.206		
19,300.00	6,942.91	7,385.39	7,319.46	201.01	26.79	100.51	-256.59	-14,783.69	27,286.30	27,225.69	60.61	450.178		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 012D - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 360-B001Mb_MWD+HRGM												Offset Well Error:	0.00 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)			
19,400.00	6,942.85	7,386.92	7,320.99	202.59	26.79	100.55	-256.59	-14,783.67	27,385.99	27,325.29	60.70	451.143	
19,500.00	6,942.79	7,388.45	7,322.52	204.17	26.80	100.59	-256.58	-14,783.64	27,485.69	27,424.89	60.80	452.100	
19,600.00	6,942.73	7,389.98	7,324.05	205.75	26.80	100.63	-256.57	-14,783.62	27,585.38	27,524.49	60.89	453.050	
19,700.00	6,942.67	7,391.51	7,325.58	207.34	26.81	100.67	-256.56	-14,783.60	27,685.08	27,624.10	60.98	453.992	
19,800.00	6,942.61	7,393.05	7,327.11	208.92	26.81	100.71	-256.56	-14,783.58	27,784.78	27,723.70	61.08	454.927	
19,900.00	6,942.55	7,394.58	7,328.65	210.51	26.82	100.75	-256.55	-14,783.55	27,884.48	27,823.31	61.17	455.854	
20,000.00	6,942.49	7,396.11	7,330.18	212.09	26.82	100.80	-256.54	-14,783.53	27,984.19	27,922.92	61.26	456.775	
20,100.00	6,942.43	7,397.65	7,331.72	213.68	26.83	100.84	-256.53	-14,783.51	28,083.89	28,022.53	61.36	457.688	
20,200.00	6,942.37	7,399.19	7,333.26	215.26	26.83	100.88	-256.53	-14,783.49	28,183.60	28,122.15	61.46	458.594	
20,300.00	6,942.31	7,400.73	7,334.79	216.85	26.84	100.92	-256.52	-14,783.46	28,283.31	28,221.76	61.55	459.493	
20,400.00	6,942.25	7,402.27	7,336.33	218.43	26.84	100.96	-256.51	-14,783.44	28,383.03	28,321.37	61.65	460.385	
20,500.00	6,942.19	7,403.81	7,337.87	220.02	26.85	101.00	-256.50	-14,783.42	28,482.74	28,420.99	61.75	461.270	
20,600.00	6,942.13	7,405.35	7,339.42	221.60	26.85	101.04	-256.50	-14,783.40	28,582.46	28,520.61	61.85	462.148	
20,700.00	6,942.07	7,406.89	7,340.96	223.19	26.85	101.08	-256.49	-14,783.37	28,682.17	28,620.23	61.95	463.019	
20,808.89	6,942.00	7,408.57	7,342.64	224.92	26.86	101.12	-256.48	-14,783.35	28,790.76	28,728.70	62.05	463.960	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 016D - OH - OH-SVY													Offset Site Error: 0.00 usft
Survey Program: 380-MWD OWSG Rev5													Offset Well Error: 0.00 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	2,830.00	2,604.62	0.00	17.62	-95.65	-1,215.43	-12,281.77	12,608.47				
100.00	100.00	3,021.00	2,785.43	0.25	18.62	-95.43	-1,164.07	-12,248.47	12,588.01	12,569.69	18.33	686.920	
200.00	200.00	3,052.00	2,814.99	0.61	18.78	-95.40	-1,156.61	-12,242.89	12,567.19	12,548.49	18.70	672.139	
300.00	300.00	3,052.00	2,814.99	0.97	18.78	-95.40	-1,156.61	-12,242.89	12,546.96	12,527.97	18.99	660.799	
400.00	400.00	3,083.00	2,844.59	1.33	18.93	-95.36	-1,149.04	-12,237.62	12,527.34	12,507.87	19.46	643.680	
500.00	500.00	3,115.00	2,875.23	1.68	19.07	-95.33	-1,141.40	-12,232.44	12,508.36	12,488.41	19.95	626.973	
600.00	599.98	3,133.64	2,893.14	2.04	19.16	-96.91	-1,137.15	-12,229.51	12,490.13	12,469.76	20.38	612.994	
700.00	699.84	3,179.00	2,936.92	2.41	19.35	-97.23	-1,127.70	-12,222.36	12,472.79	12,451.87	20.93	596.061	
800.00	799.45	3,179.00	2,936.92	2.77	19.35	-97.55	-1,127.70	-12,222.36	12,456.49	12,435.22	21.27	585.659	
900.00	898.70	3,211.00	2,967.96	3.13	19.48	-97.85	-1,121.46	-12,217.67	12,441.30	12,419.54	21.76	571.713	
1,000.00	997.47	3,211.00	2,967.96	3.50	19.48	-98.13	-1,121.46	-12,217.67	12,427.24	12,405.12	22.12	561.772	
1,100.00	1,095.62	3,211.00	2,967.96	3.89	19.48	-98.39	-1,121.46	-12,217.67	12,414.46	12,391.96	22.49	551.899	
1,200.00	1,193.06	3,241.00	2,997.14	4.30	19.59	-98.62	-1,115.60	-12,213.92	12,402.86	12,379.85	23.01	539.002	
1,245.21	1,236.83	3,241.00	2,997.14	4.48	19.59	-98.72	-1,115.60	-12,213.92	12,397.99	12,374.80	23.19	534.593	
1,300.00	1,289.78	3,241.00	2,997.14	4.72	19.59	-98.72	-1,115.60	-12,213.92	12,392.37	12,368.96	23.41	529.250	
1,400.00	1,386.42	3,256.48	3,012.23	5.15	19.65	-98.73	-1,112.58	-12,212.20	12,382.68	12,358.78	23.89	518.213	
1,500.00	1,483.05	3,272.00	3,027.37	5.59	19.71	-98.73	-1,109.59	-12,210.57	12,373.66	12,349.27	24.38	507.486	
1,600.00	1,579.69	3,314.55	3,069.05	6.04	19.84	-98.75	-1,102.22	-12,206.27	12,365.23	12,340.25	24.98	495.064	
1,700.00	1,676.32	3,398.00	3,151.44	6.49	20.07	-98.81	-1,092.41	-12,197.44	12,357.04	12,331.33	25.71	480.671	
1,800.00	1,772.96	3,429.00	3,182.12	6.94	20.14	-98.83	-1,089.38	-12,194.25	12,349.28	12,323.04	26.25	470.505	
1,900.00	1,869.60	3,461.00	3,213.81	7.40	20.22	-98.86	-1,086.25	-12,191.10	12,342.06	12,315.27	26.79	460.685	
2,000.00	1,966.23	3,493.00	3,245.52	7.86	20.29	-98.88	-1,083.08	-12,188.13	12,335.37	12,308.04	27.34	451.259	
2,100.00	2,062.87	3,493.00	3,245.52	8.33	20.29	-98.88	-1,083.08	-12,188.13	12,329.36	12,301.58	27.78	443.853	
2,200.00	2,159.50	3,524.00	3,276.27	8.79	20.35	-98.91	-1,080.15	-12,185.56	12,323.96	12,295.64	28.32	435.191	
2,300.00	2,256.14	3,524.00	3,276.27	9.26	20.35	-98.91	-1,080.15	-12,185.56	12,319.32	12,290.55	28.76	428.315	
2,400.00	2,352.77	3,556.00	3,308.08	9.73	20.41	-98.94	-1,077.46	-12,183.38	12,315.36	12,286.06	29.30	420.303	
2,500.00	2,449.41	3,556.00	3,308.08	10.20	20.41	-98.94	-1,077.46	-12,183.38	12,312.08	12,282.33	29.74	413.923	
2,600.00	2,546.05	3,587.00	3,338.95	10.67	20.46	-98.96	-1,075.15	-12,181.64	12,309.49	12,279.22	30.27	406.608	
2,700.00	2,642.68	3,587.00	3,338.95	11.14	20.46	-98.96	-1,075.15	-12,181.64	12,307.59	12,276.87	30.72	400.684	
2,800.00	2,739.32	3,619.00	3,370.85	11.61	20.50	-98.99	-1,073.09	-12,180.24	12,306.38	12,275.14	31.24	393.934	
2,900.00	2,835.95	3,619.00	3,370.85	12.08	20.50	-98.99	-1,073.09	-12,180.24	12,305.84	12,274.16	31.68	388.430	
2,929.31	2,864.28	3,632.94	3,384.76	12.22	20.52	-99.01	-1,072.31	-12,179.74	12,305.80	12,273.96	31.84	386.460 CC	
3,000.00	2,932.59	3,651.00	3,402.79	12.55	20.54	-99.02	-1,071.44	-12,179.18	12,305.97	12,273.78	32.20	382.229	
3,100.00	3,029.22	3,730.12	3,481.83	13.03	20.61	-99.11	-1,068.68	-12,176.89	12,306.66	12,273.85	32.81	375.113	
3,200.00	3,125.86	3,761.06	3,512.75	13.50	20.63	-99.14	-1,067.89	-12,175.97	12,307.54	12,274.22	33.32	369.420	
3,300.00	3,222.50	3,778.00	3,529.67	13.97	20.65	-99.16	-1,067.54	-12,175.56	12,309.05	12,275.26	33.79	364.269	
3,400.00	3,319.13	3,810.00	3,561.67	14.45	20.66	-99.20	-1,067.01	-12,175.04	12,311.25	12,276.97	34.29	359.052	
3,500.00	3,415.77	3,810.00	3,561.67	14.92	20.66	-99.20	-1,067.01	-12,175.04	12,314.08	12,279.36	34.72	354.629	
3,600.00	3,512.40	3,857.35	3,609.01	15.40	20.68	-99.25	-1,066.28	-12,174.74	12,317.51	12,282.29	35.22	349.702	
3,700.00	3,609.04	3,933.76	3,685.41	15.88	21.16	-99.33	-1,065.05	-12,174.58	12,321.33	12,285.10	36.23	340.113	
3,800.00	3,705.67	4,030.89	3,782.52	16.35	33.27	-99.44	-1,063.48	-12,174.40	12,325.24	12,276.02	49.21	250.446	
3,900.00	3,802.31	4,128.02	3,879.64	16.83	45.57	-99.55	-1,061.91	-12,174.22	12,329.19	12,267.05	62.14	198.420	
4,000.00	3,898.95	4,225.14	3,976.75	17.30	57.93	-99.66	-1,060.34	-12,174.04	12,333.18	12,258.14	75.04	164.358	
4,100.00	3,995.58	4,322.27	4,073.87	17.78	70.31	-99.76	-1,058.76	-12,173.86	12,337.22	12,249.29	87.93	140.307	
4,200.00	4,092.22	4,419.41	4,170.99	18.26	82.70	-99.87	-1,057.18	-12,173.68	12,341.31	12,240.49	100.82	122.414	
4,300.00	4,188.85	4,516.54	4,268.11	18.73	95.09	-99.98	-1,055.60	-12,173.50	12,345.44	12,231.74	113.70	108.580	
4,400.00	4,285.49	4,613.67	4,365.23	19.21	107.49	-100.09	-1,054.02	-12,173.32	12,349.61	12,223.03	126.58	97.564	
4,500.00	4,382.12	4,710.81	4,462.35	19.69	119.89	-100.19	-1,052.43	-12,173.14	12,353.83	12,214.37	139.46	88.584	
4,600.00	4,478.76	4,807.94	4,559.48	20.17	132.29	-100.30	-1,050.84	-12,172.96	12,358.10	12,205.76	152.34	81.123	
4,700.00	4,575.40	4,905.08	4,656.60	20.64	144.69	-100.41	-1,049.25	-12,172.78	12,362.41	12,197.19	165.22	74.826	
4,800.00	4,672.03	5,002.22	4,753.73	21.12	157.09	-100.51	-1,047.66	-12,172.60	12,366.76	12,188.67	178.09	69.440	
4,900.00	4,768.67	5,099.36	4,850.85	21.60	169.49	-100.62	-1,046.06	-12,172.41	12,371.17	12,180.20	190.97	64.781	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 016D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 380-MWD OWSG Rev5											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
5,000.00	4,865.30	5,196.50	4,947.98	22.08	181.89	-100.73	-1,044.46	-12,172.23	12,375.61	12,171.76	203.85	60.710
5,100.00	4,961.94	5,293.65	5,045.11	22.55	194.30	-100.84	-1,042.86	-12,172.05	12,380.10	12,163.38	216.72	57.124
5,200.00	5,058.57	5,390.79	5,142.24	23.03	206.70	-100.94	-1,041.25	-12,171.86	12,384.63	12,155.03	229.60	53.940
5,300.00	5,155.21	5,487.94	5,239.37	23.51	219.10	-101.05	-1,039.65	-12,171.68	12,389.21	12,146.74	242.48	51.095
5,400.00	5,251.85	5,585.08	5,336.51	23.99	231.50	-101.15	-1,038.04	-12,171.50	12,393.84	12,138.48	255.35	48.536
5,500.00	5,348.48	5,682.23	5,433.64	24.47	243.91	-101.26	-1,036.42	-12,171.31	12,398.50	12,130.28	268.23	46.224
5,600.00	5,445.12	5,779.38	5,530.78	24.94	256.31	-101.37	-1,034.81	-12,171.13	12,403.22	12,122.11	281.10	44.123
5,700.00	5,541.75	5,876.53	5,627.92	25.42	268.71	-101.47	-1,033.19	-12,170.94	12,407.97	12,113.99	293.98	42.207
5,800.00	5,638.39	5,973.68	5,725.05	25.90	281.11	-101.58	-1,031.57	-12,170.76	12,412.77	12,105.91	306.86	40.451
5,900.00	5,735.02	6,070.84	5,822.19	26.38	293.52	-101.69	-1,029.95	-12,170.57	12,417.62	12,097.88	319.74	38.837
6,000.00	5,831.66	6,167.99	5,919.34	26.86	305.92	-101.79	-1,028.32	-12,170.39	12,422.51	12,089.89	332.61	37.348
6,100.00	5,928.30	6,265.15	6,016.48	27.34	318.32	-101.90	-1,026.69	-12,170.20	12,427.44	12,081.95	345.49	35.970
6,200.00	6,024.93	6,362.31	6,113.62	27.82	330.73	-102.00	-1,025.06	-12,170.01	12,432.41	12,074.05	358.37	34.692
6,300.00	6,121.57	6,459.47	6,210.77	28.29	343.13	-102.11	-1,023.42	-12,169.83	12,437.43	12,066.19	371.25	33.502
6,400.00	6,218.20	6,556.63	6,307.91	28.77	355.54	-102.22	-1,021.79	-12,169.64	12,442.50	12,058.37	384.12	32.392
6,500.00	6,314.84	6,653.79	6,405.06	29.25	367.94	-102.32	-1,020.15	-12,169.45	12,447.61	12,050.60	397.00	31.354
6,521.58	6,335.69	6,674.76	6,426.03	29.36	370.62	-102.34	-1,019.79	-12,169.41	12,448.71	12,048.93	399.78	31.139
6,550.00	6,363.15	6,702.36	6,453.63	29.49	374.14	-111.92	-1,019.33	-12,169.36	12,450.80	12,047.36	403.44	30.862 ES
6,600.00	6,411.28	6,750.76	6,502.02	29.73	380.32	-127.31	-1,018.51	-12,169.27	12,457.46	12,047.61	409.85	30.395
6,650.00	6,458.93	6,798.69	6,549.94	29.96	386.44	-139.69	-1,017.70	-12,169.17	12,467.91	12,051.71	416.19	29.957
6,700.00	6,505.83	6,845.86	6,597.11	30.19	392.46	-149.11	-1,016.90	-12,169.08	12,482.08	12,059.65	422.43	29.548
6,750.00	6,551.67	6,891.98	6,643.21	30.42	398.35	-156.23	-1,016.12	-12,168.99	12,499.88	12,071.36	428.52	29.170
6,800.00	6,596.17	6,936.75	6,687.99	30.64	404.07	-161.75	-1,015.36	-12,168.91	12,521.19	12,086.77	434.42	28.823
6,850.00	6,639.06	6,979.92	6,731.14	30.85	409.58	-166.18	-1,014.62	-12,168.82	12,545.90	12,105.79	440.10	28.507
6,900.00	6,680.07	7,021.20	6,772.42	31.05	414.85	-169.90	-1,013.92	-12,168.74	12,573.83	12,128.30	445.53	28.222
6,950.00	6,718.96	7,060.35	6,811.56	31.24	419.85	-173.17	-1,013.26	-12,168.67	12,604.83	12,154.16	450.67	27.969
7,000.00	6,755.47	7,097.12	6,848.33	31.43	424.54	-176.20	-1,012.63	-12,168.59	12,638.69	12,183.20	455.49	27.747
7,050.00	6,789.40	7,131.29	6,882.50	31.61	428.90	-179.17	-1,012.05	-12,168.53	12,675.21	12,215.25	459.96	27.557
7,100.00	6,820.52	7,162.65	6,913.85	31.79	432.91	177.75	-1,011.52	-12,168.47	12,714.16	12,250.11	464.04	27.399
7,150.00	6,848.64	7,191.00	6,942.19	31.97	436.53	174.36	-1,011.03	-12,168.41	12,755.30	12,287.57	467.73	27.271
7,200.00	6,873.60	7,216.17	6,967.36	32.14	439.74	170.39	-1,010.61	-12,168.36	12,798.38	12,327.39	470.99	27.173
7,250.00	6,895.24	7,238.00	6,989.19	32.31	442.53	165.48	-1,010.23	-12,168.32	12,843.13	12,369.33	473.80	27.106
7,300.00	6,913.42	7,256.36	7,007.54	32.49	444.87	159.05	-1,009.92	-12,168.29	12,889.29	12,413.13	476.16	27.069
7,350.00	6,928.03	7,271.13	7,022.31	32.67	446.76	150.19	-1,009.67	-12,168.26	12,936.56	12,458.53	478.03	27.062 SF
7,400.00	6,938.98	7,282.23	7,033.41	32.86	448.18	137.65	-1,009.48	-12,168.23	12,984.65	12,505.23	479.42	27.084
7,450.00	6,946.22	7,289.58	7,040.76	33.06	449.11	120.43	-1,009.35	-12,168.22	13,033.28	12,552.97	480.32	27.135
7,500.00	6,949.68	7,293.15	7,044.33	33.26	449.57	99.85	-1,009.29	-12,168.21	13,082.15	12,601.44	480.71	27.214
7,521.05	6,950.00	7,293.51	7,044.69	33.35	449.62	91.26	-1,009.29	-12,168.21	13,102.72	12,621.99	480.73	27.256
7,600.00	6,949.95	7,293.59	7,044.77	33.72	449.63	91.26	-1,009.28	-12,168.21	13,179.83	12,699.20	480.63	27.422
7,700.00	6,949.89	7,293.70	7,044.88	34.24	449.64	91.26	-1,009.28	-12,168.21	13,277.53	12,797.02	480.51	27.632
7,800.00	6,949.83	7,293.81	7,044.99	34.84	449.65	91.27	-1,009.28	-12,168.21	13,375.27	12,894.87	480.40	27.842
7,900.00	6,949.77	7,293.92	7,045.10	35.50	449.67	91.27	-1,009.28	-12,168.21	13,473.04	12,992.75	480.29	28.052
8,000.00	6,949.71	7,294.02	7,045.20	36.23	449.68	91.27	-1,009.28	-12,168.21	13,570.84	13,090.65	480.18	28.262
8,100.00	6,949.65	7,294.13	7,045.31	37.02	449.70	91.27	-1,009.28	-12,168.21	13,668.67	13,188.59	480.09	28.471
8,200.00	6,949.59	7,294.24	7,045.42	37.85	449.71	91.27	-1,009.27	-12,168.21	13,766.54	13,286.55	479.99	28.681
8,300.00	6,949.53	7,294.35	7,045.53	38.74	449.72	91.28	-1,009.27	-12,168.21	13,864.43	13,384.53	479.90	28.890
8,400.00	6,949.47	7,294.46	7,045.64	39.68	449.74	91.28	-1,009.27	-12,168.21	13,962.36	13,482.54	479.82	29.099
8,500.00	6,949.41	7,294.56	7,045.74	40.66	449.75	91.28	-1,009.27	-12,168.21	14,060.31	13,580.57	479.74	29.308
8,600.00	6,949.35	7,294.67	7,045.85	41.67	449.76	91.28	-1,009.27	-12,168.21	14,158.29	13,678.63	479.66	29.517
8,700.00	6,949.29	7,294.78	7,045.96	42.73	449.78	91.29	-1,009.26	-12,168.21	14,256.30	13,776.71	479.59	29.726
8,800.00	6,949.23	7,294.89	7,046.07	43.82	449.79	91.29	-1,009.26	-12,168.21	14,354.34	13,874.81	479.53	29.934
8,900.00	6,949.17	7,295.00	7,046.17	44.94	449.81	91.29	-1,009.26	-12,168.21	14,452.41	13,972.94	479.47	30.143

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 016D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 380-MWD OWSG Rev5											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,000.00	6,949.11	7,295.10	7,046.28	46.09	449.82	91.29	-1,009.26	-12,168.21	14,550.50	14,071.09	479.41	30.351
9,100.00	6,949.05	7,295.21	7,046.39	47.26	449.83	91.29	-1,009.26	-12,168.21	14,648.62	14,169.26	479.36	30.559
9,200.00	6,948.99	7,295.32	7,046.50	48.46	449.85	91.30	-1,009.26	-12,168.21	14,746.76	14,267.45	479.31	30.767
9,300.00	6,948.93	7,295.43	7,046.61	49.68	449.86	91.30	-1,009.25	-12,168.21	14,844.93	14,365.67	479.26	30.975
9,400.00	6,948.87	7,295.53	7,046.71	50.93	449.87	91.30	-1,009.25	-12,168.21	14,943.12	14,463.90	479.22	31.182
9,500.00	6,948.81	7,295.64	7,046.82	52.19	449.89	91.30	-1,009.25	-12,168.21	15,041.33	14,562.15	479.18	31.390
9,600.00	6,948.75	7,295.75	7,046.93	53.47	449.90	91.31	-1,009.25	-12,168.21	15,139.57	14,660.42	479.15	31.597
9,700.00	6,948.69	7,295.86	7,047.04	54.77	449.92	91.31	-1,009.25	-12,168.21	15,237.83	14,758.72	479.12	31.804
9,800.00	6,948.63	7,295.97	7,047.15	56.08	449.93	91.31	-1,009.24	-12,168.21	15,336.12	14,857.03	479.09	32.011
9,900.00	6,948.57	7,296.07	7,047.25	57.41	449.94	91.31	-1,009.24	-12,168.21	15,434.42	14,955.36	479.07	32.218
10,000.00	6,948.51	7,296.18	7,047.36	58.76	449.96	91.31	-1,009.24	-12,168.21	15,532.75	15,053.71	479.05	32.424
10,100.00	6,948.45	7,296.29	7,047.47	60.11	449.97	91.32	-1,009.24	-12,168.21	15,631.10	15,152.07	479.03	32.631
10,200.00	6,948.39	7,296.40	7,047.58	61.48	449.98	91.32	-1,009.24	-12,168.21	15,729.47	15,250.45	479.02	32.837
10,300.00	6,948.33	7,296.50	7,047.68	62.86	450.00	91.32	-1,009.24	-12,168.21	15,827.86	15,348.85	479.01	33.043
10,400.00	6,948.27	7,296.61	7,047.79	64.24	450.01	91.32	-1,009.23	-12,168.21	15,926.27	15,447.27	479.00	33.249
10,500.00	6,948.21	7,296.72	7,047.90	65.64	450.03	91.32	-1,009.23	-12,168.21	16,024.70	15,545.71	479.00	33.455
10,600.00	6,948.15	7,296.83	7,048.01	67.05	450.04	91.33	-1,009.23	-12,168.21	16,123.15	15,644.16	478.99	33.660
10,700.00	6,948.09	7,296.94	7,048.12	68.47	450.05	91.33	-1,009.23	-12,168.21	16,221.62	15,742.62	479.00	33.866
10,800.00	6,948.03	7,297.04	7,048.22	69.89	450.07	91.33	-1,009.23	-12,168.21	16,320.11	15,841.11	479.00	34.071
10,900.00	6,947.97	7,297.15	7,048.33	71.32	450.08	91.33	-1,009.22	-12,168.21	16,418.61	15,939.60	479.01	34.276
11,000.00	6,947.91	7,297.26	7,048.44	72.76	450.09	91.34	-1,009.22	-12,168.21	16,517.14	16,038.12	479.02	34.481
11,100.00	6,947.85	7,297.37	7,048.55	74.21	450.11	91.34	-1,009.22	-12,168.21	16,615.68	16,136.64	479.03	34.686
11,200.00	6,947.79	7,297.48	7,048.65	75.66	450.12	91.34	-1,009.22	-12,168.21	16,714.23	16,235.19	479.05	34.891
11,300.00	6,947.73	7,297.58	7,048.76	77.12	450.14	91.34	-1,009.22	-12,168.20	16,812.81	16,333.74	479.07	35.095
11,400.00	6,947.66	7,297.69	7,048.87	78.58	450.15	91.34	-1,009.21	-12,168.20	16,911.40	16,432.31	479.09	35.299
11,500.00	6,947.60	7,297.80	7,048.98	80.05	450.16	91.35	-1,009.21	-12,168.20	17,010.01	16,530.90	479.11	35.503
11,600.00	6,947.54	7,297.91	7,049.09	81.52	450.18	91.35	-1,009.21	-12,168.20	17,108.63	16,629.50	479.14	35.707
11,700.00	6,947.48	7,298.01	7,049.19	83.00	450.19	91.35	-1,009.21	-12,168.20	17,207.27	16,728.11	479.16	35.911
11,800.00	6,947.42	7,298.12	7,049.30	84.48	450.21	91.35	-1,009.21	-12,168.20	17,305.93	16,826.74	479.19	36.115
11,900.00	6,947.36	7,298.23	7,049.41	85.97	450.22	91.36	-1,009.21	-12,168.20	17,404.60	16,925.38	479.23	36.318
12,000.00	6,947.30	7,298.34	7,049.52	87.46	450.23	91.36	-1,009.20	-12,168.20	17,503.29	17,024.03	479.26	36.521
12,100.00	6,947.24	7,298.45	7,049.63	88.96	450.25	91.36	-1,009.20	-12,168.20	17,601.99	17,122.69	479.30	36.725
12,200.00	6,947.18	7,298.55	7,049.73	90.46	450.26	91.36	-1,009.20	-12,168.20	17,700.71	17,221.37	479.34	36.927
12,300.00	6,947.12	7,298.66	7,049.84	91.96	450.27	91.36	-1,009.20	-12,168.20	17,799.44	17,320.06	479.38	37.130
12,400.00	6,947.06	7,298.77	7,049.95	93.47	450.29	91.37	-1,009.20	-12,168.20	17,898.18	17,418.76	479.42	37.333
12,500.00	6,947.00	7,298.88	7,050.06	94.97	450.30	91.37	-1,009.19	-12,168.20	17,996.94	17,517.47	479.47	37.535
12,600.00	6,946.94	7,298.99	7,050.16	96.49	450.32	91.37	-1,009.19	-12,168.20	18,095.71	17,616.20	479.51	37.738
12,700.00	6,946.88	7,299.09	7,050.27	98.00	450.33	91.37	-1,009.19	-12,168.20	18,194.50	17,714.93	479.56	37.940
12,800.00	6,946.82	7,299.20	7,050.38	99.52	450.34	91.38	-1,009.19	-12,168.20	18,293.29	17,813.68	479.61	38.142
12,900.00	6,946.76	7,299.31	7,050.49	101.04	450.36	91.38	-1,009.19	-12,168.20	18,392.10	17,912.44	479.67	38.344
13,000.00	6,946.70	7,299.42	7,050.60	102.56	450.37	91.38	-1,009.19	-12,168.20	18,490.93	18,011.21	479.72	38.545
13,100.00	6,946.64	7,299.52	7,050.70	104.09	450.38	91.38	-1,009.18	-12,168.20	18,589.77	18,109.99	479.78	38.747
13,200.00	6,946.58	7,299.63	7,050.81	105.61	450.40	91.38	-1,009.18	-12,168.20	18,688.61	18,208.78	479.83	38.948
13,300.00	6,946.52	7,299.74	7,050.92	107.14	450.41	91.39	-1,009.18	-12,168.20	18,787.48	18,307.58	479.89	39.149
13,400.00	6,946.46	7,299.85	7,051.03	108.67	450.43	91.39	-1,009.18	-12,168.20	18,886.35	18,406.40	479.95	39.350
13,500.00	6,946.40	7,299.96	7,051.13	110.21	450.44	91.39	-1,009.18	-12,168.20	18,985.23	18,505.22	480.02	39.551
13,600.00	6,946.34	7,300.06	7,051.24	111.74	450.45	91.39	-1,009.17	-12,168.20	19,084.13	18,604.05	480.08	39.752
13,700.00	6,946.28	7,300.17	7,051.35	113.28	450.47	91.40	-1,009.17	-12,168.20	19,183.04	18,702.89	480.15	39.952
13,800.00	6,946.22	7,300.28	7,051.46	114.82	450.48	91.40	-1,009.17	-12,168.20	19,281.96	18,801.74	480.21	40.153
13,900.00	6,946.16	7,300.39	7,051.57	116.36	450.49	91.40	-1,009.17	-12,168.20	19,380.89	18,900.61	480.28	40.353
14,000.00	6,946.10	7,300.50	7,051.67	117.90	450.51	91.40	-1,009.17	-12,168.20	19,479.83	18,999.48	480.35	40.553
14,100.00	6,946.04	7,300.60	7,051.78	119.45	450.52	91.40	-1,009.17	-12,168.20	19,578.78	19,098.36	480.43	40.753

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 016D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 380-MWD OWSG Rev5											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
14,200.00	6,945.98	7,300.71	7,051.89	120.99	450.54	91.41	-1,009.16	-12,168.20	19,677.75	19,197.25	480.50	40.953
14,300.00	6,945.92	7,300.82	7,052.00	122.54	450.55	91.41	-1,009.16	-12,168.20	19,776.72	19,296.15	480.57	41.152
14,400.00	6,945.86	7,300.93	7,052.11	124.09	450.56	91.41	-1,009.16	-12,168.20	19,875.70	19,395.05	480.65	41.352
14,500.00	6,945.80	7,301.03	7,052.21	125.64	450.58	91.41	-1,009.16	-12,168.20	19,974.70	19,493.97	480.73	41.551
14,600.00	6,945.74	7,301.14	7,052.32	127.19	450.59	91.41	-1,009.16	-12,168.20	20,073.70	19,592.90	480.80	41.750
14,700.00	6,945.68	7,301.25	7,052.43	128.74	450.60	91.42	-1,009.15	-12,168.20	20,172.71	19,691.83	480.88	41.949
14,800.00	6,945.62	7,301.36	7,052.54	130.30	450.62	91.42	-1,009.15	-12,168.20	20,271.74	19,790.77	480.96	42.148
14,900.00	6,945.56	7,301.47	7,052.64	131.85	450.63	91.42	-1,009.15	-12,168.20	20,370.77	19,889.72	481.05	42.347
15,000.00	6,945.50	7,301.57	7,052.75	133.41	450.65	91.42	-1,009.15	-12,168.20	20,469.81	19,988.68	481.13	42.545
15,100.00	6,945.44	7,301.68	7,052.86	134.96	450.66	91.43	-1,009.15	-12,168.20	20,568.86	20,087.65	481.21	42.744
15,200.00	6,945.38	7,301.79	7,052.97	136.52	450.67	91.43	-1,009.14	-12,168.20	20,667.92	20,186.62	481.30	42.942
15,300.00	6,945.32	7,301.90	7,053.08	138.08	450.69	91.43	-1,009.14	-12,168.20	20,766.99	20,285.61	481.38	43.140
15,400.00	6,945.26	7,302.01	7,053.18	139.64	450.70	91.43	-1,009.14	-12,168.20	20,866.07	20,384.60	481.47	43.338
15,500.00	6,945.20	7,302.11	7,053.29	141.20	450.71	91.43	-1,009.14	-12,168.20	20,965.16	20,483.60	481.56	43.536
15,600.00	6,945.14	7,302.22	7,053.40	142.76	450.73	91.44	-1,009.14	-12,168.20	21,064.25	20,582.60	481.65	43.734
15,700.00	6,945.08	7,302.33	7,053.51	144.33	450.74	91.44	-1,009.14	-12,168.20	21,163.36	20,681.62	481.74	43.931
15,800.00	6,945.02	7,302.44	7,053.62	145.89	450.76	91.44	-1,009.13	-12,168.20	21,262.47	20,780.64	481.83	44.128
15,900.00	6,944.96	7,302.54	7,053.72	147.46	450.77	91.44	-1,009.13	-12,168.20	21,361.59	20,879.67	481.92	44.326
16,000.00	6,944.90	7,302.65	7,053.83	149.02	450.78	91.45	-1,009.13	-12,168.19	21,460.72	20,978.70	482.02	44.523
16,100.00	6,944.84	7,302.76	7,053.94	150.59	450.80	91.45	-1,009.13	-12,168.19	21,559.86	21,077.75	482.11	44.720
16,200.00	6,944.77	7,302.87	7,054.05	152.15	450.81	91.45	-1,009.13	-12,168.19	21,659.00	21,176.80	482.21	44.916
16,300.00	6,944.71	7,302.98	7,054.15	153.72	450.82	91.45	-1,009.12	-12,168.19	21,758.15	21,275.85	482.30	45.113
16,400.00	6,944.65	7,303.08	7,054.26	155.29	450.84	91.45	-1,009.12	-12,168.19	21,857.32	21,374.92	482.40	45.310
16,500.00	6,944.59	7,303.19	7,054.37	156.86	450.85	91.46	-1,009.12	-12,168.19	21,956.48	21,473.99	482.50	45.506
16,600.00	6,944.53	7,303.30	7,054.48	158.43	450.87	91.46	-1,009.12	-12,168.19	22,055.66	21,573.06	482.60	45.702
16,700.00	6,944.47	7,303.41	7,054.59	160.00	450.88	91.46	-1,009.12	-12,168.19	22,154.84	21,672.15	482.70	45.898
16,800.00	6,944.41	7,303.52	7,054.69	161.57	450.89	91.46	-1,009.12	-12,168.19	22,254.03	21,771.24	482.80	46.094
16,900.00	6,944.35	7,303.62	7,054.80	163.14	450.91	91.47	-1,009.11	-12,168.19	22,353.23	21,870.33	482.90	46.290
17,000.00	6,944.29	7,303.73	7,054.91	164.71	450.92	91.47	-1,009.11	-12,168.19	22,452.43	21,969.44	483.00	46.485
17,100.00	6,944.23	7,303.84	7,055.02	166.29	450.93	91.47	-1,009.11	-12,168.19	22,551.65	22,068.55	483.10	46.681
17,200.00	6,944.17	7,303.95	7,055.13	167.86	450.95	91.47	-1,009.11	-12,168.19	22,650.87	22,167.66	483.20	46.876
17,300.00	6,944.11	7,304.05	7,055.23	169.43	450.96	91.47	-1,009.11	-12,168.19	22,750.09	22,266.78	483.31	47.072
17,400.00	6,944.05	7,304.16	7,055.34	171.01	450.98	91.48	-1,009.10	-12,168.19	22,849.32	22,365.91	483.41	47.267
17,500.00	6,943.99	7,304.27	7,055.45	172.58	450.99	91.48	-1,009.10	-12,168.19	22,948.56	22,465.04	483.52	47.462
17,600.00	6,943.93	7,304.38	7,055.56	174.16	451.00	91.48	-1,009.10	-12,168.19	23,047.81	22,564.18	483.63	47.656
17,700.00	6,943.87	7,304.49	7,055.66	175.73	451.02	91.48	-1,009.10	-12,168.19	23,147.06	22,663.33	483.73	47.851
17,800.00	6,943.81	7,304.59	7,055.77	177.31	451.03	91.48	-1,009.10	-12,168.19	23,246.32	22,762.48	483.84	48.045
17,900.00	6,943.75	7,304.70	7,055.88	178.89	451.05	91.49	-1,009.10	-12,168.19	23,345.58	22,861.63	483.95	48.240
18,000.00	6,943.69	7,304.81	7,055.99	180.46	451.06	91.49	-1,009.09	-12,168.19	23,444.85	22,960.80	484.06	48.434
18,100.00	6,943.63	7,304.92	7,056.10	182.04	451.07	91.49	-1,009.09	-12,168.19	23,544.13	23,059.96	484.17	48.628
18,200.00	6,943.57	7,305.03	7,056.20	183.62	451.09	91.49	-1,009.09	-12,168.19	23,643.41	23,159.14	484.28	48.822
18,300.00	6,943.51	7,305.13	7,056.31	185.20	451.10	91.50	-1,009.09	-12,168.19	23,742.70	23,258.32	484.39	49.016
18,400.00	6,943.45	7,305.24	7,056.42	186.78	451.11	91.50	-1,009.09	-12,168.19	23,842.00	23,357.50	484.50	49.210
18,500.00	6,943.39	7,305.35	7,056.53	188.36	451.13	91.50	-1,009.08	-12,168.19	23,941.30	23,456.69	484.61	49.403
18,600.00	6,943.33	7,305.46	7,056.64	189.94	451.14	91.50	-1,009.08	-12,168.19	24,040.61	23,555.88	484.72	49.597
18,700.00	6,943.27	7,305.57	7,056.74	191.52	451.16	91.50	-1,009.08	-12,168.19	24,139.92	23,655.08	484.84	49.790
18,800.00	6,943.21	7,305.67	7,056.85	193.10	451.17	91.51	-1,009.08	-12,168.19	24,239.24	23,754.29	484.95	49.983
18,900.00	6,943.15	7,305.78	7,056.96	194.68	451.18	91.51	-1,009.08	-12,168.19	24,338.56	23,853.50	485.06	50.176
19,000.00	6,943.09	7,305.89	7,057.07	196.26	451.20	91.51	-1,009.07	-12,168.19	24,437.89	23,952.71	485.18	50.369
19,100.00	6,943.03	7,306.00	7,057.17	197.84	451.21	91.51	-1,009.07	-12,168.19	24,537.23	24,051.93	485.29	50.562
19,200.00	6,942.97	7,306.10	7,057.28	199.42	451.22	91.52	-1,009.07	-12,168.19	24,636.57	24,151.16	485.41	50.754
19,300.00	6,942.91	7,306.21	7,057.39	201.01	451.24	91.52	-1,009.07	-12,168.19	24,735.91	24,250.39	485.52	50.947

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 016D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 380-MWD OWSG Rev5											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
19,400.00	6,942.85	7,306.32	7,057.50	202.59	451.25	91.52	-1,009.07	-12,168.19	24,835.26	24,349.62	485.64	51.139
19,500.00	6,942.79	7,306.43	7,057.61	204.17	451.27	91.52	-1,009.07	-12,168.19	24,934.62	24,448.86	485.76	51.331
19,600.00	6,942.73	7,306.54	7,057.71	205.75	451.28	91.52	-1,009.06	-12,168.19	25,033.98	24,548.10	485.88	51.523
19,700.00	6,942.67	7,306.64	7,057.82	207.34	451.29	91.53	-1,009.06	-12,168.19	25,133.35	24,647.35	485.99	51.715
19,800.00	6,942.61	7,306.75	7,057.93	208.92	451.31	91.53	-1,009.06	-12,168.19	25,232.72	24,746.60	486.11	51.907
19,900.00	6,942.55	7,306.86	7,058.04	210.51	451.32	91.53	-1,009.06	-12,168.19	25,332.09	24,845.86	486.23	52.099
20,000.00	6,942.49	7,306.97	7,058.15	212.09	451.33	91.53	-1,009.06	-12,168.19	25,431.47	24,945.12	486.35	52.290
20,100.00	6,942.43	7,307.08	7,058.25	213.68	451.35	91.54	-1,009.05	-12,168.19	25,530.86	25,044.39	486.47	52.482
20,200.00	6,942.37	7,307.18	7,058.36	215.26	451.36	91.54	-1,009.05	-12,168.19	25,630.25	25,143.66	486.59	52.673
20,300.00	6,942.31	7,307.29	7,058.47	216.85	451.38	91.54	-1,009.05	-12,168.19	25,729.65	25,242.93	486.71	52.864
20,400.00	6,942.25	7,307.40	7,058.58	218.43	451.39	91.54	-1,009.05	-12,168.19	25,829.05	25,342.21	486.83	53.055
20,500.00	6,942.19	7,307.51	7,058.69	220.02	451.40	91.54	-1,009.05	-12,168.19	25,928.45	25,441.49	486.96	53.246
20,600.00	6,942.13	7,307.62	7,058.79	221.60	451.42	91.55	-1,009.05	-12,168.19	26,027.86	25,540.78	487.08	53.437
20,700.00	6,942.07	7,307.72	7,058.90	223.19	451.43	91.55	-1,009.04	-12,168.19	26,127.27	25,640.07	487.20	53.627
20,808.89	6,942.00	7,307.84	7,059.02	224.92	451.45	91.55	-1,009.04	-12,168.18	26,235.52	25,748.19	487.33	53.835

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - OH - OH-SVY													Offset Site Error: 0.00 usft
Survey Program: 100-MWD													Offset Well Error: 0.00 usft
Rule Assigned:													Warning
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	2,963.24	2,786.96	0.00	19.07	-88.01	332.63	-9,594.74	9,986.32				
100.00	100.00	3,000.00	2,822.02	0.25	19.26	-88.04	327.34	-9,585.06	9,959.14	9,941.99	17.14	580.951	
200.00	200.00	3,083.98	2,902.19	0.61	19.68	-88.11	315.16	-9,563.22	9,932.39	9,914.63	17.75	559.444	
300.00	300.00	3,100.00	2,917.47	0.97	19.76	-88.13	312.76	-9,559.04	9,905.89	9,887.80	18.09	547.589	
400.00	400.00	3,100.00	2,917.47	1.33	19.76	-88.13	312.76	-9,559.04	9,880.32	9,861.94	18.38	537.502	
500.00	500.00	3,151.18	2,966.47	1.68	20.00	-88.17	305.47	-9,546.21	9,854.99	9,836.01	18.98	519.121	
600.00	599.98	3,200.00	3,013.57	2.04	20.22	-89.93	299.27	-9,534.97	9,830.98	9,811.40	19.58	502.045	
700.00	699.84	3,200.00	3,013.57	2.41	20.22	-90.42	299.27	-9,534.97	9,807.28	9,787.37	19.91	492.565	
800.00	799.45	3,200.00	3,013.57	2.77	20.22	-90.89	299.27	-9,534.97	9,784.57	9,764.33	20.25	483.265	
900.00	898.70	3,200.00	3,013.57	3.13	20.22	-91.33	299.27	-9,534.97	9,762.89	9,742.30	20.59	474.105	
1,000.00	997.47	3,200.00	3,013.57	3.50	20.22	-91.75	299.27	-9,534.97	9,742.26	9,721.31	20.95	465.033	
1,100.00	1,095.62	3,248.23	3,060.44	3.89	20.40	-92.24	293.83	-9,524.96	9,721.96	9,700.37	21.58	450.429	
1,200.00	1,193.06	3,300.00	3,111.09	4.30	20.60	-92.73	288.68	-9,515.60	9,703.46	9,681.21	22.25	436.021	
1,245.21	1,236.83	3,300.00	3,111.09	4.48	20.60	-92.90	288.68	-9,515.60	9,695.08	9,672.64	22.44	432.100	
1,300.00	1,289.78	3,300.00	3,111.09	4.72	20.60	-92.90	288.68	-9,515.60	9,685.22	9,662.56	22.66	427.355	
1,400.00	1,386.42	3,300.00	3,111.09	5.15	20.60	-92.90	288.68	-9,515.60	9,667.99	9,644.91	23.08	418.808	
1,500.00	1,483.05	3,300.00	3,111.09	5.59	20.60	-92.90	288.68	-9,515.60	9,651.77	9,628.26	23.51	410.475	
1,600.00	1,579.69	3,300.00	3,111.09	6.04	20.60	-92.90	288.68	-9,515.60	9,636.56	9,612.61	23.95	402.386	
1,700.00	1,676.32	3,352.69	3,162.91	6.49	20.75	-93.01	284.09	-9,507.26	9,621.75	9,597.12	24.63	390.718	
1,800.00	1,772.96	3,400.00	3,209.60	6.94	20.89	-93.11	280.47	-9,500.56	9,608.10	9,582.82	25.28	380.034	
1,900.00	1,869.60	3,400.00	3,209.60	7.40	20.89	-93.11	280.47	-9,500.56	9,594.98	9,569.25	25.73	372.938	
2,000.00	1,966.23	3,466.18	3,275.04	7.86	21.06	-93.24	275.97	-9,491.76	9,582.61	9,556.17	26.44	362.386	
2,100.00	2,062.87	3,500.00	3,308.50	8.33	21.15	-93.30	273.84	-9,487.29	9,570.63	9,543.60	27.03	354.084	
2,200.00	2,159.50	3,500.00	3,308.50	8.79	21.15	-93.30	273.84	-9,487.29	9,559.61	9,532.13	27.48	347.877	
2,300.00	2,256.14	3,554.96	3,362.95	9.26	21.28	-93.41	270.60	-9,480.58	9,548.93	9,520.78	28.15	339.164	
2,400.00	2,352.77	3,600.00	3,407.67	9.73	21.38	-93.49	268.10	-9,475.88	9,539.46	9,510.67	28.79	331.357	
2,500.00	2,449.41	3,600.00	3,407.67	10.20	21.38	-93.49	268.10	-9,475.88	9,530.56	9,501.32	29.24	325.934	
2,600.00	2,546.05	3,600.00	3,407.67	10.67	21.38	-93.49	268.10	-9,475.88	9,522.71	9,493.02	29.69	320.719	
2,700.00	2,642.68	3,652.71	3,460.11	11.14	21.47	-93.59	265.54	-9,471.16	9,515.40	9,485.06	30.34	313.634	
2,800.00	2,739.32	3,700.00	3,507.22	11.61	21.56	-93.67	263.73	-9,467.53	9,509.03	9,478.07	30.97	307.080	
2,900.00	2,835.95	3,700.00	3,507.22	12.08	21.56	-93.67	263.73	-9,467.53	9,503.32	9,471.90	31.41	302.510	
3,000.00	2,932.59	3,736.44	3,543.57	12.55	21.60	-93.74	262.55	-9,465.13	9,498.41	9,466.42	31.98	296.982	
3,100.00	3,029.22	3,764.38	3,571.45	13.03	21.64	-93.78	261.69	-9,463.52	9,494.28	9,461.76	32.52	291.932	
3,200.00	3,125.86	3,800.00	3,607.01	13.50	21.69	-93.85	260.66	-9,461.76	9,490.94	9,457.85	33.09	286.858	
3,300.00	3,222.50	3,800.00	3,607.01	13.97	21.69	-93.85	260.66	-9,461.76	9,488.42	9,454.89	33.53	282.992	
3,400.00	3,319.13	3,800.00	3,607.01	14.45	21.69	-93.85	260.66	-9,461.76	9,486.95	9,452.98	33.97	279.278	
3,500.00	3,415.77	4,600.00	4,402.76	14.92	23.38	-95.26	232.64	-9,412.00	9,484.46	9,447.73	36.73	258.201	
3,600.00	3,512.40	4,654.05	4,456.36	15.40	23.50	-95.37	228.38	-9,406.49	9,476.77	9,439.39	37.39	253.487	
3,700.00	3,609.04	4,722.42	4,524.27	15.88	23.64	-95.51	224.00	-9,399.92	9,469.64	9,431.55	38.09	248.621	
3,800.00	3,705.67	4,800.00	4,601.36	16.35	23.79	-95.65	219.77	-9,392.29	9,462.44	9,423.62	38.82	243.737	
3,900.00	3,802.31	4,800.00	4,601.36	16.83	23.79	-95.65	219.77	-9,392.29	9,456.21	9,416.93	39.28	240.759	
4,000.00	3,898.95	4,855.18	4,656.26	17.30	23.89	-95.76	217.25	-9,387.33	9,450.26	9,410.33	39.93	236.652	
4,100.00	3,995.58	4,900.00	4,700.94	17.78	23.96	-95.84	215.60	-9,384.21	9,445.63	9,405.08	40.55	232.937	
4,200.00	4,092.22	4,900.00	4,700.94	18.26	23.96	-95.84	215.60	-9,384.21	9,441.55	9,400.55	41.00	230.292	
4,300.00	4,188.85	4,900.00	4,700.94	18.73	23.96	-95.84	215.60	-9,384.21	9,438.53	9,397.09	41.44	227.746	
4,400.00	4,285.49	4,958.18	4,759.00	19.21	24.03	-95.94	213.82	-9,381.04	9,436.04	9,393.98	42.06	224.322	
4,500.00	4,382.12	5,000.00	4,800.77	19.69	24.09	-96.01	212.69	-9,379.20	9,434.40	9,391.76	42.63	221.285	
4,600.00	4,478.76	5,000.00	4,800.77	20.17	24.09	-96.01	212.69	-9,379.20	9,433.54	9,390.47	43.07	219.018	
4,667.91	4,544.38	5,038.54	4,839.27	20.49	24.12	-96.08	211.79	-9,377.88	9,433.29	9,389.82	43.46	217.039 CC	
4,700.00	4,575.40	5,047.37	4,848.10	20.64	24.13	-96.09	211.60	-9,377.63	9,433.33	9,389.70	43.62	216.237 ES	
4,800.00	4,672.03	5,100.00	4,900.71	21.12	24.18	-96.18	210.62	-9,376.61	9,434.08	9,389.89	44.19	213.490	
4,900.00	4,768.67	5,111.78	4,912.48	21.60	24.19	-96.20	210.43	-9,376.46	9,435.38	9,390.74	44.64	211.343	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		100-MWD					Rule Assigned:				Offset Well Error:	0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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		
5,000.00	4,865.30	5,221.91	5,022.59	22.08	24.27	-96.38	208.82	-9,374.93	9,436.99	9,391.68	45.31	208.270		
5,100.00	4,961.94	5,300.00	5,100.66	22.55	24.34	-96.51	207.39	-9,373.94	9,438.84	9,392.94	45.90	205.635		
5,200.00	5,058.57	5,376.63	5,177.27	23.03	24.42	-96.64	205.79	-9,373.11	9,440.95	9,394.48	46.47	203.177		
5,300.00	5,155.21	5,400.00	5,200.63	23.51	24.45	-96.68	205.31	-9,372.87	9,443.46	9,396.53	46.93	201.210		
5,400.00	5,251.85	5,461.38	5,262.01	23.99	24.50	-96.78	204.33	-9,372.60	9,446.46	9,399.07	47.39	199.316		
5,500.00	5,348.48	5,500.00	5,300.62	24.47	24.53	-96.84	203.99	-9,372.82	9,450.26	9,402.42	47.84	197.542		
5,600.00	5,445.12	5,564.67	5,365.29	24.94	24.56	-96.94	203.70	-9,373.52	9,454.59	9,406.38	48.21	196.093		
5,700.00	5,541.75	5,649.67	5,450.28	25.42	24.59	-97.08	203.50	-9,374.65	9,459.23	9,410.65	48.57	194.740		
5,800.00	5,638.39	5,779.37	5,579.97	25.90	24.67	-97.28	202.42	-9,376.03	9,463.73	9,414.78	48.95	193.352		
5,900.00	5,735.02	5,870.20	5,670.78	26.38	24.75	-97.43	201.33	-9,376.74	9,468.09	9,418.74	49.35	191.838		
6,000.00	5,831.66	6,019.58	5,820.16	26.86	24.79	-97.66	201.13	-9,378.13	9,472.62	9,422.91	49.71	190.539		
6,100.00	5,928.30	6,100.00	5,900.58	27.34	24.81	-97.78	201.10	-9,378.70	9,476.90	9,426.79	50.11	189.136		
6,200.00	6,024.93	6,200.00	6,000.58	27.82	24.84	-97.94	201.02	-9,379.28	9,481.15	9,430.66	50.49	187.784		
6,300.00	6,121.57	6,259.08	6,059.66	28.29	24.85	-98.03	201.00	-9,379.74	9,485.67	9,434.79	50.88	186.428		
6,400.00	6,218.20	6,321.41	6,121.98	28.77	24.86	-98.12	200.83	-9,380.54	9,490.74	9,439.47	51.27	185.119		
6,500.00	6,314.84	6,467.38	6,267.94	29.25	24.89	-98.35	201.12	-9,382.38	9,495.83	9,444.22	51.61	183.986		
6,521.58	6,335.69	6,511.05	6,311.61	29.36	24.90	-98.41	201.05	-9,382.71	9,496.84	9,445.16	51.68	183.753		
6,550.00	6,363.15	6,520.91	6,321.46	29.49	24.91	-107.96	201.03	-9,382.79	9,498.81	9,447.01	51.80	183.385		
6,600.00	6,411.28	6,551.62	6,352.18	29.73	24.92	-123.31	200.96	-9,383.07	9,505.38	9,453.39	51.99	182.834		
6,650.00	6,458.93	6,600.00	6,400.55	29.96	24.94	-135.65	200.87	-9,383.63	9,515.90	9,463.73	52.17	182.414		
6,700.00	6,505.83	6,635.53	6,436.08	30.19	24.96	-144.98	200.78	-9,384.05	9,530.20	9,477.86	52.35	182.062		
6,750.00	6,551.67	6,688.07	6,488.62	30.42	24.99	-152.01	200.47	-9,384.51	9,548.07	9,495.56	52.51	181.834		
6,800.00	6,596.17	6,700.00	6,500.54	30.64	24.99	-157.36	200.42	-9,384.63	9,569.62	9,516.95	52.68	181.672		
6,850.00	6,639.06	6,735.39	6,535.93	30.85	25.01	-161.63	200.19	-9,385.01	9,594.61	9,541.80	52.82	181.662 SF		
6,900.00	6,680.07	6,749.88	6,550.42	31.05	25.02	-165.11	200.12	-9,385.23	9,623.05	9,570.10	52.95	181.735		
6,950.00	6,718.96	6,763.55	6,564.08	31.24	25.03	-168.10	200.06	-9,385.48	9,654.67	9,601.60	53.07	181.919		
7,000.00	6,755.47	6,981.06	6,781.57	31.43	25.06	-170.99	200.39	-9,388.06	9,689.09	9,635.89	53.21	182.100		
7,050.00	6,789.40	7,000.00	6,800.51	31.61	25.06	-173.54	200.44	-9,388.09	9,725.71	9,672.39	53.32	182.397		
7,100.00	6,820.52	7,036.44	6,836.95	31.79	25.07	-176.12	200.46	-9,388.10	9,764.76	9,711.32	53.44	182.719		
7,150.00	6,848.64	7,050.07	6,850.58	31.97	25.08	-178.87	200.52	-9,388.15	9,806.15	9,752.63	53.52	183.226		
7,200.00	6,873.60	7,062.09	6,862.60	32.14	25.09	177.95	200.59	-9,388.21	9,849.57	9,795.99	53.58	183.834		
7,250.00	6,895.24	7,072.45	6,872.96	32.31	25.09	174.00	200.66	-9,388.28	9,894.73	9,841.11	53.62	184.539		
7,300.00	6,913.42	7,100.00	6,900.51	32.49	25.10	168.74	200.92	-9,388.53	9,941.39	9,887.73	53.66	185.260		
7,350.00	6,928.03	7,100.00	6,900.51	32.67	25.10	160.94	200.92	-9,388.53	9,989.14	9,935.48	53.66	186.162		
7,400.00	6,938.98	7,100.00	6,900.51	32.86	25.10	148.44	200.92	-9,388.53	10,037.76	9,984.12	53.64	187.132		
7,450.00	6,946.22	7,100.00	6,900.51	33.06	25.10	127.74	200.92	-9,388.53	10,086.94	10,033.33	53.61	188.160		
7,500.00	6,949.68	7,100.00	6,900.51	33.26	25.10	98.73	200.92	-9,388.53	10,136.37	10,082.81	53.56	189.236		
7,521.05	6,950.00	7,100.00	6,900.51	33.35	25.10	86.58	200.92	-9,388.53	10,157.18	10,103.64	53.54	189.701		
7,600.00	6,949.95	7,100.00	6,900.51	33.72	25.10	86.58	200.92	-9,388.53	10,235.19	10,181.73	53.46	191.452		
7,700.00	6,949.89	7,146.73	6,947.22	34.24	25.15	88.29	200.16	-9,388.61	10,333.92	10,280.38	53.54	193.010		
7,800.00	6,949.83	7,146.52	6,947.02	34.84	25.15	88.28	200.16	-9,388.61	10,432.77	10,379.33	53.44	195.211		
7,900.00	6,949.77	7,146.32	6,946.81	35.50	25.15	88.27	200.17	-9,388.61	10,531.65	10,478.30	53.35	197.406		
8,000.00	6,949.71	7,146.11	6,946.60	36.23	25.15	88.26	200.17	-9,388.61	10,630.55	10,577.29	53.26	199.594		
8,100.00	6,949.65	7,145.90	6,946.39	37.02	25.15	88.26	200.17	-9,388.61	10,729.47	10,676.29	53.18	201.777		
8,200.00	6,949.59	7,145.69	6,946.19	37.85	25.15	88.25	200.18	-9,388.61	10,828.41	10,775.31	53.09	203.952		
8,300.00	6,949.53	7,145.48	6,945.98	38.74	25.15	88.24	200.18	-9,388.61	10,927.36	10,874.35	53.01	206.121		
8,400.00	6,949.47	7,145.28	6,945.77	39.68	25.15	88.23	200.18	-9,388.60	11,026.34	10,973.40	52.94	208.283		
8,500.00	6,949.41	7,145.07	6,945.56	40.66	25.15	88.23	200.19	-9,388.60	11,125.34	11,072.47	52.87	210.438		
8,600.00	6,949.35	7,144.86	6,945.36	41.67	25.15	88.22	200.19	-9,388.60	11,224.35	11,171.55	52.80	212.586		
8,700.00	6,949.29	7,144.65	6,945.15	42.73	25.15	88.21	200.20	-9,388.60	11,323.38	11,270.64	52.73	214.727		
8,800.00	6,949.23	7,144.45	6,944.94	43.82	25.15	88.20	200.20	-9,388.60	11,422.42	11,369.75	52.67	216.861		
8,900.00	6,949.17	7,144.24	6,944.73	44.94	25.15	88.20	200.20	-9,388.60	11,521.49	11,468.88	52.61	218.987		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - OH - OH-SVY											Offset Site Error: 0.00 usft		
Survey Program: 100-MWD											Offset Well Error: 0.00 usft		
Rule Assigned:											Warning		
Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,949.11	7,144.03	6,944.53	46.09	25.15	88.19	200.21	-9,388.60	11,620.57	11,568.01	52.56	221.106	
9,100.00	6,949.05	7,143.82	6,944.32	47.26	25.15	88.18	200.21	-9,388.60	11,719.66	11,667.16	52.50	223.217	
9,200.00	6,948.99	7,143.62	6,944.11	48.46	25.15	88.17	200.21	-9,388.60	11,818.77	11,766.32	52.45	225.320	
9,300.00	6,948.93	7,143.41	6,943.90	49.68	25.15	88.17	200.22	-9,388.60	11,917.90	11,865.49	52.41	227.416	
9,400.00	6,948.87	7,143.20	6,943.70	50.93	25.14	88.16	200.22	-9,388.60	12,017.04	11,964.68	52.36	229.504	
9,500.00	6,948.81	7,142.99	6,943.49	52.19	25.14	88.15	200.22	-9,388.60	12,116.19	12,063.87	52.32	231.584	
9,600.00	6,948.75	7,142.79	6,943.28	53.47	25.14	88.14	200.23	-9,388.60	12,215.36	12,163.08	52.28	233.656	
9,700.00	6,948.69	7,142.58	6,943.07	54.77	25.14	88.14	200.23	-9,388.60	12,314.54	12,262.30	52.24	235.720	
9,800.00	6,948.63	7,142.37	6,942.87	56.08	25.14	88.13	200.23	-9,388.60	12,413.73	12,361.53	52.21	237.775	
9,900.00	6,948.57	7,142.16	6,942.66	57.41	25.14	88.12	200.24	-9,388.60	12,512.94	12,460.77	52.18	239.822	
10,000.00	6,948.51	7,141.95	6,942.45	58.76	25.14	88.11	200.24	-9,388.60	12,612.16	12,560.02	52.15	241.861	
10,100.00	6,948.45	7,141.75	6,942.24	60.11	25.14	88.10	200.24	-9,388.60	12,711.39	12,659.27	52.12	243.892	
10,200.00	6,948.39	7,141.54	6,942.03	61.48	25.14	88.10	200.25	-9,388.60	12,810.64	12,758.54	52.09	245.913	
10,300.00	6,948.33	7,141.33	6,941.83	62.86	25.14	88.09	200.25	-9,388.60	12,909.89	12,857.82	52.07	247.927	
10,400.00	6,948.27	7,141.12	6,941.62	64.24	25.14	88.08	200.25	-9,388.60	13,009.16	12,957.11	52.05	249.931	
10,500.00	6,948.21	7,140.92	6,941.41	65.64	25.14	88.07	200.26	-9,388.60	13,108.44	13,056.40	52.03	251.927	
10,600.00	6,948.15	7,140.71	6,941.20	67.05	25.14	88.07	200.26	-9,388.60	13,207.73	13,155.71	52.02	253.915	
10,700.00	6,948.09	7,140.50	6,941.00	68.47	25.14	88.06	200.26	-9,388.60	13,307.03	13,255.02	52.00	255.893	
10,800.00	6,948.03	7,140.29	6,940.79	69.89	25.14	88.05	200.27	-9,388.60	13,406.34	13,354.35	51.99	257.863	
10,900.00	6,947.97	7,140.09	6,940.58	71.32	25.14	88.04	200.27	-9,388.60	13,505.66	13,453.68	51.98	259.823	
11,000.00	6,947.91	7,139.88	6,940.37	72.76	25.14	88.04	200.27	-9,388.60	13,604.99	13,553.01	51.97	261.775	
11,100.00	6,947.85	7,139.67	6,940.17	74.21	25.14	88.03	200.28	-9,388.60	13,704.33	13,652.36	51.97	263.718	
11,200.00	6,947.79	7,139.46	6,939.96	75.66	25.14	88.02	200.28	-9,388.59	13,803.67	13,751.71	51.96	265.651	
11,300.00	6,947.73	7,139.25	6,939.75	77.12	25.14	88.01	200.28	-9,388.59	13,903.03	13,851.07	51.96	267.576	
11,400.00	6,947.66	7,139.05	6,939.54	78.58	25.14	88.01	200.29	-9,388.59	14,002.40	13,950.44	51.96	269.491	
11,500.00	6,947.60	7,138.84	6,939.34	80.05	25.14	88.00	200.29	-9,388.59	14,101.78	14,049.82	51.96	271.398	
11,600.00	6,947.54	7,138.63	6,939.13	81.52	25.14	87.99	200.29	-9,388.59	14,201.16	14,149.20	51.96	273.295	
11,700.00	6,947.48	7,138.42	6,938.92	83.00	25.14	87.98	200.30	-9,388.59	14,300.56	14,248.59	51.97	275.182	
11,800.00	6,947.42	7,138.22	6,938.71	84.48	25.14	87.98	200.30	-9,388.59	14,399.96	14,347.99	51.97	277.061	
11,900.00	6,947.36	7,138.01	6,938.51	85.97	25.14	87.97	200.30	-9,388.59	14,499.37	14,447.39	51.98	278.930	
12,000.00	6,947.30	7,137.80	6,938.30	87.46	25.14	87.96	200.31	-9,388.59	14,598.79	14,546.80	51.99	280.790	
12,100.00	6,947.24	7,137.59	6,938.09	88.96	25.14	87.95	200.31	-9,388.59	14,698.22	14,646.21	52.00	282.640	
12,200.00	6,947.18	7,137.39	6,937.88	90.46	25.14	87.95	200.31	-9,388.59	14,797.65	14,745.63	52.02	284.482	
12,300.00	6,947.12	7,137.18	6,937.68	91.96	25.14	87.94	200.32	-9,388.59	14,897.09	14,845.06	52.03	286.313	
12,400.00	6,947.06	7,136.97	6,937.47	93.47	25.14	87.93	200.32	-9,388.59	14,996.54	14,944.49	52.05	288.136	
12,500.00	6,947.00	7,136.76	6,937.26	94.97	25.14	87.92	200.32	-9,388.59	15,096.00	15,043.93	52.06	289.949	
12,600.00	6,946.94	7,136.56	6,937.05	96.49	25.14	87.92	200.33	-9,388.59	15,195.46	15,143.38	52.08	291.752	
12,700.00	6,946.88	7,136.35	6,936.84	98.00	25.14	87.91	200.33	-9,388.59	15,294.93	15,242.83	52.10	293.546	
12,800.00	6,946.82	7,136.14	6,936.64	99.52	25.14	87.90	200.33	-9,388.59	15,394.41	15,342.28	52.13	295.331	
12,900.00	6,946.76	7,135.93	6,936.43	101.04	25.14	87.89	200.34	-9,388.59	15,493.89	15,441.74	52.15	297.106	
13,000.00	6,946.70	7,135.72	6,936.22	102.56	25.14	87.88	200.34	-9,388.59	15,593.38	15,541.21	52.17	298.871	
13,100.00	6,946.64	7,135.52	6,936.01	104.09	25.14	87.88	200.34	-9,388.59	15,692.88	15,640.68	52.20	300.628	
13,200.00	6,946.58	7,135.31	6,935.81	105.61	25.14	87.87	200.35	-9,388.59	15,792.39	15,740.16	52.23	302.374	
13,300.00	6,946.52	7,135.10	6,935.60	107.14	25.14	87.86	200.35	-9,388.59	15,891.89	15,839.64	52.26	304.111	
13,400.00	6,946.46	7,134.89	6,935.39	108.67	25.14	87.85	200.35	-9,388.59	15,991.41	15,939.12	52.29	305.839	
13,500.00	6,946.40	7,134.69	6,935.18	110.21	25.14	87.85	200.36	-9,388.59	16,090.93	16,038.61	52.32	307.557	
13,600.00	6,946.34	7,134.48	6,934.98	111.74	25.14	87.84	200.36	-9,388.59	16,190.46	16,138.11	52.35	309.266	
13,700.00	6,946.28	7,134.27	6,934.77	113.28	25.14	87.83	200.36	-9,388.59	16,289.99	16,237.61	52.39	310.965	
13,800.00	6,946.22	7,134.06	6,934.56	114.82	25.14	87.82	200.37	-9,388.59	16,389.53	16,337.11	52.42	312.655	
13,900.00	6,946.16	7,133.86	6,934.35	116.36	25.14	87.82	200.37	-9,388.58	16,489.08	16,436.62	52.46	314.335	
14,000.00	6,946.10	7,133.65	6,934.15	117.90	25.14	87.81	200.37	-9,388.58	16,588.63	16,536.13	52.49	316.006	
14,100.00	6,946.04	7,133.44	6,933.94	119.45	25.14	87.80	200.38	-9,388.58	16,688.18	16,635.65	52.53	317.667	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - OH - OH-SVY													Offset Site Error:	0.00 usft	
Survey Program:		100-MWD		Offset		Semi Major Axis		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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
14,200.00	6,945.98	7,133.23	6,933.73	120.99	25.13	87.79	200.38	-9,388.58	16,787.75	16,735.17	52.57	319.319			
14,300.00	6,945.92	7,133.02	6,933.52	122.54	25.13	87.79	200.38	-9,388.58	16,887.31	16,834.70	52.61	320.961			
14,400.00	6,945.86	7,132.82	6,933.32	124.09	25.13	87.78	200.39	-9,388.58	16,986.88	16,934.23	52.66	322.594			
14,500.00	6,945.80	7,132.61	6,933.11	125.64	25.13	87.77	200.39	-9,388.58	17,086.46	17,033.76	52.70	324.217			
14,600.00	6,945.74	7,132.40	6,932.90	127.19	25.13	87.76	200.40	-9,388.58	17,186.04	17,133.30	52.75	325.831			
14,700.00	6,945.68	7,132.19	6,932.69	128.74	25.13	87.76	200.40	-9,388.58	17,285.63	17,232.84	52.79	327.436			
14,800.00	6,945.62	7,131.99	6,932.48	130.30	25.13	87.75	200.40	-9,388.58	17,385.22	17,332.38	52.84	329.032			
14,900.00	6,945.56	7,131.78	6,932.28	131.85	25.13	87.74	200.41	-9,388.58	17,484.81	17,431.93	52.89	330.618			
15,000.00	6,945.50	7,131.57	6,932.07	133.41	25.13	87.73	200.41	-9,388.58	17,584.41	17,531.48	52.93	332.194			
15,100.00	6,945.44	7,131.36	6,931.86	134.96	25.13	87.73	200.41	-9,388.58	17,684.02	17,631.03	52.98	333.762			
15,200.00	6,945.38	7,131.16	6,931.65	136.52	25.13	87.72	200.42	-9,388.58	17,783.63	17,730.59	53.03	335.320			
15,300.00	6,945.32	7,130.95	6,931.45	138.08	25.13	87.71	200.42	-9,388.58	17,883.24	17,830.15	53.09	336.869			
15,400.00	6,945.26	7,130.74	6,931.24	139.64	25.13	87.70	200.42	-9,388.58	17,982.86	17,929.72	53.14	338.408			
15,500.00	6,945.20	7,130.53	6,931.03	141.20	25.13	87.69	200.43	-9,388.58	18,082.48	18,029.29	53.19	339.939			
15,600.00	6,945.14	7,130.33	6,930.82	142.76	25.13	87.69	200.43	-9,388.58	18,182.11	18,128.86	53.25	341.460			
15,700.00	6,945.08	7,130.12	6,930.62	144.33	25.13	87.68	200.43	-9,388.58	18,281.74	18,228.43	53.30	342.972			
15,800.00	6,945.02	7,129.91	6,930.41	145.89	25.13	87.67	200.44	-9,388.58	18,381.37	18,328.01	53.36	344.475			
15,900.00	6,944.96	7,129.70	6,930.20	147.46	25.13	87.66	200.44	-9,388.58	18,481.01	18,427.59	53.42	345.969			
16,000.00	6,944.90	7,129.49	6,929.99	149.02	25.13	87.66	200.44	-9,388.58	18,580.65	18,527.17	53.48	347.453			
16,100.00	6,944.84	7,129.29	6,929.79	150.59	25.13	87.65	200.45	-9,388.58	18,680.30	18,626.76	53.54	348.929			
16,200.00	6,944.77	8,100.00	7,899.64	152.15	25.92	120.04	199.54	-9,366.06	18,779.87	18,724.29	55.57	337.925			
16,300.00	6,944.71	8,100.00	7,899.64	153.72	25.92	120.04	199.54	-9,366.06	18,879.40	18,823.77	55.64	339.332			
16,400.00	6,944.65	8,100.00	7,899.64	155.29	25.92	120.04	199.54	-9,366.06	18,978.95	18,923.25	55.70	340.732			
16,500.00	6,944.59	8,100.00	7,899.64	156.86	25.92	120.04	199.54	-9,366.06	19,078.49	19,022.73	55.77	342.123			
16,600.00	6,944.53	8,100.00	7,899.64	158.43	25.92	120.04	199.54	-9,366.06	19,178.04	19,122.21	55.83	343.506			
16,700.00	6,944.47	8,100.00	7,899.64	160.00	25.92	120.04	199.54	-9,366.06	19,277.60	19,221.70	55.90	344.881			
16,800.00	6,944.41	8,100.00	7,899.64	161.57	25.92	120.04	199.54	-9,366.06	19,377.16	19,321.20	55.96	346.248			
16,900.00	6,944.35	8,100.00	7,899.64	163.14	25.92	120.04	199.54	-9,366.06	19,476.73	19,420.70	56.03	347.606			
17,000.00	6,944.29	8,100.00	7,899.64	164.71	25.92	120.04	199.54	-9,366.06	19,576.30	19,520.20	56.10	348.957			
17,100.00	6,944.23	8,100.00	7,899.64	166.29	25.92	120.04	199.54	-9,366.06	19,675.87	19,619.70	56.17	350.300			
17,200.00	6,944.17	8,100.00	7,899.64	167.86	25.92	120.04	199.54	-9,366.06	19,775.45	19,719.21	56.24	351.635			
17,300.00	6,944.11	8,100.00	7,899.64	169.43	25.92	120.04	199.54	-9,366.06	19,875.03	19,818.72	56.31	352.962			
17,400.00	6,944.05	8,100.00	7,899.64	171.01	25.92	120.04	199.54	-9,366.06	19,974.62	19,918.24	56.38	354.282			
17,500.00	6,943.99	8,100.00	7,899.64	172.58	25.92	120.04	199.54	-9,366.06	20,074.21	20,017.76	56.45	355.593			
17,600.00	6,943.93	8,100.00	7,899.64	174.16	25.92	120.04	199.54	-9,366.06	20,173.81	20,117.28	56.53	356.896			
17,700.00	6,943.87	8,100.00	7,899.64	175.73	25.92	120.04	199.54	-9,366.06	20,273.41	20,216.81	56.60	358.192			
17,800.00	6,943.81	8,100.00	7,899.64	177.31	25.92	120.04	199.54	-9,366.06	20,373.01	20,316.34	56.67	359.480			
17,900.00	6,943.75	8,100.00	7,899.64	178.89	25.92	120.04	199.54	-9,366.06	20,472.62	20,415.87	56.75	360.761			
18,000.00	6,943.69	8,100.00	7,899.64	180.46	25.92	120.04	199.54	-9,366.06	20,572.23	20,515.40	56.82	362.034			
18,100.00	6,943.63	8,100.00	7,899.64	182.04	25.92	120.04	199.54	-9,366.06	20,671.84	20,614.94	56.90	363.299			
18,200.00	6,943.57	8,100.00	7,899.64	183.62	25.92	120.04	199.54	-9,366.06	20,771.46	20,714.48	56.98	364.556			
18,300.00	6,943.51	8,100.00	7,899.64	185.20	25.92	120.04	199.54	-9,366.06	20,871.08	20,814.03	57.06	365.806			
18,400.00	6,943.45	8,100.00	7,899.64	186.78	25.92	120.04	199.54	-9,366.06	20,970.71	20,913.57	57.13	367.049			
18,500.00	6,943.39	8,100.00	7,899.64	188.36	25.92	120.04	199.54	-9,366.06	21,070.34	21,013.12	57.21	368.284			
18,600.00	6,943.33	8,100.00	7,899.64	189.94	25.92	120.04	199.54	-9,366.06	21,169.97	21,112.68	57.29	369.511			
18,700.00	6,943.27	8,100.00	7,899.64	191.52	25.92	120.04	199.54	-9,366.06	21,269.60	21,212.23	57.37	370.731			
18,800.00	6,943.21	8,100.00	7,899.64	193.10	25.92	120.04	199.54	-9,366.06	21,369.24	21,311.79	57.45	371.944			
18,900.00	6,943.15	8,100.00	7,899.64	194.68	25.92	120.04	199.54	-9,366.06	21,468.89	21,411.35	57.53	373.150			
19,000.00	6,943.09	8,100.00	7,899.64	196.26	25.92	120.04	199.54	-9,366.06	21,568.53	21,510.92	57.62	374.348			
19,100.00	6,943.03	8,100.00	7,899.64	197.84	25.92	120.04	199.54	-9,366.06	21,668.18	21,610.48	57.70	375.539			
19,200.00	6,942.97	8,100.00	7,899.64	199.42	25.92	120.04	199.54	-9,366.06	21,767.83	21,710.05	57.78	376.723			
19,300.00	6,942.91	8,100.00	7,899.64	201.01	25.92	120.04	199.54	-9,366.06	21,867.49	21,809.62	57.87	377.899			

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 100-MWD													Offset Well Error:	0.00 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		
19,400.00	6,942.85	8,100.00	7,899.64	202.59	25.92	120.04	199.54	-9,366.06	21,967.15	21,909.20	57.95	379.068		
19,500.00	6,942.79	8,100.00	7,899.64	204.17	25.92	120.04	199.54	-9,366.06	22,066.81	22,008.78	58.04	380.231		
19,600.00	6,942.73	8,100.00	7,899.64	205.75	25.92	120.04	199.54	-9,366.06	22,166.48	22,108.35	58.12	381.386		
19,700.00	6,942.67	8,100.00	7,899.64	207.34	25.92	120.04	199.54	-9,366.06	22,266.14	22,207.94	58.21	382.534		
19,800.00	6,942.61	8,100.00	7,899.64	208.92	25.92	120.04	199.54	-9,366.06	22,365.81	22,307.52	58.29	383.675		
19,900.00	6,942.55	8,100.00	7,899.64	210.51	25.92	120.04	199.54	-9,366.06	22,465.49	22,407.11	58.38	384.810		
20,000.00	6,942.49	8,100.00	7,899.64	212.09	25.92	120.04	199.54	-9,366.06	22,565.17	22,506.70	58.47	385.937		
20,100.00	6,942.43	8,100.00	7,899.64	213.68	25.92	120.04	199.54	-9,366.06	22,664.84	22,606.29	58.56	387.058		
20,200.00	6,942.37	8,100.00	7,899.64	215.26	25.92	120.04	199.54	-9,366.06	22,764.53	22,705.88	58.65	388.171		
20,300.00	6,942.31	8,100.00	7,899.64	216.85	25.92	120.04	199.54	-9,366.06	22,864.21	22,805.48	58.73	389.278		
20,400.00	6,942.25	8,100.00	7,899.64	218.43	25.92	120.04	199.54	-9,366.06	22,963.90	22,905.08	58.82	390.378		
20,500.00	6,942.19	8,100.00	7,899.64	220.02	25.92	120.04	199.54	-9,366.06	23,063.59	23,004.68	58.92	391.472		
20,600.00	6,942.13	8,100.00	7,899.64	221.60	25.92	120.04	199.54	-9,366.06	23,163.28	23,104.28	59.01	392.559		
20,700.00	6,942.07	8,100.00	7,899.64	223.19	25.92	120.04	199.54	-9,366.06	23,262.98	23,203.88	59.10	393.639		
20,808.89	6,942.00	8,100.00	7,899.64	224.92	25.92	120.04	199.54	-9,366.06	23,371.54	23,312.34	59.20	394.807		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - ST01 - ST01-SVY													Offset Site Error: 0.00 usft
Survey Program: 100-MWD, 3901-MWD													Offset Well Error: 0.00 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	2,963.24	2,786.96	0.00	19.07	-88.01	332.63	-9,594.74	9,986.32				
100.00	100.00	3,000.00	2,822.02	0.25	19.26	-88.04	327.34	-9,585.06	9,959.14	9,941.99	17.14	580.951	
200.00	200.00	3,083.98	2,902.19	0.61	19.68	-88.11	315.16	-9,563.22	9,932.39	9,914.63	17.75	559.444	
300.00	300.00	3,100.00	2,917.47	0.97	19.76	-88.13	312.76	-9,559.04	9,905.89	9,887.80	18.09	547.589	
400.00	400.00	3,100.00	2,917.47	1.33	19.76	-88.13	312.76	-9,559.04	9,880.32	9,861.94	18.38	537.502	
500.00	500.00	3,151.18	2,966.47	1.68	20.00	-88.17	305.47	-9,546.21	9,854.99	9,836.01	18.98	519.121	
600.00	599.98	3,200.00	3,013.57	2.04	20.22	-89.93	299.27	-9,534.97	9,830.98	9,811.40	19.58	502.045	
700.00	699.84	3,200.00	3,013.57	2.41	20.22	-90.42	299.27	-9,534.97	9,807.28	9,787.37	19.91	492.565	
800.00	799.45	3,200.00	3,013.57	2.77	20.22	-90.89	299.27	-9,534.97	9,784.57	9,764.33	20.25	483.265	
900.00	898.70	3,200.00	3,013.57	3.13	20.22	-91.33	299.27	-9,534.97	9,762.89	9,742.30	20.59	474.105	
1,000.00	997.47	3,200.00	3,013.57	3.50	20.22	-91.75	299.27	-9,534.97	9,742.26	9,721.31	20.95	465.033	
1,100.00	1,095.62	3,248.23	3,060.44	3.89	20.40	-92.24	293.83	-9,524.96	9,721.96	9,700.37	21.58	450.429	
1,200.00	1,193.06	3,300.00	3,111.09	4.30	20.60	-92.73	288.68	-9,515.60	9,703.46	9,681.21	22.25	436.021	
1,245.21	1,236.83	3,300.00	3,111.09	4.48	20.60	-92.90	288.68	-9,515.60	9,695.08	9,672.64	22.44	432.100	
1,300.00	1,289.78	3,300.00	3,111.09	4.72	20.60	-92.90	288.68	-9,515.60	9,685.22	9,662.56	22.66	427.355	
1,400.00	1,386.42	3,300.00	3,111.09	5.15	20.60	-92.90	288.68	-9,515.60	9,667.99	9,644.91	23.08	418.808	
1,500.00	1,483.05	3,300.00	3,111.09	5.59	20.60	-92.90	288.68	-9,515.60	9,651.77	9,628.26	23.51	410.475	
1,600.00	1,579.69	3,300.00	3,111.09	6.04	20.60	-92.90	288.68	-9,515.60	9,636.56	9,612.61	23.95	402.386	
1,700.00	1,676.32	3,352.69	3,162.91	6.49	20.75	-93.01	284.09	-9,507.26	9,621.75	9,597.12	24.63	390.718	
1,800.00	1,772.96	3,400.00	3,209.60	6.94	20.89	-93.11	280.47	-9,500.56	9,608.10	9,582.82	25.28	380.034	
1,900.00	1,869.60	3,400.00	3,209.60	7.40	20.89	-93.11	280.47	-9,500.56	9,594.98	9,569.25	25.73	372.938	
2,000.00	1,966.23	3,466.18	3,275.04	7.86	21.06	-93.24	275.97	-9,491.76	9,582.61	9,556.17	26.44	362.386	
2,100.00	2,062.87	3,500.00	3,308.50	8.33	21.15	-93.30	273.84	-9,487.29	9,570.63	9,543.60	27.03	354.084	
2,200.00	2,159.50	3,500.00	3,308.50	8.79	21.15	-93.30	273.84	-9,487.29	9,559.61	9,532.13	27.48	347.877	
2,300.00	2,256.14	3,554.96	3,362.95	9.26	21.28	-93.41	270.60	-9,480.58	9,548.93	9,520.78	28.15	339.164	
2,400.00	2,352.77	3,600.00	3,407.67	9.73	21.38	-93.49	268.10	-9,475.88	9,539.46	9,510.67	28.79	331.357	
2,500.00	2,449.41	3,600.00	3,407.67	10.20	21.38	-93.49	268.10	-9,475.88	9,530.56	9,501.32	29.24	325.934	
2,600.00	2,546.05	3,600.00	3,407.67	10.67	21.38	-93.49	268.10	-9,475.88	9,522.71	9,493.02	29.69	320.719	
2,700.00	2,642.68	3,652.71	3,460.11	11.14	21.47	-93.59	265.54	-9,471.16	9,515.40	9,485.06	30.34	313.634	
2,800.00	2,739.32	3,700.00	3,507.22	11.61	21.56	-93.67	263.73	-9,467.53	9,509.03	9,478.07	30.97	307.080	
2,900.00	2,835.95	3,700.00	3,507.22	12.08	21.56	-93.67	263.73	-9,467.53	9,503.32	9,471.90	31.41	302.510	
3,000.00	2,932.59	3,736.44	3,543.57	12.55	21.60	-93.74	262.55	-9,465.13	9,498.41	9,466.42	31.98	296.982	
3,100.00	3,029.22	3,764.38	3,571.45	13.03	21.64	-93.78	261.69	-9,463.52	9,494.28	9,461.76	32.52	291.932	
3,200.00	3,125.86	3,800.00	3,607.01	13.50	21.69	-93.85	260.66	-9,461.76	9,490.94	9,457.85	33.09	286.858	
3,300.00	3,222.50	3,800.00	3,607.01	13.97	21.69	-93.85	260.66	-9,461.76	9,488.42	9,454.89	33.53	282.992	
3,400.00	3,319.13	3,800.00	3,607.01	14.45	21.69	-93.85	260.66	-9,461.76	9,486.95	9,452.98	33.97	279.278	
3,500.00	3,415.77	3,857.66	3,664.62	14.92	21.74	-93.94	259.33	-9,459.80	9,485.74	9,451.19	34.55	274.512	
3,600.00	3,512.40	4,672.00	4,474.15	15.40	22.76	-95.39	229.50	-9,407.26	9,479.20	9,443.19	36.01	263.237	
3,700.00	3,609.04	4,735.00	4,536.74	15.88	22.84	-95.51	225.81	-9,401.03	9,471.81	9,435.28	36.53	259.270	
3,800.00	3,705.67	4,846.61	4,647.66	16.35	22.99	-95.73	220.10	-9,390.12	9,464.57	9,427.47	37.10	255.076	
3,900.00	3,802.31	4,862.00	4,662.97	16.83	23.01	-95.75	219.56	-9,388.67	9,457.78	9,420.20	37.58	251.662	
4,000.00	3,898.95	4,894.00	4,694.84	17.30	23.04	-95.81	218.51	-9,386.02	9,451.89	9,413.82	38.07	248.266	
4,100.00	3,995.58	4,894.00	4,694.84	17.78	23.04	-95.81	218.51	-9,386.02	9,446.81	9,408.28	38.53	245.187	
4,200.00	4,092.22	4,926.00	4,726.76	18.26	23.07	-95.87	217.57	-9,383.88	9,442.68	9,403.67	39.02	242.020	
4,300.00	4,188.85	4,926.00	4,726.76	18.73	23.07	-95.87	217.57	-9,383.88	9,439.39	9,399.92	39.47	239.161	
4,400.00	4,285.49	4,946.00	4,746.72	19.21	23.08	-95.90	216.98	-9,382.84	9,437.05	9,397.11	39.94	236.290	
4,500.00	4,382.12	4,991.22	4,791.88	19.69	23.12	-95.98	215.75	-9,380.88	9,435.48	9,395.04	40.44	233.337	
4,600.00	4,478.76	5,022.00	4,822.63	20.17	23.14	-96.03	215.16	-9,379.68	9,434.50	9,393.59	40.92	230.587	
4,684.69	4,560.60	5,039.18	4,839.81	20.57	23.15	-96.06	214.89	-9,379.15	9,434.33	9,393.02	41.31	228.389 CC	
4,700.00	4,575.40	5,041.86	4,842.48	20.64	23.15	-96.06	214.85	-9,379.08	9,434.36	9,392.98	41.38	228.001	
4,800.00	4,672.03	5,064.00	4,864.61	21.12	23.16	-96.10	214.48	-9,378.62	9,435.11	9,393.26	41.84	225.492	
4,900.00	4,768.67	5,149.36	4,949.95	21.60	23.65	-96.24	212.94	-9,377.26	9,436.45	9,393.59	42.86	220.158	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - ST01 - ST01-SVY													Offset Site Error:	0.00 usft
Survey Program:		100-MWD, 3901-MWD					Rule Assigned:				Offset Well Error:	0.00 usft		
Reference	Offset	Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre		Distance			Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)	Separation Factor	
5,000.00	4,865.30	5,265.46	5,066.01	22.08	24.31	-96.44	210.57	-9,375.15	9,437.71	9,393.62	44.09	214.051		
5,100.00	4,961.94	5,381.38	5,181.87	22.55	24.97	-96.64	207.89	-9,372.78	9,438.85	9,393.53	45.32	208.280		
5,200.00	5,058.57	5,492.05	5,292.47	23.03	25.66	-96.82	205.06	-9,370.27	9,439.88	9,393.32	46.56	202.732		
5,300.00	5,155.21	5,593.45	5,393.81	23.51	26.39	-97.00	202.35	-9,367.87	9,440.91	9,393.07	47.84	197.324		
5,400.00	5,251.85	5,694.80	5,495.09	23.99	27.13	-97.17	199.57	-9,365.40	9,441.97	9,392.85	49.13	192.201		
5,500.00	5,348.48	5,796.11	5,596.33	24.47	27.87	-97.35	196.71	-9,362.86	9,443.06	9,392.65	50.41	187.339		
5,600.00	5,445.12	5,897.37	5,697.51	24.94	28.61	-97.52	193.77	-9,360.26	9,444.18	9,392.49	51.69	182.721		
5,700.00	5,541.75	5,982.93	5,783.01	25.42	29.51	-97.67	191.32	-9,358.08	9,445.41	9,392.29	53.12	177.803		
5,800.00	5,638.39	6,067.82	5,867.84	25.90	30.42	-97.82	189.01	-9,356.04	9,446.83	9,392.26	54.57	173.118 ES		
5,900.00	5,735.02	6,152.79	5,952.76	26.38	31.33	-97.96	186.83	-9,354.10	9,448.45	9,392.44	56.02	168.675		
6,000.00	5,831.66	6,237.84	6,037.77	26.86	32.25	-98.11	184.78	-9,352.28	9,450.27	9,392.81	57.46	164.456		
6,100.00	5,928.30	6,322.96	6,122.85	27.34	33.17	-98.25	182.85	-9,350.57	9,452.28	9,393.36	58.91	160.444		
6,200.00	6,024.93	6,408.17	6,208.03	27.82	34.09	-98.39	181.05	-9,348.98	9,454.48	9,394.12	60.36	156.625		
6,300.00	6,121.57	6,498.83	6,298.65	28.29	34.61	-98.55	179.26	-9,347.39	9,456.86	9,395.47	61.39	154.053		
6,400.00	6,218.20	6,594.94	6,394.73	28.77	34.71	-98.71	177.38	-9,345.72	9,459.33	9,397.35	61.98	152.624		
6,500.00	6,314.84	6,680.23	6,479.99	29.25	34.78	-98.85	175.73	-9,344.26	9,461.90	9,399.37	62.54	151.297		
6,521.58	6,335.69	6,695.23	6,494.99	29.36	34.79	-98.87	175.47	-9,344.02	9,462.50	9,399.85	62.65	151.037		
6,550.00	6,363.15	6,715.00	6,514.76	29.49	34.80	-108.43	175.14	-9,343.73	9,463.93	9,401.13	62.80	150.709		
6,600.00	6,411.28	6,749.72	6,549.46	29.73	34.82	-123.78	174.61	-9,343.26	9,469.54	9,406.49	63.05	150.194		
6,650.00	6,458.93	6,788.79	6,588.53	29.96	34.86	-136.10	174.08	-9,342.80	9,479.07	9,415.76	63.31	149.721		
6,700.00	6,505.83	6,835.65	6,635.39	30.19	34.91	-145.45	173.47	-9,342.26	9,492.40	9,428.81	63.59	149.266		
6,750.00	6,551.67	6,881.51	6,681.24	30.42	34.97	-152.48	172.87	-9,341.72	9,509.44	9,445.57	63.86	148.900		
6,800.00	6,596.17	6,926.08	6,725.80	30.64	35.03	-157.87	172.29	-9,341.21	9,530.07	9,465.95	64.12	148.627		
6,850.00	6,639.06	6,969.09	6,768.81	30.85	35.08	-162.14	171.73	-9,340.71	9,554.16	9,489.80	64.36	148.446		
6,900.00	6,680.07	7,010.27	6,809.98	31.05	35.13	-165.66	171.19	-9,340.23	9,581.57	9,516.98	64.59	148.349		
6,950.00	6,718.96	7,049.36	6,849.07	31.24	35.20	-168.68	170.68	-9,339.78	9,612.12	9,547.32	64.81	148.322 SF		
7,000.00	6,755.47	7,086.14	6,885.83	31.43	35.25	-171.39	170.20	-9,339.36	9,645.62	9,580.62	65.00	148.388		
7,050.00	6,789.40	7,120.36	6,920.05	31.61	35.31	-173.97	169.75	-9,338.96	9,681.87	9,616.69	65.18	148.547		
7,100.00	6,820.52	7,151.82	6,951.50	31.79	35.36	-176.55	169.34	-9,338.59	9,720.64	9,655.31	65.33	148.795		
7,150.00	6,848.64	7,180.32	6,980.00	31.97	35.40	-179.31	168.97	-9,338.26	9,761.68	9,696.22	65.46	149.131		
7,200.00	6,873.60	7,205.69	7,005.37	32.14	35.44	-177.53	168.64	-9,337.97	9,804.75	9,739.19	65.56	149.552		
7,250.00	6,895.24	7,227.78	7,027.45	32.31	35.48	-173.66	168.35	-9,337.72	9,849.58	9,783.94	65.64	150.054		
7,300.00	6,913.42	7,246.44	7,046.11	32.49	35.51	-168.54	168.11	-9,337.50	9,895.89	9,830.19	65.70	150.633		
7,350.00	6,928.03	7,262.86	7,062.53	32.67	35.53	-161.21	167.89	-9,337.31	9,943.40	9,877.67	65.73	151.274		
7,400.00	6,938.98	7,280.24	7,079.90	32.86	35.57	-149.94	167.66	-9,337.10	9,991.81	9,926.06	65.76	151.948		
7,450.00	6,946.22	7,292.10	7,091.77	33.06	35.59	-131.82	167.49	-9,336.95	10,040.84	9,975.08	65.76	152.696		
7,500.00	6,949.68	7,298.34	7,098.01	33.26	35.60	-105.62	167.39	-9,336.87	10,090.17	10,024.44	65.73	153.510		
7,521.05	6,950.00	7,299.26	7,098.93	33.35	35.61	-93.76	167.38	-9,336.85	10,110.96	10,045.25	65.71	153.871		
7,600.00	6,949.95	7,300.82	7,100.48	33.72	35.61	-93.81	167.36	-9,336.83	10,188.92	10,123.29	65.63	155.246		
7,700.00	6,949.89	7,302.81	7,102.47	34.24	35.61	-93.88	167.33	-9,336.81	10,287.69	10,222.16	65.53	156.982		
7,800.00	6,949.83	7,304.82	7,104.49	34.84	35.62	-93.96	167.30	-9,336.78	10,386.48	10,321.04	65.44	158.714		
7,900.00	6,949.77	7,306.86	7,106.53	35.50	35.62	-94.03	167.27	-9,336.75	10,485.30	10,419.95	65.35	160.441		
8,000.00	6,949.71	7,308.93	7,108.60	36.23	35.62	-94.10	167.23	-9,336.72	10,584.14	10,518.87	65.27	162.163		
8,100.00	6,949.65	7,311.03	7,110.69	37.02	35.63	-94.18	167.20	-9,336.70	10,683.00	10,617.81	65.19	163.881		
8,200.00	6,949.59	7,313.15	7,112.81	37.85	35.63	-94.25	167.17	-9,336.67	10,781.87	10,716.76	65.11	165.593		
8,300.00	6,949.53	7,315.31	7,114.97	38.74	35.64	-94.33	167.14	-9,336.64	10,880.77	10,815.74	65.04	167.300		
8,400.00	6,949.47	7,317.49	7,117.15	39.68	35.64	-94.41	167.10	-9,336.61	10,979.69	10,914.73	64.97	169.002		
8,500.00	6,949.41	7,319.70	7,119.36	40.66	35.65	-94.49	167.07	-9,336.58	11,078.63	11,013.73	64.90	170.698		
8,600.00	6,949.35	7,321.94	7,121.60	41.67	35.65	-94.57	167.03	-9,336.54	11,177.59	11,112.75	64.84	172.390		
8,700.00	6,949.29	7,324.21	7,123.87	42.73	35.65	-94.65	166.99	-9,336.51	11,276.56	11,211.78	64.78	174.075		
8,800.00	6,949.23	7,326.51	7,126.17	43.82	35.66	-94.73	166.96	-9,336.48	11,375.56	11,310.83	64.72	175.756		
8,900.00	6,949.17	7,328.85	7,128.50	44.94	35.66	-94.81	166.92	-9,336.44	11,474.57	11,409.90	64.67	177.430		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - ST01 - ST01-SVY											Offset Site Error: 0.00 usft		
Survey Program: 100-MWD, 3901-MWD							Rule Assigned:				Offset Well Error: 0.00 usft		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,949.11	7,331.21	7,130.87	46.09	35.67	94.89	166.88	-9,336.41	11,573.59	11,508.97	64.62	179.099	
9,100.00	6,949.05	7,333.62	7,133.27	47.26	35.67	94.98	166.84	-9,336.38	11,672.64	11,608.06	64.57	180.763	
9,200.00	6,948.99	7,336.05	7,135.71	48.46	35.68	95.07	166.80	-9,336.34	11,771.70	11,707.17	64.53	182.420	
9,300.00	6,948.93	7,338.52	7,138.17	49.68	35.68	95.15	166.76	-9,336.30	11,870.77	11,806.28	64.49	184.072	
9,400.00	6,948.87	7,341.02	7,140.68	50.93	35.69	95.24	166.72	-9,336.27	11,969.86	11,905.41	64.45	185.717	
9,500.00	6,948.81	7,343.57	7,143.22	52.19	35.69	95.33	166.67	-9,336.23	12,068.96	12,004.55	64.42	187.357	
9,600.00	6,948.75	7,346.14	7,145.80	53.47	35.70	95.42	166.63	-9,336.19	12,168.08	12,103.70	64.38	188.991	
9,700.00	6,948.69	7,348.76	7,148.41	54.77	35.70	95.52	166.59	-9,336.15	12,267.22	12,202.86	64.35	190.618	
9,800.00	6,948.63	7,351.42	7,151.07	56.08	35.71	95.61	166.54	-9,336.11	12,366.36	12,302.03	64.33	192.240	
9,900.00	6,948.57	7,354.11	7,153.76	57.41	35.71	95.71	166.49	-9,336.07	12,465.52	12,401.22	64.30	193.855	
10,000.00	6,948.51	7,356.85	7,156.50	58.76	35.72	95.80	166.45	-9,336.02	12,564.69	12,500.41	64.28	195.463	
10,100.00	6,948.45	7,359.62	7,159.27	60.11	35.72	95.90	166.40	-9,335.98	12,663.88	12,599.62	64.26	197.066	
10,200.00	6,948.39	7,362.44	7,162.09	61.48	35.73	96.00	166.35	-9,335.94	12,763.08	12,698.83	64.25	198.662	
10,300.00	6,948.33	7,365.31	7,164.95	62.86	35.73	96.10	166.30	-9,335.89	12,862.29	12,798.06	64.23	200.252	
10,400.00	6,948.27	7,368.21	7,167.86	64.24	35.74	96.21	166.24	-9,335.84	12,961.51	12,897.29	64.22	201.835	
10,500.00	6,948.21	7,371.17	7,170.81	65.64	35.75	96.31	166.19	-9,335.80	13,060.74	12,996.53	64.21	203.411	
10,600.00	6,948.15	7,374.16	7,173.81	67.05	35.75	96.42	166.13	-9,335.75	13,159.99	13,095.78	64.20	204.981	
10,700.00	6,948.09	7,377.21	7,176.85	68.47	35.76	96.52	166.08	-9,335.70	13,259.24	13,195.05	64.20	206.545	
10,800.00	6,948.03	7,380.31	7,179.95	69.89	35.76	96.63	166.02	-9,335.65	13,358.51	13,294.31	64.19	208.101	
10,900.00	6,947.97	7,383.45	7,183.09	71.32	35.77	96.74	165.96	-9,335.60	13,457.78	13,393.59	64.19	209.651	
11,000.00	6,947.91	7,386.65	7,186.29	72.76	35.78	96.86	165.90	-9,335.54	13,557.07	13,492.88	64.19	211.194	
11,100.00	6,947.85	7,389.90	7,189.54	74.21	35.78	96.97	165.84	-9,335.49	13,656.37	13,592.17	64.20	212.731	
11,200.00	6,947.79	7,393.20	7,192.84	75.66	35.79	97.09	165.78	-9,335.43	13,755.67	13,691.47	64.20	214.260	
11,300.00	6,947.73	7,396.56	7,196.20	77.12	35.80	97.21	165.71	-9,335.37	13,854.99	13,790.78	64.21	215.783	
11,400.00	6,947.66	7,399.97	7,199.61	78.58	35.80	97.33	165.64	-9,335.31	13,954.32	13,890.10	64.22	217.298	
11,500.00	6,947.60	7,403.44	7,203.08	80.05	35.81	97.45	165.58	-9,335.25	14,053.65	13,989.42	64.23	218.807	
11,600.00	6,947.54	7,406.97	7,206.61	81.52	35.82	97.57	165.51	-9,335.19	14,152.99	14,088.75	64.24	220.308	
11,700.00	6,947.48	7,410.57	7,210.20	83.00	35.82	97.70	165.44	-9,335.13	14,252.35	14,188.09	64.26	221.803	
11,800.00	6,947.42	7,414.22	7,213.85	84.48	35.83	97.83	165.36	-9,335.06	14,351.71	14,287.43	64.27	223.290	
11,900.00	6,947.36	7,417.94	7,217.57	85.97	35.84	97.96	165.29	-9,335.00	14,451.08	14,386.78	64.29	224.770	
12,000.00	6,947.30	7,421.73	7,221.35	87.46	35.84	98.09	165.21	-9,334.93	14,550.45	14,486.14	64.31	226.243	
12,100.00	6,947.24	7,425.58	7,225.20	88.96	35.85	98.22	165.13	-9,334.86	14,649.84	14,585.50	64.34	227.709	
12,200.00	6,947.18	7,429.50	7,229.13	90.46	35.86	98.36	165.05	-9,334.78	14,749.23	14,684.87	64.36	229.167	
12,300.00	6,947.12	7,433.49	7,233.12	91.96	35.87	98.50	164.96	-9,334.71	14,848.63	14,784.25	64.39	230.618	
12,400.00	6,947.06	7,437.56	7,237.18	93.47	35.88	98.64	164.88	-9,334.63	14,948.04	14,883.63	64.41	232.062	
12,500.00	6,947.00	7,441.70	7,241.32	94.97	35.88	98.79	164.79	-9,334.56	15,047.46	14,983.01	64.44	233.498	
12,600.00	6,946.94	7,445.92	7,245.54	96.49	35.89	98.93	164.70	-9,334.47	15,146.88	15,082.41	64.47	234.927	
12,700.00	6,946.88	7,450.22	7,249.84	98.00	35.90	99.08	164.60	-9,334.39	15,246.31	15,181.80	64.51	236.348	
12,800.00	6,946.82	7,454.60	7,254.21	99.52	35.91	99.23	164.51	-9,334.31	15,345.75	15,281.20	64.54	237.762	
12,900.00	6,946.76	7,459.06	7,258.68	101.04	35.92	99.39	164.41	-9,334.22	15,445.19	15,380.61	64.58	239.169	
13,000.00	6,946.70	7,463.61	7,263.23	102.56	35.93	99.55	164.31	-9,334.13	15,544.64	15,480.02	64.62	240.567	
13,100.00	6,946.64	7,468.26	7,267.87	104.09	35.94	99.71	164.20	-9,334.03	15,644.10	15,579.44	64.66	241.959	
13,200.00	6,946.58	7,472.99	7,272.60	105.61	35.95	99.87	164.09	-9,333.94	15,743.56	15,678.86	64.70	243.342	
13,300.00	6,946.52	7,477.82	7,277.42	107.14	35.96	100.04	163.98	-9,333.84	15,843.03	15,778.29	64.74	244.718	
13,400.00	6,946.46	7,482.74	7,282.34	108.67	35.96	100.21	163.87	-9,333.74	15,942.50	15,877.72	64.78	246.086	
13,500.00	6,946.40	7,487.77	7,287.37	110.21	35.97	100.38	163.75	-9,333.63	16,041.99	15,977.16	64.83	247.446	
13,600.00	6,946.34	7,492.90	7,292.49	111.74	35.98	100.56	163.63	-9,333.53	16,141.47	16,076.59	64.88	248.798	
13,700.00	6,946.28	7,498.13	7,297.73	113.28	36.00	100.74	163.50	-9,333.41	16,240.96	16,176.04	64.93	250.143	
13,800.00	6,946.22	7,503.48	7,303.07	114.82	36.01	100.92	163.37	-9,333.30	16,340.46	16,275.48	64.98	251.479	
13,900.00	6,946.16	7,508.94	7,308.53	116.36	36.02	101.11	163.24	-9,333.18	16,439.97	16,374.94	65.03	252.808	
14,000.00	6,946.10	7,514.51	7,314.10	117.90	36.03	101.30	163.10	-9,333.06	16,539.47	16,474.39	65.08	254.129	
14,100.00	6,946.04	7,520.21	7,319.80	119.45	36.04	101.50	162.96	-9,332.93	16,638.99	16,573.85	65.14	255.441	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - ST01 - ST01-SVY											Offset Site Error: 0.00 usft		
Survey Program: 100-MWD, 3901-MWD							Rule Assigned:				Offset Well Error: 0.00 usft		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,200.00	6,945.98	7,526.04	7,325.62	120.99	36.05	101.69	162.81	-9,332.80	16,738.51	16,673.31	65.19	256.746	
14,300.00	6,945.92	7,531.99	7,331.57	122.54	36.06	101.90	162.66	-9,332.67	16,838.03	16,772.78	65.25	258.042	
14,400.00	6,945.86	7,538.08	7,337.65	124.09	36.07	102.10	162.50	-9,332.53	16,937.56	16,872.25	65.31	259.330	
14,500.00	6,945.80	7,544.30	7,343.87	125.64	36.09	102.32	162.34	-9,332.38	17,037.09	16,971.72	65.37	260.609	
14,600.00	6,945.74	7,550.67	7,350.24	127.19	36.10	102.53	162.17	-9,332.24	17,136.63	17,071.19	65.44	261.881	
14,700.00	6,945.68	7,557.19	7,356.75	128.74	36.11	102.75	162.00	-9,332.08	17,236.17	17,170.67	65.50	263.144	
14,800.00	6,945.62	7,563.86	7,363.41	130.30	36.13	102.98	161.82	-9,331.92	17,335.72	17,270.15	65.57	264.398	
14,900.00	6,945.56	7,570.69	7,370.24	131.85	36.14	103.21	161.63	-9,331.76	17,435.27	17,369.63	65.63	265.644	
15,000.00	6,945.50	7,577.68	7,377.23	133.41	36.15	103.44	161.44	-9,331.59	17,534.82	17,469.12	65.70	266.881	
15,100.00	6,945.44	7,584.84	7,384.39	134.96	36.17	103.68	161.24	-9,331.41	17,634.38	17,568.61	65.77	268.110	
15,200.00	6,945.38	7,592.18	7,391.72	136.52	36.18	103.93	161.03	-9,331.22	17,733.95	17,668.10	65.84	269.330	
15,300.00	6,945.32	7,599.71	7,399.24	138.08	36.20	104.18	160.82	-9,331.03	17,833.51	17,767.59	65.92	270.541	
15,400.00	6,945.26	7,468.54	7,268.14	139.64	35.94	99.72	163.84	-9,333.71	17,932.97	17,867.35	65.63	273.263	
15,500.00	6,945.20	7,470.25	7,269.84	141.20	35.94	99.77	163.81	-9,333.68	18,032.56	17,966.88	65.68	274.531	
15,600.00	6,945.14	7,471.95	7,271.55	142.76	35.94	99.83	163.77	-9,333.65	18,132.16	18,066.41	65.75	275.793	
15,700.00	6,945.08	7,473.66	7,273.26	144.33	35.95	99.89	163.74	-9,333.63	18,231.76	18,165.95	65.81	277.049	
15,800.00	6,945.02	7,475.37	7,274.96	145.89	35.95	99.95	163.71	-9,333.60	18,331.36	18,265.49	65.87	278.299	
15,900.00	6,944.96	7,477.08	7,276.67	147.46	35.95	100.01	163.67	-9,333.57	18,430.97	18,365.04	65.93	279.542	
16,000.00	6,944.90	7,478.78	7,278.38	149.02	35.96	100.07	163.64	-9,333.54	18,530.58	18,464.59	66.00	280.779	
16,100.00	6,944.84	7,480.49	7,280.08	150.59	35.96	100.13	163.61	-9,333.51	18,630.20	18,564.14	66.06	282.010	
16,200.00	6,944.77	7,482.20	7,281.79	152.15	35.96	100.19	163.57	-9,333.48	18,729.82	18,663.69	66.13	283.235	
16,300.00	6,944.71	7,483.91	7,283.50	153.72	35.97	100.25	163.54	-9,333.45	18,829.44	18,763.25	66.20	284.454	
16,400.00	6,944.65	7,485.61	7,285.20	155.29	35.97	100.31	163.51	-9,333.42	18,929.07	18,862.81	66.26	285.667	
16,500.00	6,944.59	7,487.32	7,286.91	156.86	35.97	100.36	163.47	-9,333.39	19,028.70	18,962.37	66.33	286.873	
16,600.00	6,944.53	7,489.03	7,288.62	158.43	35.98	100.42	163.44	-9,333.36	19,128.34	19,061.94	66.40	288.074	
16,700.00	6,944.47	7,490.74	7,290.33	160.00	35.98	100.48	163.41	-9,333.33	19,227.98	19,161.50	66.47	289.268	
16,800.00	6,944.41	7,492.44	7,292.03	161.57	35.98	100.54	163.37	-9,333.30	19,327.62	19,261.08	66.54	290.456	
16,900.00	6,944.35	7,494.15	7,293.74	163.14	35.99	100.60	163.34	-9,333.27	19,427.26	19,360.65	66.61	291.638	
17,000.00	6,944.29	7,495.86	7,295.45	164.71	35.99	100.66	163.31	-9,333.24	19,526.91	19,460.23	66.69	292.815	
17,100.00	6,944.23	7,497.57	7,297.15	166.29	35.99	100.72	163.27	-9,333.21	19,626.57	19,559.81	66.76	293.985	
17,200.00	6,944.17	7,499.27	7,298.86	167.86	36.00	100.78	163.24	-9,333.18	19,726.22	19,659.39	66.83	295.149	
17,300.00	6,944.11	7,500.98	7,300.57	169.43	36.00	100.83	163.20	-9,333.15	19,825.88	19,758.97	66.91	296.308	
17,400.00	6,944.05	7,502.69	7,302.27	171.01	36.00	100.89	163.17	-9,333.12	19,925.54	19,858.56	66.99	297.460	
17,500.00	6,943.99	7,504.40	7,303.98	172.58	36.01	100.95	163.14	-9,333.09	20,025.21	19,958.15	67.06	298.607	
17,600.00	6,943.93	7,506.11	7,305.69	174.16	36.01	101.01	163.10	-9,333.06	20,124.88	20,057.74	67.14	299.747	
17,700.00	6,943.87	7,507.81	7,307.39	175.73	36.01	101.07	163.07	-9,333.03	20,224.55	20,157.33	67.22	300.882	
17,800.00	6,943.81	7,509.52	7,309.10	177.31	36.02	101.13	163.04	-9,333.00	20,324.23	20,256.93	67.30	302.011	
17,900.00	6,943.75	7,511.23	7,310.81	178.89	36.02	101.19	163.00	-9,332.97	20,423.91	20,356.53	67.38	303.135	
18,000.00	6,943.69	7,512.94	7,312.52	180.46	36.02	101.25	162.97	-9,332.94	20,523.59	20,456.13	67.46	304.252	
18,100.00	6,943.63	7,514.64	7,314.22	182.04	36.03	101.30	162.94	-9,332.91	20,623.27	20,555.73	67.54	305.364	
18,200.00	6,943.57	7,516.35	7,315.93	183.62	36.03	101.36	162.90	-9,332.88	20,722.96	20,655.34	67.62	306.470	
18,300.00	6,943.51	7,518.06	7,317.64	185.20	36.03	101.42	162.87	-9,332.85	20,822.65	20,754.95	67.70	307.570	
18,400.00	6,943.45	7,519.77	7,319.34	186.78	36.04	101.48	162.84	-9,332.82	20,922.34	20,854.56	67.78	308.664	
18,500.00	6,943.39	7,521.47	7,321.05	188.36	36.04	101.54	162.80	-9,332.79	21,022.04	20,954.17	67.87	309.753	
18,600.00	6,943.33	7,523.18	7,322.76	189.94	36.04	101.60	162.77	-9,332.77	21,121.74	21,053.78	67.95	310.836	
18,700.00	6,943.27	7,524.89	7,324.46	191.52	36.05	101.65	162.74	-9,332.74	21,221.44	21,153.40	68.04	311.914	
18,800.00	6,943.21	7,526.60	7,326.17	193.10	36.05	101.71	162.70	-9,332.71	21,321.14	21,253.02	68.12	312.986	
18,900.00	6,943.15	7,528.30	7,327.88	194.68	36.05	101.77	162.67	-9,332.68	21,420.85	21,352.64	68.21	314.053	
19,000.00	6,943.09	7,530.01	7,329.58	196.26	36.06	101.83	162.64	-9,332.65	21,520.56	21,452.26	68.29	315.114	
19,100.00	6,943.03	7,531.72	7,331.29	197.84	36.06	101.89	162.60	-9,332.62	21,620.27	21,551.88	68.38	316.169	
19,200.00	6,942.97	7,533.43	7,333.00	199.42	36.07	101.95	162.57	-9,332.59	21,719.98	21,651.51	68.47	317.219	
19,300.00	6,942.91	7,535.13	7,334.71	201.01	36.07	102.00	162.54	-9,332.56	21,819.70	21,751.14	68.56	318.263	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 020D - ST01 - ST01-SVY													Offset Site Error: 0.00 usft		
Survey Program: 100-MWD, 3901-MWD		Reference		Offset		Semi Major Axis		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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
19,400.00	6,942.85	7,536.84	7,336.41	202.59	36.07	102.06	162.50	-9,332.53	21,919.42	21,850.77	68.65	319.303			
19,500.00	6,942.79	7,538.55	7,338.12	204.17	36.08	102.12	162.47	-9,332.50	22,019.14	21,950.40	68.74	320.336			
19,600.00	6,942.73	7,540.26	7,339.83	205.75	36.08	102.18	162.44	-9,332.47	22,118.86	22,050.03	68.83	321.365			
19,700.00	6,942.67	7,541.96	7,341.53	207.34	36.08	102.24	162.40	-9,332.44	22,218.59	22,149.67	68.92	322.387			
19,800.00	6,942.61	7,625.09	7,424.62	208.92	36.70	105.02	160.32	-9,330.59	22,318.09	22,248.39	69.70	320.214			
19,900.00	6,942.55	7,626.52	7,426.04	210.51	36.71	105.07	160.29	-9,330.56	22,417.81	22,348.01	69.80	321.187			
20,000.00	6,942.49	7,627.94	7,427.46	212.09	36.72	105.12	160.25	-9,330.53	22,517.54	22,447.64	69.90	322.154			
20,100.00	6,942.43	7,629.35	7,428.87	213.68	36.73	105.16	160.22	-9,330.50	22,617.27	22,547.27	70.00	323.117			
20,200.00	6,942.37	7,630.76	7,430.28	215.26	36.74	105.21	160.19	-9,330.47	22,717.00	22,646.90	70.10	324.074			
20,300.00	6,942.31	7,632.17	7,431.69	216.85	36.75	105.26	160.15	-9,330.44	22,816.73	22,746.53	70.20	325.026			
20,400.00	6,942.25	7,633.57	7,433.09	218.43	36.76	105.30	160.12	-9,330.41	22,916.46	22,846.16	70.30	325.974			
20,500.00	6,942.19	7,634.97	7,434.49	220.02	36.77	105.35	160.09	-9,330.38	23,016.20	22,945.80	70.40	326.916			
20,600.00	6,942.13	7,636.36	7,435.88	221.60	36.78	105.39	160.05	-9,330.35	23,115.94	23,045.43	70.51	327.854			
20,700.00	6,942.07	7,637.75	7,437.27	223.19	36.79	105.44	160.02	-9,330.33	23,215.68	23,145.07	70.61	328.786			
20,808.89	6,942.00	7,639.26	7,438.78	224.92	36.80	105.49	159.98	-9,330.29	23,324.29	23,253.57	70.72	329.796			

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 022B - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5													Offset Well Error:	0.00 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	127.58	127.58	0.00	1.34	-57.37	1,204.56	-1,881.04	2,233.68					
100.00	100.00	222.08	222.08	0.25	2.33	-57.36	1,204.88	-1,881.34	2,234.13	2,231.55	2.58	865.973		
200.00	200.00	316.56	316.56	0.61	3.22	-57.36	1,205.37	-1,881.82	2,234.83	2,231.01	3.83	583.716 ES		
300.00	300.00	410.74	410.73	0.97	3.63	-57.35	1,206.03	-1,882.45	2,235.79	2,231.19	4.60	486.382		
400.00	400.00	482.51	482.49	1.33	3.70	-57.34	1,206.90	-1,883.15	2,237.32	2,232.29	5.02	445.248		
500.00	500.00	530.00	529.95	1.68	3.77	-57.36	1,207.22	-1,884.83	2,240.76	2,235.31	5.45	411.350		
600.00	599.98	571.76	571.61	2.04	3.85	-58.55	1,207.34	-1,887.61	2,245.74	2,239.86	5.88	381.931		
700.00	699.84	621.00	620.57	2.41	3.97	-58.58	1,207.16	-1,892.88	2,251.64	2,245.30	6.34	355.195		
800.00	799.45	660.04	659.24	2.77	4.06	-58.63	1,206.88	-1,898.24	2,258.16	2,251.40	6.76	333.898		
900.00	898.70	712.00	710.48	3.13	4.19	-58.78	1,206.14	-1,906.78	2,265.14	2,257.92	7.22	313.619		
1,000.00	997.47	756.50	754.18	3.50	4.30	-58.92	1,205.59	-1,915.18	2,272.66	2,264.99	7.67	296.154		
1,100.00	1,095.62	802.00	798.69	3.89	4.42	-59.10	1,205.38	-1,924.62	2,280.75	2,272.61	8.14	280.099		
1,200.00	1,193.06	853.96	849.27	4.30	4.57	-59.35	1,205.27	-1,936.49	2,289.35	2,280.69	8.66	264.437		
1,245.21	1,236.83	876.71	871.31	4.48	4.63	-59.48	1,205.20	-1,942.10	2,293.42	2,284.53	8.90	257.822		
1,300.00	1,289.78	903.47	897.19	4.72	4.72	-59.71	1,205.16	-1,948.94	2,298.76	2,289.58	9.19	250.201		
1,400.00	1,386.42	954.00	945.84	5.15	4.88	-60.15	1,205.45	-1,962.58	2,310.37	2,300.63	9.74	237.186		
1,500.00	1,483.05	1,005.01	994.64	5.59	5.05	-60.61	1,205.60	-1,977.41	2,324.19	2,313.87	10.31	225.325		
1,600.00	1,579.69	1,049.00	1,036.48	6.04	5.21	-61.02	1,205.56	-1,991.02	2,340.16	2,329.29	10.87	215.322		
1,700.00	1,676.32	1,101.60	1,086.15	6.49	5.41	-61.51	1,205.58	-2,008.30	2,358.40	2,346.93	11.47	205.552		
1,800.00	1,772.96	1,152.58	1,133.94	6.94	5.61	-61.99	1,205.56	-2,026.06	2,378.85	2,366.78	12.08	196.945		
1,900.00	1,869.60	1,232.64	1,208.52	7.40	5.92	-62.77	1,205.11	-2,055.17	2,401.05	2,388.20	12.85	186.870		
2,000.00	1,966.23	1,367.47	1,334.49	7.86	6.47	-64.04	1,204.17	-2,103.24	2,423.33	2,409.38	13.95	173.743		
2,100.00	2,062.87	1,444.34	1,406.57	8.33	6.80	-64.75	1,203.37	-2,129.93	2,445.13	2,430.40	14.73	165.969		
2,200.00	2,159.50	1,545.74	1,501.35	8.79	7.25	-65.69	1,201.49	-2,165.89	2,467.95	2,452.27	15.68	157.398		
2,300.00	2,256.14	1,648.00	1,597.35	9.26	7.72	-66.60	1,200.36	-2,201.12	2,490.62	2,473.98	16.64	149.691		
2,400.00	2,352.77	1,711.00	1,656.53	9.73	8.02	-67.14	1,200.46	-2,222.73	2,514.04	2,496.68	17.36	144.817		
2,500.00	2,449.41	1,781.37	1,722.44	10.20	8.36	-67.73	1,201.00	-2,247.37	2,538.79	2,520.66	18.13	140.020		
2,600.00	2,546.05	1,855.12	1,791.32	10.67	8.74	-68.33	1,202.04	-2,273.69	2,564.77	2,545.84	18.93	135.498		
2,700.00	2,642.68	1,970.87	1,899.42	11.14	9.34	-69.27	1,203.13	-2,315.06	2,591.19	2,571.18	20.01	129.495		
2,800.00	2,739.32	2,062.72	1,985.33	11.61	9.84	-69.99	1,204.13	-2,347.56	2,617.70	2,596.77	20.93	125.041		
2,900.00	2,835.95	2,130.55	2,048.83	12.08	10.21	-70.50	1,205.47	-2,371.35	2,644.59	2,622.90	21.70	121.886		
3,000.00	2,932.59	2,231.62	2,143.45	12.55	10.78	-71.25	1,207.77	-2,406.81	2,671.90	2,649.21	22.69	117.766		
3,100.00	3,029.22	2,358.40	2,262.38	13.03	11.51	-72.18	1,209.69	-2,450.67	2,698.94	2,675.08	23.86	113.130		
3,200.00	3,125.86	2,440.00	2,338.98	13.50	11.98	-72.78	1,210.00	-2,478.79	2,726.01	2,701.29	24.72	110.281		
3,300.00	3,222.50	2,527.58	2,421.08	13.97	12.50	-73.43	1,209.89	-2,509.30	2,753.72	2,728.10	25.62	107.467		
3,400.00	3,319.13	2,615.06	2,503.09	14.45	13.03	-74.07	1,209.45	-2,539.73	2,781.72	2,755.19	26.53	104.855		
3,500.00	3,415.77	2,719.17	2,600.63	14.92	13.66	-74.82	1,209.29	-2,576.11	2,810.32	2,782.77	27.55	101.994		
3,600.00	3,512.40	2,804.11	2,680.36	15.40	14.17	-75.42	1,208.60	-2,605.42	2,838.75	2,810.31	28.44	99.807		
3,700.00	3,609.04	2,892.48	2,763.18	15.88	14.71	-76.04	1,207.81	-2,636.24	2,867.86	2,838.50	29.36	97.690		
3,800.00	3,705.67	2,999.26	2,863.34	16.35	15.36	-76.76	1,207.63	-2,673.23	2,897.24	2,866.84	30.40	95.294		
3,900.00	3,802.31	3,508.88	3,351.85	16.83	17.89	-79.96	1,204.46	-2,816.52	2,924.13	2,890.21	33.92	86.206		
4,000.00	3,898.95	4,097.10	3,935.57	17.30	31.11	-83.16	1,200.98	-2,879.62	2,925.43	2,877.22	48.21	60.681		
4,100.00	3,995.58	4,194.00	4,032.41	17.78	43.21	-83.67	1,200.27	-2,883.00	2,925.86	2,865.05	60.81	48.114		
4,200.00	4,092.22	4,290.91	4,129.25	18.26	55.33	-84.17	1,199.58	-2,886.35	2,926.51	2,853.08	73.43	39.856		
4,300.00	4,188.85	4,387.83	4,226.11	18.73	67.46	-84.68	1,198.91	-2,889.69	2,927.38	2,841.33	86.05	34.018		
4,400.00	4,285.49	4,484.76	4,322.98	19.21	79.60	-85.18	1,198.25	-2,893.01	2,928.48	2,829.80	98.68	29.676		
4,500.00	4,382.12	4,581.70	4,419.87	19.69	91.74	-85.69	1,197.60	-2,896.31	2,929.80	2,818.49	111.32	26.319		
4,600.00	4,478.76	4,678.65	4,516.76	20.17	103.89	-86.19	1,196.98	-2,899.59	2,931.35	2,807.40	123.95	23.649		
4,700.00	4,575.40	4,775.61	4,613.66	20.64	116.03	-86.70	1,196.36	-2,902.85	2,933.12	2,796.53	136.59	21.474		
4,800.00	4,672.03	4,872.58	4,710.58	21.12	128.18	-87.20	1,195.77	-2,906.09	2,935.11	2,785.87	149.23	19.668		
4,900.00	4,768.67	4,969.56	4,807.50	21.60	140.33	-87.70	1,195.19	-2,909.31	2,937.32	2,775.44	161.88	18.146		
5,000.00	4,865.30	5,066.55	4,904.44	22.08	152.48	-88.20	1,194.62	-2,912.51	2,939.75	2,765.23	174.52	16.845		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 022B - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5												Offset Well Error:	0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis 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)			
5,100.00	4,961.94	5,163.55	5,001.38	22.55	164.64	-88.70	1,194.07	-2,915.69	2,942.39	2,755.23	187.16	15.721	
5,200.00	5,058.57	5,260.56	5,098.34	23.03	176.79	-89.20	1,193.54	-2,918.85	2,945.26	2,745.45	199.81	14.740	
5,300.00	5,155.21	5,357.58	5,195.31	23.51	188.95	-89.69	1,193.02	-2,921.99	2,948.34	2,735.88	212.46	13.877	
5,400.00	5,251.85	5,454.61	5,292.29	23.99	201.10	-90.19	1,192.51	-2,925.12	2,951.63	2,726.53	225.10	13.112	
5,500.00	5,348.48	5,551.65	5,389.28	24.47	213.26	-90.68	1,192.03	-2,928.22	2,955.14	2,717.39	237.75	12.429	
5,600.00	5,445.12	5,648.70	5,486.28	24.94	225.42	-91.18	1,191.55	-2,931.31	2,958.87	2,708.46	250.40	11.816	
5,700.00	5,541.75	5,745.76	5,583.29	25.42	237.58	-91.67	1,191.10	-2,934.37	2,962.80	2,699.74	263.05	11.263	
5,800.00	5,638.39	5,842.83	5,680.31	25.90	249.74	-92.16	1,190.66	-2,937.42	2,966.94	2,691.24	275.71	10.761	
5,900.00	5,735.02	5,939.91	5,777.34	26.38	261.91	-92.65	1,190.23	-2,940.44	2,971.29	2,682.94	288.36	10.304	
6,000.00	5,831.66	6,037.00	5,874.38	26.86	274.07	-93.13	1,189.82	-2,943.45	2,975.85	2,674.84	301.01	9.886	
6,100.00	5,928.30	6,134.10	5,971.43	27.34	286.24	-93.62	1,189.43	-2,946.43	2,980.62	2,666.95	313.66	9.503	
6,200.00	6,024.93	6,231.21	6,068.50	27.82	298.41	-94.10	1,189.05	-2,949.40	2,985.58	2,659.27	326.32	9.149	
6,300.00	6,121.57	6,328.33	6,165.57	28.29	310.59	-94.58	1,188.68	-2,952.35	2,990.75	2,651.78	338.97	8.823	
6,400.00	6,218.20	6,425.46	6,262.66	28.77	322.77	-95.06	1,188.34	-2,955.28	2,996.13	2,644.50	351.63	8.521	
6,500.00	6,314.84	6,522.60	6,359.75	29.25	334.95	-95.54	1,188.00	-2,958.18	3,001.70	2,637.42	364.28	8.240	
6,521.58	6,335.69	6,543.56	6,380.71	29.36	337.58	-95.64	1,187.94	-2,958.81	3,002.93	2,635.91	367.01	8.182	
6,550.00	6,363.15	6,571.14	6,408.28	29.49	341.04	-105.31	1,187.84	-2,959.63	3,005.19	2,634.58	370.60	8.109	
6,600.00	6,411.28	6,619.40	6,456.52	29.73	347.09	-120.81	1,187.69	-2,961.06	3,012.25	2,635.36	376.89	7.992	
6,650.00	6,458.93	6,667.08	6,504.17	29.96	353.07	-133.27	1,187.54	-2,962.47	3,023.19	2,640.10	383.09	7.891	
6,700.00	6,505.83	6,713.87	6,550.95	30.19	358.94	-142.72	1,187.40	-2,963.85	3,037.94	2,648.76	389.18	7.806	
6,750.00	6,551.67	6,759.50	6,596.56	30.42	364.66	-149.83	1,187.26	-2,965.19	3,056.41	2,661.30	395.11	7.736	
6,800.00	6,596.17	6,803.69	6,640.72	30.64	370.21	-155.28	1,187.13	-2,966.49	3,078.46	2,677.61	400.85	7.680	
6,850.00	6,639.06	6,846.15	6,683.16	30.85	375.53	-159.59	1,187.01	-2,967.73	3,103.95	2,697.60	406.35	7.639	
6,900.00	6,680.07	6,886.63	6,723.63	31.05	380.61	-163.12	1,186.90	-2,968.90	3,132.73	2,721.13	411.60	7.611	
6,950.00	6,718.96	6,924.88	6,761.86	31.24	385.41	-166.13	1,186.80	-2,970.01	3,164.60	2,748.06	416.54	7.597	
7,000.00	6,755.47	6,960.67	6,797.63	31.43	389.89	-168.82	1,186.70	-2,971.05	3,199.37	2,778.20	421.17	7.596 SF	
7,050.00	6,789.40	6,993.77	6,830.72	31.61	394.04	-171.32	1,186.62	-2,972.01	3,236.81	2,811.38	425.44	7.608	
7,100.00	6,820.52	7,023.97	6,860.91	31.79	397.83	-173.81	1,186.54	-2,972.88	3,276.69	2,847.37	429.32	7.632	
7,150.00	6,848.64	7,051.10	6,888.03	31.97	401.24	-176.43	1,186.47	-2,973.66	3,318.77	2,885.96	432.81	7.668	
7,200.00	6,873.60	7,074.99	6,911.91	32.14	404.23	-179.42	1,186.41	-2,974.34	3,362.77	2,926.91	435.87	7.715	
7,250.00	6,895.24	7,095.48	6,932.39	32.31	406.80	176.87	1,186.37	-2,974.93	3,408.44	2,969.95	438.48	7.773	
7,300.00	6,913.42	7,112.45	6,949.35	32.49	408.93	171.83	1,186.33	-2,975.41	3,455.48	3,014.84	440.64	7.842	
7,350.00	6,928.03	7,125.79	6,962.69	32.67	410.60	164.18	1,186.29	-2,975.80	3,503.61	3,061.28	442.33	7.921	
7,400.00	6,938.98	7,135.43	6,972.32	32.86	411.81	151.09	1,186.27	-2,976.07	3,552.54	3,109.01	443.53	8.010	
7,450.00	6,946.22	7,141.29	6,978.18	33.06	412.55	126.90	1,186.26	-2,976.24	3,601.97	3,157.72	444.25	8.108	
7,500.00	6,949.68	7,143.34	6,980.23	33.26	412.80	91.17	1,186.25	-2,976.30	3,651.59	3,207.11	444.48	8.215	
7,521.05	6,950.00	7,143.06	6,979.95	33.35	412.77	77.36	1,186.25	-2,976.29	3,672.47	3,228.04	444.43	8.263	
7,600.00	6,949.95	7,140.75	6,977.64	33.72	412.48	77.09	1,186.26	-2,976.22	3,750.73	3,306.65	444.08	8.446	
7,700.00	6,949.89	7,137.81	6,974.70	34.24	412.11	76.76	1,186.27	-2,976.14	3,849.89	3,406.25	443.64	8.678	
7,800.00	6,949.83	7,134.88	6,971.77	34.84	411.74	76.43	1,186.27	-2,976.06	3,949.10	3,505.88	443.21	8.910	
7,900.00	6,949.77	7,131.94	6,968.83	35.50	411.37	76.09	1,186.28	-2,975.97	4,048.34	3,605.55	442.78	9.143	
8,000.00	6,949.71	7,129.00	6,965.90	36.23	411.00	75.76	1,186.29	-2,975.89	4,147.61	3,705.25	442.36	9.376	
8,100.00	6,949.65	7,126.06	6,962.96	37.02	410.64	75.43	1,186.29	-2,975.80	4,246.92	3,804.97	441.94	9.610	
8,200.00	6,949.59	7,123.12	6,960.02	37.85	410.27	75.10	1,186.30	-2,975.72	4,346.25	3,904.73	441.53	9.844	
8,300.00	6,949.53	7,120.18	6,957.07	38.74	409.90	74.77	1,186.31	-2,975.64	4,445.61	4,004.50	441.11	10.078	
8,400.00	6,949.47	7,117.23	6,954.13	39.68	409.53	74.45	1,186.31	-2,975.55	4,545.00	4,104.30	440.70	10.313	
8,500.00	6,949.41	7,114.29	6,951.19	40.66	409.16	74.12	1,186.32	-2,975.47	4,644.42	4,204.12	440.30	10.548	
8,600.00	6,949.35	7,111.34	6,948.24	41.67	408.79	73.79	1,186.33	-2,975.38	4,743.86	4,303.96	439.90	10.784	
8,700.00	6,949.29	7,108.39	6,945.30	42.73	408.42	73.47	1,186.33	-2,975.30	4,843.31	4,403.82	439.50	11.020	
8,800.00	6,949.23	7,105.44	6,942.35	43.82	408.05	73.14	1,186.34	-2,975.21	4,942.79	4,503.69	439.10	11.257	
8,900.00	6,949.17	7,102.49	6,939.40	44.94	407.68	72.82	1,186.35	-2,975.13	5,042.29	4,603.59	438.70	11.494	
9,000.00	6,949.11	7,099.54	6,936.45	46.09	407.31	72.50	1,186.36	-2,975.05	5,141.81	4,703.49	438.31	11.731	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 022B - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,100.00	6,949.05	7,096.59	6,933.50	47.26	406.94	72.18	1,186.36	-2,974.96	5,241.34	4,803.42	437.92	11.969
9,200.00	6,948.99	7,093.64	6,930.55	48.46	406.57	71.85	1,186.37	-2,974.88	5,340.89	4,903.35	437.53	12.207
9,300.00	6,948.93	7,090.68	6,927.59	49.68	406.20	71.54	1,186.38	-2,974.79	5,440.45	5,003.30	437.15	12.445
9,400.00	6,948.87	7,087.73	6,924.64	50.93	405.83	71.22	1,186.38	-2,974.71	5,540.03	5,103.26	436.76	12.684
9,500.00	6,948.81	7,084.77	6,921.68	52.19	405.46	70.90	1,186.39	-2,974.62	5,639.62	5,203.23	436.38	12.924
9,600.00	6,948.75	7,081.81	6,918.73	53.47	405.09	70.58	1,186.40	-2,974.54	5,739.22	5,303.22	436.00	13.163
9,700.00	6,948.69	7,078.85	6,915.77	54.77	404.72	70.27	1,186.41	-2,974.45	5,838.83	5,403.21	435.62	13.403
9,800.00	6,948.63	7,075.89	6,912.81	56.08	404.34	69.95	1,186.41	-2,974.37	5,938.46	5,503.21	435.25	13.644
9,900.00	6,948.57	7,072.93	6,909.85	57.41	403.97	69.64	1,186.42	-2,974.28	6,038.10	5,603.22	434.87	13.885
10,000.00	6,948.51	7,069.96	6,906.88	58.76	403.60	69.33	1,186.43	-2,974.20	6,137.75	5,703.25	434.50	14.126
10,100.00	6,948.45	7,067.00	6,903.92	60.11	403.23	69.02	1,186.43	-2,974.11	6,237.41	5,803.28	434.13	14.368
10,200.00	6,948.39	7,064.03	6,900.95	61.48	402.86	68.71	1,186.44	-2,974.03	6,337.07	5,903.31	433.76	14.610
10,300.00	6,948.33	7,061.06	6,897.99	62.86	402.48	68.40	1,186.45	-2,973.94	6,436.75	6,003.36	433.39	14.852
10,400.00	6,948.27	7,058.10	6,895.02	64.24	402.11	68.09	1,186.46	-2,973.86	6,536.43	6,103.41	433.02	15.095
10,500.00	6,948.21	7,055.13	6,892.05	65.64	401.74	67.79	1,186.46	-2,973.77	6,636.13	6,203.47	432.66	15.338
10,600.00	6,948.15	7,052.16	6,889.08	67.05	401.37	67.48	1,186.47	-2,973.69	6,735.83	6,303.53	432.30	15.582
10,700.00	6,948.09	7,049.18	6,886.11	68.47	400.99	67.18	1,186.48	-2,973.60	6,835.54	6,403.60	431.93	15.825
10,800.00	6,948.03	7,046.21	6,883.14	69.89	400.62	66.88	1,186.49	-2,973.52	6,935.25	6,503.68	431.57	16.070
10,900.00	6,947.97	7,043.23	6,880.17	71.32	400.25	66.57	1,186.49	-2,973.43	7,034.97	6,603.76	431.21	16.314
11,000.00	6,947.91	7,040.26	6,877.19	72.76	399.88	66.27	1,186.50	-2,973.35	7,134.70	6,703.85	430.85	16.560
11,100.00	6,947.85	7,037.28	6,874.21	74.21	399.50	65.98	1,186.51	-2,973.26	7,234.44	6,803.94	430.49	16.805
11,200.00	6,947.79	7,034.30	6,871.24	75.66	399.13	65.68	1,186.51	-2,973.17	7,334.18	6,904.04	430.14	17.051
11,300.00	6,947.73	7,031.32	6,868.26	77.12	398.75	65.38	1,186.52	-2,973.09	7,433.93	7,004.15	429.78	17.297
11,400.00	6,947.66	7,028.34	6,865.28	78.58	398.38	65.09	1,186.53	-2,973.00	7,533.68	7,104.25	429.43	17.544
11,500.00	6,947.60	7,025.36	6,862.30	80.05	398.01	64.79	1,186.54	-2,972.92	7,633.44	7,204.36	429.07	17.791
11,600.00	6,947.54	7,022.37	6,859.31	81.52	397.63	64.50	1,186.54	-2,972.83	7,733.20	7,304.48	428.72	18.038
11,700.00	6,947.48	7,019.39	6,856.33	83.00	397.26	64.21	1,186.55	-2,972.74	7,832.97	7,404.60	428.37	18.286
11,800.00	6,947.42	7,016.40	6,853.35	84.48	396.88	63.92	1,186.56	-2,972.66	7,932.74	7,504.72	428.02	18.534
11,900.00	6,947.36	7,013.42	6,850.36	85.97	396.51	63.63	1,186.57	-2,972.57	8,032.52	7,604.85	427.67	18.782
12,000.00	6,947.30	7,010.43	6,847.37	87.46	396.13	63.34	1,186.57	-2,972.49	8,132.30	7,704.98	427.32	19.031
12,100.00	6,947.24	7,007.44	6,844.38	88.96	395.76	63.06	1,186.58	-2,972.40	8,232.08	7,805.11	426.97	19.280
12,200.00	6,947.18	7,004.45	6,841.39	90.46	395.38	62.77	1,186.59	-2,972.31	8,331.87	7,905.25	426.63	19.530
12,300.00	6,947.12	7,001.45	6,838.40	91.96	395.01	62.49	1,186.60	-2,972.23	8,431.67	8,005.39	426.28	19.780
12,400.00	6,947.06	6,998.46	6,835.41	93.47	394.63	62.21	1,186.60	-2,972.14	8,531.47	8,105.53	425.94	20.030
12,500.00	6,947.00	6,995.46	6,832.41	94.97	394.26	61.93	1,186.61	-2,972.06	8,631.27	8,205.67	425.59	20.280
12,600.00	6,946.94	6,992.47	6,829.42	96.49	393.88	61.65	1,186.62	-2,971.97	8,731.07	8,305.82	425.25	20.532
12,700.00	6,946.88	6,989.47	6,826.42	98.00	393.51	61.37	1,186.63	-2,971.88	8,830.88	8,405.97	424.91	20.783
12,800.00	6,946.82	6,986.47	6,823.43	99.52	393.13	61.09	1,186.64	-2,971.80	8,930.69	8,506.12	424.57	21.035
12,900.00	6,946.76	6,983.47	6,820.43	101.04	392.75	60.82	1,186.64	-2,971.71	9,030.51	8,606.28	424.23	21.287
13,000.00	6,946.70	6,980.47	6,817.43	102.56	392.38	60.54	1,186.65	-2,971.62	9,130.32	8,706.43	423.89	21.539
13,100.00	6,946.64	6,977.47	6,814.42	104.09	392.00	60.27	1,186.66	-2,971.54	9,230.15	8,806.59	423.55	21.792
13,200.00	6,946.58	6,974.46	6,811.42	105.61	391.62	60.00	1,186.67	-2,971.45	9,329.97	8,906.76	423.21	22.046
13,300.00	6,946.52	6,971.46	6,808.42	107.14	391.25	59.73	1,186.67	-2,971.36	9,429.80	9,006.92	422.88	22.299
13,400.00	6,946.46	6,968.45	6,805.41	108.67	390.87	59.46	1,186.68	-2,971.28	9,529.63	9,107.08	422.54	22.553
13,500.00	6,946.40	6,965.44	6,802.41	110.21	390.49	59.19	1,186.69	-2,971.19	9,629.46	9,207.25	422.21	22.808
13,600.00	6,946.34	6,962.43	6,799.40	111.74	390.11	58.93	1,186.70	-2,971.10	9,729.29	9,307.42	421.87	23.062
13,700.00	6,946.28	6,959.42	6,796.39	113.28	389.74	58.66	1,186.71	-2,971.01	9,829.13	9,407.59	421.54	23.317
13,800.00	6,946.22	6,956.41	6,793.38	114.82	389.36	58.40	1,186.71	-2,970.93	9,928.97	9,507.76	421.20	23.573
13,900.00	6,946.16	6,953.40	6,790.37	116.36	388.98	58.14	1,186.72	-2,970.84	10,028.81	9,607.94	420.87	23.829
14,000.00	6,946.10	6,950.38	6,787.35	117.90	388.60	57.88	1,186.73	-2,970.75	10,128.65	9,708.11	420.54	24.085
14,100.00	6,946.04	6,947.37	6,784.34	119.45	388.23	57.62	1,186.74	-2,970.67	10,228.50	9,808.29	420.21	24.341
14,200.00	6,945.98	6,944.35	6,781.32	120.99	387.85	57.36	1,186.75	-2,970.58	10,328.35	9,908.47	419.88	24.598

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 022B - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		300-MWD OWSG Rev5					Rule Assigned:			Offset Well Error:		0.00 usft		
Reference	Offset	Reference	Offset	Semi Major Axis	Highside	Offset Wellbore Centre	Distance	Minimum Separation	Separation	Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,300.00	6,945.92	6,941.33	6,778.31	122.54	387.47	57.10	1,186.75	-2,970.49	10,428.20	10,008.65	419.55	24.856		
14,400.00	6,945.86	6,938.31	6,775.29	124.09	387.09	56.85	1,186.76	-2,970.40	10,528.05	10,108.83	419.22	25.113		
14,500.00	6,945.80	6,935.29	6,772.27	125.64	386.71	56.59	1,186.77	-2,970.32	10,627.90	10,209.01	418.89	25.371		
14,600.00	6,945.74	6,932.27	6,769.25	127.19	386.33	56.34	1,186.78	-2,970.23	10,727.76	10,309.19	418.57	25.630		
14,700.00	6,945.68	6,929.25	6,766.23	128.74	385.95	56.09	1,186.79	-2,970.14	10,827.62	10,409.38	418.24	25.889		
14,800.00	6,945.62	6,926.22	6,763.20	130.30	385.57	55.84	1,186.79	-2,970.05	10,927.48	10,509.56	417.91	26.148		
14,900.00	6,945.56	6,923.20	6,760.18	131.85	385.19	55.59	1,186.80	-2,969.97	11,027.34	10,609.75	417.59	26.407		
15,000.00	6,945.50	6,920.17	6,757.15	133.41	384.81	55.35	1,186.81	-2,969.88	11,127.20	10,709.94	417.26	26.667		
15,100.00	6,945.44	6,917.14	6,754.13	134.96	384.43	55.10	1,186.82	-2,969.79	11,227.07	10,810.13	416.94	26.927		
15,200.00	6,945.38	6,914.11	6,751.10	136.52	384.05	54.86	1,186.83	-2,969.70	11,326.93	10,910.32	416.61	27.188		
15,300.00	6,945.32	6,911.08	6,748.07	138.08	383.67	54.61	1,186.83	-2,969.61	11,426.80	11,010.51	416.29	27.449		
15,400.00	6,945.26	6,908.05	6,745.04	139.64	383.29	54.37	1,186.84	-2,969.53	11,526.67	11,110.70	415.97	27.710		
15,500.00	6,945.20	6,905.01	6,742.00	141.20	382.91	54.13	1,186.85	-2,969.44	11,626.54	11,210.89	415.65	27.972		
15,600.00	6,945.14	6,901.98	6,738.97	142.76	382.53	53.89	1,186.86	-2,969.35	11,726.41	11,311.09	415.32	28.234		
15,700.00	6,945.08	6,898.94	6,735.94	144.33	382.15	53.65	1,186.87	-2,969.26	11,826.29	11,411.28	415.00	28.497		
15,800.00	6,945.02	6,895.91	6,732.90	145.89	381.77	53.42	1,186.87	-2,969.17	11,926.16	11,511.48	414.68	28.760		
15,900.00	6,944.96	6,892.87	6,729.86	147.46	381.39	53.18	1,186.88	-2,969.09	12,026.04	11,611.67	414.36	29.023		
16,000.00	6,944.90	6,889.83	6,726.82	149.02	381.01	52.95	1,186.89	-2,969.00	12,125.92	11,711.87	414.05	29.286		
16,100.00	6,944.84	6,886.79	6,723.78	150.59	380.63	52.72	1,186.90	-2,968.91	12,225.79	11,812.07	413.73	29.550		
16,200.00	6,944.77	6,883.74	6,720.74	152.15	380.25	52.49	1,186.91	-2,968.82	12,325.67	11,912.27	413.41	29.815		
16,300.00	6,944.71	6,880.70	6,717.70	153.72	379.86	52.26	1,186.92	-2,968.73	12,425.56	12,012.46	413.09	30.079		
16,400.00	6,944.65	6,877.65	6,714.65	155.29	379.48	52.03	1,186.92	-2,968.64	12,525.44	12,112.66	412.77	30.345		
16,500.00	6,944.59	6,874.61	6,711.61	156.86	379.10	51.80	1,186.93	-2,968.55	12,625.32	12,212.86	412.46	30.610		
16,600.00	6,944.53	6,871.56	6,708.56	158.43	378.72	51.58	1,186.94	-2,968.47	12,725.21	12,313.06	412.14	30.876		
16,700.00	6,944.47	6,868.51	6,705.51	160.00	378.34	51.35	1,186.95	-2,968.38	12,825.09	12,413.27	411.83	31.142		
16,800.00	6,944.41	6,865.46	6,702.47	161.57	377.95	51.13	1,186.96	-2,968.29	12,924.98	12,513.47	411.51	31.409		
16,900.00	6,944.35	6,862.41	6,699.42	163.14	377.57	50.91	1,186.97	-2,968.20	13,024.87	12,613.67	411.20	31.675		
17,000.00	6,944.29	6,859.35	6,696.36	164.71	377.19	50.69	1,186.98	-2,968.11	13,124.76	12,713.87	410.88	31.943		
17,100.00	6,944.23	6,856.30	6,693.31	166.29	376.80	50.47	1,186.98	-2,968.02	13,224.65	12,814.08	410.57	32.210		
17,200.00	6,944.17	6,853.24	6,690.26	167.86	376.42	50.25	1,186.99	-2,967.93	13,324.54	12,914.28	410.26	32.478		
17,300.00	6,944.11	6,850.19	6,687.20	169.43	376.04	50.03	1,187.00	-2,967.84	13,424.43	13,014.48	409.95	32.747		
17,400.00	6,944.05	6,847.13	6,684.14	171.01	375.65	49.82	1,187.01	-2,967.75	13,524.32	13,114.69	409.63	33.016		
17,500.00	6,943.99	6,844.07	6,681.08	172.58	375.27	49.60	1,187.02	-2,967.67	13,624.22	13,214.89	409.32	33.285		
17,600.00	6,943.93	6,841.01	6,678.02	174.16	374.89	49.39	1,187.03	-2,967.58	13,724.11	13,315.10	409.01	33.554		
17,700.00	6,943.87	6,837.95	6,674.96	175.73	374.50	49.18	1,187.04	-2,967.49	13,824.01	13,415.31	408.70	33.824		
17,800.00	6,943.81	6,834.88	6,671.90	177.31	374.12	48.97	1,187.04	-2,967.40	13,923.90	13,515.51	408.39	34.095		
17,900.00	6,943.75	6,831.82	6,668.84	178.89	373.73	48.76	1,187.05	-2,967.31	14,023.80	13,615.72	408.08	34.365		
18,000.00	6,943.69	6,828.75	6,665.77	180.46	373.35	48.55	1,187.06	-2,967.22	14,123.70	13,715.93	407.77	34.636		
18,100.00	6,943.63	6,825.68	6,662.71	182.04	372.96	48.34	1,187.07	-2,967.13	14,223.60	13,816.13	407.46	34.908		
18,200.00	6,943.57	6,822.61	6,659.64	183.62	372.58	48.14	1,187.08	-2,967.04	14,323.50	13,916.34	407.15	35.180		
18,300.00	6,943.51	6,819.54	6,656.57	185.20	372.19	47.93	1,187.09	-2,966.95	14,423.40	14,016.55	406.85	35.452		
18,400.00	6,943.45	6,816.47	6,653.50	186.78	371.81	47.73	1,187.10	-2,966.86	14,523.30	14,116.76	406.54	35.724		
18,500.00	6,943.39	6,813.40	6,650.43	188.36	371.42	47.53	1,187.10	-2,966.77	14,623.20	14,216.97	406.23	35.997		
18,600.00	6,943.33	6,810.33	6,647.36	189.94	371.04	47.33	1,187.11	-2,966.68	14,723.10	14,317.18	405.92	36.270		
18,700.00	6,943.27	6,807.25	6,644.28	191.52	370.65	47.13	1,187.12	-2,966.59	14,823.00	14,417.39	405.62	36.544		
18,800.00	6,943.21	6,804.17	6,641.21	193.10	370.27	46.93	1,187.13	-2,966.50	14,922.91	14,517.60	405.31	36.818		
18,900.00	6,943.15	6,801.10	6,638.13	194.68	369.88	46.73	1,187.14	-2,966.41	15,022.81	14,617.81	405.01	37.093		
19,000.00	6,943.09	6,798.02	6,635.05	196.26	369.49	46.54	1,187.15	-2,966.32	15,122.72	14,718.02	404.70	37.368		
19,100.00	6,943.03	6,794.94	6,631.97	197.84	369.11	46.34	1,187.16	-2,966.23	15,222.62	14,818.23	404.40	37.643		
19,200.00	6,942.97	6,791.85	6,628.89	199.42	368.72	46.15	1,187.17	-2,966.14	15,322.53	14,918.44	404.09	37.918		
19,300.00	6,942.91	6,788.77	6,625.81	201.01	368.33	45.96	1,187.18	-2,966.05	15,422.44	15,018.65	403.79	38.194		
19,400.00	6,942.85	6,785.69	6,622.73	202.59	367.95	45.76	1,187.18	-2,965.96	15,522.35	15,118.86	403.49	38.471		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 022B - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 300-MWD OWSG Rev5													Offset Well Error:	0.00 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		
19,500.00	6,942.79	6,782.60	6,619.64	204.17	367.56	45.57	1,187.19	-2,965.87	15,622.25	15,219.07	403.18	38.747		
19,600.00	6,942.73	6,779.51	6,616.55	205.75	367.17	45.38	1,187.20	-2,965.78	15,722.16	15,319.28	402.88	39.025		
19,700.00	6,942.67	6,776.42	6,613.47	207.34	366.79	45.20	1,187.21	-2,965.69	15,822.07	15,419.50	402.58	39.302		
19,800.00	6,942.61	6,773.33	6,610.38	208.92	366.40	45.01	1,187.22	-2,965.60	15,921.98	15,519.71	402.27	39.580		
19,900.00	6,942.55	6,770.24	6,607.29	210.51	366.01	44.82	1,187.23	-2,965.51	16,021.89	15,619.92	401.97	39.858		
20,000.00	6,942.49	6,767.15	6,604.20	212.09	365.62	44.64	1,187.24	-2,965.42	16,121.80	15,720.13	401.67	40.137		
20,100.00	6,942.43	6,764.05	6,601.10	213.68	365.24	44.46	1,187.25	-2,965.33	16,221.71	15,820.35	401.37	40.416		
20,200.00	6,942.37	6,760.96	6,598.01	215.26	364.85	44.27	1,187.26	-2,965.23	16,321.63	15,920.56	401.07	40.695		
20,300.00	6,942.31	6,757.86	6,594.91	216.85	364.46	44.09	1,187.27	-2,965.14	16,421.54	16,020.77	400.77	40.975		
20,400.00	6,942.25	6,754.76	6,591.82	218.43	364.07	43.91	1,187.27	-2,965.05	16,521.45	16,120.98	400.47	41.255		
20,500.00	6,942.19	6,751.66	6,588.72	220.02	363.68	43.73	1,187.28	-2,964.96	16,621.37	16,221.20	400.17	41.536		
20,600.00	6,942.13	6,748.56	6,585.62	221.60	363.29	43.56	1,187.29	-2,964.87	16,721.28	16,321.41	399.87	41.817		
20,700.00	6,942.07	6,745.46	6,582.52	223.19	362.90	43.38	1,187.30	-2,964.78	16,821.19	16,421.63	399.57	42.098		
20,808.89	6,942.00	6,742.08	6,579.14	224.92	362.48	43.19	1,187.31	-2,964.68	16,929.99	16,530.74	399.24	42.405		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 030B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 530-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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	
5,100.00	4,961.94	5,121.54	5,120.80	22.55	109.99	-81.43	2,249.99	-6,509.01	6,634.85	6,502.39	132.46	50.088	
5,200.00	5,058.57	5,219.10	5,218.35	23.03	112.44	-81.65	2,249.71	-6,509.01	6,630.89	6,495.50	135.39	48.977	
5,300.00	5,155.21	5,316.61	5,315.86	23.51	114.88	-81.87	2,249.34	-6,509.01	6,627.01	6,488.70	138.31	47.914	
5,400.00	5,251.85	5,414.08	5,413.33	23.99	117.32	-82.09	2,248.90	-6,509.01	6,623.22	6,481.99	141.23	46.896	
5,500.00	5,348.48	5,511.51	5,510.75	24.47	119.76	-82.31	2,248.37	-6,509.01	6,619.52	6,475.37	144.15	45.920	
5,600.00	5,445.12	5,608.90	5,608.13	24.94	122.20	-82.53	2,247.75	-6,509.01	6,615.91	6,468.83	147.07	44.984	
5,700.00	5,541.75	5,706.24	5,705.46	25.42	124.64	-82.75	2,247.06	-6,509.01	6,612.38	6,462.39	149.99	44.085	
5,800.00	5,638.39	5,803.54	5,802.75	25.90	127.08	-82.97	2,246.28	-6,509.01	6,608.95	6,456.04	152.91	43.221	
5,900.00	5,735.02	5,892.43	5,891.02	26.38	129.31	-83.17	2,245.97	-6,509.01	6,605.69	6,450.06	155.63	42.446	
6,000.00	5,831.66	5,989.06	5,987.66	26.86	131.74	-83.38	2,245.97	-6,509.01	6,602.57	6,444.03	158.54	41.646	
6,100.00	5,928.30	6,085.70	6,084.30	27.34	134.18	-83.60	2,245.97	-6,509.01	6,599.55	6,438.10	161.45	40.876	
6,200.00	6,024.93	6,182.33	6,180.93	27.82	136.61	-83.81	2,245.97	-6,509.01	6,596.64	6,432.27	164.37	40.134	
6,300.00	6,121.57	6,278.97	6,277.57	28.29	139.04	-84.02	2,245.97	-6,509.01	6,593.82	6,426.54	167.28	39.418	
6,400.00	6,218.20	6,375.61	6,374.20	28.77	141.47	-84.24	2,245.97	-6,509.01	6,591.10	6,420.90	170.19	38.727	
6,500.00	6,314.84	6,472.24	6,470.84	29.25	143.91	-84.45	2,245.97	-6,509.01	6,588.48	6,415.37	173.11	38.060	
6,521.58	6,335.69	6,493.10	6,491.69	29.36	144.43	-84.50	2,245.97	-6,509.01	6,587.92	6,414.19	173.74	37.919	
6,537.79	6,351.36	6,508.76	6,507.36	29.43	144.83	-90.00	2,245.97	-6,509.01	6,587.72	6,413.51	174.21	37.815 CC	
6,550.00	6,363.15	6,520.55	6,519.15	29.49	145.12	-94.07	2,245.97	-6,509.01	6,587.83	6,413.27	174.57	37.738 ES	
6,600.00	6,411.28	6,568.68	6,567.28	29.73	146.33	-109.37	2,245.97	-6,509.01	6,590.76	6,414.74	176.02	37.443	
6,650.00	6,458.93	6,616.34	6,614.93	29.96	147.53	-121.55	2,245.97	-6,509.01	6,597.60	6,420.14	177.46	37.178	
6,700.00	6,505.83	6,663.23	6,661.83	30.19	148.71	-130.65	2,245.97	-6,509.01	6,608.31	6,429.43	178.88	36.943	
6,750.00	6,551.67	6,709.07	6,707.67	30.42	149.87	-137.34	2,245.97	-6,509.01	6,622.83	6,442.56	180.26	36.740	
6,800.00	6,596.17	6,753.57	6,752.17	30.64	150.99	-142.27	2,245.97	-6,509.01	6,641.07	6,459.46	181.61	36.568	
6,850.00	6,639.06	6,796.46	6,795.06	30.85	152.07	-145.96	2,245.97	-6,509.01	6,662.91	6,480.00	182.91	36.428	
6,900.00	6,680.07	6,837.47	6,836.07	31.05	153.10	-148.73	2,245.97	-6,509.01	6,688.22	6,504.08	184.15	36.320	
6,950.00	6,718.96	6,876.36	6,874.96	31.24	154.08	-150.82	2,245.97	-6,509.01	6,716.85	6,531.52	185.32	36.244	
7,000.00	6,755.47	6,912.88	6,911.47	31.43	155.00	-152.36	2,245.97	-6,509.01	6,748.60	6,562.18	186.43	36.200	
7,050.00	6,789.40	6,946.80	6,945.40	31.61	155.85	-153.46	2,245.97	-6,509.01	6,783.30	6,595.85	187.45	36.187 SF	
7,100.00	6,820.52	6,977.92	6,976.52	31.79	156.64	-154.16	2,245.97	-6,509.01	6,820.71	6,632.32	188.39	36.205	
7,150.00	6,848.64	7,006.04	7,004.64	31.97	157.34	-154.47	2,245.97	-6,509.01	6,860.60	6,671.36	189.24	36.253	
7,200.00	6,873.60	7,031.00	7,029.60	32.14	157.97	-154.37	2,245.97	-6,509.01	6,902.73	6,712.73	190.00	36.330	
7,250.00	6,895.24	7,052.64	7,051.24	32.31	158.52	-153.77	2,245.97	-6,509.01	6,946.83	6,756.18	190.66	36.436	
7,300.00	6,913.42	7,070.82	7,069.42	32.49	158.97	-152.48	2,245.97	-6,509.01	6,992.63	6,801.42	191.22	36.569	
7,350.00	6,928.03	7,085.43	7,084.03	32.67	159.34	-150.08	2,245.97	-6,509.01	7,039.84	6,848.18	191.67	36.729	
7,400.00	6,938.98	7,096.39	7,094.98	32.86	159.62	-145.58	2,245.97	-6,509.01	7,088.17	6,896.16	192.01	36.915	
7,450.00	6,946.22	7,103.62	7,102.22	33.06	159.80	-136.09	2,245.97	-6,509.01	7,137.32	6,945.07	192.25	37.125	
7,500.00	6,949.68	7,107.08	7,105.68	33.26	159.89	-110.95	2,245.97	-6,509.01	7,186.97	6,994.59	192.38	37.358	
7,521.05	6,950.00	7,107.40	7,106.00	33.35	159.89	-89.53	2,245.97	-6,509.01	7,207.96	7,015.55	192.40	37.463	
7,600.00	6,949.95	7,107.36	7,105.95	33.72	159.89	-89.52	2,245.97	-6,509.01	7,286.70	7,094.24	192.45	37.862	
7,700.00	6,949.89	7,107.30	7,105.89	34.24	159.89	-89.52	2,245.97	-6,509.01	7,386.44	7,193.93	192.51	38.368	
7,800.00	6,949.83	7,107.24	7,105.83	34.84	159.89	-89.51	2,245.97	-6,509.01	7,486.19	7,293.62	192.57	38.874	
7,900.00	6,949.77	7,107.17	7,105.77	35.50	159.89	-89.50	2,245.97	-6,509.01	7,585.95	7,393.31	192.63	39.380	
8,000.00	6,949.71	7,107.11	7,105.71	36.23	159.89	-89.50	2,245.97	-6,509.01	7,685.71	7,493.02	192.69	39.886	
8,100.00	6,949.65	7,107.05	7,105.65	37.02	159.89	-89.49	2,245.97	-6,509.01	7,785.48	7,592.73	192.75	40.391	
8,200.00	6,949.59	7,106.99	7,105.59	37.85	159.88	-89.48	2,245.97	-6,509.01	7,885.25	7,692.44	192.81	40.896	
8,300.00	6,949.53	7,106.93	7,105.53	38.74	159.88	-89.48	2,245.97	-6,509.01	7,985.03	7,792.16	192.87	41.401	
8,400.00	6,949.47	7,106.87	7,105.47	39.68	159.88	-89.47	2,245.97	-6,509.01	8,084.82	7,891.89	192.93	41.906	
8,500.00	6,949.41	7,106.81	7,105.41	40.66	159.88	-89.46	2,245.97	-6,509.01	8,184.61	7,991.63	192.99	42.411	
8,600.00	6,949.35	7,106.75	7,105.35	41.67	159.88	-89.46	2,245.97	-6,509.01	8,284.41	8,091.36	193.04	42.915	
8,700.00	6,949.29	7,106.69	7,105.29	42.73	159.88	-89.45	2,245.97	-6,509.01	8,384.21	8,191.11	193.10	43.419	
8,800.00	6,949.23	7,106.63	7,105.23	43.82	159.88	-89.44	2,245.97	-6,509.01	8,484.01	8,290.86	193.16	43.923	
8,900.00	6,949.17	7,106.57	7,105.17	44.94	159.87	-89.44	2,245.97	-6,509.01	8,583.82	8,390.61	193.21	44.427	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 030B - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 530-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,000.00	6,949.11	7,106.51	7,105.11	46.09	159.87	-89.43	2,245.97	-6,509.01	8,683.64	8,490.37	193.27	44.930
9,100.00	6,949.05	7,106.45	7,105.05	47.26	159.87	-89.42	2,245.97	-6,509.01	8,783.46	8,590.13	193.32	45.434
9,200.00	6,948.99	7,106.39	7,104.99	48.46	159.87	-89.42	2,245.97	-6,509.01	8,883.28	8,689.90	193.38	45.937
9,300.00	6,948.93	7,106.33	7,104.93	49.68	159.87	-89.41	2,245.97	-6,509.01	8,983.11	8,789.67	193.44	46.440
9,400.00	6,948.87	7,106.27	7,104.87	50.93	159.87	-89.40	2,245.97	-6,509.01	9,082.94	8,889.45	193.49	46.942
9,500.00	6,948.81	7,106.21	7,104.81	52.19	159.86	-89.40	2,245.97	-6,509.01	9,182.77	8,989.22	193.55	47.444
9,600.00	6,948.75	7,106.15	7,104.75	53.47	159.86	-89.39	2,245.97	-6,509.01	9,282.61	9,089.01	193.60	47.947
9,700.00	6,948.69	7,106.09	7,104.69	54.77	159.86	-89.39	2,245.97	-6,509.01	9,382.45	9,188.79	193.66	48.448
9,800.00	6,948.63	7,106.03	7,104.63	56.08	159.86	-89.38	2,245.97	-6,509.01	9,482.30	9,288.58	193.71	48.950
9,900.00	6,948.57	7,105.97	7,104.57	57.41	159.86	-89.37	2,245.97	-6,509.01	9,582.14	9,388.37	193.77	49.451
10,000.00	6,948.51	7,105.91	7,104.51	58.76	159.86	-89.37	2,245.97	-6,509.01	9,681.99	9,488.17	193.82	49.952
10,100.00	6,948.45	7,105.85	7,104.45	60.11	159.86	-89.36	2,245.97	-6,509.01	9,781.85	9,587.97	193.88	50.453
10,200.00	6,948.39	7,105.79	7,104.39	61.48	159.85	-89.35	2,245.97	-6,509.01	9,881.71	9,687.77	193.93	50.954
10,300.00	6,948.33	7,105.73	7,104.33	62.86	159.85	-89.35	2,245.97	-6,509.01	9,981.57	9,787.58	193.99	51.454
10,400.00	6,948.27	7,105.67	7,104.27	64.24	159.85	-89.34	2,245.97	-6,509.01	10,081.43	9,887.38	194.05	51.954
10,500.00	6,948.21	7,105.61	7,104.21	65.64	159.85	-89.33	2,245.97	-6,509.01	10,181.29	9,987.19	194.10	52.454
10,600.00	6,948.15	7,105.55	7,104.15	67.05	159.85	-89.33	2,245.97	-6,509.01	10,281.16	10,087.00	194.16	52.953
10,700.00	6,948.09	7,105.49	7,104.09	68.47	159.85	-89.32	2,245.97	-6,509.01	10,381.03	10,186.82	194.21	53.452
10,800.00	6,948.03	7,105.43	7,104.03	69.89	159.85	-89.31	2,245.97	-6,509.01	10,480.91	10,286.64	194.27	53.951
10,900.00	6,947.97	7,105.37	7,103.97	71.32	159.84	-89.31	2,245.97	-6,509.01	10,580.78	10,386.46	194.32	54.449
11,000.00	6,947.91	7,105.31	7,103.91	72.76	159.84	-89.30	2,245.97	-6,509.01	10,680.66	10,486.28	194.38	54.947
11,100.00	6,947.85	7,105.25	7,103.85	74.21	159.84	-89.29	2,245.97	-6,509.01	10,780.54	10,586.10	194.44	55.445
11,200.00	6,947.79	7,105.19	7,103.79	75.66	159.84	-89.29	2,245.97	-6,509.01	10,880.42	10,685.93	194.49	55.943
11,300.00	6,947.73	7,105.13	7,103.73	77.12	159.84	-89.28	2,245.97	-6,509.01	10,980.30	10,785.76	194.55	56.440
11,400.00	6,947.66	7,105.07	7,103.66	78.58	159.84	-89.27	2,245.97	-6,509.01	11,080.19	10,885.59	194.60	56.937
11,500.00	6,947.60	7,105.01	7,103.60	80.05	159.83	-89.27	2,245.97	-6,509.01	11,180.08	10,985.42	194.66	57.433
11,600.00	6,947.54	7,104.95	7,103.54	81.52	159.83	-89.26	2,245.97	-6,509.01	11,279.97	11,085.25	194.72	57.930
11,700.00	6,947.48	7,104.89	7,103.48	83.00	159.83	-89.25	2,245.97	-6,509.01	11,379.86	11,185.09	194.78	58.426
11,800.00	6,947.42	7,104.83	7,103.42	84.48	159.83	-89.25	2,245.97	-6,509.01	11,479.76	11,284.92	194.83	58.921
11,900.00	6,947.36	7,104.77	7,103.36	85.97	159.83	-89.24	2,245.97	-6,509.01	11,579.65	11,384.76	194.89	59.416
12,000.00	6,947.30	7,104.71	7,103.30	87.46	159.83	-89.23	2,245.97	-6,509.01	11,679.55	11,484.60	194.95	59.911
12,100.00	6,947.24	7,104.65	7,103.24	88.96	159.83	-89.23	2,245.97	-6,509.01	11,779.45	11,584.44	195.01	60.406
12,200.00	6,947.18	7,104.59	7,103.18	90.46	159.82	-89.22	2,245.97	-6,509.01	11,879.35	11,684.29	195.06	60.900
12,300.00	6,947.12	7,104.53	7,103.12	91.96	159.82	-89.21	2,245.97	-6,509.01	11,979.25	11,784.13	195.12	61.394
12,400.00	6,947.06	7,104.47	7,103.06	93.47	159.82	-89.21	2,245.97	-6,509.01	12,079.16	11,883.98	195.18	61.887
12,500.00	6,947.00	7,104.41	7,103.00	94.97	159.82	-89.20	2,245.97	-6,509.01	12,179.06	11,983.83	195.24	62.380
12,600.00	6,946.94	7,104.35	7,102.94	96.49	159.82	-89.19	2,245.97	-6,509.01	12,278.97	12,083.67	195.30	62.873
12,700.00	6,946.88	7,104.28	7,102.88	98.00	159.82	-89.19	2,245.97	-6,509.01	12,378.88	12,183.52	195.36	63.365
12,800.00	6,946.82	7,104.22	7,102.82	99.52	159.81	-89.18	2,245.97	-6,509.01	12,478.79	12,283.38	195.42	63.857
12,900.00	6,946.76	7,104.16	7,102.76	101.04	159.81	-89.18	2,245.97	-6,509.01	12,578.70	12,383.23	195.48	64.349
13,000.00	6,946.70	7,104.10	7,102.70	102.56	159.81	-89.17	2,245.97	-6,509.01	12,678.62	12,483.08	195.54	64.840
13,100.00	6,946.64	7,104.04	7,102.64	104.09	159.81	-89.16	2,245.97	-6,509.01	12,778.53	12,582.93	195.60	65.331
13,200.00	6,946.58	7,103.98	7,102.58	105.61	159.81	-89.16	2,245.97	-6,509.01	12,878.45	12,682.79	195.66	65.821
13,300.00	6,946.52	7,103.92	7,102.52	107.14	159.81	-89.15	2,245.97	-6,509.01	12,978.37	12,782.65	195.72	66.311
13,400.00	6,946.46	7,103.86	7,102.46	108.67	159.81	-89.14	2,245.97	-6,509.01	13,078.28	12,882.50	195.78	66.801
13,500.00	6,946.40	7,103.80	7,102.40	110.21	159.80	-89.14	2,245.97	-6,509.01	13,178.20	12,982.36	195.84	67.290
13,600.00	6,946.34	7,103.74	7,102.34	111.74	159.80	-89.13	2,245.97	-6,509.01	13,278.12	13,082.22	195.90	67.779
13,700.00	6,946.28	7,103.68	7,102.28	113.28	159.80	-89.12	2,245.97	-6,509.01	13,378.05	13,182.08	195.97	68.267
13,800.00	6,946.22	7,103.62	7,102.22	114.82	159.80	-89.12	2,245.97	-6,509.01	13,477.97	13,281.94	196.03	68.755
13,900.00	6,946.16	7,103.56	7,102.16	116.36	159.80	-89.11	2,245.97	-6,509.01	13,577.90	13,381.80	196.09	69.243
14,000.00	6,946.10	7,103.50	7,102.10	117.90	159.80	-89.10	2,245.97	-6,509.01	13,677.82	13,481.67	196.15	69.730
14,100.00	6,946.04	7,103.44	7,102.04	119.45	159.80	-89.10	2,245.97	-6,509.01	13,777.75	13,581.53	196.22	70.217

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 030B - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 530-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
Warning												
14,200.00	6,945.98	7,103.38	7,101.98	120.99	159.79	-89.09	2,245.97	-6,509.01	13,877.68	13,681.39	196.28	70.703
14,300.00	6,945.92	7,103.32	7,101.92	122.54	159.79	-89.08	2,245.97	-6,509.01	13,977.60	13,781.26	196.34	71.189
14,400.00	6,945.86	7,103.26	7,101.86	124.09	159.79	-89.08	2,245.97	-6,509.01	14,077.53	13,881.13	196.41	71.675
14,500.00	6,945.80	7,103.20	7,101.80	125.64	159.79	-89.07	2,245.97	-6,509.01	14,177.46	13,980.99	196.47	72.160
14,600.00	6,945.74	7,103.14	7,101.74	127.19	159.79	-89.06	2,245.97	-6,509.01	14,277.40	14,080.86	196.54	72.645
14,700.00	6,945.68	7,103.08	7,101.68	128.74	159.79	-89.06	2,245.97	-6,509.01	14,377.33	14,180.73	196.60	73.129
14,800.00	6,945.62	7,103.02	7,101.62	130.30	159.78	-89.05	2,245.97	-6,509.01	14,477.26	14,280.59	196.67	73.613
14,900.00	6,945.56	7,102.96	7,101.56	131.85	159.78	-89.04	2,245.97	-6,509.01	14,577.20	14,380.46	196.73	74.096
15,000.00	6,945.50	7,102.90	7,101.50	133.41	159.78	-89.04	2,245.97	-6,509.01	14,677.13	14,480.33	196.80	74.579
15,100.00	6,945.44	7,102.84	7,101.44	134.96	159.78	-89.03	2,245.97	-6,509.01	14,777.07	14,580.20	196.87	75.061
15,200.00	6,945.38	7,102.78	7,101.38	136.52	159.78	-89.02	2,245.97	-6,509.01	14,877.01	14,680.07	196.93	75.543
15,300.00	6,945.32	7,102.72	7,101.32	138.08	159.78	-89.02	2,245.97	-6,509.01	14,976.94	14,779.94	197.00	76.025
15,400.00	6,945.26	7,102.66	7,101.26	139.64	159.78	-89.01	2,245.97	-6,509.01	15,076.88	14,879.81	197.07	76.506
15,500.00	6,945.20	7,102.60	7,101.20	141.20	159.77	-89.00	2,245.97	-6,509.01	15,176.82	14,979.69	197.14	76.987
15,600.00	6,945.14	7,102.54	7,101.14	142.76	159.77	-89.00	2,245.97	-6,509.01	15,276.76	15,079.56	197.20	77.467
15,700.00	6,945.08	7,102.48	7,101.08	144.33	159.77	-88.99	2,245.97	-6,509.01	15,376.70	15,179.43	197.27	77.946
15,800.00	6,945.02	7,102.42	7,101.02	145.89	159.77	-88.98	2,245.97	-6,509.01	15,476.65	15,279.30	197.34	78.426
15,900.00	6,944.96	7,102.36	7,100.96	147.46	159.77	-88.98	2,245.97	-6,509.01	15,576.59	15,379.18	197.41	78.904
16,000.00	6,944.90	7,102.30	7,100.90	149.02	159.77	-88.97	2,245.97	-6,509.01	15,676.53	15,479.05	197.48	79.383
16,100.00	6,944.84	7,102.24	7,100.84	150.59	159.76	-88.97	2,245.97	-6,509.01	15,776.48	15,578.93	197.55	79.861
16,200.00	6,944.77	7,102.18	7,100.77	152.15	159.76	-88.96	2,245.97	-6,509.01	15,876.42	15,678.80	197.62	80.338
16,300.00	6,944.71	7,102.12	7,100.71	153.72	159.76	-88.95	2,245.97	-6,509.01	15,976.37	15,778.68	197.69	80.815
16,400.00	6,944.65	7,102.06	7,100.65	155.29	159.76	-88.95	2,245.97	-6,509.01	16,076.31	15,878.55	197.76	81.291
16,500.00	6,944.59	7,102.00	7,100.59	156.86	159.76	-88.94	2,245.97	-6,509.01	16,176.26	15,978.43	197.83	81.767
16,600.00	6,944.53	7,101.94	7,100.53	158.43	159.76	-88.93	2,245.97	-6,509.01	16,276.21	16,078.30	197.90	82.243
16,700.00	6,944.47	7,101.88	7,100.47	160.00	159.76	-88.93	2,245.97	-6,509.01	16,376.16	16,178.18	197.98	82.718
16,800.00	6,944.41	7,101.82	7,100.41	161.57	159.75	-88.92	2,245.97	-6,509.01	16,476.10	16,278.06	198.05	83.192
16,900.00	6,944.35	7,101.76	7,100.35	163.14	159.75	-88.91	2,245.97	-6,509.01	16,576.05	16,377.93	198.12	83.666
17,000.00	6,944.29	7,101.70	7,100.29	164.71	159.75	-88.91	2,245.97	-6,509.01	16,676.00	16,477.81	198.19	84.140
17,100.00	6,944.23	7,101.64	7,100.23	166.29	159.75	-88.90	2,245.97	-6,509.01	16,775.95	16,577.69	198.27	84.613
17,200.00	6,944.17	7,101.58	7,100.17	167.86	159.75	-88.89	2,245.97	-6,509.01	16,875.91	16,677.56	198.34	85.085
17,300.00	6,944.11	7,101.52	7,100.11	169.43	159.75	-88.89	2,245.97	-6,509.01	16,975.86	16,777.44	198.42	85.557
17,400.00	6,944.05	7,101.46	7,100.05	171.01	159.75	-88.88	2,245.97	-6,509.01	17,075.81	16,877.32	198.49	86.029
17,500.00	6,943.99	7,101.40	7,099.99	172.58	159.74	-88.87	2,245.97	-6,509.01	17,175.76	16,977.20	198.56	86.500
17,600.00	6,943.93	7,101.33	7,099.93	174.16	159.74	-88.87	2,245.97	-6,509.01	17,275.72	17,077.08	198.64	86.970
17,700.00	6,943.87	7,101.27	7,099.87	175.73	159.74	-88.86	2,245.97	-6,509.01	17,375.67	17,176.95	198.71	87.440
17,800.00	6,943.81	7,101.21	7,099.81	177.31	159.74	-88.85	2,245.97	-6,509.01	17,475.62	17,276.83	198.79	87.910
17,900.00	6,943.75	7,101.15	7,099.75	178.89	159.74	-88.85	2,245.97	-6,509.01	17,575.58	17,376.71	198.87	88.379
18,000.00	6,943.69	7,101.09	7,099.69	180.46	159.74	-88.84	2,245.97	-6,509.01	17,675.53	17,476.59	198.94	88.847
18,100.00	6,943.63	7,101.03	7,099.63	182.04	159.73	-88.83	2,245.97	-6,509.01	17,775.49	17,576.47	199.02	89.315
18,200.00	6,943.57	7,100.97	7,099.57	183.62	159.73	-88.83	2,245.97	-6,509.01	17,875.45	17,676.35	199.10	89.783
18,300.00	6,943.51	7,100.91	7,099.51	185.20	159.73	-88.82	2,245.97	-6,509.01	17,975.40	17,776.23	199.17	90.250
18,400.00	6,943.45	7,100.85	7,099.45	186.78	159.73	-88.81	2,245.97	-6,509.01	18,075.36	17,876.11	199.25	90.716
18,500.00	6,943.39	7,100.79	7,099.39	188.36	159.73	-88.81	2,245.97	-6,509.01	18,175.32	17,975.99	199.33	91.182
18,600.00	6,943.33	7,100.73	7,099.33	189.94	159.73	-88.80	2,245.97	-6,509.01	18,275.28	18,075.87	199.41	91.647
18,700.00	6,943.27	7,100.67	7,099.27	191.52	159.73	-88.79	2,245.97	-6,509.01	18,375.24	18,175.75	199.49	92.112
18,800.00	6,943.21	7,100.61	7,099.21	193.10	159.72	-88.79	2,245.97	-6,509.01	18,475.20	18,275.63	199.57	92.577
18,900.00	6,943.15	7,100.55	7,099.15	194.68	159.72	-88.78	2,245.97	-6,509.01	18,575.16	18,375.51	199.65	93.040
19,000.00	6,943.09	7,100.49	7,099.09	196.26	159.72	-88.77	2,245.97	-6,509.01	18,675.12	18,475.39	199.73	93.504
19,100.00	6,943.03	7,100.43	7,099.03	197.84	159.72	-88.77	2,245.97	-6,509.01	18,775.08	18,575.27	199.81	93.967
19,200.00	6,942.97	7,100.37	7,098.97	199.42	159.72	-88.76	2,245.97	-6,509.01	18,875.04	18,675.15	199.89	94.429
19,300.00	6,942.91	7,100.31	7,098.91	201.01	159.72	-88.76	2,245.97	-6,509.01	18,975.00	18,775.03	199.97	94.891

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 030B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 530-A027Ua_INC-ONLY												Offset Well Error:	0.00 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	
19,400.00	6,942.85	7,100.25	7,098.85	202.59	159.71	-88.75	2,245.97	-6,509.01	19,074.96	18,874.91	200.05	95.352	
19,500.00	6,942.79	7,100.19	7,098.79	204.17	159.71	-88.74	2,245.97	-6,509.01	19,174.92	18,974.79	200.13	95.812	
19,600.00	6,942.73	7,100.13	7,098.73	205.75	159.71	-88.74	2,245.97	-6,509.01	19,274.89	19,074.67	200.21	96.272	
19,700.00	6,942.67	7,100.07	7,098.67	207.34	159.71	-88.73	2,245.97	-6,509.01	19,374.85	19,174.55	200.29	96.732	
19,800.00	6,942.61	7,100.01	7,098.61	208.92	159.71	-88.72	2,245.97	-6,509.01	19,474.81	19,274.44	200.38	97.191	
19,900.00	6,942.55	7,099.95	7,098.55	210.51	159.71	-88.72	2,245.97	-6,509.01	19,574.78	19,374.32	200.46	97.650	
20,000.00	6,942.49	7,099.89	7,098.49	212.09	159.71	-88.71	2,245.97	-6,509.01	19,674.74	19,474.20	200.54	98.108	
20,100.00	6,942.43	7,099.83	7,098.43	213.68	159.70	-88.70	2,245.97	-6,509.01	19,774.70	19,574.08	200.63	98.565	
20,200.00	6,942.37	7,099.77	7,098.37	215.26	159.70	-88.70	2,245.97	-6,509.01	19,874.67	19,673.96	200.71	99.022	
20,300.00	6,942.31	7,099.71	7,098.31	216.85	159.70	-88.69	2,245.97	-6,509.01	19,974.63	19,773.84	200.79	99.478	
20,400.00	6,942.25	7,099.65	7,098.25	218.43	159.70	-88.68	2,245.97	-6,509.01	20,074.60	19,873.72	200.88	99.934	
20,500.00	6,942.19	7,099.59	7,098.19	220.02	159.70	-88.68	2,245.97	-6,509.01	20,174.57	19,973.60	200.96	100.389	
20,600.00	6,942.13	7,099.53	7,098.13	221.60	159.70	-88.67	2,245.97	-6,509.01	20,274.53	20,073.48	201.05	100.844	
20,700.00	6,942.07	7,099.47	7,098.07	223.19	159.70	-88.66	2,245.97	-6,509.01	20,374.50	20,173.37	201.13	101.298	
20,808.89	6,942.00	7,099.40	7,098.00	224.92	159.69	-88.66	2,245.97	-6,509.01	20,483.35	20,282.12	201.23	101.792	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031 - OH - OH-TD													Offset Site Error:	0.00 usft
Survey Program: 5973-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance								
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	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	47.92	1,112.62	1,232.09	1,665.12					
100.00	100.00	0.00	0.00	0.25	0.00	47.92	1,112.62	1,232.09	1,660.37	1,660.11	0.25	6,529.523		
146.95	146.95	17.95	17.95	0.42	0.78	47.92	1,112.62	1,232.09	1,660.11	1,658.91	1.20	1,380.443		
200.00	200.00	71.00	71.00	0.61	3.10	47.92	1,112.62	1,232.09	1,660.11	1,656.41	3.71	447.764		
300.00	300.00	171.00	171.00	0.97	7.46	47.92	1,112.62	1,232.09	1,660.11	1,651.68	8.43	196.944		
400.00	400.00	271.00	271.00	1.33	11.82	47.92	1,112.62	1,232.09	1,660.11	1,646.96	13.15	126.233		
500.00	500.00	371.00	371.00	1.68	16.19	47.92	1,112.62	1,232.09	1,660.11	1,642.24	17.87	92.884		
600.00	599.98	470.98	470.98	2.04	20.55	46.75	1,112.62	1,232.09	1,658.92	1,636.32	22.59	73.423		
700.00	699.84	570.84	570.84	2.41	24.91	46.94	1,112.62	1,232.09	1,655.33	1,628.02	27.31	60.611		
800.00	799.45	670.45	670.45	2.77	29.25	47.25	1,112.62	1,232.09	1,649.39	1,617.37	32.02	51.513		
900.00	898.70	769.70	769.70	3.13	33.58	47.68	1,112.62	1,232.09	1,641.12	1,604.40	36.72	44.699		
1,000.00	997.47	868.47	868.47	3.50	37.89	48.24	1,112.62	1,232.09	1,630.57	1,589.17	41.40	39.390		
1,100.00	1,095.62	966.62	966.62	3.89	42.18	48.94	1,112.62	1,232.09	1,617.82	1,571.76	46.06	35.126		
1,200.00	1,193.06	1,064.06	1,064.06	4.30	46.43	49.76	1,112.62	1,232.09	1,602.94	1,552.24	50.70	31.617		
1,245.21	1,236.83	1,107.83	1,107.83	4.48	48.34	50.18	1,112.62	1,232.09	1,595.55	1,542.76	52.79	30.224		
1,300.00	1,289.78	1,160.78	1,160.78	4.72	50.65	50.56	1,112.62	1,232.09	1,586.38	1,531.06	55.32	28.676		
1,400.00	1,386.42	1,257.42	1,257.42	5.15	54.87	51.27	1,112.62	1,232.09	1,569.83	1,509.88	59.95	26.187		
1,500.00	1,483.05	1,354.05	1,354.05	5.59	59.08	52.00	1,112.62	1,232.09	1,553.53	1,488.95	64.58	24.057		
1,600.00	1,579.69	1,450.69	1,450.69	6.04	63.30	52.74	1,112.62	1,232.09	1,537.49	1,468.27	69.22	22.213		
1,700.00	1,676.32	1,547.32	1,547.32	6.49	67.51	53.49	1,112.62	1,232.09	1,521.71	1,447.85	73.86	20.602		
1,800.00	1,772.96	1,643.96	1,643.96	6.94	71.73	54.26	1,112.62	1,232.09	1,506.21	1,427.70	78.51	19.184		
1,900.00	1,869.60	1,740.60	1,740.60	7.40	75.95	55.04	1,112.62	1,232.09	1,490.99	1,407.83	83.17	17.928		
2,000.00	1,966.23	1,837.23	1,837.23	7.86	80.16	55.84	1,112.62	1,232.09	1,476.07	1,388.24	87.83	16.807		
2,100.00	2,062.87	1,933.87	1,933.87	8.33	84.38	56.66	1,112.62	1,232.09	1,461.44	1,368.95	92.49	15.801		
2,200.00	2,159.50	2,030.50	2,030.50	8.79	88.60	57.49	1,112.62	1,232.09	1,447.12	1,349.96	97.16	14.894		
2,300.00	2,256.14	2,127.14	2,127.14	9.26	92.81	58.34	1,112.62	1,232.09	1,433.12	1,331.29	101.83	14.074		
2,400.00	2,352.77	2,223.77	2,223.77	9.73	97.03	59.20	1,112.62	1,232.09	1,419.45	1,312.95	106.50	13.328		
2,500.00	2,449.41	2,320.41	2,320.41	10.20	101.25	60.08	1,112.62	1,232.09	1,406.12	1,294.93	111.18	12.647		
2,600.00	2,546.05	2,417.05	2,417.05	10.67	105.46	60.97	1,112.62	1,232.09	1,393.13	1,277.27	115.86	12.024		
2,700.00	2,642.68	2,513.68	2,513.68	11.14	109.68	61.88	1,112.62	1,232.09	1,380.50	1,259.95	120.55	11.452		
2,800.00	2,739.32	2,610.32	2,610.32	11.61	113.90	62.80	1,112.62	1,232.09	1,368.24	1,243.00	125.23	10.925		
2,900.00	2,835.95	2,706.95	2,706.95	12.08	118.11	63.74	1,112.62	1,232.09	1,356.35	1,226.43	129.92	10.440		
3,000.00	2,932.59	2,803.59	2,803.59	12.55	122.33	64.70	1,112.62	1,232.09	1,344.85	1,210.24	134.62	9.990		
3,100.00	3,029.22	2,900.22	2,900.22	13.03	126.55	65.67	1,112.62	1,232.09	1,333.75	1,194.44	139.31	9.574		
3,200.00	3,125.86	2,996.86	2,996.86	13.50	130.76	66.66	1,112.62	1,232.09	1,323.06	1,179.05	144.01	9.187		
3,300.00	3,222.50	3,093.50	3,093.50	13.97	134.98	67.66	1,112.62	1,232.09	1,312.78	1,164.07	148.71	8.828		
3,400.00	3,319.13	3,190.13	3,190.13	14.45	139.20	68.67	1,112.62	1,232.09	1,302.93	1,149.52	153.41	8.493		
3,500.00	3,415.77	3,286.77	3,286.77	14.92	143.41	69.70	1,112.62	1,232.09	1,293.51	1,135.40	158.11	8.181		
3,600.00	3,512.40	3,383.40	3,383.40	15.40	147.63	70.75	1,112.62	1,232.09	1,284.54	1,121.72	162.82	7.889		
3,700.00	3,609.04	3,480.04	3,480.04	15.88	151.85	71.80	1,112.62	1,232.09	1,276.03	1,108.50	167.52	7.617		
3,800.00	3,705.67	3,576.67	3,576.67	16.35	156.06	72.87	1,112.62	1,232.09	1,267.98	1,095.75	172.23	7.362		
3,900.00	3,802.31	3,673.31	3,673.31	16.83	160.28	73.96	1,112.62	1,232.09	1,260.40	1,083.46	176.94	7.123		
4,000.00	3,898.95	3,769.95	3,769.95	17.30	164.49	75.05	1,112.62	1,232.09	1,253.31	1,071.66	181.65	6.900		
4,100.00	3,995.58	3,866.58	3,866.58	17.78	168.71	76.16	1,112.62	1,232.09	1,246.71	1,060.35	186.36	6.690		
4,200.00	4,092.22	3,963.22	3,963.22	18.26	172.93	77.27	1,112.62	1,232.09	1,240.60	1,049.54	191.07	6.493		
4,300.00	4,188.85	4,059.85	4,059.85	18.73	177.14	78.40	1,112.62	1,232.09	1,235.01	1,039.23	195.78	6.308		
4,400.00	4,285.49	4,156.49	4,156.49	19.21	181.36	79.54	1,112.62	1,232.09	1,229.92	1,029.43	200.49	6.135		
4,500.00	4,382.12	4,253.12	4,253.12	19.69	185.58	80.68	1,112.62	1,232.09	1,225.35	1,020.15	205.20	5.972		
4,600.00	4,478.76	4,349.76	4,349.76	20.17	189.79	81.83	1,112.62	1,232.09	1,221.31	1,011.40	209.91	5.818		
4,700.00	4,575.40	4,446.40	4,446.40	20.64	194.01	82.99	1,112.62	1,232.09	1,217.80	1,003.18	214.61	5.674		
4,800.00	4,672.03	4,543.03	4,543.03	21.12	198.23	84.15	1,112.62	1,232.09	1,214.82	995.50	219.32	5.539		
4,900.00	4,768.67	4,639.67	4,639.67	21.60	202.44	85.32	1,112.62	1,232.09	1,212.38	988.35	224.02	5.412		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031 - OH - OH-TD												Offset Site Error:	0.00 usft
Survey Program: 5973-A028Ua_INC-ONLY_PLANNED_5_DEG												Offset Well Error:	0.00 usft
Rule Assigned:													
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)			
8,800.00	6,949.23	5,973.00	5,973.00	43.82	260.62	29.78	1,112.62	1,232.09	1,206.92	1,001.02	205.90	5.862	
8,900.00	6,949.17	5,973.00	5,973.00	44.94	260.62	29.78	1,112.62	1,232.09	1,268.26	1,053.16	215.10	5.896	
9,000.00	6,949.11	5,973.00	5,973.00	46.09	260.62	29.78	1,112.62	1,232.09	1,334.28	1,110.97	223.32	5.975	
9,100.00	6,949.05	5,973.00	5,973.00	47.26	260.62	29.78	1,112.62	1,232.09	1,404.33	1,173.77	230.56	6.091	
9,200.00	6,948.99	5,973.00	5,973.00	48.46	260.62	29.78	1,112.62	1,232.09	1,477.82	1,240.91	236.91	6.238	
9,300.00	6,948.93	5,973.00	5,973.00	49.68	260.62	29.78	1,112.62	1,232.09	1,554.28	1,311.82	242.46	6.410	
9,400.00	6,948.87	5,973.00	5,973.00	50.93	260.62	29.78	1,112.62	1,232.09	1,633.28	1,385.98	247.31	6.604	
9,500.00	6,948.81	5,973.00	5,973.00	52.19	260.62	29.78	1,112.62	1,232.09	1,714.48	1,462.94	251.54	6.816	
9,600.00	6,948.75	5,973.00	5,973.00	53.47	260.62	29.78	1,112.62	1,232.09	1,797.57	1,542.33	255.24	7.043	
9,700.00	6,948.69	5,973.00	5,973.00	54.77	260.62	29.78	1,112.62	1,232.09	1,882.31	1,623.82	258.48	7.282	
9,800.00	6,948.63	5,973.00	5,973.00	56.08	260.62	29.78	1,112.62	1,232.09	1,968.48	1,707.14	261.34	7.532	
9,900.00	6,948.57	5,973.00	5,973.00	57.41	260.62	29.78	1,112.62	1,232.09	2,055.90	1,792.04	263.86	7.792	
10,000.00	6,948.51	5,973.00	5,973.00	58.76	260.62	29.78	1,112.62	1,232.09	2,144.43	1,878.33	266.09	8.059	
10,100.00	6,948.45	5,973.00	5,973.00	60.11	260.62	29.78	1,112.62	1,232.09	2,233.92	1,965.84	268.07	8.333	
10,200.00	6,948.39	5,973.00	5,973.00	61.48	260.62	29.78	1,112.62	1,232.09	2,324.27	2,054.42	269.84	8.613	
10,300.00	6,948.33	5,973.00	5,973.00	62.86	260.62	29.78	1,112.62	1,232.09	2,415.37	2,143.95	271.42	8.899	
10,400.00	6,948.27	5,973.00	5,973.00	64.24	260.62	29.78	1,112.62	1,232.09	2,507.16	2,234.32	272.84	9.189	
10,500.00	6,948.21	5,973.00	5,973.00	65.64	260.62	29.78	1,112.62	1,232.09	2,599.55	2,325.43	274.12	9.483	
10,600.00	6,948.15	5,973.00	5,973.00	67.05	260.62	29.78	1,112.62	1,232.09	2,692.49	2,417.21	275.28	9.781	
10,700.00	6,948.09	5,973.00	5,973.00	68.47	260.62	29.78	1,112.62	1,232.09	2,785.92	2,509.59	276.33	10.082	
10,800.00	6,948.03	5,973.00	5,973.00	69.89	260.62	29.78	1,112.62	1,232.09	2,879.78	2,602.50	277.28	10.386	
10,900.00	6,947.97	5,973.00	5,973.00	71.32	260.62	29.78	1,112.62	1,232.09	2,974.05	2,695.90	278.16	10.692	
11,000.00	6,947.91	5,973.00	5,973.00	72.76	260.62	29.78	1,112.62	1,232.09	3,068.68	2,789.73	278.95	11.001	
11,100.00	6,947.85	5,973.00	5,973.00	74.21	260.62	29.78	1,112.62	1,232.09	3,163.64	2,883.96	279.69	11.311	
11,200.00	6,947.79	5,973.00	5,973.00	75.66	260.62	29.78	1,112.62	1,232.09	3,258.90	2,978.55	280.36	11.624	
11,300.00	6,947.73	5,973.00	5,973.00	77.12	260.62	29.78	1,112.62	1,232.09	3,354.44	3,073.46	280.98	11.938	
11,400.00	6,947.66	5,973.00	5,973.00	78.58	260.62	29.78	1,112.62	1,232.09	3,450.23	3,168.68	281.56	12.254	
11,500.00	6,947.60	5,973.00	5,973.00	80.05	260.62	29.78	1,112.62	1,232.09	3,546.26	3,264.16	282.09	12.571	
11,600.00	6,947.54	5,973.00	5,973.00	81.52	260.62	29.78	1,112.62	1,232.09	3,642.49	3,359.91	282.59	12.890	
11,700.00	6,947.48	5,973.00	5,973.00	83.00	260.62	29.78	1,112.62	1,232.09	3,738.93	3,455.88	283.05	13.209	
11,800.00	6,947.42	5,973.00	5,973.00	84.48	260.62	29.78	1,112.62	1,232.09	3,835.55	3,552.06	283.49	13.530	
11,900.00	6,947.36	5,973.00	5,973.00	85.97	260.62	29.78	1,112.62	1,232.09	3,932.33	3,648.44	283.89	13.852	
12,000.00	6,947.30	5,973.00	5,973.00	87.46	260.62	29.78	1,112.62	1,232.09	4,029.28	3,745.00	284.27	14.174	
12,100.00	6,947.24	5,973.00	5,973.00	88.96	260.62	29.78	1,112.62	1,232.09	4,126.36	3,841.73	284.63	14.497	
12,200.00	6,947.18	5,973.00	5,973.00	90.46	260.62	29.78	1,112.62	1,232.09	4,223.59	3,938.62	284.97	14.821	
12,300.00	6,947.12	5,973.00	5,973.00	91.96	260.62	29.78	1,112.62	1,232.09	4,320.94	4,035.65	285.29	15.146	
12,400.00	6,947.06	5,973.00	5,973.00	93.47	260.62	29.78	1,112.62	1,232.09	4,418.41	4,132.82	285.59	15.471	
12,500.00	6,947.00	5,973.00	5,973.00	94.97	260.62	29.78	1,112.62	1,232.09	4,515.99	4,230.12	285.88	15.797	
12,600.00	6,946.94	5,973.00	5,973.00	96.49	260.62	29.78	1,112.62	1,232.09	4,613.68	4,327.53	286.15	16.123	
12,700.00	6,946.88	5,973.00	5,973.00	98.00	260.62	29.78	1,112.62	1,232.09	4,711.46	4,425.05	286.41	16.450	
12,800.00	6,946.82	5,973.00	5,973.00	99.52	260.62	29.78	1,112.62	1,232.09	4,809.33	4,522.67	286.66	16.777	
12,900.00	6,946.76	5,973.00	5,973.00	101.04	260.62	29.78	1,112.62	1,232.09	4,907.29	4,620.40	286.89	17.105	
13,000.00	6,946.70	5,973.00	5,973.00	102.56	260.62	29.78	1,112.62	1,232.09	5,005.33	4,718.21	287.12	17.433	
13,100.00	6,946.64	5,973.00	5,973.00	104.09	260.62	29.78	1,112.62	1,232.09	5,103.44	4,816.11	287.34	17.761	
13,200.00	6,946.58	5,973.00	5,973.00	105.61	260.62	29.78	1,112.62	1,232.09	5,201.63	4,914.09	287.54	18.090	
13,300.00	6,946.52	5,973.00	5,973.00	107.14	260.62	29.78	1,112.62	1,232.09	5,299.89	5,012.14	287.75	18.419	
13,400.00	6,946.46	5,973.00	5,973.00	108.67	260.62	29.78	1,112.62	1,232.09	5,398.20	5,110.27	287.94	18.748	
13,500.00	6,946.40	5,973.00	5,973.00	110.21	260.62	29.78	1,112.62	1,232.09	5,496.58	5,208.46	288.13	19.077	
13,600.00	6,946.34	5,973.00	5,973.00	111.74	260.62	29.78	1,112.62	1,232.09	5,595.02	5,306.72	288.31	19.407	
13,700.00	6,946.28	5,973.00	5,973.00	113.28	260.62	29.78	1,112.62	1,232.09	5,693.51	5,405.03	288.48	19.736	
13,800.00	6,946.22	5,973.00	5,973.00	114.82	260.62	29.78	1,112.62	1,232.09	5,792.06	5,503.41	288.65	20.066	
13,900.00	6,946.16	5,973.00	5,973.00	116.36	260.62	29.78	1,112.62	1,232.09	5,890.65	5,601.83	288.81	20.396	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031 - OH - OH-TD													Offset Site Error:	0.00 usft
Survey Program: 5973-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error:	0.00 usft
Reference													Rule Assigned:	
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)				
14,000.00	6,946.10	5,973.00	5,973.00	117.90	260.62	29.78	1,112.62	1,232.09	5,989.29	5,700.31	288.97	20.726		
14,100.00	6,946.04	5,973.00	5,973.00	119.45	260.62	29.78	1,112.62	1,232.09	6,087.97	5,798.84	289.13	21.056		
14,200.00	6,945.98	5,973.00	5,973.00	120.99	260.62	29.78	1,112.62	1,232.09	6,186.70	5,897.42	289.28	21.387		
14,300.00	6,945.92	5,973.00	5,973.00	122.54	260.62	29.78	1,112.62	1,232.09	6,285.46	5,996.03	289.43	21.717		
14,400.00	6,945.86	5,973.00	5,973.00	124.09	260.62	29.78	1,112.62	1,232.09	6,384.27	6,094.69	289.57	22.047		
14,500.00	6,945.80	5,973.00	5,973.00	125.64	260.62	29.78	1,112.62	1,232.09	6,483.11	6,193.40	289.71	22.378		
14,600.00	6,945.74	5,973.00	5,973.00	127.19	260.62	29.78	1,112.62	1,232.09	6,581.98	6,292.13	289.85	22.708		
14,700.00	6,945.68	5,973.00	5,973.00	128.74	260.62	29.78	1,112.62	1,232.09	6,680.89	6,390.91	289.99	23.039		
14,800.00	6,945.62	5,973.00	5,973.00	130.30	260.62	29.78	1,112.62	1,232.09	6,779.83	6,489.72	290.12	23.369		
14,900.00	6,945.56	5,973.00	5,973.00	131.85	260.62	29.78	1,112.62	1,232.09	6,878.81	6,588.56	290.25	23.700		
15,000.00	6,945.50	5,973.00	5,973.00	133.41	260.62	29.78	1,112.62	1,232.09	6,977.81	6,687.43	290.38	24.030		
15,100.00	6,945.44	5,973.00	5,973.00	134.96	260.62	29.78	1,112.62	1,232.09	7,076.84	6,786.34	290.50	24.361		
15,200.00	6,945.38	5,973.00	5,973.00	136.52	260.62	29.78	1,112.62	1,232.09	7,175.89	6,885.27	290.63	24.691		
15,300.00	6,945.32	5,973.00	5,973.00	138.08	260.62	29.78	1,112.62	1,232.09	7,274.98	6,984.23	290.75	25.022		
15,400.00	6,945.26	5,973.00	5,973.00	139.64	260.62	29.78	1,112.62	1,232.09	7,374.08	7,083.22	290.87	25.352		
15,500.00	6,945.20	5,973.00	5,973.00	141.20	260.62	29.78	1,112.62	1,232.09	7,473.21	7,182.23	290.99	25.682		
15,600.00	6,945.14	5,973.00	5,973.00	142.76	260.62	29.78	1,112.62	1,232.09	7,572.37	7,281.26	291.10	26.013		
15,700.00	6,945.08	5,973.00	5,973.00	144.33	260.62	29.78	1,112.62	1,232.09	7,671.54	7,380.32	291.22	26.343		
15,800.00	6,945.02	5,973.00	5,973.00	145.89	260.62	29.78	1,112.62	1,232.09	7,770.74	7,479.41	291.33	26.673		
15,900.00	6,944.96	5,973.00	5,973.00	147.46	260.62	29.78	1,112.62	1,232.09	7,869.96	7,578.51	291.45	27.003		
16,000.00	6,944.90	5,973.00	5,973.00	149.02	260.62	29.78	1,112.62	1,232.09	7,969.19	7,677.63	291.56	27.333		
16,100.00	6,944.84	5,973.00	5,973.00	150.59	260.62	29.78	1,112.62	1,232.09	8,068.45	7,776.78	291.67	27.663		
16,200.00	6,944.77	5,973.00	5,973.00	152.15	260.62	29.78	1,112.62	1,232.09	8,167.72	7,875.94	291.78	27.993		
16,300.00	6,944.71	5,973.00	5,973.00	153.72	260.62	29.78	1,112.62	1,232.09	8,267.01	7,975.12	291.89	28.322		
16,400.00	6,944.65	5,973.00	5,973.00	155.29	260.62	29.78	1,112.62	1,232.09	8,366.32	8,074.32	292.00	28.652		
16,500.00	6,944.59	5,973.00	5,973.00	156.86	260.62	29.78	1,112.62	1,232.09	8,465.65	8,173.54	292.11	28.981		
16,600.00	6,944.53	5,973.00	5,973.00	158.43	260.62	29.78	1,112.62	1,232.09	8,564.99	8,272.77	292.21	29.311		
16,700.00	6,944.47	5,973.00	5,973.00	160.00	260.62	29.78	1,112.62	1,232.09	8,664.34	8,372.02	292.32	29.640		
16,800.00	6,944.41	5,973.00	5,973.00	161.57	260.62	29.78	1,112.62	1,232.09	8,763.71	8,471.29	292.43	29.969		
16,900.00	6,944.35	5,973.00	5,973.00	163.14	260.62	29.78	1,112.62	1,232.09	8,863.10	8,570.57	292.53	30.298		
17,000.00	6,944.29	5,973.00	5,973.00	164.71	260.62	29.78	1,112.62	1,232.09	8,962.49	8,669.86	292.64	30.627		
17,100.00	6,944.23	5,973.00	5,973.00	166.29	260.62	29.78	1,112.62	1,232.09	9,061.91	8,769.17	292.74	30.955		
17,200.00	6,944.17	5,973.00	5,973.00	167.86	260.62	29.78	1,112.62	1,232.09	9,161.33	8,868.49	292.84	31.284		
17,300.00	6,944.11	5,973.00	5,973.00	169.43	260.62	29.78	1,112.62	1,232.09	9,260.77	8,967.82	292.95	31.612		
17,400.00	6,944.05	5,973.00	5,973.00	171.01	260.62	29.78	1,112.62	1,232.09	9,360.21	9,067.16	293.05	31.941		
17,500.00	6,943.99	5,973.00	5,973.00	172.58	260.62	29.78	1,112.62	1,232.09	9,459.67	9,166.52	293.15	32.269		
17,600.00	6,943.93	5,973.00	5,973.00	174.16	260.62	29.78	1,112.62	1,232.09	9,559.15	9,265.89	293.26	32.597		
17,700.00	6,943.87	5,973.00	5,973.00	175.73	260.62	29.78	1,112.62	1,232.09	9,658.63	9,365.27	293.36	32.924		
17,800.00	6,943.81	5,973.00	5,973.00	177.31	260.62	29.78	1,112.62	1,232.09	9,758.12	9,464.66	293.46	33.252		
17,900.00	6,943.75	5,973.00	5,973.00	178.89	260.62	29.78	1,112.62	1,232.09	9,857.62	9,564.06	293.56	33.579		
18,000.00	6,943.69	5,973.00	5,973.00	180.46	260.62	29.78	1,112.62	1,232.09	9,957.14	9,663.47	293.66	33.907		
18,100.00	6,943.63	5,973.00	5,973.00	182.04	260.62	29.78	1,112.62	1,232.09	10,056.66	9,762.89	293.76	34.234		
18,200.00	6,943.57	5,973.00	5,973.00	183.62	260.62	29.78	1,112.62	1,232.09	10,156.19	9,862.33	293.87	34.561		
18,300.00	6,943.51	5,973.00	5,973.00	185.20	260.62	29.78	1,112.62	1,232.09	10,255.73	9,961.77	293.97	34.887		
18,400.00	6,943.45	5,973.00	5,973.00	186.78	260.62	29.78	1,112.62	1,232.09	10,355.28	10,061.21	294.07	35.214		
18,500.00	6,943.39	5,973.00	5,973.00	188.36	260.62	29.78	1,112.62	1,232.09	10,454.84	10,160.67	294.17	35.540		
18,600.00	6,943.33	5,973.00	5,973.00	189.94	260.62	29.78	1,112.62	1,232.09	10,554.41	10,260.14	294.27	35.867		
18,700.00	6,943.27	5,973.00	5,973.00	191.52	260.62	29.78	1,112.62	1,232.09	10,653.98	10,359.61	294.37	36.192		
18,800.00	6,943.21	5,973.00	5,973.00	193.10	260.62	29.78	1,112.62	1,232.09	10,753.57	10,459.09	294.47	36.518		
18,900.00	6,943.15	5,973.00	5,973.00	194.68	260.62	29.78	1,112.62	1,232.09	10,853.16	10,558.58	294.57	36.844		
19,000.00	6,943.09	5,973.00	5,973.00	196.26	260.62	29.78	1,112.62	1,232.09	10,952.75	10,658.08	294.67	37.169		
19,100.00	6,943.03	5,973.00	5,973.00	197.84	260.62	29.78	1,112.62	1,232.09	11,052.36	10,757.59	294.77	37.494		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031 - OH - OH-TD													Offset Site Error: 0.00 usft
Survey Program: 5973-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error: 0.00 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)			
19,200.00	6,942.97	5,973.00	5,973.00	199.42	260.62	29.78	1,112.62	1,232.09	11,151.97	10,857.10	294.87	37.819	
19,300.00	6,942.91	5,973.00	5,973.00	201.01	260.62	29.78	1,112.62	1,232.09	11,251.59	10,956.62	294.97	38.144	
19,400.00	6,942.85	5,973.00	5,973.00	202.59	260.62	29.78	1,112.62	1,232.09	11,351.22	11,056.14	295.08	38.469	
19,500.00	6,942.79	5,973.00	5,973.00	204.17	260.62	29.78	1,112.62	1,232.09	11,450.85	11,155.67	295.18	38.793	
19,600.00	6,942.73	5,973.00	5,973.00	205.75	260.62	29.78	1,112.62	1,232.09	11,550.49	11,255.21	295.28	39.117	
19,700.00	6,942.67	5,973.00	5,973.00	207.34	260.62	29.78	1,112.62	1,232.09	11,650.13	11,354.75	295.38	39.441	
19,800.00	6,942.61	5,973.00	5,973.00	208.92	260.62	29.78	1,112.62	1,232.09	11,749.78	11,454.30	295.48	39.765	
19,900.00	6,942.55	5,973.00	5,973.00	210.51	260.62	29.78	1,112.62	1,232.09	11,849.44	11,553.86	295.58	40.089	
20,000.00	6,942.49	5,973.00	5,973.00	212.09	260.62	29.78	1,112.62	1,232.09	11,949.10	11,653.42	295.68	40.412	
20,100.00	6,942.43	5,973.00	5,973.00	213.68	260.62	29.78	1,112.62	1,232.09	12,048.77	11,752.99	295.78	40.735	
20,200.00	6,942.37	5,973.00	5,973.00	215.26	260.62	29.78	1,112.62	1,232.09	12,148.44	11,852.56	295.88	41.058	
20,300.00	6,942.31	5,973.00	5,973.00	216.85	260.62	29.78	1,112.62	1,232.09	12,248.12	11,952.14	295.99	41.381	
20,400.00	6,942.25	5,973.00	5,973.00	218.43	260.62	29.78	1,112.62	1,232.09	12,347.81	12,051.72	296.09	41.703	
20,500.00	6,942.19	5,973.00	5,973.00	220.02	260.62	29.78	1,112.62	1,232.09	12,447.50	12,151.31	296.19	42.025	
20,600.00	6,942.13	5,973.00	5,973.00	221.60	260.62	29.78	1,112.62	1,232.09	12,547.19	12,250.90	296.29	42.347	
20,700.00	6,942.07	5,973.00	5,973.00	223.19	260.62	29.78	1,112.62	1,232.09	12,646.89	12,350.50	296.39	42.669	
20,808.89	6,942.00	5,973.00	5,973.00	224.92	260.62	29.78	1,112.62	1,232.09	12,755.45	12,458.95	296.51	43.019	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031A - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 94-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
5,000.00	4,865.30	4,829.74	4,829.31	22.08	97.51	161.22	-1,019.08	656.15	2,175.31	2,058.69	116.62	18.653
5,100.00	4,961.94	4,943.50	4,942.94	22.55	99.93	161.47	-1,019.39	656.15	2,200.00	2,080.54	119.46	18.416
5,200.00	5,058.57	5,040.14	5,039.57	23.03	101.98	161.68	-1,019.39	656.15	2,224.48	2,102.58	121.90	18.248
5,300.00	5,155.21	5,136.77	5,136.21	23.51	104.03	161.89	-1,019.39	656.15	2,248.99	2,124.64	124.35	18.086
5,400.00	5,251.85	5,233.41	5,232.85	23.99	106.09	162.09	-1,019.39	656.15	2,273.53	2,146.74	126.79	17.931
5,500.00	5,348.48	5,330.04	5,329.48	24.47	108.14	162.29	-1,019.39	656.15	2,298.09	2,168.86	129.24	17.782
5,600.00	5,445.12	5,426.68	5,426.12	24.94	110.19	162.48	-1,019.39	656.15	2,322.68	2,191.00	131.68	17.639
5,700.00	5,541.75	5,523.31	5,522.75	25.42	112.25	162.67	-1,019.39	656.15	2,347.29	2,213.17	134.12	17.501
5,800.00	5,638.39	5,619.95	5,619.39	25.90	114.30	162.85	-1,019.39	656.15	2,371.93	2,235.36	136.57	17.368
5,900.00	5,735.02	5,716.59	5,716.02	26.38	116.35	163.03	-1,019.39	656.15	2,396.59	2,257.58	139.01	17.240
6,000.00	5,831.66	5,813.22	5,812.66	26.86	118.41	163.21	-1,019.39	656.15	2,421.27	2,279.81	141.46	17.117
6,100.00	5,928.30	5,909.86	5,909.30	27.34	120.46	163.38	-1,019.39	656.15	2,445.97	2,302.07	143.90	16.998
6,200.00	6,024.93	6,006.49	6,005.93	27.82	122.51	163.55	-1,019.39	656.15	2,470.70	2,324.35	146.34	16.883 SF
6,300.00	6,121.57	6,058.00	6,057.26	28.29	123.61	163.64	-1,019.39	656.15	2,495.85	2,348.13	147.73	16.895
6,400.00	6,218.20	6,058.00	6,057.26	28.77	123.61	163.64	-1,019.39	656.15	2,524.20	2,376.45	147.75	17.085
6,500.00	6,314.84	6,058.00	6,057.26	29.25	123.61	163.64	-1,019.39	656.15	2,556.14	2,408.58	147.57	17.322
6,521.58	6,335.69	6,058.00	6,057.26	29.36	123.61	163.64	-1,019.39	656.15	2,563.50	2,415.99	147.51	17.379
6,550.00	6,363.15	6,058.00	6,057.26	29.49	123.61	153.24	-1,019.39	656.15	2,573.26	2,425.85	147.41	17.456
6,600.00	6,411.28	6,058.00	6,057.26	29.73	123.61	136.47	-1,019.39	656.15	2,590.25	2,443.04	147.21	17.595
6,650.00	6,458.93	6,058.00	6,057.26	29.96	123.61	122.84	-1,019.39	656.15	2,606.93	2,459.95	146.98	17.737
6,700.00	6,505.83	6,058.00	6,057.26	30.19	123.61	112.31	-1,019.39	656.15	2,623.19	2,476.48	146.71	17.880
6,750.00	6,551.67	6,058.00	6,057.26	30.42	123.61	104.23	-1,019.39	656.15	2,638.95	2,492.53	146.41	18.024
6,800.00	6,596.17	6,058.00	6,057.26	30.64	123.61	97.93	-1,019.39	656.15	2,654.11	2,508.02	146.09	18.167
6,850.00	6,639.06	6,058.00	6,057.26	30.85	123.61	92.91	-1,019.39	656.15	2,668.61	2,522.85	145.76	18.308
6,900.00	6,680.07	6,058.00	6,057.26	31.05	123.61	88.84	-1,019.39	656.15	2,682.35	2,536.93	145.41	18.446
6,950.00	6,718.96	6,058.00	6,057.26	31.24	123.61	85.48	-1,019.39	656.15	2,695.26	2,550.20	145.06	18.580
7,000.00	6,755.47	6,058.00	6,057.26	31.43	123.61	82.68	-1,019.39	656.15	2,707.29	2,562.57	144.72	18.707
7,050.00	6,789.40	6,058.00	6,057.26	31.61	123.61	80.33	-1,019.39	656.15	2,718.36	2,573.97	144.39	18.827
7,100.00	6,820.52	6,058.00	6,057.26	31.79	123.61	78.35	-1,019.39	656.15	2,728.42	2,584.34	144.08	18.937
7,150.00	6,848.64	6,058.00	6,057.26	31.97	123.61	76.68	-1,019.39	656.15	2,737.42	2,593.63	143.79	19.037
7,200.00	6,873.60	6,058.00	6,057.26	32.14	123.61	75.30	-1,019.39	656.15	2,745.31	2,601.77	143.54	19.125
7,250.00	6,895.24	6,058.00	6,057.26	32.31	123.61	74.16	-1,019.39	656.15	2,752.07	2,608.73	143.34	19.200
7,300.00	6,913.42	6,058.00	6,057.26	32.49	123.61	73.25	-1,019.39	656.15	2,757.64	2,614.47	143.17	19.261
7,350.00	6,928.03	6,058.00	6,057.26	32.67	123.61	72.55	-1,019.39	656.15	2,762.01	2,618.95	143.06	19.306
7,400.00	6,938.98	6,058.00	6,057.26	32.86	123.61	72.04	-1,019.39	656.15	2,765.15	2,622.14	143.01	19.335
7,450.00	6,946.22	6,058.00	6,057.26	33.06	123.61	71.73	-1,019.39	656.15	2,767.06	2,624.04	143.01	19.348
7,500.00	6,949.68	6,058.00	6,057.26	33.26	123.61	71.60	-1,019.39	656.15	2,767.71	2,624.63	143.08	19.344
7,521.05	6,950.00	6,058.00	6,057.26	33.35	123.61	71.60	-1,019.39	656.15	2,767.61	2,624.48	143.13	19.337
7,548.76	6,949.98	6,058.00	6,057.26	33.47	123.61	71.60	-1,019.39	656.15	2,767.47	2,624.27	143.20	19.326
7,600.00	6,949.95	6,058.00	6,057.26	33.72	123.61	71.60	-1,019.39	656.15	2,767.94	2,624.61	143.34	19.311
7,700.00	6,949.89	6,058.00	6,057.26	34.24	123.61	71.60	-1,019.39	656.15	2,771.60	2,627.94	143.65	19.294
7,800.00	6,949.83	6,058.00	6,057.26	34.84	123.61	71.60	-1,019.39	656.15	2,778.85	2,634.83	144.02	19.295
7,900.00	6,949.77	6,058.00	6,057.26	35.50	123.61	71.60	-1,019.39	656.15	2,789.67	2,645.24	144.42	19.316
8,000.00	6,949.71	6,058.00	6,057.26	36.23	123.61	71.60	-1,019.39	656.15	2,804.01	2,659.14	144.87	19.355
8,100.00	6,949.65	6,058.00	6,057.26	37.02	123.61	71.60	-1,019.39	656.15	2,821.83	2,676.48	145.35	19.414
8,200.00	6,949.59	6,058.00	6,057.26	37.85	123.61	71.60	-1,019.39	656.15	2,843.05	2,697.20	145.86	19.492
8,300.00	6,949.53	6,058.00	6,057.26	38.74	123.61	71.60	-1,019.39	656.15	2,867.61	2,721.23	146.38	19.590
8,400.00	6,949.47	6,058.00	6,057.26	39.68	123.61	71.60	-1,019.39	656.15	2,895.42	2,748.49	146.93	19.707
8,500.00	6,949.41	6,058.00	6,057.26	40.66	123.61	71.60	-1,019.39	656.15	2,926.38	2,778.89	147.48	19.842
8,600.00	6,949.35	6,058.00	6,057.26	41.67	123.61	71.60	-1,019.39	656.15	2,960.39	2,812.35	148.04	19.997
8,700.00	6,949.29	6,058.00	6,057.26	42.73	123.61	71.60	-1,019.39	656.15	2,997.36	2,848.75	148.61	20.170
8,800.00	6,949.23	6,058.00	6,057.26	43.82	123.61	71.60	-1,019.39	656.15	3,037.17	2,888.00	149.17	20.361

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031A - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 94-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
8,900.00	6,949.17	6,058.00	6,057.26	44.94	123.61	71.60	-1,019.39	656.15	3,079.71	2,929.99	149.72	20.570
9,000.00	6,949.11	6,058.00	6,057.26	46.09	123.61	71.60	-1,019.39	656.15	3,124.88	2,974.61	150.27	20.795
9,100.00	6,949.05	6,058.00	6,057.26	47.26	123.61	71.60	-1,019.39	656.15	3,172.56	3,021.75	150.81	21.037
9,200.00	6,948.99	6,058.00	6,057.26	48.46	123.61	71.60	-1,019.39	656.15	3,222.63	3,071.30	151.33	21.295
9,300.00	6,948.93	6,058.00	6,057.26	49.68	123.61	71.60	-1,019.39	656.15	3,275.00	3,123.16	151.84	21.569
9,400.00	6,948.87	6,058.00	6,057.26	50.93	123.61	71.60	-1,019.39	656.15	3,329.54	3,177.21	152.33	21.857
9,500.00	6,948.81	6,058.00	6,057.26	52.19	123.61	71.60	-1,019.39	656.15	3,386.16	3,233.35	152.81	22.159
9,600.00	6,948.75	6,058.00	6,057.26	53.47	123.61	71.60	-1,019.39	656.15	3,444.75	3,291.48	153.27	22.475
9,700.00	6,948.69	6,058.00	6,057.26	54.77	123.61	71.60	-1,019.39	656.15	3,505.22	3,351.51	153.71	22.804
9,800.00	6,948.63	6,058.00	6,057.26	56.08	123.61	71.60	-1,019.39	656.15	3,567.46	3,413.32	154.14	23.144
9,900.00	6,948.57	6,058.00	6,057.26	57.41	123.61	71.60	-1,019.39	656.15	3,631.40	3,476.85	154.55	23.497
10,000.00	6,948.51	6,058.00	6,057.26	58.76	123.61	71.60	-1,019.39	656.15	3,696.93	3,541.99	154.94	23.860
10,100.00	6,948.45	6,058.00	6,057.26	60.11	123.61	71.60	-1,019.39	656.15	3,763.98	3,608.66	155.31	24.235
10,200.00	6,948.39	6,058.00	6,057.26	61.48	123.61	71.60	-1,019.39	656.15	3,832.46	3,676.79	155.67	24.619
10,300.00	6,948.33	6,058.00	6,057.26	62.86	123.61	71.60	-1,019.39	656.15	3,902.31	3,746.29	156.01	25.013
10,400.00	6,948.27	6,058.00	6,057.26	64.24	123.61	71.60	-1,019.39	656.15	3,973.44	3,817.10	156.34	25.415
10,500.00	6,948.21	6,058.00	6,057.26	65.64	123.61	71.60	-1,019.39	656.15	4,045.80	3,889.15	156.65	25.827
10,600.00	6,948.15	6,058.00	6,057.26	67.05	123.61	71.60	-1,019.39	656.15	4,119.31	3,962.36	156.95	26.246
10,700.00	6,948.09	6,058.00	6,057.26	68.47	123.61	71.60	-1,019.39	656.15	4,193.92	4,036.69	157.23	26.673
10,800.00	6,948.03	6,058.00	6,057.26	69.89	123.61	71.60	-1,019.39	656.15	4,269.57	4,112.06	157.50	27.108
10,900.00	6,947.97	6,058.00	6,057.26	71.32	123.61	71.60	-1,019.39	656.15	4,346.20	4,188.44	157.76	27.549
11,000.00	6,947.91	6,058.00	6,057.26	72.76	123.61	71.60	-1,019.39	656.15	4,423.76	4,265.75	158.01	27.997
11,100.00	6,947.85	6,058.00	6,057.26	74.21	123.61	71.60	-1,019.39	656.15	4,502.21	4,343.97	158.25	28.450
11,200.00	6,947.79	6,058.00	6,057.26	75.66	123.61	71.60	-1,019.39	656.15	4,581.50	4,423.03	158.47	28.910
11,300.00	6,947.73	6,058.00	6,057.26	77.12	123.61	71.60	-1,019.39	656.15	4,661.59	4,502.90	158.69	29.376
11,400.00	6,947.66	6,058.00	6,057.26	78.58	123.61	71.60	-1,019.39	656.15	4,742.43	4,583.53	158.90	29.846
11,500.00	6,947.60	6,058.00	6,057.26	80.05	123.61	71.60	-1,019.39	656.15	4,823.99	4,664.90	159.09	30.322
11,600.00	6,947.54	6,058.00	6,057.26	81.52	123.61	71.60	-1,019.39	656.15	4,906.23	4,746.95	159.28	30.802
11,700.00	6,947.48	6,058.00	6,057.26	83.00	123.61	71.60	-1,019.39	656.15	4,989.13	4,829.66	159.47	31.287
11,800.00	6,947.42	6,058.00	6,057.26	84.48	123.61	71.60	-1,019.39	656.15	5,072.63	4,912.99	159.64	31.775
11,900.00	6,947.36	6,058.00	6,057.26	85.97	123.61	71.60	-1,019.39	656.15	5,156.73	4,996.92	159.81	32.268
12,000.00	6,947.30	6,058.00	6,057.26	87.46	123.61	71.60	-1,019.39	656.15	5,241.38	5,081.41	159.97	32.765
12,100.00	6,947.24	6,058.00	6,057.26	88.96	123.61	71.60	-1,019.39	656.15	5,326.57	5,166.44	160.12	33.265
12,200.00	6,947.18	6,058.00	6,057.26	90.46	123.61	71.60	-1,019.39	656.15	5,412.26	5,251.99	160.27	33.769
12,300.00	6,947.12	6,058.00	6,057.26	91.96	123.61	71.60	-1,019.39	656.15	5,498.44	5,338.02	160.42	34.276
12,400.00	6,947.06	6,058.00	6,057.26	93.47	123.61	71.60	-1,019.39	656.15	5,585.07	5,424.52	160.56	34.786
12,500.00	6,947.00	6,058.00	6,057.26	94.97	123.61	71.60	-1,019.39	656.15	5,672.15	5,511.46	160.69	35.298
12,600.00	6,946.94	6,058.00	6,057.26	96.49	123.61	71.60	-1,019.39	656.15	5,759.65	5,598.83	160.82	35.814
12,700.00	6,946.88	6,058.00	6,057.26	98.00	123.61	71.60	-1,019.39	656.15	5,847.54	5,686.60	160.95	36.332
12,800.00	6,946.82	6,058.00	6,057.26	99.52	123.61	71.60	-1,019.39	656.15	5,935.83	5,774.76	161.07	36.853
12,900.00	6,946.76	6,058.00	6,057.26	101.04	123.61	71.60	-1,019.39	656.15	6,024.47	5,863.28	161.19	37.376
13,000.00	6,946.70	6,058.00	6,057.26	102.56	123.61	71.60	-1,019.39	656.15	6,113.47	5,952.17	161.30	37.901
13,100.00	6,946.64	6,058.00	6,057.26	104.09	123.61	71.60	-1,019.39	656.15	6,202.80	6,041.39	161.41	38.428
13,200.00	6,946.58	6,058.00	6,057.26	105.61	123.61	71.60	-1,019.39	656.15	6,292.45	6,130.93	161.52	38.957
13,300.00	6,946.52	6,058.00	6,057.26	107.14	123.61	71.60	-1,019.39	656.15	6,382.42	6,220.79	161.63	39.488
13,400.00	6,946.46	6,058.00	6,057.26	108.67	123.61	71.60	-1,019.39	656.15	6,472.67	6,310.94	161.73	40.021
13,500.00	6,946.40	6,058.00	6,057.26	110.21	123.61	71.60	-1,019.39	656.15	6,563.21	6,401.38	161.83	40.556
13,600.00	6,946.34	6,058.00	6,057.26	111.74	123.61	71.60	-1,019.39	656.15	6,654.02	6,492.09	161.93	41.092
13,700.00	6,946.28	6,058.00	6,057.26	113.28	123.61	71.60	-1,019.39	656.15	6,745.09	6,583.06	162.03	41.629
13,800.00	6,946.22	6,058.00	6,057.26	114.82	123.61	71.60	-1,019.39	656.15	6,836.40	6,674.28	162.12	42.168
13,900.00	6,946.16	6,058.00	6,057.26	116.36	123.61	71.60	-1,019.39	656.15	6,927.96	6,765.75	162.21	42.709
14,000.00	6,946.10	6,058.00	6,057.26	117.90	123.61	71.60	-1,019.39	656.15	7,019.75	6,857.45	162.31	43.250

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031A - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 94-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
14,100.00	6,946.04	6,058.00	6,057.26	119.45	123.61	71.60	-1,019.39	656.15	7,111.76	6,949.37	162.39	43.793
14,200.00	6,945.98	6,058.00	6,057.26	120.99	123.61	71.60	-1,019.39	656.15	7,203.98	7,041.50	162.48	44.337
14,300.00	6,945.92	6,058.00	6,057.26	122.54	123.61	71.60	-1,019.39	656.15	7,296.41	7,133.84	162.57	44.882
14,400.00	6,945.86	6,058.00	6,057.26	124.09	123.61	71.60	-1,019.39	656.15	7,389.04	7,226.38	162.65	45.428
14,500.00	6,945.80	6,058.00	6,057.26	125.64	123.61	71.60	-1,019.39	656.15	7,481.85	7,319.12	162.74	45.975
14,600.00	6,945.74	6,058.00	6,057.26	127.19	123.61	71.60	-1,019.39	656.15	7,574.85	7,412.03	162.82	46.523
14,700.00	6,945.68	6,058.00	6,057.26	128.74	123.61	71.60	-1,019.39	656.15	7,668.02	7,505.12	162.90	47.072
14,800.00	6,945.62	6,058.00	6,057.26	130.30	123.61	71.60	-1,019.39	656.15	7,761.37	7,598.39	162.98	47.621
14,900.00	6,945.56	6,058.00	6,057.26	131.85	123.61	71.60	-1,019.39	656.15	7,854.88	7,691.82	163.06	48.172
15,000.00	6,945.50	6,058.00	6,057.26	133.41	123.61	71.60	-1,019.39	656.15	7,948.54	7,785.40	163.14	48.722
15,100.00	6,945.44	6,058.00	6,057.26	134.96	123.61	71.60	-1,019.39	656.15	8,042.36	7,879.14	163.22	49.274
15,200.00	6,945.38	6,058.00	6,057.26	136.52	123.61	71.60	-1,019.39	656.15	8,136.33	7,973.03	163.29	49.826
15,300.00	6,945.32	6,058.00	6,057.26	138.08	123.61	71.60	-1,019.39	656.15	8,230.43	8,067.06	163.37	50.379
15,400.00	6,945.26	6,058.00	6,057.26	139.64	123.61	71.60	-1,019.39	656.15	8,324.68	8,161.23	163.45	50.932
15,500.00	6,945.20	6,058.00	6,057.26	141.20	123.61	71.60	-1,019.39	656.15	8,419.06	8,255.53	163.52	51.486
15,600.00	6,945.14	6,058.00	6,057.26	142.76	123.61	71.60	-1,019.39	656.15	8,513.56	8,349.97	163.60	52.040
15,700.00	6,945.08	6,058.00	6,057.26	144.33	123.61	71.60	-1,019.39	656.15	8,608.19	8,444.52	163.67	52.594
15,800.00	6,945.02	6,058.00	6,057.26	145.89	123.61	71.60	-1,019.39	656.15	8,702.94	8,539.20	163.75	53.149
15,900.00	6,944.96	6,058.00	6,057.26	147.46	123.61	71.60	-1,019.39	656.15	8,797.81	8,633.99	163.82	53.704
16,000.00	6,944.90	6,058.00	6,057.26	149.02	123.61	71.60	-1,019.39	656.15	8,892.79	8,728.90	163.89	54.260
16,100.00	6,944.84	6,058.00	6,057.26	150.59	123.61	71.60	-1,019.39	656.15	8,987.88	8,823.91	163.97	54.815
16,200.00	6,944.77	6,058.00	6,057.26	152.15	123.61	71.60	-1,019.39	656.15	9,083.07	8,919.03	164.04	55.371
16,300.00	6,944.71	6,058.00	6,057.26	153.72	123.61	71.60	-1,019.39	656.15	9,178.37	9,014.26	164.11	55.928
16,400.00	6,944.65	6,058.00	6,057.26	155.29	123.61	71.60	-1,019.39	656.15	9,273.76	9,109.58	164.18	56.484
16,500.00	6,944.59	6,058.00	6,057.26	156.86	123.61	71.60	-1,019.39	656.15	9,369.25	9,205.00	164.26	57.041
16,600.00	6,944.53	6,058.00	6,057.26	158.43	123.61	71.60	-1,019.39	656.15	9,464.84	9,300.51	164.33	57.597
16,700.00	6,944.47	6,058.00	6,057.26	160.00	123.61	71.60	-1,019.39	656.15	9,560.51	9,396.11	164.40	58.154
16,800.00	6,944.41	6,058.00	6,057.26	161.57	123.61	71.60	-1,019.39	656.15	9,656.28	9,491.80	164.47	58.711
16,900.00	6,944.35	6,058.00	6,057.26	163.14	123.61	71.60	-1,019.39	656.15	9,752.12	9,587.58	164.54	59.268
17,000.00	6,944.29	6,058.00	6,057.26	164.71	123.61	71.60	-1,019.39	656.15	9,848.05	9,683.44	164.62	59.825
17,100.00	6,944.23	6,058.00	6,057.26	166.29	123.61	71.60	-1,019.39	656.15	9,944.06	9,779.37	164.69	60.382
17,200.00	6,944.17	6,058.00	6,057.26	167.86	123.61	71.60	-1,019.39	656.15	10,040.15	9,875.39	164.76	60.938
17,300.00	6,944.11	6,058.00	6,057.26	169.43	123.61	71.60	-1,019.39	656.15	10,136.31	9,971.48	164.83	61.495
17,400.00	6,944.05	6,058.00	6,057.26	171.01	123.61	71.60	-1,019.39	656.15	10,232.55	10,067.65	164.90	62.052
17,500.00	6,943.99	6,058.00	6,057.26	172.58	123.61	71.60	-1,019.39	656.15	10,328.86	10,163.89	164.97	62.609
17,600.00	6,943.93	6,058.00	6,057.26	174.16	123.61	71.60	-1,019.39	656.15	10,425.24	10,260.19	165.05	63.166
17,700.00	6,943.87	6,058.00	6,057.26	175.73	123.61	71.60	-1,019.39	656.15	10,521.68	10,356.57	165.12	63.722
17,800.00	6,943.81	6,058.00	6,057.26	177.31	123.61	71.60	-1,019.39	656.15	10,618.19	10,453.00	165.19	64.279
17,900.00	6,943.75	6,058.00	6,057.26	178.89	123.61	71.60	-1,019.39	656.15	10,714.77	10,549.51	165.26	64.835
18,000.00	6,943.69	6,058.00	6,057.26	180.46	123.61	71.60	-1,019.39	656.15	10,811.41	10,646.07	165.33	65.391
18,100.00	6,943.63	6,058.00	6,057.26	182.04	123.61	71.60	-1,019.39	656.15	10,908.11	10,742.70	165.41	65.947
18,200.00	6,943.57	6,058.00	6,057.26	183.62	123.61	71.60	-1,019.39	656.15	11,004.86	10,839.38	165.48	66.503
18,300.00	6,943.51	6,058.00	6,057.26	185.20	123.61	71.60	-1,019.39	656.15	11,101.68	10,936.13	165.55	67.059
18,400.00	6,943.45	6,058.00	6,057.26	186.78	123.61	71.60	-1,019.39	656.15	11,198.55	11,032.92	165.62	67.614
18,500.00	6,943.39	6,058.00	6,057.26	188.36	123.61	71.60	-1,019.39	656.15	11,295.47	11,129.78	165.70	68.169
18,600.00	6,943.33	6,058.00	6,057.26	189.94	123.61	71.60	-1,019.39	656.15	11,392.45	11,226.68	165.77	68.724
18,700.00	6,943.27	6,058.00	6,057.26	191.52	123.61	71.60	-1,019.39	656.15	11,489.48	11,323.64	165.84	69.279
18,800.00	6,943.21	6,058.00	6,057.26	193.10	123.61	71.60	-1,019.39	656.15	11,586.56	11,420.65	165.92	69.833
18,900.00	6,943.15	6,058.00	6,057.26	194.68	123.61	71.60	-1,019.39	656.15	11,683.69	11,517.70	165.99	70.387
19,000.00	6,943.09	6,058.00	6,057.26	196.26	123.61	71.60	-1,019.39	656.15	11,780.87	11,614.81	166.07	70.941
19,100.00	6,943.03	6,058.00	6,057.26	197.84	123.61	71.60	-1,019.39	656.15	11,878.10	11,711.96	166.14	71.495
19,200.00	6,942.97	6,058.00	6,057.26	199.42	123.61	71.60	-1,019.39	656.15	11,975.37	11,809.15	166.21	72.048

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031A - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 94-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,300.00	6,942.91	6,058.00	6,057.26	201.01	123.61	71.60	-1,019.39	656.15	12,072.68	11,906.39	166.29	72.601	
19,400.00	6,942.85	6,058.00	6,057.26	202.59	123.61	71.60	-1,019.39	656.15	12,170.04	12,003.68	166.36	73.153	
19,500.00	6,942.79	6,058.00	6,057.26	204.17	123.61	71.60	-1,019.39	656.15	12,267.44	12,101.00	166.44	73.705	
19,600.00	6,942.73	6,058.00	6,057.26	205.75	123.61	71.60	-1,019.39	656.15	12,364.89	12,198.37	166.51	74.257	
19,700.00	6,942.67	6,058.00	6,057.26	207.34	123.61	71.60	-1,019.39	656.15	12,462.37	12,295.78	166.59	74.809	
19,800.00	6,942.61	6,058.00	6,057.26	208.92	123.61	71.60	-1,019.39	656.15	12,559.89	12,393.23	166.67	75.360	
19,900.00	6,942.55	6,058.00	6,057.26	210.51	123.61	71.60	-1,019.39	656.15	12,657.45	12,490.71	166.74	75.910	
20,000.00	6,942.49	6,058.00	6,057.26	212.09	123.61	71.60	-1,019.39	656.15	12,755.05	12,588.23	166.82	76.461	
20,100.00	6,942.43	6,058.00	6,057.26	213.68	123.61	71.60	-1,019.39	656.15	12,852.69	12,685.79	166.89	77.011	
20,200.00	6,942.37	6,058.00	6,057.26	215.26	123.61	71.60	-1,019.39	656.15	12,950.36	12,783.39	166.97	77.560	
20,300.00	6,942.31	6,058.00	6,057.26	216.85	123.61	71.60	-1,019.39	656.15	13,048.07	12,881.02	167.05	78.109	
20,400.00	6,942.25	6,058.00	6,057.26	218.43	123.61	71.60	-1,019.39	656.15	13,145.81	12,978.68	167.13	78.658	
20,500.00	6,942.19	6,058.00	6,057.26	220.02	123.61	71.60	-1,019.39	656.15	13,243.59	13,076.38	167.20	79.206	
20,600.00	6,942.13	6,058.00	6,057.26	221.60	123.61	71.60	-1,019.39	656.15	13,341.39	13,174.11	167.28	79.754	
20,700.00	6,942.07	6,058.00	6,057.26	223.19	123.61	71.60	-1,019.39	656.15	13,439.24	13,271.87	167.36	80.301	
20,808.89	6,942.00	6,058.00	6,057.26	224.92	123.61	71.60	-1,019.39	656.15	13,545.81	13,378.36	167.45	80.896	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031B - OH - OH-INC													Offset Site Error: 0.00 usft
Survey Program: 515-A027Ua_INC-ONLY													Offset Well Error: 0.00 usft
Reference													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		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	0.00	0.00	-1.55	1,628.12	-44.15	1,628.79				
100.00	100.00	85.00	85.00	0.25	1.17	-1.55	1,628.12	-44.15	1,628.72	1,627.29	1.42	1,145.457	
200.00	200.00	185.00	185.00	0.61	2.55	-1.55	1,628.12	-44.15	1,628.72	1,625.56	3.16	515.787	
300.00	300.00	285.00	285.00	0.97	3.93	-1.55	1,628.12	-44.15	1,628.72	1,623.82	4.89	332.828	
400.00	400.00	385.00	385.00	1.33	5.30	-1.55	1,628.12	-44.15	1,628.72	1,622.09	6.63	245.681	
500.00	500.00	485.00	485.00	1.68	6.68	-1.55	1,628.12	-44.15	1,628.72	1,620.35	8.37	194.700	
600.00	599.98	585.06	584.98	2.04	8.78	-2.78	1,628.12	-44.15	1,626.97	1,616.15	10.83	150.260	
700.00	699.84	684.92	684.84	2.41	11.19	-2.80	1,628.12	-44.15	1,621.75	1,608.15	13.60	119.259	
800.00	799.45	786.16	786.05	2.77	13.64	-2.82	1,630.05	-44.15	1,614.98	1,598.57	16.40	98.450	
900.00	898.70	896.02	895.89	3.13	16.29	-2.85	1,629.58	-44.15	1,602.38	1,582.96	19.42	82.517	
1,000.00	997.47	1,005.13	1,004.98	3.50	18.92	-2.90	1,628.39	-44.15	1,585.68	1,563.27	22.42	70.740	
1,100.00	1,095.62	1,080.85	1,080.62	3.89	20.63	-2.95	1,628.12	-44.15	1,566.19	1,541.70	24.49	63.948	
1,200.00	1,193.06	1,178.29	1,178.06	4.30	22.77	-3.02	1,628.12	-44.15	1,543.73	1,516.72	27.01	57.157	
1,245.21	1,236.83	1,222.06	1,221.83	4.48	23.74	-3.05	1,628.12	-44.15	1,532.46	1,504.31	28.14	54.450	
1,300.00	1,289.78	1,276.04	1,275.80	4.72	24.93	-3.08	1,629.13	-44.15	1,519.40	1,489.86	29.53	51.445	
1,400.00	1,386.42	1,378.37	1,378.13	5.15	27.18	-3.14	1,628.87	-44.15	1,493.46	1,461.31	32.15	46.446	
1,500.00	1,483.05	1,480.51	1,480.25	5.59	29.44	-3.20	1,628.22	-44.15	1,467.16	1,432.39	34.77	42.193	
1,600.00	1,579.69	1,565.01	1,564.69	6.04	31.38	-3.25	1,628.12	-44.15	1,441.33	1,404.24	37.09	38.859	
1,700.00	1,676.32	1,661.64	1,661.32	6.49	33.62	-3.31	1,628.12	-44.15	1,415.65	1,375.95	39.70	35.657	
1,800.00	1,772.96	1,759.07	1,758.73	6.94	35.87	-3.37	1,629.50	-44.15	1,391.35	1,349.02	42.33	32.867	
1,900.00	1,869.60	1,861.73	1,861.39	7.40	38.25	-3.43	1,629.22	-44.15	1,365.41	1,320.32	45.08	30.286	
2,000.00	1,966.23	1,964.17	1,963.82	7.86	40.62	-3.50	1,628.48	-44.15	1,339.04	1,291.21	47.83	27.997	
2,100.00	2,062.87	2,048.31	2,047.87	8.33	42.62	-3.56	1,628.12	-44.15	1,312.94	1,262.73	50.22	26.146	
2,200.00	2,159.50	2,144.94	2,144.50	8.79	44.95	-3.64	1,628.12	-44.15	1,287.27	1,234.34	52.93	24.318	
2,300.00	2,256.14	2,241.58	2,241.14	9.26	47.29	-3.71	1,628.12	-44.15	1,261.60	1,205.95	55.65	22.669	
2,400.00	2,352.77	2,343.68	2,343.21	9.73	49.76	-3.79	1,629.24	-44.15	1,237.06	1,178.56	58.50	21.146	
2,500.00	2,449.41	2,445.74	2,445.26	10.20	52.23	-3.88	1,628.56	-44.15	1,210.75	1,149.41	61.34	19.737	
2,600.00	2,546.05	2,531.63	2,531.05	10.67	54.35	-3.95	1,628.12	-44.15	1,184.60	1,120.74	63.86	18.549	
2,700.00	2,642.68	2,628.26	2,627.68	11.14	56.79	-4.04	1,628.12	-44.15	1,158.94	1,092.25	66.69	17.379	
2,800.00	2,739.32	2,724.90	2,724.32	11.61	59.23	-4.13	1,628.12	-44.15	1,133.28	1,063.77	69.51	16.304	
2,900.00	2,835.95	2,825.42	2,824.81	12.08	61.76	-4.23	1,629.73	-44.15	1,109.24	1,036.81	72.43	15.315	
3,000.00	2,932.59	2,927.47	2,926.84	12.55	64.34	-4.33	1,629.12	-44.15	1,083.00	1,007.63	75.38	14.368	
3,100.00	3,029.22	3,029.26	3,028.61	13.03	66.91	-4.45	1,627.99	-44.15	1,056.29	977.97	78.32	13.487	
3,200.00	3,125.86	3,111.62	3,110.86	13.50	68.79	-4.54	1,628.12	-44.15	1,030.67	950.05	80.62	12.784	
3,300.00	3,222.50	3,208.26	3,207.50	13.97	71.03	-4.66	1,628.12	-44.15	1,005.03	921.78	83.25	12.073	
3,400.00	3,319.13	3,304.90	3,304.13	14.45	73.26	-4.78	1,628.12	-44.15	979.39	893.52	85.87	11.405	
3,500.00	3,415.77	3,403.91	3,403.11	14.92	75.56	-4.91	1,630.16	-44.15	955.79	867.25	88.55	10.794	
3,600.00	3,512.40	3,504.30	3,503.49	15.40	77.88	-5.05	1,629.70	-44.15	929.73	838.48	91.25	10.189	
3,700.00	3,609.04	3,604.49	3,603.66	15.88	80.20	-5.20	1,628.85	-44.15	903.28	809.34	93.94	9.616	
3,800.00	3,705.67	3,691.59	3,690.67	16.35	82.16	-5.34	1,628.12	-44.15	876.88	780.56	96.32	9.103	
3,900.00	3,802.31	3,788.23	3,787.31	16.83	84.20	-5.50	1,628.12	-44.15	851.27	752.51	98.76	8.620	
4,000.00	3,898.95	3,884.87	3,883.95	17.30	86.24	-5.67	1,628.12	-44.15	825.66	724.47	101.19	8.160	
4,100.00	3,995.58	3,981.50	3,980.58	17.78	88.29	-5.86	1,628.12	-44.15	800.06	696.44	103.62	7.721	
4,200.00	4,092.22	4,078.14	4,077.22	18.26	90.33	-6.05	1,628.12	-44.15	774.47	668.42	106.05	7.303	
4,300.00	4,188.85	4,174.77	4,173.85	18.73	92.37	-6.26	1,628.12	-44.15	748.89	640.41	108.49	6.903	
4,400.00	4,285.49	4,271.41	4,270.49	19.21	94.41	-6.48	1,628.12	-44.15	723.32	612.40	110.92	6.521	
4,500.00	4,382.12	4,368.04	4,367.12	19.69	96.45	-6.72	1,628.12	-44.15	697.76	584.40	113.35	6.156	
4,600.00	4,478.76	4,464.68	4,463.76	20.17	98.49	-6.97	1,628.12	-44.15	672.21	556.42	115.79	5.806	
4,700.00	4,575.40	4,561.75	4,560.80	20.64	100.55	-7.22	1,631.73	-44.15	650.27	532.03	118.23	5.500	
4,800.00	4,672.03	4,659.02	4,658.06	21.12	102.60	-7.52	1,631.61	-44.15	624.63	503.95	120.68	5.176	
4,900.00	4,768.67	4,756.24	4,755.27	21.60	104.65	-7.84	1,631.40	-44.15	598.91	475.79	123.12	4.864	
5,000.00	4,865.30	4,853.40	4,852.43	22.08	106.71	-8.20	1,631.09	-44.15	573.12	447.55	125.57	4.564	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 515-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference												Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	4,961.94	4,950.52	4,949.54	22.55	108.76	-8.59	1,630.68	-44.15	547.25	419.24	128.01	4.275	
5,200.00	5,058.57	5,047.58	5,046.60	23.03	110.81	-9.02	1,630.17	-44.15	521.31	390.85	130.46	3.996	
5,300.00	5,155.21	5,144.60	5,143.61	23.51	112.86	-9.50	1,629.56	-44.15	495.30	362.40	132.90	3.727	
5,400.00	5,251.85	5,241.56	5,240.56	23.99	114.91	-10.03	1,628.86	-44.15	469.23	333.89	135.35	3.467	
5,500.00	5,348.48	5,334.66	5,333.48	24.47	116.87	-10.60	1,628.12	-44.15	443.16	305.41	137.75	3.217	
5,600.00	5,445.12	5,431.29	5,430.12	24.94	118.65	-11.25	1,628.12	-44.15	417.87	277.94	139.94	2.986	
5,700.00	5,541.75	5,527.93	5,526.75	25.42	120.43	-11.98	1,628.12	-44.15	392.65	250.52	142.13	2.763	
5,800.00	5,638.39	5,624.56	5,623.39	25.90	122.21	-12.82	1,628.12	-44.15	367.49	223.16	144.33	2.546	
5,900.00	5,735.02	5,721.20	5,720.02	26.38	123.99	-13.77	1,628.12	-44.15	342.41	195.88	146.53	2.337	
6,000.00	5,831.66	5,817.83	5,816.66	26.86	125.77	-14.87	1,628.12	-44.15	317.44	168.69	148.75	2.134	
6,100.00	5,928.30	5,914.47	5,913.30	27.34	127.55	-16.16	1,628.12	-44.15	292.60	141.62	150.97	1.938	
6,200.00	6,024.93	6,011.11	6,009.93	27.82	129.33	-17.69	1,628.12	-44.15	267.92	114.70	153.22	1.749	
6,300.00	6,121.57	6,107.74	6,106.57	28.29	131.11	-19.52	1,628.12	-44.15	243.46	87.98	155.48	1.566	
6,400.00	6,218.20	6,204.38	6,203.20	28.77	132.89	-21.76	1,628.12	-44.15	219.28	61.51	157.78	1.390	Level 3
6,500.00	6,314.84	6,301.01	6,299.84	29.25	134.67	-24.53	1,628.12	-44.15	195.50	35.38	160.12	1.221	Level 3
6,521.58	6,335.69	6,321.87	6,320.69	29.36	135.06	-25.22	1,628.12	-44.15	190.44	29.80	160.64	1.186	Level 3
6,550.00	6,363.15	6,349.32	6,348.15	29.49	135.56	-36.40	1,628.12	-44.15	184.08	22.75	161.33	1.141	Level 3
6,600.00	6,411.28	6,397.45	6,396.28	29.73	136.45	-55.44	1,628.12	-44.15	174.57	11.93	162.64	1.073	Level 3
6,650.00	6,458.93	6,445.11	6,443.93	29.96	137.33	-72.47	1,628.12	-44.15	167.79	3.71	164.09	1.023	Level 3
6,700.00	6,505.83	6,492.00	6,490.83	30.19	138.19	-87.30	1,628.12	-44.15	164.68	-0.98	165.66	0.994	Level 3
6,709.90	6,515.00	6,501.17	6,500.00	30.24	138.36	-90.00	1,628.12	-44.15	164.59	-1.40	165.99	0.992	Level 3, CC, ES, SF
6,750.00	6,551.67	6,537.84	6,536.67	30.42	139.04	-100.23	1,628.12	-44.15	166.23	-1.11	167.34	0.993	Level 3
6,800.00	6,596.17	6,582.34	6,581.17	30.64	139.86	-111.46	1,628.12	-44.15	173.25	4.24	169.00	1.025	Level 3
6,850.00	6,639.06	6,625.23	6,624.06	30.85	140.65	-121.10	1,628.12	-44.15	186.14	15.57	170.56	1.091	Level 3
6,900.00	6,680.07	6,666.24	6,665.07	31.05	141.40	-129.23	1,628.12	-44.15	204.81	32.87	171.95	1.191	Level 3
6,950.00	6,718.96	6,705.13	6,703.96	31.24	142.12	-135.98	1,628.12	-44.15	228.83	55.70	173.13	1.322	Level 3
7,000.00	6,755.47	6,741.65	6,740.47	31.43	142.79	-141.50	1,628.12	-44.15	257.60	83.45	174.15	1.479	Level 3
7,050.00	6,789.40	6,775.57	6,774.40	31.61	143.42	-145.99	1,628.12	-44.15	290.48	115.45	175.02	1.660	
7,100.00	6,820.52	6,806.69	6,805.52	31.79	143.99	-149.62	1,628.12	-44.15	326.91	151.13	175.78	1.860	
7,150.00	6,848.64	6,834.82	6,833.64	31.97	144.51	-152.53	1,628.12	-44.15	366.37	189.94	176.43	2.077	
7,200.00	6,873.60	6,859.77	6,858.60	32.14	144.97	-154.83	1,628.12	-44.15	408.42	231.42	176.99	2.308	
7,250.00	6,895.24	6,881.41	6,880.24	32.31	145.37	-156.59	1,628.12	-44.15	452.64	275.17	177.47	2.551	
7,300.00	6,913.42	6,899.59	6,898.42	32.49	145.70	-157.86	1,628.12	-44.15	498.68	320.81	177.86	2.804	
7,350.00	6,928.03	6,914.20	6,913.03	32.67	145.97	-158.59	1,628.12	-44.15	546.16	367.98	178.18	3.065	
7,400.00	6,938.98	6,925.16	6,923.98	32.86	146.18	-158.53	1,628.12	-44.15	594.75	416.34	178.41	3.334	
7,450.00	6,946.22	6,932.39	6,931.22	33.06	146.31	-156.65	1,628.12	-44.15	644.13	465.57	178.56	3.607	
7,500.00	6,949.68	6,935.85	6,934.68	33.26	146.37	-143.41	1,628.12	-44.15	693.96	515.33	178.63	3.885	
7,521.05	6,950.00	6,936.17	6,935.00	33.35	146.38	-87.57	1,628.12	-44.15	715.01	536.36	178.64	4.002	
7,600.00	6,949.95	6,936.13	6,934.95	33.72	146.38	-87.31	1,628.12	-44.15	793.95	615.30	178.65	4.444	
7,700.00	6,949.89	6,936.07	6,934.89	34.24	146.38	-86.97	1,628.12	-44.15	893.94	715.29	178.66	5.004	
7,800.00	6,949.83	6,936.01	6,934.83	34.84	146.38	-86.63	1,628.12	-44.15	993.94	815.27	178.67	5.563	
7,900.00	6,949.77	6,935.95	6,934.77	35.50	146.37	-86.29	1,628.12	-44.15	1,093.93	915.26	178.67	6.123	
8,000.00	6,949.71	6,935.89	6,934.71	36.23	146.37	-85.95	1,628.12	-44.15	1,193.93	1,015.25	178.68	6.682	
8,100.00	6,949.65	6,935.83	6,934.65	37.02	146.37	-85.61	1,628.12	-44.15	1,293.92	1,115.23	178.69	7.241	
8,200.00	6,949.59	6,935.77	6,934.59	37.85	146.37	-85.28	1,628.12	-44.15	1,393.92	1,215.22	178.70	7.800	
8,300.00	6,949.53	6,935.71	6,934.53	38.74	146.37	-84.94	1,628.12	-44.15	1,493.92	1,315.21	178.71	8.359	
8,400.00	6,949.47	6,935.65	6,934.47	39.68	146.37	-84.60	1,628.12	-44.15	1,593.92	1,415.19	178.72	8.918	
8,500.00	6,949.41	6,935.58	6,934.41	40.66	146.37	-84.27	1,628.12	-44.15	1,693.91	1,515.18	178.74	9.477	
8,600.00	6,949.35	6,935.52	6,934.35	41.67	146.37	-83.93	1,628.12	-44.15	1,793.91	1,615.16	178.75	10.036	
8,700.00	6,949.29	6,935.46	6,934.29	42.73	146.37	-83.59	1,628.12	-44.15	1,893.91	1,715.15	178.76	10.595	
8,800.00	6,949.23	6,935.40	6,934.23	43.82	146.36	-83.26	1,628.12	-44.15	1,993.91	1,815.13	178.78	11.153	
8,900.00	6,949.17	6,935.34	6,934.17	44.94	146.36	-82.92	1,628.12	-44.15	2,093.91	1,915.12	178.79	11.712	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		515-A027Ua_INC-ONLY						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
9,000.00	6,949.11	6,935.28	6,934.11	46.09	146.36	-82.59	1,628.12	-44.15	2,193.91	2,015.10	178.81	12.270	
9,100.00	6,949.05	6,935.22	6,934.05	47.26	146.36	-82.26	1,628.12	-44.15	2,293.91	2,115.08	178.82	12.828	
9,200.00	6,948.99	6,935.16	6,933.99	48.46	146.36	-81.92	1,628.12	-44.15	2,393.91	2,215.07	178.84	13.386	
9,300.00	6,948.93	6,935.10	6,933.93	49.68	146.36	-81.59	1,628.12	-44.15	2,493.90	2,315.05	178.86	13.944	
9,400.00	6,948.87	6,935.04	6,933.87	50.93	146.36	-81.26	1,628.12	-44.15	2,593.90	2,415.03	178.87	14.501	
9,500.00	6,948.81	6,934.98	6,933.81	52.19	146.36	-80.93	1,628.12	-44.15	2,693.90	2,515.01	178.89	15.059	
9,600.00	6,948.75	6,934.92	6,933.75	53.47	146.36	-80.59	1,628.12	-44.15	2,793.90	2,614.99	178.91	15.616	
9,700.00	6,948.69	6,934.86	6,933.69	54.77	146.35	-80.26	1,628.12	-44.15	2,893.90	2,714.97	178.93	16.173	
9,800.00	6,948.63	6,934.80	6,933.63	56.08	146.35	-79.93	1,628.12	-44.15	2,993.90	2,814.95	178.95	16.730	
9,900.00	6,948.57	6,934.74	6,933.57	57.41	146.35	-79.61	1,628.12	-44.15	3,093.90	2,914.92	178.98	17.287	
10,000.00	6,948.51	6,934.68	6,933.51	58.76	146.35	-79.28	1,628.12	-44.15	3,193.90	3,014.90	179.00	17.843	
10,100.00	6,948.45	6,934.62	6,933.45	60.11	146.35	-78.95	1,628.12	-44.15	3,293.90	3,114.88	179.02	18.399	
10,200.00	6,948.39	6,934.56	6,933.39	61.48	146.35	-78.62	1,628.12	-44.15	3,393.90	3,214.85	179.05	18.956	
10,300.00	6,948.33	6,934.50	6,933.33	62.86	146.35	-78.30	1,628.12	-44.15	3,493.90	3,314.83	179.07	19.511	
10,400.00	6,948.27	6,934.44	6,933.27	64.24	146.35	-77.97	1,628.12	-44.15	3,593.90	3,414.80	179.09	20.067	
10,500.00	6,948.21	6,934.38	6,933.21	65.64	146.35	-77.65	1,628.12	-44.15	3,693.90	3,514.78	179.12	20.622	
10,600.00	6,948.15	6,934.32	6,933.15	67.05	146.34	-77.32	1,628.12	-44.15	3,793.90	3,614.75	179.15	21.178	
10,700.00	6,948.09	6,934.26	6,933.09	68.47	146.34	-77.00	1,628.12	-44.15	3,893.90	3,714.72	179.17	21.732	
10,800.00	6,948.03	6,934.20	6,933.03	69.89	146.34	-76.68	1,628.12	-44.15	3,993.90	3,814.69	179.20	22.287	
10,900.00	6,947.97	6,934.14	6,932.97	71.32	146.34	-76.36	1,628.12	-44.15	4,093.90	3,914.67	179.23	22.841	
11,000.00	6,947.91	6,934.08	6,932.91	72.76	146.34	-76.04	1,628.12	-44.15	4,193.90	4,014.64	179.26	23.396	
11,100.00	6,947.85	6,934.02	6,932.85	74.21	146.34	-75.72	1,628.12	-44.15	4,293.90	4,114.61	179.29	23.949	
11,200.00	6,947.79	6,933.96	6,932.79	75.66	146.34	-75.40	1,628.12	-44.15	4,393.90	4,214.57	179.32	24.503	
11,300.00	6,947.73	6,933.90	6,932.73	77.12	146.34	-75.08	1,628.12	-44.15	4,493.90	4,314.54	179.35	25.056	
11,400.00	6,947.66	6,933.84	6,932.66	78.58	146.34	-74.76	1,628.12	-44.15	4,593.89	4,414.51	179.38	25.609	
11,500.00	6,947.60	6,933.78	6,932.60	80.05	146.33	-74.45	1,628.12	-44.15	4,693.89	4,514.48	179.42	26.162	
11,600.00	6,947.54	6,933.72	6,932.54	81.52	146.33	-74.13	1,628.12	-44.15	4,793.89	4,614.44	179.45	26.714	
11,700.00	6,947.48	6,933.66	6,932.48	83.00	146.33	-73.82	1,628.12	-44.15	4,893.89	4,714.41	179.49	27.266	
11,800.00	6,947.42	6,933.60	6,932.42	84.48	146.33	-73.51	1,628.12	-44.15	4,993.89	4,814.37	179.52	27.818	
11,900.00	6,947.36	6,933.54	6,932.36	85.97	146.33	-73.20	1,628.12	-44.15	5,093.89	4,914.34	179.56	28.369	
12,000.00	6,947.30	6,933.48	6,932.30	87.46	146.33	-72.88	1,628.12	-44.15	5,193.89	5,014.30	179.59	28.921	
12,100.00	6,947.24	6,933.42	6,932.24	88.96	146.33	-72.57	1,628.12	-44.15	5,293.89	5,114.27	179.63	29.471	
12,200.00	6,947.18	6,933.36	6,932.18	90.46	146.33	-72.27	1,628.12	-44.15	5,393.89	5,214.23	179.67	30.022	
12,300.00	6,947.12	6,933.30	6,932.12	91.96	146.33	-71.96	1,628.12	-44.15	5,493.89	5,314.19	179.70	30.572	
12,400.00	6,947.06	6,933.24	6,932.06	93.47	146.32	-71.65	1,628.12	-44.15	5,593.89	5,414.15	179.74	31.122	
12,500.00	6,947.00	6,933.18	6,932.00	94.97	146.32	-71.35	1,628.12	-44.15	5,693.89	5,514.11	179.78	31.671	
12,600.00	6,946.94	6,933.12	6,931.94	96.49	146.32	-71.04	1,628.12	-44.15	5,793.89	5,614.07	179.82	32.220	
12,700.00	6,946.88	6,933.06	6,931.88	98.00	146.32	-70.74	1,628.12	-44.15	5,893.89	5,714.03	179.86	32.769	
12,800.00	6,946.82	6,933.00	6,931.82	99.52	146.32	-70.44	1,628.12	-44.15	5,993.89	5,813.99	179.90	33.317	
12,900.00	6,946.76	6,932.94	6,931.76	101.04	146.32	-70.14	1,628.12	-44.15	6,093.89	5,913.95	179.95	33.865	
13,000.00	6,946.70	6,932.88	6,931.70	102.56	146.32	-69.84	1,628.12	-44.15	6,193.89	6,013.90	179.99	34.413	
13,100.00	6,946.64	6,932.82	6,931.64	104.09	146.32	-69.54	1,628.12	-44.15	6,293.89	6,113.86	180.03	34.960	
13,200.00	6,946.58	6,932.76	6,931.58	105.61	146.32	-69.24	1,628.12	-44.15	6,393.89	6,213.81	180.08	35.506	
13,300.00	6,946.52	6,932.70	6,931.52	107.14	146.31	-68.94	1,628.12	-44.15	6,493.89	6,313.77	180.12	36.053	
13,400.00	6,946.46	6,932.63	6,931.46	108.67	146.31	-68.65	1,628.12	-44.15	6,593.89	6,413.72	180.17	36.599	
13,500.00	6,946.40	6,932.57	6,931.40	110.21	146.31	-68.35	1,628.12	-44.15	6,693.89	6,513.68	180.21	37.144	
13,600.00	6,946.34	6,932.51	6,931.34	111.74	146.31	-68.06	1,628.12	-44.15	6,793.89	6,613.63	180.26	37.690	
13,700.00	6,946.28	6,932.45	6,931.28	113.28	146.31	-67.77	1,628.12	-44.15	6,893.89	6,713.58	180.31	38.234	
13,800.00	6,946.22	6,932.39	6,931.22	114.82	146.31	-67.48	1,628.12	-44.15	6,993.89	6,813.54	180.35	38.779	
13,900.00	6,946.16	6,932.33	6,931.16	116.36	146.31	-67.19	1,628.12	-44.15	7,093.89	6,913.49	180.40	39.323	
14,000.00	6,946.10	6,932.27	6,931.10	117.90	146.31	-66.90	1,628.12	-44.15	7,193.89	7,013.44	180.45	39.866	
14,100.00	6,946.04	6,932.21	6,931.04	119.45	146.31	-66.61	1,628.12	-44.15	7,293.89	7,113.39	180.50	40.409	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031B - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		515-A027Ua_INC-ONLY						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	
14,200.00	6,945.98	6,932.15	6,930.98	120.99	146.30	-66.33	1,628.12	-44.15	7,393.89	7,213.34	180.55	40.952		
14,300.00	6,945.92	6,932.09	6,930.92	122.54	146.30	-66.04	1,628.12	-44.15	7,493.89	7,313.29	180.60	41.494		
14,400.00	6,945.86	6,932.03	6,930.86	124.09	146.30	-65.76	1,628.12	-44.15	7,593.89	7,413.24	180.65	42.036		
14,500.00	6,945.80	6,931.97	6,930.80	125.64	146.30	-65.48	1,628.12	-44.15	7,693.89	7,513.18	180.71	42.577		
14,600.00	6,945.74	6,931.91	6,930.74	127.19	146.30	-65.20	1,628.12	-44.15	7,793.89	7,613.13	180.76	43.118		
14,700.00	6,945.68	6,931.85	6,930.68	128.74	146.30	-64.92	1,628.12	-44.15	7,893.89	7,713.08	180.81	43.658		
14,800.00	6,945.62	6,931.79	6,930.62	130.30	146.30	-64.64	1,628.12	-44.15	7,993.89	7,813.02	180.87	44.198		
14,900.00	6,945.56	6,931.73	6,930.56	131.85	146.30	-64.36	1,628.12	-44.15	8,093.89	7,912.97	180.92	44.737		
15,000.00	6,945.50	6,931.67	6,930.50	133.41	146.30	-64.09	1,628.12	-44.15	8,193.89	8,012.91	180.98	45.276		
15,100.00	6,945.44	6,931.61	6,930.44	134.96	146.30	-63.82	1,628.12	-44.15	8,293.89	8,112.86	181.03	45.815		
15,200.00	6,945.38	6,931.55	6,930.38	136.52	146.29	-63.54	1,628.12	-44.15	8,393.89	8,212.80	181.09	46.353		
15,300.00	6,945.32	6,931.49	6,930.32	138.08	146.29	-63.27	1,628.12	-44.15	8,493.89	8,312.74	181.14	46.890		
15,400.00	6,945.26	6,931.43	6,930.26	139.64	146.29	-63.00	1,628.12	-44.15	8,593.89	8,412.69	181.20	47.427		
15,500.00	6,945.20	6,931.37	6,930.20	141.20	146.29	-62.73	1,628.12	-44.15	8,693.89	8,512.63	181.26	47.964		
15,600.00	6,945.14	6,931.31	6,930.14	142.76	146.29	-62.46	1,628.12	-44.15	8,793.89	8,612.57	181.32	48.500		
15,700.00	6,945.08	6,931.25	6,930.08	144.33	146.29	-62.20	1,628.12	-44.15	8,893.89	8,712.51	181.38	49.035		
15,800.00	6,945.02	6,931.19	6,930.02	145.89	146.29	-61.93	1,628.12	-44.15	8,993.89	8,812.45	181.44	49.570		
15,900.00	6,944.96	6,931.13	6,929.96	147.46	146.29	-61.67	1,628.12	-44.15	9,093.89	8,912.39	181.50	50.105		
16,000.00	6,944.90	6,931.07	6,929.90	149.02	146.29	-61.41	1,628.12	-44.15	9,193.89	9,012.33	181.56	50.639		
16,100.00	6,944.84	6,931.01	6,929.84	150.59	146.28	-61.14	1,628.12	-44.15	9,293.89	9,112.27	181.62	51.172		
16,200.00	6,944.77	6,930.95	6,929.77	152.15	146.28	-60.88	1,628.12	-44.15	9,393.89	9,212.21	181.68	51.705		
16,300.00	6,944.71	6,930.89	6,929.71	153.72	146.28	-60.63	1,628.12	-44.15	9,493.89	9,312.14	181.75	52.237		
16,400.00	6,944.65	6,930.83	6,929.65	155.29	146.28	-60.37	1,628.12	-44.15	9,593.89	9,412.08	181.81	52.769		
16,500.00	6,944.59	6,930.77	6,929.59	156.86	146.28	-60.11	1,628.12	-44.15	9,693.89	9,512.02	181.87	53.301		
16,600.00	6,944.53	6,930.71	6,929.53	158.43	146.28	-59.86	1,628.12	-44.15	9,793.89	9,611.95	181.94	53.831		
16,700.00	6,944.47	6,930.65	6,929.47	160.00	146.28	-59.60	1,628.12	-44.15	9,893.89	9,711.89	182.00	54.362		
16,800.00	6,944.41	6,930.59	6,929.41	161.57	146.28	-59.35	1,628.12	-44.15	9,993.89	9,811.82	182.07	54.891		
16,900.00	6,944.35	6,930.53	6,929.35	163.14	146.28	-59.10	1,628.12	-44.15	10,093.89	9,911.76	182.13	55.421		
17,000.00	6,944.29	6,930.47	6,929.29	164.71	146.27	-58.85	1,628.12	-44.15	10,193.89	10,011.69	182.20	55.949		
17,100.00	6,944.23	6,930.41	6,929.23	166.29	146.27	-58.60	1,628.12	-44.15	10,293.89	10,111.62	182.27	56.477		
17,200.00	6,944.17	6,930.35	6,929.17	167.86	146.27	-58.36	1,628.12	-44.15	10,393.89	10,211.55	182.33	57.005		
17,300.00	6,944.11	6,930.29	6,929.11	169.43	146.27	-58.11	1,628.12	-44.15	10,493.89	10,311.49	182.40	57.532		
17,400.00	6,944.05	6,930.23	6,929.05	171.01	146.27	-57.87	1,628.12	-44.15	10,593.89	10,411.42	182.47	58.058		
17,500.00	6,943.99	6,930.17	6,928.99	172.58	146.27	-57.62	1,628.12	-44.15	10,693.89	10,511.35	182.54	58.584		
17,600.00	6,943.93	6,930.11	6,928.93	174.16	146.27	-57.38	1,628.12	-44.15	10,793.89	10,611.28	182.61	59.110		
17,700.00	6,943.87	6,930.05	6,928.87	175.73	146.27	-57.14	1,628.12	-44.15	10,893.89	10,711.21	182.68	59.634		
17,800.00	6,943.81	6,929.99	6,928.81	177.31	146.27	-56.90	1,628.12	-44.15	10,993.89	10,811.14	182.75	60.159		
17,900.00	6,943.75	6,929.93	6,928.75	178.89	146.26	-56.67	1,628.12	-44.15	11,093.89	10,911.07	182.82	60.682		
18,000.00	6,943.69	6,929.87	6,928.69	180.46	146.26	-56.43	1,628.12	-44.15	11,193.89	11,011.00	182.89	61.205		
18,100.00	6,943.63	6,929.81	6,928.63	182.04	146.26	-56.19	1,628.12	-44.15	11,293.89	11,110.92	182.96	61.728		
18,200.00	6,943.57	6,929.75	6,928.57	183.62	146.26	-55.96	1,628.12	-44.15	11,393.89	11,210.85	183.04	62.250		
18,300.00	6,943.51	6,929.68	6,928.51	185.20	146.26	-55.73	1,628.12	-44.15	11,493.89	11,310.78	183.11	62.771		
18,400.00	6,943.45	6,929.62	6,928.45	186.78	146.26	-55.50	1,628.12	-44.15	11,593.89	11,410.70	183.18	63.292		
18,500.00	6,943.39	6,929.56	6,928.39	188.36	146.26	-55.27	1,628.12	-44.15	11,693.89	11,510.63	183.26	63.812		
18,600.00	6,943.33	6,929.50	6,928.33	189.94	146.26	-55.04	1,628.12	-44.15	11,793.89	11,610.56	183.33	64.331		
18,700.00	6,943.27	6,929.44	6,928.27	191.52	146.26	-54.81	1,628.12	-44.15	11,893.89	11,710.48	183.41	64.850		
18,800.00	6,943.21	6,929.38	6,928.21	193.10	146.25	-54.58	1,628.12	-44.15	11,993.89	11,810.41	183.48	65.368		
18,900.00	6,943.15	6,929.32	6,928.15	194.68	146.25	-54.36	1,628.12	-44.15	12,093.89	11,910.33	183.56	65.886		
19,000.00	6,943.09	6,929.26	6,928.09	196.26	146.25	-54.13	1,628.12	-44.15	12,193.89	12,010.25	183.63	66.403		
19,100.00	6,943.03	6,929.20	6,928.03	197.84	146.25	-53.91	1,628.12	-44.15	12,293.89	12,110.18	183.71	66.920		
19,200.00	6,942.97	6,929.14	6,927.97	199.42	146.25	-53.69	1,628.12	-44.15	12,393.89	12,210.10	183.79	67.436		
19,300.00	6,942.91	6,929.08	6,927.91	201.01	146.25	-53.47	1,628.12	-44.15	12,493.89	12,310.02	183.87	67.951		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 031B - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 515-A027Ua_INC-ONLY													Offset Well Error:	0.00 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		
19,400.00	6,942.85	6,929.02	6,927.85	202.59	146.25	-53.25	1,628.12	-44.15	12,593.89	12,409.94	183.94	68.466		
19,500.00	6,942.79	6,928.96	6,927.79	204.17	146.25	-53.03	1,628.12	-44.15	12,693.89	12,509.86	184.02	68.980		
19,600.00	6,942.73	6,928.90	6,927.73	205.75	146.25	-52.82	1,628.12	-44.15	12,793.89	12,609.78	184.10	69.493		
19,700.00	6,942.67	6,928.84	6,927.67	207.34	146.24	-52.60	1,628.12	-44.15	12,893.89	12,709.70	184.18	70.006		
19,800.00	6,942.61	6,928.78	6,927.61	208.92	146.24	-52.39	1,628.12	-44.15	12,993.89	12,809.62	184.26	70.519		
19,900.00	6,942.55	6,928.72	6,927.55	210.51	146.24	-52.18	1,628.12	-44.15	13,093.89	12,909.54	184.34	71.030		
20,000.00	6,942.49	6,928.66	6,927.49	212.09	146.24	-51.97	1,628.12	-44.15	13,193.89	13,009.46	184.42	71.541		
20,100.00	6,942.43	6,928.60	6,927.43	213.68	146.24	-51.76	1,628.12	-44.15	13,293.89	13,109.38	184.51	72.052		
20,200.00	6,942.37	6,928.54	6,927.37	215.26	146.24	-51.55	1,628.12	-44.15	13,393.89	13,209.30	184.59	72.561		
20,300.00	6,942.31	6,928.48	6,927.31	216.85	146.24	-51.34	1,628.12	-44.15	13,493.89	13,309.22	184.67	73.071		
20,400.00	6,942.25	6,928.42	6,927.25	218.43	146.24	-51.13	1,628.12	-44.15	13,593.89	13,409.13	184.75	73.579		
20,500.00	6,942.19	6,928.36	6,927.19	220.02	146.24	-50.93	1,628.12	-44.15	13,693.89	13,509.05	184.84	74.087		
20,600.00	6,942.13	6,928.30	6,927.13	221.60	146.23	-50.72	1,628.12	-44.15	13,793.89	13,608.97	184.92	74.594		
20,700.00	6,942.07	6,928.24	6,927.07	223.19	146.23	-50.52	1,628.12	-44.15	13,893.89	13,708.88	185.00	75.101		
20,808.89	6,942.00	6,928.17	6,927.00	224.92	146.23	-50.30	1,628.12	-44.15	14,002.77	13,817.68	185.09	75.652		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 046A - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 321-MWD OWSG Rev5													Offset Well Error:	0.00 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	0.00	0.00	45.40	2,205.62	2,236.92	3,144.50					
100.00	100.00	0.00	0.00	0.25	0.00	45.40	2,205.62	2,236.92	3,141.67	3,141.42	0.25	N/A		
147.68	147.68	8.40	8.40	0.42	0.09	45.40	2,205.62	2,236.92	3,141.43	3,140.91	0.51	6,106.168		
200.00	200.00	59.04	59.04	0.61	0.65	45.40	2,205.62	2,236.94	3,141.45	3,140.19	1.26	2,494.871		
300.00	300.00	155.82	155.82	0.97	1.72	45.41	2,205.61	2,237.11	3,141.56	3,138.88	2.68	1,171.137		
400.00	400.00	252.61	252.61	1.33	2.79	45.41	2,205.58	2,237.43	3,141.78	3,137.67	4.11	765.203		
500.00	500.00	321.00	321.00	1.68	3.54	45.42	2,205.55	2,237.75	3,142.23	3,137.01	5.22	602.327		
600.00	599.98	387.74	387.73	2.04	3.89	44.20	2,206.21	2,238.36	3,142.47	3,136.60	5.87	535.465		
700.00	699.84	411.00	410.98	2.41	4.02	44.21	2,206.76	2,238.69	3,142.06	3,135.74	6.32	497.331		
800.00	799.45	472.10	472.01	2.77	4.40	44.28	2,209.39	2,239.97	3,140.67	3,133.56	7.11	441.989		
900.00	898.70	501.00	500.83	3.13	4.65	44.33	2,211.31	2,240.80	3,138.94	3,131.22	7.71	406.945		
1,000.00	997.47	543.99	543.64	3.50	5.12	44.42	2,214.86	2,242.58	3,136.69	3,128.17	8.52	368.247		
1,100.00	1,095.62	591.00	590.32	3.89	5.67	44.55	2,219.59	2,245.50	3,134.19	3,124.77	9.42	332.872		
1,200.00	1,193.06	625.09	624.08	4.30	5.88	44.68	2,223.42	2,248.12	3,131.02	3,121.02	10.00	313.131		
1,245.21	1,236.83	650.25	648.99	4.48	6.04	44.77	2,226.34	2,250.22	3,129.30	3,118.97	10.33	302.923		
1,300.00	1,289.78	682.00	680.38	4.72	6.23	44.87	2,230.12	2,253.08	3,127.30	3,116.56	10.74	291.102		
1,400.00	1,386.42	731.25	729.00	5.15	6.41	45.01	2,236.38	2,257.91	3,124.85	3,113.53	11.32	276.066		
1,491.71	1,475.04	772.00	769.12	5.55	6.56	45.13	2,242.00	2,262.25	3,124.03	3,112.19	11.83	263.999		
1,500.00	1,483.05	772.00	769.12	5.59	6.56	45.13	2,242.00	2,262.25	3,124.04	3,112.17	11.86	263.311		
1,600.00	1,579.69	825.88	822.00	6.04	6.85	45.27	2,250.42	2,268.27	3,124.89	3,112.33	12.56	248.859		
1,700.00	1,676.32	862.00	857.30	6.49	7.04	45.36	2,256.87	2,272.38	3,127.56	3,114.41	13.15	237.915		
1,800.00	1,772.96	913.26	907.17	6.94	7.38	45.47	2,266.95	2,278.56	3,131.99	3,118.10	13.88	225.600		
1,900.00	1,869.60	954.00	946.62	7.40	7.65	45.56	2,275.63	2,283.92	3,138.28	3,123.74	14.54	215.768		
2,000.00	1,966.23	997.03	988.07	7.86	7.93	45.65	2,285.44	2,290.01	3,146.42	3,131.19	15.23	206.597		
2,100.00	2,062.87	1,048.00	1,036.85	8.33	8.28	45.75	2,297.98	2,297.78	3,156.45	3,140.48	15.98	197.583		
2,200.00	2,159.50	1,076.77	1,064.22	8.79	8.48	45.80	2,305.51	2,302.45	3,168.28	3,151.72	16.56	191.313		
2,300.00	2,256.14	1,140.00	1,123.88	9.26	8.93	45.91	2,323.29	2,313.50	3,182.35	3,164.91	17.43	182.530		
2,400.00	2,352.77	1,140.00	1,123.88	9.73	8.93	45.91	2,323.29	2,313.50	3,197.84	3,180.08	17.76	180.034		
2,500.00	2,449.41	1,194.91	1,175.16	10.20	9.29	46.00	2,339.86	2,324.01	3,215.27	3,196.74	18.53	173.549		
2,600.00	2,546.05	1,234.00	1,211.40	10.67	9.54	46.06	2,352.14	2,332.04	3,234.50	3,215.34	19.16	168.835		
2,700.00	2,642.68	1,285.60	1,258.89	11.14	9.80	46.14	2,368.98	2,343.11	3,255.32	3,235.51	19.81	164.294		
2,800.00	2,739.32	1,328.00	1,297.66	11.61	10.01	46.20	2,383.40	2,352.45	3,277.63	3,257.22	20.40	160.651		
2,900.00	2,835.95	1,384.72	1,349.18	12.08	10.25	46.27	2,403.26	2,365.43	3,301.33	3,280.28	21.04	156.892		
3,000.00	2,932.59	1,437.86	1,397.13	12.55	10.46	46.35	2,422.29	2,378.21	3,326.41	3,304.76	21.64	153.695		
3,100.00	3,029.22	1,514.00	1,465.42	13.03	10.73	46.45	2,450.05	2,397.23	3,352.67	3,330.32	22.35	150.019		
3,200.00	3,125.86	1,554.06	1,501.15	13.50	10.87	46.50	2,464.95	2,407.53	3,379.91	3,357.07	22.85	147.944		
3,300.00	3,222.50	1,607.00	1,548.10	13.97	11.06	46.56	2,485.11	2,421.41	3,408.40	3,384.98	23.42	145.545		
3,400.00	3,319.13	1,694.28	1,625.13	14.45	11.38	46.66	2,519.09	2,444.39	3,437.61	3,413.40	24.22	141.950		
3,500.00	3,415.77	1,753.67	1,677.36	14.92	11.59	46.72	2,542.56	2,460.17	3,467.44	3,442.61	24.83	139.645		
3,600.00	3,512.40	1,838.31	1,751.44	15.40	11.90	46.81	2,576.23	2,483.47	3,498.20	3,472.58	25.61	136.590		
3,700.00	3,609.04	1,975.49	1,871.97	15.88	12.41	46.95	2,630.41	2,520.28	3,528.21	3,501.45	26.76	131.860		
3,800.00	3,705.67	2,100.22	1,982.08	16.35	12.90	47.06	2,679.81	2,551.76	3,556.97	3,529.13	27.84	127.763		
3,900.00	3,802.31	2,167.00	2,040.93	16.83	13.17	47.11	2,706.32	2,568.92	3,586.19	3,557.65	28.54	125.648		
4,000.00	3,898.95	2,268.62	2,130.32	17.30	13.58	47.20	2,746.78	2,595.33	3,615.80	3,586.31	29.49	122.604		
4,100.00	3,995.58	2,382.38	2,230.70	17.78	14.06	47.28	2,792.23	2,623.60	3,644.53	3,613.99	30.54	119.355		
4,200.00	4,092.22	2,448.00	2,288.38	18.26	14.34	47.32	2,818.79	2,640.15	3,673.93	3,642.68	31.25	117.552		
4,300.00	4,188.85	3,936.41	3,696.56	18.73	23.55	49.78	3,182.49	2,873.94	3,683.65	3,641.80	41.85	88.025		
4,400.00	4,285.49	4,041.64	3,801.30	19.21	24.67	50.10	3,189.16	2,881.45	3,676.43	3,633.04	43.39	84.721		
4,500.00	4,382.12	4,155.11	3,914.29	19.69	25.63	50.44	3,196.11	2,889.23	3,668.96	3,624.18	44.79	81.923		
4,600.00	4,478.76	4,268.54	4,027.28	20.17	26.60	50.78	3,202.83	2,896.57	3,661.18	3,615.00	46.18	79.286		
4,700.00	4,575.40	4,381.92	4,140.26	20.64	27.56	51.13	3,209.31	2,903.48	3,653.08	3,605.51	47.57	76.796		
4,800.00	4,672.03	4,495.25	4,253.24	21.12	28.52	51.47	3,215.57	2,909.96	3,644.66	3,595.70	48.96	74.441		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 046A - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		321-MWD OWSG Rev5					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)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
4,900.00	4,768.67	4,607.89	4,365.56	21.60	29.61	51.82	3,221.20	2,916.24	3,635.94	3,585.45	50.48	72.023		
5,000.00	4,865.30	4,720.35	4,477.74	22.08	30.67	52.18	3,226.18	2,922.43	3,626.92	3,574.94	51.98	69.780		
5,100.00	4,961.94	4,832.52	4,589.66	22.55	31.73	52.54	3,230.49	2,928.52	3,617.62	3,564.15	53.47	67.658		
5,200.00	5,058.57	4,944.43	4,701.35	23.03	32.78	52.92	3,234.13	2,934.52	3,608.04	3,553.09	54.95	65.655		
5,300.00	5,155.21	5,056.83	4,813.56	23.51	33.64	53.31	3,237.07	2,940.50	3,598.19	3,541.92	56.26	63.953		
5,400.00	5,251.85	5,168.87	4,925.41	23.99	34.50	53.70	3,239.23	2,946.43	3,588.05	3,530.48	57.57	62.324		
5,500.00	5,348.48	5,280.52	5,036.90	24.47	35.36	54.11	3,240.61	2,952.31	3,577.66	3,518.78	58.88	60.764		
5,600.00	5,445.12	5,391.78	5,148.00	24.94	36.21	54.53	3,241.23	2,958.15	3,567.01	3,506.83	60.18	59.269		
5,700.00	5,541.75	5,493.00	5,249.09	25.42	36.93	54.92	3,241.30	2,963.45	3,556.24	3,494.87	61.37	57.947		
5,800.00	5,638.39	5,592.36	5,348.32	25.90	37.62	55.31	3,241.23	2,968.64	3,545.55	3,483.01	62.54	56.694		
5,900.00	5,735.02	5,691.65	5,447.47	26.38	38.31	55.70	3,241.02	2,973.82	3,534.94	3,471.23	63.71	55.487		
6,000.00	5,831.66	5,790.87	5,546.55	26.86	39.00	56.10	3,240.68	2,979.00	3,524.42	3,459.54	64.88	54.323		
6,100.00	5,928.30	5,889.29	5,644.83	27.34	39.69	56.49	3,240.22	2,984.12	3,513.99	3,447.94	66.05	53.203		
6,200.00	6,024.93	5,982.43	5,737.85	27.82	40.36	56.87	3,239.82	2,988.97	3,503.76	3,436.56	67.20	52.137		
6,300.00	6,121.57	6,075.66	5,830.95	28.29	41.02	57.24	3,239.59	2,993.83	3,493.79	3,425.43	68.36	51.110		
6,400.00	6,218.20	6,168.97	5,924.13	28.77	41.69	57.62	3,239.51	2,998.70	3,484.08	3,414.57	69.52	50.119		
6,500.00	6,314.84	6,262.37	6,017.40	29.25	42.36	58.00	3,239.60	3,003.57	3,474.63	3,403.95	70.68	49.163		
6,521.58	6,335.69	6,282.53	6,037.54	29.36	42.51	58.08	3,239.64	3,004.62	3,472.62	3,401.70	70.93	48.961		
6,550.00	6,363.15	6,309.12	6,064.09	29.49	42.70	58.52	3,239.70	3,006.01	3,469.46	3,398.21	71.25	48.692		
6,600.00	6,411.28	6,355.90	6,110.81	29.73	43.03	33.07	3,239.84	3,008.45	3,461.35	3,389.52	71.82	48.194		
6,650.00	6,458.93	6,414.42	6,169.25	29.96	43.38	20.54	3,240.02	3,011.46	3,449.96	3,377.59	72.37	47.671		
6,700.00	6,505.83	6,481.07	6,235.82	30.19	43.74	10.84	3,239.98	3,014.65	3,435.14	3,362.25	72.90	47.125		
6,750.00	6,551.67	6,546.20	6,300.89	30.42	44.09	3.26	3,239.67	3,017.50	3,416.96	3,343.57	73.39	46.557		
6,800.00	6,596.17	6,609.37	6,364.01	30.64	44.43	-2.90	3,239.12	3,020.03	3,395.54	3,321.68	73.86	45.973		
6,850.00	6,639.06	6,670.15	6,424.75	30.85	44.75	-8.18	3,238.36	3,022.23	3,371.04	3,296.75	74.29	45.376		
6,900.00	6,680.07	6,728.15	6,482.70	31.05	45.06	-12.98	3,237.41	3,024.12	3,343.63	3,268.94	74.68	44.770		
6,950.00	6,718.96	6,782.98	6,537.50	31.24	45.36	-17.58	3,236.33	3,025.72	3,313.51	3,238.47	75.04	44.158		
7,000.00	6,755.47	6,834.30	6,588.79	31.43	45.64	-22.23	3,235.15	3,027.05	3,280.92	3,205.57	75.35	43.545		
7,050.00	6,789.40	6,882.69	6,637.15	31.61	45.86	-27.11	3,233.88	3,028.16	3,246.10	3,170.52	75.58	42.950		
7,100.00	6,820.52	6,930.26	6,684.70	31.79	45.96	-32.43	3,232.57	3,029.03	3,209.30	3,133.65	75.65	42.426		
7,150.00	6,848.64	6,972.83	6,727.25	31.97	46.05	-38.29	3,231.36	3,029.60	3,170.79	3,095.11	75.68	41.899		
7,200.00	6,873.60	7,010.19	6,764.59	32.14	46.12	-44.78	3,230.28	3,029.93	3,130.88	3,055.21	75.67	41.373		
7,250.00	6,895.24	7,042.19	6,796.57	32.31	46.19	-51.90	3,229.33	3,030.09	3,089.90	3,014.26	75.64	40.851		
7,300.00	6,913.42	7,068.72	6,823.08	32.49	46.24	-59.54	3,228.53	3,030.14	3,048.16	2,972.59	75.57	40.336		
7,350.00	6,928.03	7,089.72	6,844.08	32.67	46.29	-67.45	3,227.89	3,030.12	3,006.00	2,930.53	75.47	39.829		
7,400.00	6,938.98	7,105.20	6,859.55	32.86	46.32	-75.33	3,227.41	3,030.08	2,963.74	2,888.40	75.35	39.335		
7,450.00	6,946.22	7,115.18	6,869.52	33.06	46.34	-82.81	3,227.10	3,030.03	2,921.71	2,846.51	75.20	38.854		
7,500.00	6,949.68	7,119.71	6,874.06	33.26	46.35	-89.62	3,226.96	3,030.01	2,880.20	2,805.18	75.03	38.389		
7,521.05	6,950.00	7,120.02	6,874.37	33.35	46.35	-92.24	3,226.95	3,030.01	2,862.96	2,788.02	74.95	38.199		
7,600.00	6,949.95	7,119.42	6,873.76	33.72	46.35	-92.22	3,226.97	3,030.01	2,798.99	2,724.33	74.66	37.488		
7,700.00	6,949.89	7,118.67	6,873.02	34.24	46.35	-92.19	3,226.99	3,030.02	2,719.09	2,644.75	74.34	36.578		
7,800.00	6,949.83	7,117.95	6,872.30	34.84	46.35	-92.17	3,227.01	3,030.02	2,640.55	2,566.50	74.06	35.656		
7,900.00	6,949.77	7,117.25	6,871.60	35.50	46.35	-92.14	3,227.04	3,030.02	2,563.52	2,489.68	73.83	34.720		
8,000.00	6,949.71	7,116.57	6,870.92	36.23	46.34	-92.12	3,227.06	3,030.03	2,488.11	2,414.42	73.69	33.765		
8,100.00	6,949.65	7,115.91	6,870.26	37.02	46.34	-92.10	3,227.08	3,030.03	2,414.50	2,340.86	73.64	32.789		
8,200.00	6,949.59	7,115.27	6,869.61	37.85	46.34	-92.07	3,227.10	3,030.03	2,342.84	2,269.14	73.70	31.790		
8,300.00	6,949.53	7,114.64	6,868.99	38.74	46.34	-92.05	3,227.12	3,030.04	2,273.32	2,199.43	73.89	30.767		
8,400.00	6,949.47	7,114.03	6,868.38	39.68	46.34	-92.03	3,227.14	3,030.04	2,206.14	2,131.91	74.23	29.719		
8,500.00	6,949.41	7,113.44	6,867.79	40.66	46.34	-92.01	3,227.15	3,030.04	2,141.53	2,066.79	74.75	28.651		
8,600.00	6,949.35	7,112.87	6,867.22	41.67	46.34	-91.99	3,227.17	3,030.05	2,079.72	2,004.28	75.44	27.567		
8,700.00	6,949.29	7,112.31	6,866.66	42.73	46.34	-91.97	3,227.19	3,030.05	2,020.97	1,944.64	76.34	26.475		
8,800.00	6,949.23	7,111.76	6,866.11	43.82	46.33	-91.95	3,227.21	3,030.05	1,965.56	1,888.13	77.43	25.384		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 046A - OH - OH-SVY											Offset Site Error: 0.00 usft
Survey Program: 321-MWD OWSG Rev5											Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		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)	
8,900.00	6,949.17	7,111.23	6,865.58	44.94	46.33	-91.93	3,227.22	3,030.05	1,913.77	1,835.04	24.308
9,000.00	6,949.11	7,110.71	6,865.06	46.09	46.33	-91.92	3,227.24	3,030.06	1,865.90	1,785.68	23.260
9,100.00	6,949.05	7,110.21	6,864.56	47.26	46.33	-91.90	3,227.26	3,030.06	1,822.27	1,740.38	22.252
9,200.00	6,948.99	7,109.72	6,864.07	48.46	46.33	-91.88	3,227.27	3,030.06	1,783.19	1,699.47	21.299
9,300.00	6,948.93	7,109.24	6,863.59	49.68	46.33	-91.87	3,227.29	3,030.06	1,748.96	1,663.27	20.411
9,400.00	6,948.87	7,108.77	6,863.12	50.93	46.33	-91.85	3,227.30	3,030.06	1,719.86	1,632.11	19.599
9,500.00	6,948.81	7,108.31	6,862.66	52.19	46.33	-91.83	3,227.31	3,030.07	1,696.18	1,606.29	18.870
9,600.00	6,948.75	7,107.86	6,862.21	53.47	46.33	-91.82	3,227.33	3,030.07	1,678.12	1,586.08	18.231
9,700.00	6,948.69	7,107.43	6,861.78	54.77	46.33	-91.80	3,227.34	3,030.07	1,665.89	1,571.69	17.685
9,800.00	6,948.63	7,107.00	6,861.35	56.08	46.32	-91.79	3,227.35	3,030.07	1,659.60	1,563.30	17.234
9,854.59	6,948.60	7,106.77	6,861.12	56.81	46.32	-91.78	3,227.36	3,030.07	1,658.70	1,561.28	17.027 CC
9,900.00	6,948.57	7,106.58	6,860.93	57.41	46.32	-91.77	3,227.37	3,030.07	1,659.32	1,561.00	16.877 ES
10,000.00	6,948.51	7,106.18	6,860.53	58.76	46.32	-91.76	3,227.38	3,030.07	1,665.06	1,564.83	16.612
10,100.00	6,948.45	7,105.78	6,860.13	60.11	46.32	-91.75	3,227.39	3,030.08	1,676.76	1,574.75	16.438
10,200.00	6,948.39	7,105.39	6,859.74	61.48	46.32	-91.73	3,227.40	3,030.08	1,694.28	1,590.66	16.350
10,300.00	6,948.33	7,105.01	6,859.36	62.86	46.32	-91.72	3,227.42	3,030.08	1,717.46	1,612.38	16.344 SF
10,400.00	6,948.27	7,104.63	6,858.99	64.24	46.32	-91.71	3,227.43	3,030.08	1,746.07	1,639.70	16.415
10,500.00	6,948.21	7,104.27	6,858.62	65.64	46.32	-91.69	3,227.44	3,030.08	1,779.84	1,672.35	16.558
10,600.00	6,948.15	7,103.91	6,858.27	67.05	46.32	-91.68	3,227.45	3,030.08	1,818.49	1,710.04	16.768
10,700.00	6,948.09	7,103.56	6,857.92	68.47	46.32	-91.67	3,227.46	3,030.08	1,861.72	1,752.46	16.926
10,800.00	6,948.03	7,103.22	6,857.57	69.89	46.32	-91.66	3,227.47	3,030.09	1,909.21	1,799.28	17.368
10,900.00	6,947.97	7,102.89	6,857.24	71.32	46.32	-91.65	3,227.48	3,030.09	1,960.65	1,850.18	17.748
11,000.00	6,947.91	7,102.56	6,856.91	72.76	46.31	-91.63	3,227.49	3,030.09	2,015.75	1,904.85	18.177
11,100.00	6,947.85	7,102.23	6,856.59	74.21	46.31	-91.62	3,227.50	3,030.09	2,074.20	1,962.98	18.650
11,200.00	6,947.79	7,101.92	6,856.27	75.66	46.31	-91.61	3,227.51	3,030.09	2,135.74	2,024.28	19.162
11,300.00	6,947.73	7,101.61	6,855.96	77.12	46.31	-91.60	3,227.52	3,030.09	2,200.11	2,088.49	19.711
11,400.00	6,947.66	7,101.31	6,855.66	78.58	46.31	-91.59	3,227.53	3,030.09	2,267.06	2,155.34	20.293
11,500.00	6,947.60	7,101.01	6,855.36	80.05	46.31	-91.58	3,227.54	3,030.09	2,336.37	2,224.62	20.906
11,600.00	6,947.54	7,100.72	6,855.07	81.52	46.31	-91.57	3,227.55	3,030.09	2,407.84	2,296.09	21.547
11,700.00	6,947.48	7,100.43	6,854.78	83.00	46.31	-91.56	3,227.56	3,030.09	2,481.29	2,369.58	22.213
11,800.00	6,947.42	7,100.15	6,854.50	84.48	46.31	-91.55	3,227.57	3,030.10	2,556.53	2,444.90	22.902
11,900.00	6,947.36	7,099.87	6,854.23	85.97	46.31	-91.54	3,227.58	3,030.10	2,633.43	2,521.90	23.612
12,000.00	6,947.30	7,099.60	6,853.96	87.46	46.31	-91.53	3,227.59	3,030.10	2,711.83	2,600.42	24.342
12,100.00	6,947.24	7,099.34	6,853.69	88.96	46.31	-91.52	3,227.59	3,030.10	2,791.61	2,680.34	25.089
12,200.00	6,947.18	7,099.07	6,853.43	90.46	46.31	-91.51	3,227.60	3,030.10	2,872.66	2,761.54	25.853
12,300.00	6,947.12	7,098.82	6,853.17	91.96	46.31	-91.51	3,227.61	3,030.10	2,954.87	2,843.91	26.631
12,400.00	6,947.06	7,098.57	6,852.92	93.47	46.31	-91.50	3,227.62	3,030.10	3,038.14	2,927.36	27.423
12,500.00	6,947.00	7,098.32	6,852.67	94.97	46.31	-91.49	3,227.62	3,030.10	3,122.40	3,011.79	28.228
12,600.00	6,946.94	7,098.08	6,852.43	96.49	46.31	-91.48	3,227.63	3,030.10	3,207.56	3,097.13	29.045
12,700.00	6,946.88	7,097.84	6,852.19	98.00	46.31	-91.47	3,227.64	3,030.10	3,293.56	3,183.30	29.872
12,800.00	6,946.82	7,097.60	6,851.96	99.52	46.30	-91.46	3,227.65	3,030.10	3,380.33	3,270.25	30.709
12,900.00	6,946.76	7,097.37	6,851.73	101.04	46.30	-91.46	3,227.65	3,030.10	3,467.81	3,357.91	31.555
13,000.00	6,946.70	7,097.14	6,851.50	102.56	46.30	-91.45	3,227.66	3,030.10	3,555.95	3,446.23	32.409
13,100.00	6,946.64	7,096.92	6,851.28	104.09	46.30	-91.44	3,227.67	3,030.11	3,644.70	3,535.16	33.271
13,200.00	6,946.58	7,096.70	6,851.06	105.61	46.30	-91.43	3,227.67	3,030.11	3,734.02	3,624.65	34.141
13,300.00	6,946.52	7,096.49	6,850.84	107.14	46.30	-91.42	3,227.68	3,030.11	3,823.87	3,714.67	35.017
13,400.00	6,946.46	7,096.27	6,850.63	108.67	46.30	-91.42	3,227.69	3,030.11	3,914.21	3,805.18	35.899
13,500.00	6,946.40	7,096.06	6,850.42	110.21	46.30	-91.41	3,227.69	3,030.11	4,005.02	3,896.14	36.787
13,600.00	6,946.34	7,095.86	6,850.22	111.74	46.30	-91.40	3,227.70	3,030.11	4,096.25	3,987.53	37.680
13,700.00	6,946.28	7,095.66	6,850.01	113.28	46.30	-91.40	3,227.71	3,030.11	4,187.88	4,079.32	38.578
13,800.00	6,946.22	7,095.46	6,849.81	114.82	46.30	-91.39	3,227.71	3,030.11	4,279.88	4,171.48	39.481
13,900.00	6,946.16	7,095.26	6,849.62	116.36	46.30	-91.38	3,227.72	3,030.11	4,372.24	4,263.98	40.387

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 046A - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		321-MWD OWSG Rev5						Rule Assigned:					Offset Well Error:	0.00 usft
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset 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)				
14,000.00	6,946.10	7,095.07	6,849.43	117.90	46.30	-91.38	3,227.72	3,030.11	4,464.92	4,356.81	108.11	41.298		
14,100.00	6,946.04	7,094.88	6,849.24	119.45	46.30	-91.37	3,227.73	3,030.11	4,557.92	4,449.94	107.98	42.212		
14,200.00	6,945.98	7,094.69	6,849.05	120.99	46.30	-91.36	3,227.74	3,030.11	4,651.20	4,543.36	107.84	43.130		
14,300.00	6,945.92	7,094.51	6,848.86	122.54	46.30	-91.36	3,227.74	3,030.11	4,744.76	4,637.05	107.71	44.050		
14,400.00	6,945.86	7,094.33	6,848.68	124.09	46.30	-91.35	3,227.75	3,030.11	4,838.58	4,730.99	107.59	44.974		
14,500.00	6,945.80	7,094.15	6,848.50	125.64	46.30	-91.34	3,227.75	3,030.11	4,932.64	4,825.17	107.46	45.900		
14,600.00	6,945.74	7,093.97	6,848.33	127.19	46.30	-91.34	3,227.76	3,030.11	5,026.92	4,919.58	107.35	46.829		
14,700.00	6,945.68	7,093.80	6,848.15	128.74	46.30	-91.33	3,227.76	3,030.11	5,121.43	5,014.20	107.23	47.760		
14,800.00	6,945.62	7,093.63	6,847.98	130.30	46.30	-91.33	3,227.77	3,030.11	5,216.14	5,109.02	107.12	48.693		
14,900.00	6,945.56	7,093.46	6,847.82	131.85	46.30	-91.32	3,227.77	3,030.11	5,311.04	5,204.03	107.02	49.628		
15,000.00	6,945.50	7,093.29	6,847.65	133.41	46.30	-91.31	3,227.78	3,030.11	5,406.13	5,299.22	106.92	50.565		
15,100.00	6,945.44	7,093.13	6,847.49	134.96	46.30	-91.31	3,227.78	3,030.11	5,501.39	5,394.58	106.82	51.503		
15,200.00	6,945.38	7,092.97	6,847.32	136.52	46.30	-91.30	3,227.79	3,030.12	5,596.82	5,490.10	106.72	52.443		
15,300.00	6,945.32	7,092.81	6,847.17	138.08	46.29	-91.30	3,227.79	3,030.12	5,692.41	5,585.77	106.63	53.384		
15,400.00	6,945.26	7,092.65	6,847.01	139.64	46.29	-91.29	3,227.80	3,030.12	5,788.14	5,681.60	106.54	54.327		
15,500.00	6,945.20	7,092.50	6,846.85	141.20	46.29	-91.29	3,227.80	3,030.12	5,884.01	5,777.56	106.46	55.270		
15,600.00	6,945.14	7,092.34	6,846.70	142.76	46.29	-91.28	3,227.81	3,030.12	5,980.03	5,873.65	106.38	56.215		
15,700.00	6,945.08	7,092.19	6,846.55	144.33	46.29	-91.28	3,227.81	3,030.12	6,076.16	5,969.86	106.30	57.160		
15,800.00	6,945.02	7,092.04	6,846.40	145.89	46.29	-91.27	3,227.82	3,030.12	6,172.43	6,066.20	106.23	58.107		
15,900.00	6,944.96	7,091.90	6,846.26	147.46	46.29	-91.27	3,227.82	3,030.12	6,268.81	6,162.65	106.15	59.054		
16,000.00	6,944.90	7,091.75	6,846.11	149.02	46.29	-91.26	3,227.83	3,030.12	6,365.30	6,259.21	106.09	60.002		
16,100.00	6,944.84	7,091.61	6,845.97	150.59	46.29	-91.26	3,227.83	3,030.12	6,461.89	6,355.87	106.02	60.950		
16,200.00	6,944.77	7,091.47	6,845.83	152.15	46.29	-91.25	3,227.83	3,030.12	6,558.59	6,452.64	105.96	61.899		
16,300.00	6,944.71	7,091.33	6,845.69	153.72	46.29	-91.25	3,227.84	3,030.12	6,655.39	6,549.49	105.90	62.848		
16,400.00	6,944.65	7,091.19	6,845.55	155.29	46.29	-91.24	3,227.84	3,030.12	6,752.28	6,646.44	105.84	63.798		
16,500.00	6,944.59	7,091.06	6,845.42	156.86	46.29	-91.24	3,227.85	3,030.12	6,849.26	6,743.48	105.78	64.747		
16,600.00	6,944.53	7,090.93	6,845.28	158.43	46.29	-91.23	3,227.85	3,030.12	6,946.32	6,840.59	105.73	65.698		
16,700.00	6,944.47	7,090.79	6,845.15	160.00	46.29	-91.23	3,227.86	3,030.12	7,043.47	6,937.79	105.68	66.648		
16,800.00	6,944.41	7,090.66	6,845.02	161.57	46.29	-91.22	3,227.86	3,030.12	7,140.70	7,035.06	105.63	67.598		
16,900.00	6,944.35	7,090.54	6,844.89	163.14	46.29	-91.22	3,227.86	3,030.12	7,238.00	7,132.41	105.59	68.548		
17,000.00	6,944.29	7,090.41	6,844.77	164.71	46.29	-91.21	3,227.87	3,030.12	7,335.37	7,229.83	105.55	69.499		
17,100.00	6,944.23	7,090.28	6,844.64	166.29	46.29	-91.21	3,227.87	3,030.12	7,432.82	7,327.31	105.51	70.449		
17,200.00	6,944.17	7,090.16	6,844.52	167.86	46.29	-91.21	3,227.87	3,030.12	7,530.33	7,424.86	105.47	71.399		
17,300.00	6,944.11	7,090.04	6,844.40	169.43	46.29	-91.20	3,227.88	3,030.12	7,627.90	7,522.47	105.43	72.349		
17,400.00	6,944.05	7,089.92	6,844.28	171.01	46.29	-91.20	3,227.88	3,030.12	7,725.54	7,620.14	105.40	73.298		
17,500.00	6,943.99	7,089.80	6,844.16	172.58	46.29	-91.19	3,227.89	3,030.12	7,823.24	7,717.87	105.37	74.248		
17,600.00	6,943.93	7,089.68	6,844.04	174.16	46.29	-91.19	3,227.89	3,030.12	7,920.99	7,815.66	105.34	75.197		
17,700.00	6,943.87	7,089.56	6,843.92	175.73	46.29	-91.19	3,227.89	3,030.12	8,018.80	7,913.50	105.31	76.146		
17,800.00	6,943.81	7,089.45	6,843.81	177.31	46.29	-91.18	3,227.90	3,030.12	8,116.67	8,011.38	105.28	77.094		
17,900.00	6,943.75	7,089.34	6,843.70	178.89	46.29	-91.18	3,227.90	3,030.12	8,214.58	8,109.32	105.26	78.042		
18,000.00	6,943.69	7,089.22	6,843.58	180.46	46.29	-91.17	3,227.90	3,030.12	8,312.55	8,207.31	105.24	78.990		
18,100.00	6,943.63	7,089.11	6,843.47	182.04	46.29	-91.17	3,227.91	3,030.12	8,410.56	8,305.34	105.22	79.937		
18,200.00	6,943.57	7,089.00	6,843.36	183.62	46.29	-91.17	3,227.91	3,030.12	8,508.62	8,403.42	105.20	80.883		
18,300.00	6,943.51	7,088.89	6,843.25	185.20	46.29	-91.16	3,227.91	3,030.12	8,606.72	8,501.54	105.18	81.829		
18,400.00	6,943.45	7,088.79	6,843.15	186.78	46.29	-91.16	3,227.92	3,030.12	8,704.87	8,599.70	105.16	82.774		
18,500.00	6,943.39	7,088.68	6,843.04	188.36	46.29	-91.16	3,227.92	3,030.12	8,803.06	8,697.91	105.15	83.719		
18,600.00	6,943.33	7,088.58	6,842.94	189.94	46.29	-91.15	3,227.92	3,030.12	8,901.28	8,796.15	105.14	84.663		
18,700.00	6,943.27	7,088.47	6,842.83	191.52	46.29	-91.15	3,227.93	3,030.12	8,999.55	8,894.42	105.13	85.606		
18,800.00	6,943.21	7,088.37	6,842.73	193.10	46.29	-91.14	3,227.93	3,030.13	9,097.86	8,992.74	105.12	86.549		
18,900.00	6,943.15	7,088.27	6,842.63	194.68	46.29	-91.14	3,227.93	3,030.13	9,196.20	9,091.09	105.11	87.491		
19,000.00	6,943.09	7,088.17	6,842.53	196.26	46.29	-91.14	3,227.94	3,030.13	9,294.58	9,189.47	105.10	88.432		
19,100.00	6,943.03	7,088.07	6,842.43	197.84	46.28	-91.13	3,227.94	3,030.13	9,392.99	9,287.89	105.10	89.372		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 046A - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 321-MWD OWSG Rev5												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
19,200.00	6,942.97	7,087.97	6,842.33	199.42	46.28	-91.13	3,227.94	3,030.13	9,491.43	9,386.34		105.10	90.312
19,300.00	6,942.91	7,087.88	6,842.24	201.01	46.28	-91.13	3,227.94	3,030.13	9,589.91	9,484.82		105.09	91.251
19,400.00	6,942.85	7,087.78	6,842.14	202.59	46.28	-91.12	3,227.95	3,030.13	9,688.42	9,583.32		105.09	92.188
19,500.00	6,942.79	7,087.69	6,842.05	204.17	46.28	-91.12	3,227.95	3,030.13	9,786.96	9,681.86		105.09	93.125
19,600.00	6,942.73	7,087.59	6,841.95	205.75	46.28	-91.12	3,227.95	3,030.13	9,885.52	9,780.43		105.10	94.061
19,700.00	6,942.67	7,087.50	6,841.86	207.34	46.28	-91.11	3,227.96	3,030.13	9,984.12	9,879.02		105.10	94.996
19,800.00	6,942.61	7,087.41	6,841.77	208.92	46.28	-91.11	3,227.96	3,030.13	10,082.74	9,977.64		105.10	95.931
19,900.00	6,942.55	7,087.32	6,841.68	210.51	46.28	-91.11	3,227.96	3,030.13	10,181.39	10,076.28		105.11	96.864
20,000.00	6,942.49	7,087.23	6,841.59	212.09	46.28	-91.11	3,227.96	3,030.13	10,280.07	10,174.95		105.12	97.796
20,100.00	6,942.43	7,087.14	6,841.50	213.68	46.28	-91.10	3,227.97	3,030.13	10,378.77	10,273.65		105.13	98.727
20,200.00	6,942.37	7,087.05	6,841.41	215.26	46.28	-91.10	3,227.97	3,030.13	10,477.50	10,372.36		105.14	99.657
20,300.00	6,942.31	7,086.97	6,841.33	216.85	46.28	-91.10	3,227.97	3,030.13	10,576.25	10,471.10		105.15	100.587
20,400.00	6,942.25	7,086.88	6,841.24	218.43	46.28	-91.09	3,227.98	3,030.13	10,675.02	10,569.87		105.16	101.515
20,500.00	6,942.19	7,086.80	6,841.16	220.02	46.28	-91.09	3,227.98	3,030.13	10,773.82	10,668.65		105.17	102.442
20,600.00	6,942.13	7,086.71	6,841.07	221.60	46.28	-91.09	3,227.98	3,030.13	10,872.64	10,767.45		105.18	103.368
20,700.00	6,942.07	7,086.63	6,840.99	223.19	46.28	-91.08	3,227.98	3,030.13	10,971.48	10,866.28		105.20	104.292
20,808.89	6,942.00	7,086.54	6,840.90	224.92	46.28	-91.08	3,227.99	3,030.13	11,079.12	10,973.91		105.22	105.298

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 065 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 839-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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
5,100.00	4,961.94	4,928.24	4,926.94	22.55	99.28	89.09	1,068.81	3,848.62	3,825.44	3,703.60	121.84	31.398
5,200.00	5,058.57	5,024.87	5,023.57	23.03	103.60	89.46	1,068.81	3,848.62	3,825.10	3,698.47	126.63	30.206
5,300.00	5,155.21	5,121.45	5,119.99	23.51	107.92	89.77	1,073.15	3,848.62	3,824.86	3,693.43	131.43	29.102
5,351.20	5,204.69	5,170.48	5,168.99	23.75	110.11	89.96	1,072.93	3,848.62	3,824.83	3,690.97	133.86	28.572
5,400.00	5,251.85	5,217.08	5,215.55	23.99	112.19	90.15	1,072.41	3,848.62	3,824.86	3,688.68	136.18	28.087
5,500.00	5,348.48	5,312.14	5,310.51	24.47	116.44	90.54	1,070.40	3,848.62	3,825.08	3,684.17	140.91	27.146
5,600.00	5,445.12	5,412.63	5,410.12	24.94	121.05	90.95	1,068.81	3,848.62	3,825.49	3,679.49	145.99	26.203
5,700.00	5,541.75	5,509.27	5,506.75	25.42	125.61	91.32	1,068.81	3,848.62	3,826.01	3,674.99	151.02	25.334
5,800.00	5,638.39	5,605.91	5,603.39	25.90	130.16	91.70	1,068.81	3,848.62	3,826.72	3,670.66	156.05	24.522
5,900.00	5,735.02	5,700.48	5,697.75	26.38	134.61	92.00	1,072.96	3,848.62	3,827.35	3,666.36	160.99	23.774
6,000.00	5,831.66	5,794.09	5,791.28	26.86	139.03	92.38	1,071.42	3,848.62	3,828.47	3,662.60	165.87	23.081
6,100.00	5,928.30	5,897.08	5,893.30	27.34	143.89	92.81	1,068.81	3,848.62	3,829.86	3,658.64	171.22	22.368
6,200.00	6,024.93	5,993.72	5,989.93	27.82	148.58	93.18	1,068.81	3,848.62	3,831.25	3,654.86	176.38	21.721
6,300.00	6,121.57	6,090.36	6,086.57	28.29	153.27	93.55	1,068.81	3,848.62	3,832.81	3,651.26	181.55	21.112
6,400.00	6,218.20	6,185.18	6,181.21	28.77	157.88	93.85	1,073.21	3,848.62	3,834.14	3,647.52	186.62	20.545
6,500.00	6,314.84	6,277.31	6,273.27	29.25	162.35	94.22	1,072.14	3,848.62	3,836.13	3,644.56	191.57	20.025
6,521.58	6,335.69	6,297.13	6,293.06	29.36	163.31	94.30	1,071.77	3,848.62	3,836.60	3,643.97	192.63	19.917
6,550.00	6,363.15	6,323.18	6,319.08	29.49	164.57	84.90	1,071.19	3,848.62	3,836.61	3,642.58	194.03	19.773
6,600.00	6,411.28	6,368.74	6,364.59	29.73	166.78	69.91	1,069.96	3,848.62	3,833.62	3,637.14	196.48	19.512
6,650.00	6,458.93	6,428.99	6,423.93	29.96	169.73	58.09	1,068.81	3,848.62	3,826.76	3,627.10	199.66	19.167
6,700.00	6,505.83	6,475.88	6,470.83	30.19	172.04	49.31	1,068.81	3,848.62	3,816.00	3,613.80	202.21	18.872
6,750.00	6,551.67	6,521.72	6,516.67	30.42	174.30	42.95	1,068.81	3,848.62	3,801.51	3,596.81	204.70	18.571
6,800.00	6,596.17	6,566.22	6,561.17	30.64	176.50	38.36	1,068.81	3,848.62	3,783.38	3,576.26	207.12	18.267
6,850.00	6,639.06	6,609.11	6,604.06	30.85	178.62	35.05	1,068.81	3,848.62	3,761.72	3,552.27	209.45	17.960
6,900.00	6,680.07	6,650.12	6,645.07	31.05	180.64	32.68	1,068.81	3,848.62	3,736.67	3,524.98	211.68	17.652
6,950.00	6,718.96	6,686.72	6,681.50	31.24	182.45	30.96	1,073.03	3,848.62	3,707.82	3,494.13	213.69	17.351
7,000.00	6,755.47	6,720.92	6,715.67	31.43	184.14	29.90	1,072.78	3,848.62	3,676.48	3,460.91	215.57	17.055
7,050.00	6,789.40	6,752.63	6,747.36	31.61	185.70	29.36	1,072.40	3,848.62	3,642.28	3,424.96	217.32	16.760
7,100.00	6,820.52	6,781.67	6,776.37	31.79	187.14	29.32	1,071.93	3,848.62	3,605.43	3,386.51	218.92	16.469
7,150.00	6,848.64	6,807.88	6,802.55	31.97	188.43	29.78	1,071.40	3,848.62	3,566.15	3,345.77	220.37	16.182
7,200.00	6,873.60	6,831.10	6,825.75	32.14	189.58	30.82	1,070.85	3,848.62	3,524.66	3,303.00	221.67	15.901
7,250.00	6,895.24	6,851.21	6,845.83	32.31	190.57	32.59	1,070.32	3,848.62	3,481.23	3,258.43	222.80	15.625
7,300.00	6,913.42	6,868.10	6,862.69	32.49	191.40	35.37	1,069.82	3,848.62	3,436.10	3,212.34	223.76	15.356
7,350.00	6,928.03	6,881.66	6,876.24	32.67	192.07	39.67	1,069.40	3,848.62	3,389.55	3,165.00	224.55	15.095
7,400.00	6,938.98	6,910.24	6,903.98	32.86	193.48	47.32	1,068.81	3,848.62	3,341.84	3,115.78	226.06	14.783
7,450.00	6,946.22	6,917.47	6,911.22	33.06	193.83	59.11	1,068.81	3,848.62	3,293.23	3,066.72	226.51	14.539
7,500.00	6,949.68	6,920.93	6,914.68	33.26	194.00	78.96	1,068.81	3,848.62	3,244.07	3,017.31	226.76	14.306
7,521.05	6,950.00	6,921.26	6,915.00	33.35	194.01	90.23	1,068.81	3,848.62	3,223.27	2,996.46	226.81	14.211
7,600.00	6,949.95	6,921.21	6,914.95	33.72	194.01	90.22	1,068.81	3,848.62	3,145.25	2,918.32	226.93	13.860
7,700.00	6,949.89	6,921.15	6,914.89	34.24	194.01	90.21	1,068.81	3,848.62	3,046.50	2,819.41	227.10	13.415
7,800.00	6,949.83	6,921.09	6,914.83	34.84	194.01	90.21	1,068.81	3,848.62	2,947.83	2,720.56	227.27	12.970
7,900.00	6,949.77	6,921.03	6,914.77	35.50	194.00	90.20	1,068.81	3,848.62	2,849.26	2,621.79	227.47	12.526
8,000.00	6,949.71	6,920.97	6,914.71	36.23	194.00	90.19	1,068.81	3,848.62	2,750.78	2,523.11	227.68	12.082
8,100.00	6,949.65	6,920.91	6,914.65	37.02	194.00	90.18	1,068.81	3,848.62	2,652.43	2,424.52	227.90	11.638
8,200.00	6,949.59	6,920.85	6,914.59	37.85	193.99	90.18	1,068.81	3,848.62	2,554.20	2,326.05	228.15	11.195
8,300.00	6,949.53	6,920.79	6,914.53	38.74	193.99	90.17	1,068.81	3,848.62	2,456.11	2,227.69	228.42	10.753
8,400.00	6,949.47	6,920.73	6,914.47	39.68	193.99	90.16	1,068.81	3,848.62	2,358.18	2,129.46	228.71	10.311
8,500.00	6,949.41	6,920.67	6,914.41	40.66	193.99	90.16	1,068.81	3,848.62	2,260.43	2,031.39	229.04	9.869
8,600.00	6,949.35	6,920.61	6,914.35	41.67	193.98	90.15	1,068.81	3,848.62	2,162.89	1,933.50	229.40	9.429
8,700.00	6,949.29	6,920.55	6,914.29	42.73	193.98	90.14	1,068.81	3,848.62	2,065.59	1,835.79	229.79	8.989
8,800.00	6,949.23	6,920.49	6,914.23	43.82	193.98	90.13	1,068.81	3,848.62	1,968.55	1,738.32	230.23	8.550
8,900.00	6,949.17	6,920.43	6,914.17	44.94	193.97	90.13	1,068.81	3,848.62	1,871.83	1,641.11	230.73	8.113

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 065 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		839-A027Ua_INC-ONLY								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)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.00	6,949.11	6,920.37	6,914.11	46.09	193.97	90.12	1,068.81	3,848.62	1,775.47	1,544.20	231.28	7.677	
9,100.00	6,949.05	6,920.31	6,914.05	47.26	193.97	90.11	1,068.81	3,848.62	1,679.54	1,447.64	231.90	7.243	
9,200.00	6,948.99	6,920.25	6,913.99	48.46	193.97	90.11	1,068.81	3,848.62	1,584.11	1,351.51	232.60	6.811	
9,300.00	6,948.93	6,920.19	6,913.93	49.68	193.96	90.10	1,068.81	3,848.62	1,489.28	1,255.88	233.40	6.381	
9,400.00	6,948.87	6,920.13	6,913.87	50.93	193.96	90.09	1,068.81	3,848.62	1,395.17	1,160.86	234.31	5.954	
9,500.00	6,948.81	6,920.07	6,913.81	52.19	193.96	90.09	1,068.81	3,848.62	1,301.94	1,066.58	235.36	5.532	
9,600.00	6,948.75	6,920.01	6,913.75	53.47	193.95	90.08	1,068.81	3,848.62	1,209.79	973.21	236.58	5.114	
9,700.00	6,948.69	6,919.95	6,913.69	54.77	193.95	90.07	1,068.81	3,848.62	1,118.99	881.00	238.00	4.702	
9,800.00	6,948.63	6,919.89	6,913.63	56.08	193.95	90.06	1,068.81	3,848.62	1,029.90	790.25	239.65	4.297	
9,900.00	6,948.57	6,919.83	6,913.57	57.41	193.94	90.06	1,068.81	3,848.62	942.99	701.40	241.60	3.903	
10,000.00	6,948.51	6,919.77	6,913.51	58.76	193.94	90.05	1,068.81	3,848.62	858.95	615.07	243.87	3.522	
10,100.00	6,948.45	6,919.71	6,913.45	60.11	193.94	90.04	1,068.81	3,848.62	778.68	532.16	246.52	3.159	
10,200.00	6,948.39	6,919.65	6,913.39	61.48	193.94	90.04	1,068.81	3,848.62	703.48	453.94	249.54	2.819	
10,300.00	6,948.33	6,919.59	6,913.33	62.86	193.93	90.03	1,068.81	3,848.62	635.16	382.30	252.86	2.512	
10,400.00	6,948.27	6,919.53	6,913.27	64.24	193.93	90.02	1,068.81	3,848.62	576.18	319.93	256.24	2.249	
10,500.00	6,948.21	6,919.46	6,913.21	65.64	193.93	90.01	1,068.81	3,848.62	529.65	270.47	259.18	2.044	
10,600.00	6,948.15	6,919.40	6,913.15	67.05	193.92	90.01	1,068.81	3,848.62	499.08	238.19	260.89	1.913	
10,700.00	6,948.09	6,919.34	6,913.09	68.47	193.92	90.00	1,068.81	3,848.62	487.47	226.86	260.61	1.871	ES, SF
10,707.26	6,948.08	6,919.34	6,913.08	68.57	193.92	90.00	1,068.81	3,848.62	487.42	226.92	260.50	1.871	CC
10,800.00	6,948.03	6,919.28	6,913.03	69.89	193.92	89.99	1,068.81	3,848.62	496.16	238.06	258.10	1.922	
10,900.00	6,947.97	6,919.22	6,912.97	71.32	193.92	89.99	1,068.81	3,848.62	524.14	270.22	253.92	2.064	
11,000.00	6,947.91	6,919.16	6,912.91	72.76	193.91	89.98	1,068.81	3,848.62	568.57	319.54	249.03	2.283	
11,100.00	6,947.85	6,919.10	6,912.85	74.21	193.91	89.97	1,068.81	3,848.62	625.96	381.71	244.24	2.563	
11,200.00	6,947.79	6,919.04	6,912.79	75.66	193.91	89.97	1,068.81	3,848.62	693.09	453.07	240.02	2.888	
11,300.00	6,947.73	6,918.98	6,912.73	77.12	193.90	89.96	1,068.81	3,848.62	767.41	530.92	236.49	3.245	
11,400.00	6,947.66	6,918.92	6,912.66	78.58	193.90	89.95	1,068.81	3,848.62	847.03	613.39	233.64	3.625	
11,500.00	6,947.60	6,918.86	6,912.60	80.05	193.90	89.94	1,068.81	3,848.62	930.60	699.22	231.38	4.022	
11,600.00	6,947.54	6,918.80	6,912.54	81.52	193.90	89.94	1,068.81	3,848.62	1,017.13	787.54	229.60	4.430	
11,700.00	6,947.48	6,918.74	6,912.48	83.00	193.89	89.93	1,068.81	3,848.62	1,105.94	877.74	228.20	4.846	
11,800.00	6,947.42	6,918.68	6,912.42	84.48	193.89	89.92	1,068.81	3,848.62	1,196.52	969.42	227.10	5.269	
11,900.00	6,947.36	6,918.62	6,912.36	85.97	193.89	89.92	1,068.81	3,848.62	1,288.49	1,062.25	226.24	5.695	
12,000.00	6,947.30	6,918.56	6,912.30	87.46	193.88	89.91	1,068.81	3,848.62	1,381.58	1,156.01	225.57	6.125	
12,100.00	6,947.24	6,918.50	6,912.24	88.96	193.88	89.90	1,068.81	3,848.62	1,475.57	1,250.53	225.04	6.557	
12,200.00	6,947.18	6,918.44	6,912.18	90.46	193.88	89.89	1,068.81	3,848.62	1,570.30	1,345.68	224.62	6.991	
12,300.00	6,947.12	6,918.38	6,912.12	91.96	193.87	89.89	1,068.81	3,848.62	1,665.65	1,441.35	224.30	7.426	
12,400.00	6,947.06	6,918.32	6,912.06	93.47	193.87	89.88	1,068.81	3,848.62	1,761.52	1,537.47	224.05	7.862	
12,500.00	6,947.00	6,918.26	6,912.00	94.97	193.87	89.87	1,068.81	3,848.62	1,857.82	1,633.97	223.85	8.299	
12,600.00	6,946.94	6,918.20	6,911.94	96.49	193.87	89.87	1,068.81	3,848.62	1,954.49	1,730.79	223.70	8.737	
12,700.00	6,946.88	6,918.14	6,911.88	98.00	193.86	89.86	1,068.81	3,848.62	2,051.49	1,827.90	223.59	9.175	
12,800.00	6,946.82	6,918.08	6,911.82	99.52	193.86	89.85	1,068.81	3,848.62	2,148.75	1,925.25	223.51	9.614	
12,900.00	6,946.76	6,918.02	6,911.76	101.04	193.86	89.84	1,068.81	3,848.62	2,246.26	2,022.81	223.45	10.053	
13,000.00	6,946.70	6,917.96	6,911.70	102.56	193.85	89.84	1,068.81	3,848.62	2,343.98	2,120.57	223.41	10.492	
13,100.00	6,946.64	6,917.90	6,911.64	104.09	193.85	89.83	1,068.81	3,848.62	2,441.88	2,218.49	223.39	10.931	
13,200.00	6,946.58	6,917.84	6,911.58	105.61	193.85	89.82	1,068.81	3,848.62	2,539.95	2,316.56	223.39	11.370	
13,300.00	6,946.52	6,917.78	6,911.52	107.14	193.85	89.82	1,068.81	3,848.62	2,638.16	2,414.77	223.39	11.810	
13,400.00	6,946.46	6,917.72	6,911.46	108.67	193.84	89.81	1,068.81	3,848.62	2,736.50	2,513.09	223.41	12.249	
13,500.00	6,946.40	6,917.66	6,911.40	110.21	193.84	89.80	1,068.81	3,848.62	2,834.96	2,611.52	223.43	12.688	
13,600.00	6,946.34	6,917.60	6,911.34	111.74	193.84	89.80	1,068.81	3,848.62	2,933.52	2,710.05	223.46	13.128	
13,700.00	6,946.28	6,917.54	6,911.28	113.28	193.83	89.79	1,068.81	3,848.62	3,032.17	2,808.67	223.50	13.567	
13,800.00	6,946.22	6,917.48	6,911.22	114.82	193.83	89.78	1,068.81	3,848.62	3,130.91	2,907.37	223.54	14.006	
13,900.00	6,946.16	6,917.42	6,911.16	116.36	193.83	89.77	1,068.81	3,848.62	3,229.73	3,006.14	223.59	14.445	
14,000.00	6,946.10	6,917.36	6,911.10	117.90	193.82	89.77	1,068.81	3,848.62	3,328.62	3,104.98	223.64	14.884	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 065 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		839-A027Ua_INC-ONLY						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	
14,100.00	6,946.04	6,917.30	6,911.04	119.45	193.82	89.76	1,068.81	3,848.62	3,427.58	3,203.88	223.69	15.323		
14,200.00	6,945.98	6,917.24	6,910.98	120.99	193.82	89.75	1,068.81	3,848.62	3,526.59	3,302.84	223.75	15.761		
14,300.00	6,945.92	6,917.18	6,910.92	122.54	193.82	89.75	1,068.81	3,848.62	3,625.65	3,401.85	223.81	16.200		
14,400.00	6,945.86	6,917.12	6,910.86	124.09	193.81	89.74	1,068.81	3,848.62	3,724.77	3,500.90	223.87	16.638		
14,500.00	6,945.80	6,917.06	6,910.80	125.64	193.81	89.73	1,068.81	3,848.62	3,823.93	3,600.00	223.93	17.076		
14,600.00	6,945.74	6,917.00	6,910.74	127.19	193.81	89.72	1,068.81	3,848.62	3,923.14	3,699.14	224.00	17.514		
14,700.00	6,945.68	6,916.94	6,910.68	128.74	193.80	89.72	1,068.81	3,848.62	4,022.38	3,798.32	224.06	17.952		
14,800.00	6,945.62	6,916.88	6,910.62	130.30	193.80	89.71	1,068.81	3,848.62	4,121.66	3,897.53	224.13	18.390		
14,900.00	6,945.56	6,916.82	6,910.56	131.85	193.80	89.70	1,068.81	3,848.62	4,220.98	3,996.78	224.20	18.827		
15,000.00	6,945.50	6,916.76	6,910.50	133.41	193.80	89.70	1,068.81	3,848.62	4,320.32	4,096.05	224.27	19.264		
15,100.00	6,945.44	6,916.70	6,910.44	134.96	193.79	89.69	1,068.81	3,848.62	4,419.70	4,195.36	224.34	19.701		
15,200.00	6,945.38	6,916.64	6,910.38	136.52	193.79	89.68	1,068.81	3,848.62	4,519.10	4,294.69	224.41	20.137		
15,300.00	6,945.32	6,916.58	6,910.32	138.08	193.79	89.67	1,068.81	3,848.62	4,618.53	4,394.05	224.49	20.574		
15,400.00	6,945.26	6,916.51	6,910.26	139.64	193.78	89.67	1,068.81	3,848.62	4,717.99	4,493.43	224.56	21.010		
15,500.00	6,945.20	6,916.45	6,910.20	141.20	193.78	89.66	1,068.81	3,848.62	4,817.46	4,592.83	224.63	21.446		
15,600.00	6,945.14	6,916.39	6,910.14	142.76	193.78	89.65	1,068.81	3,848.62	4,916.96	4,692.25	224.71	21.882		
15,700.00	6,945.08	6,916.33	6,910.08	144.33	193.77	89.65	1,068.81	3,848.62	5,016.48	4,791.69	224.78	22.317		
15,800.00	6,945.02	6,916.27	6,910.02	145.89	193.77	89.64	1,068.81	3,848.62	5,116.01	4,891.15	224.86	22.752		
15,900.00	6,944.96	6,916.21	6,909.96	147.46	193.77	89.63	1,068.81	3,848.62	5,215.57	4,990.63	224.94	23.187		
16,000.00	6,944.90	6,916.15	6,909.90	149.02	193.77	89.63	1,068.81	3,848.62	5,315.14	5,090.12	225.01	23.621		
16,100.00	6,944.84	6,916.09	6,909.84	150.59	193.76	89.62	1,068.81	3,848.62	5,414.72	5,189.63	225.09	24.056		
16,200.00	6,944.77	6,916.03	6,909.77	152.15	193.76	89.61	1,068.81	3,848.62	5,514.33	5,289.15	225.17	24.490		
16,300.00	6,944.71	6,915.97	6,909.71	153.72	193.76	89.60	1,068.81	3,848.62	5,613.94	5,388.69	225.25	24.923		
16,400.00	6,944.65	6,915.91	6,909.65	155.29	193.75	89.60	1,068.81	3,848.62	5,713.57	5,488.24	225.33	25.357		
16,500.00	6,944.59	6,915.85	6,909.59	156.86	193.75	89.59	1,068.81	3,848.62	5,813.21	5,587.80	225.41	25.790		
16,600.00	6,944.53	6,915.79	6,909.53	158.43	193.75	89.58	1,068.81	3,848.62	5,912.87	5,687.38	225.49	26.222		
16,700.00	6,944.47	6,915.73	6,909.47	160.00	193.75	89.58	1,068.81	3,848.62	6,012.53	5,786.96	225.57	26.655		
16,800.00	6,944.41	6,915.67	6,909.41	161.57	193.74	89.57	1,068.81	3,848.62	6,112.21	5,886.56	225.65	27.087		
16,900.00	6,944.35	6,915.61	6,909.35	163.14	193.74	89.56	1,068.81	3,848.62	6,211.89	5,986.16	225.73	27.519		
17,000.00	6,944.29	6,915.55	6,909.29	164.71	193.74	89.55	1,068.81	3,848.62	6,311.59	6,085.78	225.81	27.950		
17,100.00	6,944.23	6,915.49	6,909.23	166.29	193.73	89.55	1,068.81	3,848.62	6,411.30	6,185.40	225.90	28.382		
17,200.00	6,944.17	6,915.43	6,909.17	167.86	193.73	89.54	1,068.81	3,848.62	6,511.01	6,285.03	225.98	28.813		
17,300.00	6,944.11	6,915.37	6,909.11	169.43	193.73	89.53	1,068.81	3,848.62	6,610.73	6,384.67	226.06	29.243		
17,400.00	6,944.05	6,915.31	6,909.05	171.01	193.73	89.53	1,068.81	3,848.62	6,710.47	6,484.32	226.14	29.673		
17,500.00	6,943.99	6,915.25	6,908.99	172.58	193.72	89.52	1,068.81	3,848.62	6,810.21	6,583.98	226.23	30.103		
17,600.00	6,943.93	6,915.19	6,908.93	174.16	193.72	89.51	1,068.81	3,848.62	6,909.95	6,683.64	226.31	30.533		
17,700.00	6,943.87	6,915.13	6,908.87	175.73	193.72	89.51	1,068.81	3,848.62	7,009.71	6,783.31	226.40	30.962		
17,800.00	6,943.81	6,915.07	6,908.81	177.31	193.71	89.50	1,068.81	3,848.62	7,109.47	6,882.99	226.48	31.391		
17,900.00	6,943.75	6,915.01	6,908.75	178.89	193.71	89.49	1,068.81	3,848.62	7,209.24	6,982.67	226.57	31.819		
18,000.00	6,943.69	6,914.95	6,908.69	180.46	193.71	89.48	1,068.81	3,848.62	7,309.01	7,082.36	226.65	32.248		
18,100.00	6,943.63	6,914.89	6,908.63	182.04	193.70	89.48	1,068.81	3,848.62	7,408.79	7,182.05	226.74	32.675		
18,200.00	6,943.57	6,914.83	6,908.57	183.62	193.70	89.47	1,068.81	3,848.62	7,508.58	7,281.75	226.82	33.103		
18,300.00	6,943.51	6,914.77	6,908.51	185.20	193.70	89.46	1,068.81	3,848.62	7,608.37	7,381.46	226.91	33.530		
18,400.00	6,943.45	6,914.71	6,908.45	186.78	193.70	89.46	1,068.81	3,848.62	7,708.17	7,481.17	227.00	33.957		
18,500.00	6,943.39	6,914.65	6,908.39	188.36	193.69	89.45	1,068.81	3,848.62	7,807.97	7,580.88	227.09	34.383		
18,600.00	6,943.33	6,914.59	6,908.33	189.94	193.69	89.44	1,068.81	3,848.62	7,907.78	7,680.60	227.17	34.809		
18,700.00	6,943.27	6,914.53	6,908.27	191.52	193.69	89.43	1,068.81	3,848.62	8,007.59	7,780.33	227.26	35.235		
18,800.00	6,943.21	6,914.47	6,908.21	193.10	193.68	89.43	1,068.81	3,848.62	8,107.41	7,880.06	227.35	35.660		
18,900.00	6,943.15	6,914.41	6,908.15	194.68	193.68	89.42	1,068.81	3,848.62	8,207.23	7,979.79	227.44	36.085		
19,000.00	6,943.09	6,914.35	6,908.09	196.26	193.68	89.41	1,068.81	3,848.62	8,307.05	8,079.52	227.53	36.510		
19,100.00	6,943.03	6,914.29	6,908.03	197.84	193.68	89.41	1,068.81	3,848.62	8,406.88	8,179.26	227.62	36.934		
19,200.00	6,942.97	6,914.23	6,907.97	199.42	193.67	89.40	1,068.81	3,848.62	8,506.72	8,279.01	227.71	37.358		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 065 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 839-A027Ua_INC-ONLY							Rule Assigned:						Offset Well Error:	0.00 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)				
19,300.00	6,942.91	6,914.17	6,907.91	201.01	193.67	89.39	1,068.81	3,848.62	8,606.55	8,378.76	227.80	37.781		
19,400.00	6,942.85	6,914.11	6,907.85	202.59	193.67	89.38	1,068.81	3,848.62	8,706.40	8,478.51	227.89	38.205		
19,500.00	6,942.79	6,914.05	6,907.79	204.17	193.66	89.38	1,068.81	3,848.62	8,806.24	8,578.26	227.98	38.627		
19,600.00	6,942.73	6,913.99	6,907.73	205.75	193.66	89.37	1,068.81	3,848.62	8,906.09	8,678.02	228.07	39.050		
19,700.00	6,942.67	6,913.93	6,907.67	207.34	193.66	89.36	1,068.81	3,848.62	9,005.94	8,777.78	228.16	39.472		
19,800.00	6,942.61	6,913.87	6,907.61	208.92	193.65	89.36	1,068.81	3,848.62	9,105.80	8,877.54	228.25	39.893		
19,900.00	6,942.55	6,913.81	6,907.55	210.51	193.65	89.35	1,068.81	3,848.62	9,205.65	8,977.31	228.35	40.314		
20,000.00	6,942.49	6,913.75	6,907.49	212.09	193.65	89.34	1,068.81	3,848.62	9,305.51	9,077.08	228.44	40.735		
20,100.00	6,942.43	6,913.69	6,907.43	213.68	193.65	89.34	1,068.81	3,848.62	9,405.38	9,176.85	228.53	41.156		
20,200.00	6,942.37	6,913.62	6,907.37	215.26	193.64	89.33	1,068.81	3,848.62	9,505.25	9,276.62	228.63	41.576		
20,300.00	6,942.31	6,913.56	6,907.31	216.85	193.64	89.32	1,068.81	3,848.62	9,605.12	9,376.40	228.72	41.995		
20,400.00	6,942.25	6,913.50	6,907.25	218.43	193.64	89.31	1,068.81	3,848.62	9,704.99	9,476.18	228.81	42.414		
20,500.00	6,942.19	6,913.44	6,907.19	220.02	193.63	89.31	1,068.81	3,848.62	9,804.86	9,575.96	228.91	42.833		
20,600.00	6,942.13	6,913.38	6,907.13	221.60	193.63	89.30	1,068.81	3,848.62	9,904.74	9,675.74	229.00	43.252		
20,700.00	6,942.07	6,913.32	6,907.07	223.19	193.63	89.29	1,068.81	3,848.62	10,004.62	9,775.52	229.10	43.670		
20,808.89	6,942.00	6,913.26	6,907.00	224.92	193.63	89.29	1,068.81	3,848.62	10,113.38	9,884.18	229.20	44.125		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066 - OH - OH-INC													Offset Site Error: 0.00 usft
Survey Program: 314-A027Ua_INC-ONLY													Offset Well Error: 0.00 usft
Reference													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis 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)			
0.00	0.00	16.00	16.00	0.00	0.15	-97.89	-1,115.80	-8,055.45	8,132.36				
100.00	100.00	116.00	116.00	0.25	1.07	-97.89	-1,115.80	-8,055.45	8,132.36	8,131.03	1.32	6,145.931	
200.00	200.00	216.00	216.00	0.61	2.00	-97.89	-1,115.80	-8,055.45	8,132.36	8,129.75	2.61	3,120.762	
300.00	300.00	316.00	316.00	0.97	2.94	-97.89	-1,115.80	-8,055.45	8,132.36	8,128.45	3.91	2,080.840	
400.00	400.00	416.00	416.00	1.33	4.84	-97.89	-1,115.80	-8,055.45	8,132.36	8,126.19	6.17	1,318.206	
488.49	488.49	504.49	504.49	1.64	6.53	-97.88	-1,115.38	-8,055.45	8,132.30	8,124.13	8.17	995.376 CC	
500.00	500.00	515.72	515.71	1.68	6.74	-97.88	-1,115.39	-8,055.45	8,132.30	8,123.87	8.42	965.276	
600.00	599.98	613.20	613.19	2.04	8.59	-99.11	-1,115.52	-8,055.45	8,132.59	8,121.96	10.64	764.523	
700.00	699.84	715.86	715.84	2.41	10.57	-99.14	-1,115.80	-8,055.45	8,133.46	8,120.49	12.98	626.851	
800.00	799.45	815.48	815.45	2.77	12.60	-99.17	-1,115.80	-8,055.45	8,134.86	8,119.50	15.36	529.718	
900.00	898.70	911.65	911.62	3.13	14.55	-99.21	-1,115.38	-8,055.45	8,136.76	8,119.08	17.67	460.365 ES	
1,000.00	997.47	1,013.53	1,013.47	3.50	16.62	-99.27	-1,115.80	-8,055.45	8,139.36	8,119.23	20.13	404.404	
1,100.00	1,095.62	1,111.69	1,111.62	3.89	18.70	-99.34	-1,115.80	-8,055.45	8,142.50	8,119.91	22.59	360.468	
1,200.00	1,193.06	1,209.12	1,209.06	4.30	20.76	-99.42	-1,115.80	-8,055.45	8,146.26	8,121.21	25.05	325.186	
1,245.21	1,236.83	1,252.90	1,252.83	4.48	21.68	-99.46	-1,115.80	-8,055.45	8,148.17	8,122.01	26.16	311.426	
1,300.00	1,289.78	1,305.55	1,305.48	4.72	22.79	-99.54	-1,114.51	-8,055.45	8,150.38	8,122.87	27.51	296.286	
1,400.00	1,386.42	1,398.75	1,398.67	5.15	24.76	-99.71	-1,114.66	-8,055.45	8,154.85	8,124.94	29.91	272.655	
1,500.00	1,483.05	1,491.81	1,491.73	5.59	26.73	-99.88	-1,115.07	-8,055.45	8,159.45	8,127.13	32.31	252.503	
1,600.00	1,579.69	1,595.84	1,595.69	6.04	28.93	-100.07	-1,115.80	-8,055.45	8,164.16	8,129.20	34.96	233.518	
1,700.00	1,676.32	1,684.12	1,683.97	6.49	30.94	-100.22	-1,115.69	-8,055.45	8,168.84	8,131.42	37.42	218.312	
1,800.00	1,772.96	1,789.14	1,788.96	6.94	33.58	-100.41	-1,115.80	-8,055.45	8,173.62	8,133.11	40.51	201.786	
1,900.00	1,869.60	1,885.77	1,885.60	7.40	36.04	-100.58	-1,115.80	-8,055.45	8,178.46	8,135.03	43.42	188.337	
2,000.00	1,966.23	1,980.61	1,980.40	7.86	38.46	-100.74	-1,114.14	-8,055.45	8,183.09	8,136.79	46.30	176.743	
2,100.00	2,062.87	2,070.66	2,070.45	8.33	40.75	-100.90	-1,114.46	-8,055.45	8,188.15	8,139.09	49.05	166.921	
2,200.00	2,159.50	2,160.51	2,160.28	8.79	43.04	-101.06	-1,115.19	-8,055.45	8,193.36	8,141.56	51.80	158.158	
2,300.00	2,256.14	2,272.52	2,272.14	9.26	45.86	-101.27	-1,115.80	-8,055.45	8,198.61	8,143.52	55.09	148.827	
2,400.00	2,352.77	2,366.25	2,365.85	9.73	48.20	-101.42	-1,114.77	-8,055.45	8,203.65	8,145.76	57.89	141.718	
2,500.00	2,449.41	2,448.77	2,448.35	10.20	50.25	-101.57	-1,115.31	-8,055.45	8,209.07	8,148.67	60.41	135.896	
2,600.00	2,546.05	2,562.53	2,562.05	10.67	52.81	-101.78	-1,115.80	-8,055.45	8,214.53	8,151.11	63.43	129.509	
2,700.00	2,642.68	2,659.16	2,658.68	11.14	54.86	-101.95	-1,115.80	-8,055.45	8,220.00	8,154.05	65.95	124.641	
2,800.00	2,739.32	2,754.46	2,753.96	11.61	56.89	-102.10	-1,114.45	-8,055.45	8,225.27	8,156.83	68.44	120.177	
2,900.00	2,835.95	2,844.64	2,844.14	12.08	58.81	-102.26	-1,114.70	-8,055.45	8,230.94	8,160.11	70.83	116.211	
3,000.00	2,932.59	2,934.64	2,934.13	12.55	60.72	-102.43	-1,115.31	-8,055.45	8,236.76	8,163.55	73.21	112.511	
3,100.00	3,029.22	3,045.78	3,045.22	13.03	62.87	-102.62	-1,115.80	-8,055.45	8,242.61	8,166.79	75.82	108.709	
3,200.00	3,125.86	3,142.42	3,141.86	13.50	64.58	-102.79	-1,115.80	-8,055.45	8,248.46	8,170.46	78.00	105.749	
3,300.00	3,222.50	3,235.05	3,234.49	13.97	66.22	-102.95	-1,115.27	-8,055.45	8,254.27	8,174.16	80.11	103.041	
3,400.00	3,319.13	3,325.95	3,325.39	14.45	67.82	-103.11	-1,115.62	-8,055.45	8,260.34	8,178.16	82.18	100.512	
3,500.00	3,415.77	3,432.34	3,431.77	14.92	69.78	-103.30	-1,115.80	-8,055.45	8,266.45	8,181.84	84.61	97.698	
3,600.00	3,512.40	3,528.98	3,528.40	15.40	71.59	-103.47	-1,115.80	-8,055.45	8,272.60	8,185.71	86.89	95.209	
3,700.00	3,609.04	3,625.61	3,625.04	15.88	73.40	-103.63	-1,115.80	-8,055.45	8,278.82	8,189.65	89.17	92.848	
3,800.00	3,705.67	3,721.89	3,721.32	16.35	75.20	-103.80	-1,115.43	-8,055.45	8,285.04	8,193.60	91.44	90.611	
3,900.00	3,802.31	3,817.35	3,816.78	16.83	76.99	-103.96	-1,115.48	-8,055.45	8,291.42	8,197.73	93.69	88.499	
4,000.00	3,898.95	3,912.78	3,912.21	17.30	78.77	-104.13	-1,115.59	-8,055.45	8,297.89	8,201.95	95.94	86.488	
4,100.00	3,995.58	4,008.18	4,007.61	17.78	80.56	-104.29	-1,115.75	-8,055.45	8,304.45	8,206.26	98.20	84.570	
4,200.00	4,092.22	4,108.83	4,108.22	18.26	83.20	-104.47	-1,115.80	-8,055.45	8,311.06	8,209.76	101.30	82.042	
4,300.00	4,188.85	4,205.47	4,204.85	18.73	85.93	-104.63	-1,115.80	-8,055.45	8,317.73	8,213.23	104.50	79.592	
4,400.00	4,285.49	4,301.26	4,300.63	19.21	88.64	-104.79	-1,114.67	-8,055.45	8,324.20	8,216.52	107.68	77.304	
4,500.00	4,382.12	4,391.65	4,391.02	19.69	91.20	-104.95	-1,114.85	-8,055.45	8,331.07	8,220.36	110.71	75.254	
4,600.00	4,478.76	4,481.90	4,481.27	20.17	93.75	-105.10	-1,115.30	-8,055.45	8,338.08	8,224.35	113.73	73.318	
4,700.00	4,575.40	4,592.36	4,591.40	20.64	97.31	-105.30	-1,115.80	-8,055.45	8,345.16	8,227.41	117.75	70.869	
4,800.00	4,672.03	4,677.52	4,676.51	21.12	100.55	-105.43	-1,114.45	-8,055.45	8,351.87	8,230.40	121.47	68.759	
4,900.00	4,768.67	4,785.97	4,784.67	21.60	104.77	-105.63	-1,115.80	-8,055.45	8,359.31	8,233.16	126.15	66.262	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 314-A027Ua_INC-ONLY				Rule Assigned:									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)			Minimum Separation (usft)	
5,000.00	4,865.30	4,874.70	4,873.34	22.08	108.49	-105.77	-1,114.30	-8,055.45	8,366.11	8,235.77	130.34	64.187		
5,100.00	4,961.94	4,979.65	4,977.94	22.55	112.94	-105.95	-1,115.80	-8,055.45	8,373.76	8,238.51	135.25	61.911		
5,200.00	5,058.57	5,076.28	5,074.57	23.03	117.29	-106.12	-1,115.80	-8,055.45	8,381.09	8,241.03	140.07	59.837		
5,300.00	5,155.21	5,145.18	5,143.37	23.51	120.38	-106.22	-1,113.95	-8,055.45	8,388.04	8,244.42	143.63	58.402		
5,400.00	5,251.85	5,270.16	5,267.85	23.99	125.99	-106.44	-1,115.80	-8,055.45	8,395.97	8,246.27	149.70	56.084		
5,500.00	5,348.48	5,335.86	5,333.48	24.47	128.93	-106.55	-1,114.64	-8,055.45	8,403.26	8,250.16	153.10	54.887		
5,600.00	5,445.12	5,463.76	5,461.12	24.94	134.43	-106.77	-1,115.80	-8,055.45	8,411.14	8,252.07	159.08	52.875		
5,700.00	5,541.75	5,560.40	5,557.75	25.42	138.49	-106.93	-1,115.80	-8,055.45	8,418.84	8,255.23	163.60	51.459		
5,800.00	5,638.39	5,646.36	5,643.59	25.90	142.11	-107.05	-1,112.39	-8,055.45	8,425.64	8,257.96	167.68	50.248		
5,900.00	5,735.02	5,719.55	5,716.73	26.38	145.18	-107.18	-1,113.07	-8,055.45	8,433.73	8,262.51	171.22	49.257		
6,000.00	5,831.66	5,851.10	5,847.66	26.86	150.74	-107.42	-1,115.80	-8,055.45	8,442.34	8,265.09	177.25	47.630		
6,100.00	5,928.30	5,947.74	5,944.30	27.34	155.10	-107.58	-1,115.80	-8,055.45	8,450.32	8,268.25	182.07	46.413		
6,200.00	6,024.93	6,044.37	6,040.93	27.82	159.45	-107.74	-1,115.80	-8,055.45	8,458.37	8,271.48	186.89	45.260		
6,300.00	6,121.57	6,134.06	6,130.50	28.29	163.49	-107.87	-1,112.07	-8,055.44	8,465.38	8,273.99	191.39	44.231		
6,400.00	6,218.20	6,210.20	6,206.61	28.77	166.92	-108.00	-1,112.59	-8,055.45	8,473.76	8,278.48	195.28	43.393		
6,500.00	6,314.84	6,286.06	6,282.41	29.25	170.34	-108.13	-1,113.72	-8,055.45	8,482.44	8,283.29	199.16	42.592		
6,521.58	6,335.69	6,302.39	6,298.73	29.36	171.08	-108.16	-1,114.04	-8,055.45	8,484.36	8,284.37	199.99	42.424		
6,550.00	6,363.15	6,383.66	6,379.15	29.49	174.78	-117.89	-1,115.80	-8,055.45	8,487.69	8,283.85	203.84	41.639		
6,600.00	6,411.28	6,431.79	6,427.28	29.73	177.22	-133.41	-1,115.80	-8,055.45	8,495.82	8,289.32	206.50	41.142		
6,650.00	6,458.93	6,479.45	6,474.93	29.96	179.63	-145.95	-1,115.80	-8,055.45	8,507.61	8,298.48	209.12	40.683		
6,700.00	6,505.83	6,526.34	6,521.83	30.19	182.00	-155.56	-1,115.80	-8,055.45	8,522.98	8,311.29	211.69	40.261		
6,750.00	6,551.67	6,572.18	6,567.67	30.42	184.31	-162.93	-1,115.80	-8,055.45	8,541.84	8,327.64	214.20	39.878		
6,800.00	6,596.17	6,616.68	6,612.17	30.64	186.56	-168.73	-1,115.80	-8,055.45	8,564.06	8,347.44	216.62	39.535		
6,850.00	6,639.06	6,649.65	6,644.97	30.85	188.23	-173.46	-1,111.53	-8,055.44	8,588.20	8,369.76	218.44	39.316		
6,900.00	6,680.07	6,679.54	6,674.84	31.05	189.74	-177.58	-1,111.70	-8,055.44	8,616.80	8,396.71	220.09	39.151		
6,950.00	6,718.96	6,707.83	6,703.11	31.24	191.17	178.65	-1,111.98	-8,055.44	8,648.33	8,426.69	221.64	39.020		
7,000.00	6,755.47	6,734.35	6,729.61	31.43	192.51	175.03	-1,112.35	-8,055.45	8,682.59	8,459.51	223.08	38.922		
7,050.00	6,789.40	6,758.96	6,754.19	31.61	193.75	171.34	-1,112.78	-8,055.45	8,719.37	8,494.96	224.40	38.856		
7,100.00	6,820.52	6,781.50	6,776.71	31.79	194.89	167.39	-1,113.24	-8,055.45	8,758.42	8,532.82	225.60	38.823		
7,150.00	6,848.64	6,801.85	6,797.03	31.97	195.92	162.94	-1,113.72	-8,055.45	8,799.51	8,572.85	226.67	38.821		
7,200.00	6,873.60	6,895.40	6,889.60	32.14	200.43	158.03	-1,115.80	-8,055.45	8,842.55	8,611.33	231.22	38.243 SF		
7,250.00	6,895.24	6,917.04	6,911.24	32.31	201.32	151.88	-1,115.80	-8,055.45	8,886.73	8,654.62	232.12	38.286		
7,300.00	6,913.42	6,935.22	6,929.42	32.49	202.07	144.25	-1,115.80	-8,055.45	8,932.16	8,699.31	232.85	38.360		
7,350.00	6,928.03	6,949.83	6,944.03	32.67	202.67	134.73	-1,115.80	-8,055.45	8,978.57	8,745.15	233.42	38.466		
7,400.00	6,938.98	6,960.78	6,954.98	32.86	203.12	123.07	-1,115.80	-8,055.45	9,025.66	8,791.85	233.82	38.601		
7,450.00	6,946.22	6,968.02	6,962.22	33.06	203.42	109.61	-1,115.80	-8,055.45	9,073.17	8,839.12	234.05	38.766		
7,500.00	6,949.68	6,971.48	6,965.68	33.26	203.56	95.58	-1,115.80	-8,055.45	9,120.79	8,886.68	234.11	38.959		
7,521.05	6,950.00	6,971.80	6,966.00	33.35	203.57	89.90	-1,115.80	-8,055.45	9,140.81	8,906.72	234.09	39.049		
7,600.00	6,949.95	6,971.75	6,965.95	33.72	203.57	89.89	-1,115.80	-8,055.45	9,215.82	8,981.88	233.94	39.393		
7,700.00	6,949.89	6,971.69	6,965.89	34.24	203.57	89.89	-1,115.80	-8,055.45	9,310.94	9,077.17	233.77	39.829		
7,800.00	6,949.83	6,971.63	6,965.83	34.84	203.57	89.89	-1,115.80	-8,055.45	9,406.15	9,172.54	233.61	40.265		
7,900.00	6,949.77	6,971.57	6,965.77	35.50	203.56	89.89	-1,115.80	-8,055.45	9,501.47	9,268.01	233.45	40.699		
8,000.00	6,949.71	6,971.51	6,965.71	36.23	203.56	89.89	-1,115.80	-8,055.45	9,596.87	9,363.56	233.31	41.134		
8,100.00	6,949.65	6,971.45	6,965.65	37.02	203.56	89.89	-1,115.80	-8,055.45	9,692.37	9,459.20	233.17	41.567		
8,200.00	6,949.59	6,971.39	6,965.59	37.85	203.56	89.89	-1,115.80	-8,055.45	9,787.97	9,554.92	233.05	42.000		
8,300.00	6,949.53	6,971.33	6,965.53	38.74	203.55	89.89	-1,115.80	-8,055.45	9,883.64	9,650.72	232.93	42.432		
8,400.00	6,949.47	6,971.27	6,965.47	39.68	203.55	89.88	-1,115.80	-8,055.45	9,979.41	9,746.59	232.82	42.864		
8,500.00	6,949.41	6,971.21	6,965.41	40.66	203.55	89.88	-1,115.80	-8,055.45	10,075.25	9,842.54	232.71	43.295		
8,600.00	6,949.35	6,971.15	6,965.35	41.67	203.55	89.88	-1,115.80	-8,055.45	10,171.18	9,938.56	232.61	43.725		
8,700.00	6,949.29	6,971.09	6,965.29	42.73	203.54	89.88	-1,115.80	-8,055.45	10,267.18	10,034.65	232.52	44.155		
8,800.00	6,949.23	6,971.03	6,965.23	43.82	203.54	89.88	-1,115.80	-8,055.45	10,363.26	10,130.82	232.44	44.584		
8,900.00	6,949.17	6,970.97	6,965.17	44.94	203.54	89.88	-1,115.80	-8,055.45	10,459.41	10,227.04	232.37	45.013		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 314-A027Ua_INC-ONLY								Rule Assigned:				Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			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)		
9,000.00	6,949.11	6,970.91	6,965.11	46.09	203.54	89.88	-1,115.80	-8,055.45	10,555.63	10,323.34	232.30	45.440	
9,100.00	6,949.05	6,970.85	6,965.05	47.26	203.53	89.88	-1,115.80	-8,055.45	10,651.93	10,419.69	232.23	45.868	
9,200.00	6,948.99	6,970.79	6,964.99	48.46	203.53	89.88	-1,115.80	-8,055.45	10,748.29	10,516.11	232.17	46.294	
9,300.00	6,948.93	6,970.73	6,964.93	49.68	203.53	89.87	-1,115.80	-8,055.45	10,844.71	10,612.59	232.12	46.720	
9,400.00	6,948.87	6,970.67	6,964.87	50.93	203.53	89.87	-1,115.80	-8,055.45	10,941.20	10,709.13	232.08	47.145	
9,500.00	6,948.81	6,970.61	6,964.81	52.19	203.52	89.87	-1,115.80	-8,055.45	11,037.76	10,805.72	232.04	47.569	
9,600.00	6,948.75	6,970.55	6,964.75	53.47	203.52	89.87	-1,115.80	-8,055.45	11,134.37	10,902.37	232.00	47.993	
9,700.00	6,948.69	6,970.49	6,964.69	54.77	203.52	89.87	-1,115.80	-8,055.45	11,231.04	10,999.08	231.97	48.416	
9,800.00	6,948.63	6,970.43	6,964.63	56.08	203.52	89.87	-1,115.80	-8,055.45	11,327.78	11,095.83	231.94	48.839	
9,900.00	6,948.57	6,970.37	6,964.57	57.41	203.51	89.87	-1,115.80	-8,055.45	11,424.56	11,192.64	231.92	49.261	
10,000.00	6,948.51	6,970.31	6,964.51	58.76	203.51	89.87	-1,115.80	-8,055.45	11,521.41	11,289.50	231.90	49.682	
10,100.00	6,948.45	6,970.25	6,964.45	60.11	203.51	89.86	-1,115.80	-8,055.45	11,618.30	11,386.41	231.89	50.102	
10,200.00	6,948.39	6,970.19	6,964.39	61.48	203.51	89.86	-1,115.80	-8,055.45	11,715.25	11,483.37	231.88	50.522	
10,300.00	6,948.33	6,970.13	6,964.33	62.86	203.50	89.86	-1,115.80	-8,055.45	11,812.25	11,580.37	231.88	50.941	
10,400.00	6,948.27	6,970.07	6,964.27	64.24	203.50	89.86	-1,115.80	-8,055.45	11,909.30	11,677.42	231.88	51.360	
10,500.00	6,948.21	6,970.01	6,964.21	65.64	203.50	89.86	-1,115.80	-8,055.45	12,006.39	11,774.51	231.88	51.778	
10,600.00	6,948.15	6,969.95	6,964.15	67.05	203.50	89.86	-1,115.80	-8,055.45	12,103.54	11,871.65	231.89	52.195	
10,700.00	6,948.09	6,969.89	6,964.09	68.47	203.49	89.86	-1,115.80	-8,055.45	12,200.73	11,968.83	231.90	52.612	
10,800.00	6,948.03	6,969.83	6,964.03	69.89	203.49	89.86	-1,115.80	-8,055.45	12,297.96	12,066.05	231.91	53.028	
10,900.00	6,947.97	6,969.77	6,963.97	71.32	203.49	89.85	-1,115.80	-8,055.45	12,395.24	12,163.31	231.93	53.444	
11,000.00	6,947.91	6,969.71	6,963.91	72.76	203.49	89.85	-1,115.80	-8,055.45	12,492.57	12,260.62	231.95	53.859	
11,100.00	6,947.85	6,969.65	6,963.85	74.21	203.48	89.85	-1,115.80	-8,055.45	12,589.93	12,357.96	231.97	54.273	
11,200.00	6,947.79	6,969.59	6,963.79	75.66	203.48	89.85	-1,115.80	-8,055.45	12,687.34	12,455.34	232.00	54.687	
11,300.00	6,947.73	6,969.52	6,963.73	77.12	203.48	89.85	-1,115.80	-8,055.45	12,784.78	12,552.75	232.03	55.100	
11,400.00	6,947.66	6,969.46	6,963.66	78.58	203.48	89.85	-1,115.80	-8,055.45	12,882.26	12,650.20	232.06	55.512	
11,500.00	6,947.60	6,969.40	6,963.60	80.05	203.47	89.85	-1,115.80	-8,055.45	12,979.79	12,747.69	232.10	55.924	
11,600.00	6,947.54	6,969.34	6,963.54	81.52	203.47	89.85	-1,115.80	-8,055.45	13,077.35	12,845.22	232.13	56.336	
11,700.00	6,947.48	6,969.28	6,963.48	83.00	203.47	89.84	-1,115.80	-8,055.45	13,174.94	12,942.77	232.17	56.747	
11,800.00	6,947.42	6,969.22	6,963.42	84.48	203.47	89.84	-1,115.80	-8,055.45	13,272.58	13,040.36	232.21	57.157	
11,900.00	6,947.36	6,969.16	6,963.36	85.97	203.46	89.84	-1,115.80	-8,055.45	13,370.24	13,137.99	232.26	57.566	
12,000.00	6,947.30	6,969.10	6,963.30	87.46	203.46	89.84	-1,115.80	-8,055.45	13,467.95	13,235.64	232.30	57.975	
12,100.00	6,947.24	6,969.04	6,963.24	88.96	203.46	89.84	-1,115.80	-8,055.45	13,565.68	13,333.33	232.35	58.384	
12,200.00	6,947.18	6,968.98	6,963.18	90.46	203.46	89.84	-1,115.80	-8,055.45	13,663.45	13,431.05	232.40	58.792	
12,300.00	6,947.12	6,968.92	6,963.12	91.96	203.45	89.84	-1,115.80	-8,055.45	13,761.25	13,528.79	232.46	59.199	
12,400.00	6,947.06	6,968.86	6,963.06	93.47	203.45	89.84	-1,115.80	-8,055.45	13,859.08	13,626.57	232.51	59.606	
12,500.00	6,947.00	6,968.80	6,963.00	94.97	203.45	89.84	-1,115.80	-8,055.45	13,956.94	13,724.38	232.57	60.013	
12,600.00	6,946.94	6,968.74	6,962.94	96.49	203.45	89.83	-1,115.80	-8,055.45	14,054.84	13,822.21	232.62	60.418	
12,700.00	6,946.88	6,968.68	6,962.88	98.00	203.44	89.83	-1,115.80	-8,055.45	14,152.76	13,920.07	232.68	60.824	
12,800.00	6,946.82	6,968.62	6,962.82	99.52	203.44	89.83	-1,115.80	-8,055.45	14,250.71	14,017.96	232.75	61.228	
12,900.00	6,946.76	6,968.56	6,962.76	101.04	203.44	89.83	-1,115.80	-8,055.45	14,348.69	14,115.88	232.81	61.633	
13,000.00	6,946.70	6,968.50	6,962.70	102.56	203.44	89.83	-1,115.80	-8,055.45	14,446.69	14,213.82	232.87	62.036	
13,100.00	6,946.64	6,968.44	6,962.64	104.09	203.43	89.83	-1,115.80	-8,055.45	14,544.73	14,311.79	232.94	62.440	
13,200.00	6,946.58	6,968.38	6,962.58	105.61	203.43	89.83	-1,115.80	-8,055.45	14,642.79	14,409.78	233.01	62.842	
13,300.00	6,946.52	6,968.32	6,962.52	107.14	203.43	89.83	-1,115.80	-8,055.45	14,740.88	14,507.80	233.08	63.244	
13,400.00	6,946.46	6,968.26	6,962.46	108.67	203.43	89.82	-1,115.80	-8,055.45	14,838.99	14,605.84	233.15	63.646	
13,500.00	6,946.40	6,968.20	6,962.40	110.21	203.42	89.82	-1,115.80	-8,055.45	14,937.12	14,703.90	233.22	64.047	
13,600.00	6,946.34	6,968.14	6,962.34	111.74	203.42	89.82	-1,115.80	-8,055.45	15,035.29	14,801.99	233.29	64.448	
13,700.00	6,946.28	6,968.08	6,962.28	113.28	203.42	89.82	-1,115.80	-8,055.45	15,133.47	14,900.10	233.37	64.848	
13,800.00	6,946.22	6,968.02	6,962.22	114.82	203.42	89.82	-1,115.80	-8,055.45	15,231.68	14,998.24	233.44	65.248	
13,900.00	6,946.16	6,967.96	6,962.16	116.36	203.41	89.82	-1,115.80	-8,055.45	15,329.91	15,096.39	233.52	65.647	
14,000.00	6,946.10	6,967.90	6,962.10	117.90	203.41	89.82	-1,115.80	-8,055.45	15,428.17	15,194.57	233.60	66.046	
14,100.00	6,946.04	6,967.84	6,962.04	119.45	203.41	89.82	-1,115.80	-8,055.45	15,526.45	15,292.77	233.68	66.444	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066 - OH - OH-INC											Offset Site Error: 0.00 usft	
Survey Program: 314-A027Ua_INC-ONLY											Offset Well Error: 0.00 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		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)		
14,200.00	6,945.98	6,967.78	6,961.98	120.99	203.41	89.81	-1,115.80	-8,055.45	15,624.75	15,390.99	233.76	66.842
14,300.00	6,945.92	6,967.72	6,961.92	122.54	203.40	89.81	-1,115.80	-8,055.45	15,723.07	15,489.23	233.84	67.239
14,400.00	6,945.86	6,967.66	6,961.86	124.09	203.40	89.81	-1,115.80	-8,055.45	15,821.41	15,587.49	233.92	67.636
14,500.00	6,945.80	6,967.60	6,961.80	125.64	203.40	89.81	-1,115.80	-8,055.45	15,919.77	15,685.77	234.00	68.032
14,600.00	6,945.74	6,967.54	6,961.74	127.19	203.40	89.81	-1,115.80	-8,055.45	16,018.15	15,784.07	234.09	68.428
14,700.00	6,945.68	6,967.48	6,961.68	128.74	203.39	89.81	-1,115.80	-8,055.45	16,116.56	15,882.38	234.17	68.823
14,800.00	6,945.62	6,967.42	6,961.62	130.30	203.39	89.81	-1,115.80	-8,055.45	16,214.98	15,980.72	234.26	69.218
14,900.00	6,945.56	6,967.36	6,961.56	131.85	203.39	89.81	-1,115.80	-8,055.45	16,313.42	16,079.07	234.35	69.613
15,000.00	6,945.50	6,967.30	6,961.50	133.41	203.39	89.81	-1,115.80	-8,055.45	16,411.88	16,177.45	234.43	70.007
15,100.00	6,945.44	6,967.24	6,961.44	134.96	203.38	89.80	-1,115.80	-8,055.45	16,510.36	16,275.84	234.52	70.400
15,200.00	6,945.38	6,967.18	6,961.38	136.52	203.38	89.80	-1,115.80	-8,055.45	16,608.86	16,374.24	234.61	70.793
15,300.00	6,945.32	6,967.12	6,961.32	138.08	203.38	89.80	-1,115.80	-8,055.45	16,707.37	16,472.67	234.70	71.186
15,400.00	6,945.26	6,967.06	6,961.26	139.64	203.38	89.80	-1,115.80	-8,055.45	16,805.90	16,571.11	234.79	71.578
15,500.00	6,945.20	6,967.00	6,961.20	141.20	203.37	89.80	-1,115.80	-8,055.45	16,904.45	16,669.57	234.88	71.970
15,600.00	6,945.14	6,966.94	6,961.14	142.76	203.37	89.80	-1,115.80	-8,055.45	17,003.02	16,768.04	234.97	72.361
15,700.00	6,945.08	6,966.88	6,961.08	144.33	203.37	89.80	-1,115.80	-8,055.45	17,101.60	16,866.53	235.07	72.752
15,800.00	6,945.02	6,966.82	6,961.02	145.89	203.37	89.80	-1,115.80	-8,055.45	17,200.20	16,965.04	235.16	73.143
15,900.00	6,944.96	6,966.76	6,960.96	147.46	203.36	89.79	-1,115.80	-8,055.45	17,298.82	17,063.56	235.25	73.533
16,000.00	6,944.90	6,966.70	6,960.90	149.02	203.36	89.79	-1,115.80	-8,055.45	17,397.45	17,162.10	235.35	73.922
16,100.00	6,944.84	6,966.63	6,960.84	150.59	203.36	89.79	-1,115.80	-8,055.45	17,496.09	17,260.65	235.44	74.311
16,200.00	6,944.77	6,966.57	6,960.77	152.15	203.36	89.79	-1,115.80	-8,055.45	17,594.76	17,359.22	235.54	74.700
16,300.00	6,944.71	6,966.51	6,960.71	153.72	203.35	89.79	-1,115.80	-8,055.45	17,693.43	17,457.80	235.64	75.088
16,400.00	6,944.65	6,966.45	6,960.65	155.29	203.35	89.79	-1,115.80	-8,055.45	17,792.13	17,556.39	235.73	75.476
16,500.00	6,944.59	6,966.39	6,960.59	156.86	203.35	89.79	-1,115.80	-8,055.45	17,890.83	17,655.00	235.83	75.863
16,600.00	6,944.53	6,966.33	6,960.53	158.43	203.35	89.79	-1,115.80	-8,055.45	17,989.55	17,753.63	235.93	76.250
16,700.00	6,944.47	6,966.27	6,960.47	160.00	203.34	89.78	-1,115.80	-8,055.45	18,088.29	17,852.26	236.03	76.637
16,800.00	6,944.41	6,966.21	6,960.41	161.57	203.34	89.78	-1,115.80	-8,055.45	18,187.04	17,950.91	236.13	77.023
16,900.00	6,944.35	6,966.15	6,960.35	163.14	203.34	89.78	-1,115.80	-8,055.45	18,285.80	18,049.57	236.22	77.408
17,000.00	6,944.29	6,966.09	6,960.29	164.71	203.34	89.78	-1,115.80	-8,055.45	18,384.57	18,148.25	236.32	77.794
17,100.00	6,944.23	6,966.03	6,960.23	166.29	203.33	89.78	-1,115.80	-8,055.45	18,483.36	18,246.94	236.43	78.178
17,200.00	6,944.17	6,965.97	6,960.17	167.86	203.33	89.78	-1,115.80	-8,055.45	18,582.17	18,345.64	236.53	78.563
17,300.00	6,944.11	6,965.91	6,960.11	169.43	203.33	89.78	-1,115.80	-8,055.45	18,680.98	18,444.35	236.63	78.947
17,400.00	6,944.05	6,965.85	6,960.05	171.01	203.33	89.78	-1,115.80	-8,055.45	18,779.81	18,543.08	236.73	79.330
17,500.00	6,943.99	6,965.79	6,959.99	172.58	203.32	89.77	-1,115.80	-8,055.45	18,878.65	18,641.82	236.83	79.714
17,600.00	6,943.93	6,965.73	6,959.93	174.16	203.32	89.77	-1,115.80	-8,055.45	18,977.50	18,740.56	236.93	80.096
17,700.00	6,943.87	6,965.67	6,959.87	175.73	203.32	89.77	-1,115.80	-8,055.45	19,076.36	18,839.32	237.04	80.479
17,800.00	6,943.81	6,965.61	6,959.81	177.31	203.32	89.77	-1,115.80	-8,055.45	19,175.24	18,938.10	237.14	80.860
17,900.00	6,943.75	6,965.55	6,959.75	178.89	203.31	89.77	-1,115.80	-8,055.45	19,274.12	19,036.88	237.24	81.242
18,000.00	6,943.69	6,965.49	6,959.69	180.46	203.31	89.77	-1,115.80	-8,055.45	19,373.02	19,135.67	237.35	81.623
18,100.00	6,943.63	6,965.43	6,959.63	182.04	203.31	89.77	-1,115.80	-8,055.45	19,471.93	19,234.48	237.45	82.004
18,200.00	6,943.57	6,965.37	6,959.57	183.62	203.31	89.77	-1,115.80	-8,055.45	19,570.85	19,333.30	237.56	82.384
18,300.00	6,943.51	6,965.31	6,959.51	185.20	203.31	89.77	-1,115.80	-8,055.45	19,669.78	19,432.12	237.66	82.764
18,400.00	6,943.45	6,965.25	6,959.45	186.78	203.30	89.76	-1,115.80	-8,055.45	19,768.73	19,530.96	237.77	83.143
18,500.00	6,943.39	6,965.19	6,959.39	188.36	203.30	89.76	-1,115.80	-8,055.45	19,867.68	19,629.81	237.87	83.522
18,600.00	6,943.33	6,965.13	6,959.33	189.94	203.30	89.76	-1,115.80	-8,055.45	19,966.64	19,728.66	237.98	83.901
18,700.00	6,943.27	6,965.07	6,959.27	191.52	203.30	89.76	-1,115.80	-8,055.45	20,065.62	19,827.53	238.09	84.279
18,800.00	6,943.21	6,965.01	6,959.21	193.10	203.29	89.76	-1,115.80	-8,055.45	20,164.60	19,926.41	238.19	84.656
18,900.00	6,943.15	6,964.95	6,959.15	194.68	203.29	89.76	-1,115.80	-8,055.45	20,263.59	20,025.29	238.30	85.034
19,000.00	6,943.09	6,964.89	6,959.09	196.26	203.29	89.76	-1,115.80	-8,055.45	20,362.60	20,124.19	238.41	85.411
19,100.00	6,943.03	6,964.83	6,959.03	197.84	203.29	89.76	-1,115.80	-8,055.45	20,461.61	20,223.10	238.52	85.787
19,200.00	6,942.97	6,964.77	6,958.97	199.42	203.28	89.75	-1,115.80	-8,055.45	20,560.63	20,322.01	238.62	86.163
19,300.00	6,942.91	6,964.71	6,958.91	201.01	203.28	89.75	-1,115.80	-8,055.45	20,659.67	20,420.93	238.73	86.539

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 314-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,400.00	6,942.85	6,964.65	6,958.85	202.59	203.28	89.75	-1,115.80	-8,055.45	20,758.71	20,519.87	238.84	86.915	
19,500.00	6,942.79	6,964.59	6,958.79	204.17	203.28	89.75	-1,115.80	-8,055.45	20,857.76	20,618.81	238.95	87.289	
19,600.00	6,942.73	6,964.53	6,958.73	205.75	203.27	89.75	-1,115.80	-8,055.45	20,956.82	20,717.76	239.06	87.664	
19,700.00	6,942.67	6,964.47	6,958.67	207.34	203.27	89.75	-1,115.80	-8,055.45	21,055.89	20,816.72	239.17	88.038	
19,800.00	6,942.61	6,964.41	6,958.61	208.92	203.27	89.75	-1,115.80	-8,055.45	21,154.96	20,915.69	239.28	88.412	
19,900.00	6,942.55	6,964.35	6,958.55	210.51	203.27	89.75	-1,115.80	-8,055.45	21,254.05	21,014.66	239.39	88.785	
20,000.00	6,942.49	6,964.29	6,958.49	212.09	203.26	89.74	-1,115.80	-8,055.45	21,353.14	21,113.65	239.50	89.158	
20,100.00	6,942.43	6,964.23	6,958.43	213.68	203.26	89.74	-1,115.80	-8,055.45	21,452.25	21,212.64	239.61	89.531	
20,200.00	6,942.37	6,964.17	6,958.37	215.26	203.26	89.74	-1,115.80	-8,055.45	21,551.36	21,311.64	239.72	89.903	
20,300.00	6,942.31	6,964.11	6,958.31	216.85	203.26	89.74	-1,115.80	-8,055.45	21,650.48	21,410.65	239.83	90.274	
20,400.00	6,942.25	6,964.05	6,958.25	218.43	203.25	89.74	-1,115.80	-8,055.45	21,749.61	21,509.66	239.94	90.646	
20,500.00	6,942.19	6,963.99	6,958.19	220.02	203.25	89.74	-1,115.80	-8,055.45	21,848.74	21,608.69	240.05	91.017	
20,600.00	6,942.13	6,963.93	6,958.13	221.60	203.25	89.74	-1,115.80	-8,055.45	21,947.88	21,707.72	240.16	91.387	
20,700.00	6,942.07	6,963.87	6,958.07	223.19	203.25	89.74	-1,115.80	-8,055.45	22,047.03	21,806.76	240.28	91.757	
20,808.89	6,942.00	6,963.80	6,958.00	224.92	203.24	89.74	-1,115.80	-8,055.45	22,155.00	21,914.61	240.40	92.160	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066M - OH - OH-SVY													Offset Site Error: 0.00 usft
Survey Program: 74-MWD OWSG Rev5													Offset Well Error: 0.00 usft
Reference													
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	0.00	0.00	-92.95	-336.00	-6,519.85	6,528.51				
100.00	100.00	80.71	80.71	0.25	0.49	-92.95	-335.48	-6,520.07	6,528.76	6,528.03	0.73	8,890.353	
200.00	200.00	180.71	180.69	0.61	1.41	-92.93	-334.27	-6,520.59	6,529.21	6,527.23	1.99	3,285.267	
300.00	300.00	270.76	270.74	0.97	2.10	-92.92	-333.02	-6,521.11	6,529.73	6,526.73	3.00	2,176.445	
400.00	400.00	362.15	362.11	1.33	2.81	-92.91	-331.34	-6,521.83	6,530.41	6,526.37	4.04	1,616.582	
500.00	500.00	469.98	469.92	1.68	3.89	-92.89	-329.40	-6,522.65	6,531.09	6,525.65	5.44	1,200.642	
600.00	599.98	577.82	577.75	2.04	4.96	-94.10	-327.80	-6,523.33	6,531.77	6,524.93	6.84	955.039	
700.00	699.84	680.59	680.51	2.41	6.41	-94.12	-326.54	-6,523.87	6,532.60	6,523.97	8.63	756.829	
800.00	799.45	780.30	780.21	2.77	8.07	-94.17	-325.33	-6,524.38	6,533.68	6,523.03	10.65	613.631	
900.00	898.70	879.69	879.58	3.13	9.73	-94.23	-324.14	-6,524.88	6,535.03	6,522.37	12.66	516.040	
1,000.00	997.47	978.63	978.52	3.50	11.39	-94.33	-322.94	-6,525.39	6,536.66	6,521.98	14.68	445.225	
1,100.00	1,095.62	1,077.00	1,076.89	3.89	13.03	-94.44	-321.76	-6,525.89	6,538.60	6,521.90	16.70	391.468	ES
1,200.00	1,193.06	1,173.36	1,173.23	4.30	14.51	-94.57	-320.58	-6,526.39	6,540.87	6,522.30	18.57	352.177	
1,245.21	1,236.83	1,216.46	1,216.33	4.48	15.15	-94.64	-320.03	-6,526.63	6,542.02	6,522.63	19.39	337.313	
1,300.00	1,289.78	1,268.60	1,268.47	4.72	15.93	-94.75	-319.34	-6,526.92	6,543.48	6,523.09	20.39	320.864	
1,400.00	1,386.42	1,363.80	1,363.65	5.15	17.34	-94.95	-318.03	-6,527.47	6,546.24	6,524.01	22.23	294.543	
1,500.00	1,483.05	1,459.03	1,458.87	5.59	18.76	-95.16	-316.65	-6,528.06	6,549.11	6,525.05	24.06	272.145	
1,600.00	1,579.69	1,554.30	1,554.13	6.04	20.18	-95.36	-315.19	-6,528.68	6,552.10	6,526.19	25.91	252.871	
1,700.00	1,676.32	1,651.31	1,651.12	6.49	21.44	-95.56	-313.65	-6,529.33	6,555.20	6,527.59	27.61	237.454	
1,800.00	1,772.96	1,750.09	1,749.90	6.94	22.55	-95.77	-312.14	-6,529.97	6,558.36	6,529.22	29.14	225.048	
1,900.00	1,869.60	1,848.84	1,848.63	7.40	23.66	-95.98	-310.71	-6,530.58	6,561.59	6,530.91	30.68	213.869	
2,000.00	1,966.23	1,947.55	1,947.32	7.86	24.76	-96.19	-309.36	-6,531.15	6,564.88	6,532.66	32.22	203.747	
2,100.00	2,062.87	2,046.22	2,045.98	8.33	25.86	-96.39	-308.08	-6,531.69	6,568.23	6,534.47	33.76	194.543	
2,200.00	2,159.50	2,143.48	2,143.24	8.79	26.91	-96.60	-306.89	-6,532.20	6,571.65	6,536.41	35.25	186.443	
2,300.00	2,256.14	2,238.89	2,238.64	9.26	27.88	-96.80	-305.68	-6,532.71	6,575.18	6,538.53	36.66	179.376	
2,400.00	2,352.77	2,334.34	2,334.08	9.73	28.85	-97.00	-304.40	-6,533.26	6,578.82	6,540.76	38.07	172.830	
2,500.00	2,449.41	2,429.83	2,429.56	10.20	29.82	-97.20	-303.04	-6,533.83	6,582.57	6,543.09	39.48	166.748	
2,600.00	2,546.05	2,525.35	2,525.06	10.67	30.79	-97.40	-301.62	-6,534.44	6,586.43	6,545.54	40.89	161.085	
2,700.00	2,642.68	2,620.90	2,620.60	11.14	31.76	-97.60	-300.13	-6,535.07	6,590.40	6,548.10	42.30	155.799	
2,800.00	2,739.32	2,719.19	2,718.88	11.61	32.59	-97.81	-298.58	-6,535.73	6,594.46	6,550.88	43.57	151.345	
2,900.00	2,835.95	2,817.77	2,817.45	12.08	33.41	-98.01	-297.10	-6,536.35	6,598.58	6,553.75	44.83	147.201	
3,000.00	2,932.59	2,916.31	2,915.97	12.55	34.23	-98.22	-295.71	-6,536.94	6,602.76	6,556.68	46.08	143.283	
3,100.00	3,029.22	3,014.81	3,014.46	13.03	35.04	-98.42	-294.39	-6,537.50	6,607.02	6,559.68	47.34	139.575	
3,200.00	3,125.86	3,113.27	3,112.91	13.50	35.86	-98.63	-293.16	-6,538.03	6,611.33	6,562.74	48.59	136.061	
3,300.00	3,222.50	3,210.41	3,210.05	13.97	36.52	-98.83	-291.99	-6,538.52	6,615.72	6,566.04	49.69	133.148	
3,400.00	3,319.13	3,307.35	3,306.98	14.45	37.15	-99.04	-290.82	-6,539.02	6,620.20	6,569.44	50.76	130.429	
3,500.00	3,415.77	3,404.28	3,403.90	14.92	37.79	-99.24	-289.65	-6,539.51	6,624.77	6,572.94	51.83	127.824	
3,600.00	3,512.40	3,501.22	3,500.83	15.40	38.42	-99.44	-288.48	-6,540.01	6,629.42	6,576.53	52.90	125.326	
3,700.00	3,609.04	3,597.00	3,596.60	15.88	39.05	-99.64	-287.33	-6,540.50	6,634.17	6,580.21	53.96	122.945	
3,800.00	3,705.67	3,597.00	3,596.60	16.35	39.05	-99.64	-287.33	-6,540.50	6,639.72	6,585.30	54.42	122.014	
3,900.00	3,802.31	3,597.00	3,596.60	16.83	39.05	-99.64	-287.33	-6,540.50	6,646.78	6,591.91	54.86	121.151	
4,000.00	3,898.95	3,597.00	3,596.60	17.30	39.05	-99.64	-287.33	-6,540.50	6,655.33	6,600.03	55.30	120.356	
4,100.00	3,995.58	3,597.00	3,596.60	17.78	39.05	-99.64	-287.33	-6,540.50	6,665.37	6,609.65	55.72	119.626	
4,155.77	4,049.48	3,880.82	3,879.81	18.05	76.89	-100.13	-271.90	-6,547.42	6,662.17	6,589.20	72.97	91.300	
4,200.00	4,092.22	3,908.73	3,907.56	18.26	80.71	-100.16	-269.09	-6,548.69	6,665.53	6,590.78	74.74	89.180	
4,300.00	4,188.85	3,972.08	3,970.41	18.73	89.42	-100.24	-261.85	-6,551.97	6,673.51	6,594.78	78.72	84.772	
4,400.00	4,285.49	4,035.69	4,033.33	19.21	98.20	-100.30	-253.39	-6,555.80	6,682.04	6,599.36	82.67	80.825	
4,500.00	4,382.12	4,099.51	4,096.26	19.69	107.04	-100.35	-243.70	-6,560.19	6,691.10	6,604.50	86.60	77.265	
4,600.00	4,478.76	4,163.49	4,159.10	20.17	115.93	-100.39	-232.79	-6,565.14	6,700.71	6,610.20	90.51	74.035	
4,700.00	4,575.40	4,227.56	4,221.77	20.64	124.85	-100.42	-220.66	-6,570.64	6,710.84	6,616.43	94.40	71.087	
4,800.00	4,672.03	4,291.67	4,284.19	21.12	133.79	-100.44	-207.33	-6,576.70	6,721.49	6,623.20	98.29	68.384	
4,900.00	4,768.67	4,355.77	4,346.27	21.60	142.74	-100.44	-192.81	-6,583.29	6,732.67	6,630.50	102.17	65.894	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066M - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		74-MWD OWSG Rev5					Rule Assigned:			Offset Well Error:		0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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	Warning	
5,000.00	4,865.30	4,419.80	4,407.93	22.08	151.70	-100.44	-177.12	-6,590.42	6,744.37	6,638.31	106.06	63.592		
5,100.00	4,961.94	4,483.70	4,469.10	22.55	160.64	-100.42	-160.29	-6,598.06	6,756.59	6,646.65	109.94	61.455		
5,200.00	5,058.57	4,547.41	4,529.69	23.03	169.57	-100.40	-142.36	-6,606.21	6,769.33	6,655.49	113.84	59.466		
5,300.00	5,155.21	4,610.89	4,589.63	23.51	178.47	-100.36	-123.34	-6,614.86	6,782.59	6,664.85	117.74	57.607		
5,400.00	5,251.85	4,674.07	4,648.86	23.99	187.34	-100.31	-103.30	-6,623.97	6,796.38	6,674.73	121.65	55.867		
5,500.00	5,348.48	4,736.92	4,707.29	24.47	196.16	-100.25	-82.25	-6,633.54	6,810.69	6,685.11	125.58	54.232		
5,600.00	5,445.12	4,799.37	4,764.88	24.94	204.93	-100.19	-60.26	-6,643.54	6,825.54	6,696.01	129.53	52.694		
5,700.00	5,541.75	5,147.00	5,075.51	25.42	253.82	-99.62	81.41	-6,707.99	6,850.33	6,701.87	148.46	46.141		
5,800.00	5,638.39	5,147.00	5,075.51	25.90	253.82	-99.62	81.41	-6,707.99	6,862.67	6,713.28	149.39	45.938		
5,900.00	5,735.02	5,147.00	5,075.51	26.38	253.82	-99.62	81.41	-6,707.99	6,876.43	6,726.15	150.29	45.756		
6,000.00	5,831.66	5,147.00	5,075.51	26.86	253.82	-99.62	81.41	-6,707.99	6,891.62	6,740.47	151.15	45.594		
6,100.00	5,928.30	5,147.00	5,075.51	27.34	253.82	-99.62	81.41	-6,707.99	6,908.23	6,756.24	151.99	45.452		
6,200.00	6,024.93	5,147.00	5,075.51	27.82	253.82	-99.62	81.41	-6,707.99	6,926.23	6,773.44	152.80	45.330		
6,300.00	6,121.57	5,147.00	5,075.51	28.29	253.82	-99.62	81.41	-6,707.99	6,945.63	6,792.06	153.57	45.227		
6,400.00	6,218.20	5,147.00	5,075.51	28.77	253.82	-99.62	81.41	-6,707.99	6,966.42	6,812.09	154.32	45.142		
6,500.00	6,314.84	5,147.00	5,075.51	29.25	253.82	-99.62	81.41	-6,707.99	6,988.57	6,833.53	155.04	45.076		
6,521.58	6,335.69	5,147.00	5,075.51	29.36	253.82	-99.62	81.41	-6,707.99	6,993.53	6,838.33	155.19	45.064		
6,550.00	6,363.15	5,332.85	5,233.51	29.49	265.26	-108.80	170.19	-6,749.05	6,995.98	6,834.55	161.43	43.338		
6,600.00	6,411.28	5,356.21	5,252.89	29.73	266.70	-124.17	181.97	-6,754.59	7,010.58	6,847.97	162.61	43.114		
6,650.00	6,458.93	5,378.66	5,271.43	29.96	268.08	-136.52	193.42	-6,759.99	7,029.01	6,865.25	163.76	42.922		
6,700.00	6,505.83	5,400.07	5,289.01	30.19	269.40	-145.90	204.46	-6,765.21	7,051.15	6,886.26	164.89	42.763		
6,750.00	6,551.67	5,420.29	5,305.54	30.42	270.65	-152.99	215.00	-6,770.21	7,076.83	6,910.85	165.97	42.638		
6,800.00	6,596.17	5,439.21	5,320.92	30.64	271.81	-158.47	224.94	-6,774.94	7,105.88	6,938.87	167.01	42.547		
6,850.00	6,639.06	5,456.71	5,335.08	30.85	272.89	-162.89	234.22	-6,779.36	7,138.11	6,970.12	168.00	42.490		
6,900.00	6,680.07	5,472.70	5,347.97	31.05	273.87	-166.62	242.77	-6,783.45	7,173.30	7,004.38	168.92	42.467 SF		
6,950.00	6,718.96	5,487.10	5,359.53	31.24	274.76	-169.96	250.52	-6,787.16	7,211.20	7,041.43	169.77	42.477		
7,000.00	6,755.47	5,499.84	5,369.72	31.43	275.54	-173.16	257.41	-6,790.46	7,251.55	7,081.01	170.54	42.521		
7,050.00	6,789.40	5,510.87	5,378.50	31.61	276.22	-176.46	263.41	-6,793.35	7,294.10	7,122.87	171.23	42.597		
7,100.00	6,820.52	5,520.14	5,385.87	31.79	276.79	-179.81	268.48	-6,795.78	7,338.55	7,166.71	171.84	42.705		
7,150.00	6,848.64	5,527.62	5,391.81	31.97	277.25	-175.18	272.59	-6,797.76	7,384.61	7,212.25	172.36	42.843		
7,200.00	6,873.60	5,533.30	5,396.31	32.14	277.60	-168.79	275.71	-6,799.27	7,431.99	7,259.20	172.79	43.011		
7,250.00	6,895.24	5,537.17	5,399.37	32.31	277.84	-158.90	277.85	-6,800.29	7,480.37	7,307.24	173.13	43.207		
7,300.00	6,913.42	5,539.24	5,401.00	32.49	277.97	-141.92	278.99	-6,800.84	7,529.45	7,356.08	173.38	43.429		
7,350.00	6,928.03	5,539.51	5,401.22	32.67	277.99	-113.41	279.14	-6,800.92	7,578.92	7,405.40	173.53	43.676		
7,400.00	6,938.98	5,538.02	5,400.04	32.86	277.89	-80.66	278.31	-6,800.52	7,628.47	7,454.88	173.59	43.946		
7,450.00	6,946.22	5,534.78	5,397.48	33.06	277.69	-58.51	276.53	-6,799.66	7,677.79	7,504.23	173.56	44.237		
7,500.00	6,949.68	5,529.85	5,393.58	33.26	277.39	-46.17	273.81	-6,798.35	7,726.58	7,553.13	173.45	44.547		
7,521.05	6,950.00	5,527.28	5,391.54	33.35	277.23	-42.72	272.40	-6,797.67	7,746.89	7,573.51	173.37	44.683		
7,600.00	6,949.95	5,517.13	5,383.49	33.72	276.61	-42.68	266.83	-6,794.99	7,822.78	7,649.70	173.08	45.197		
7,700.00	6,949.89	5,504.44	5,373.39	34.24	275.83	-42.63	259.91	-6,791.67	7,918.95	7,746.24	172.72	45.850		
7,800.00	6,949.83	5,491.94	5,363.40	34.84	275.06	-42.59	253.13	-6,788.41	8,015.18	7,842.82	172.36	46.502		
7,900.00	6,949.77	5,479.60	5,353.51	35.50	274.30	-42.54	246.47	-6,785.22	8,111.45	7,939.44	172.01	47.156		
8,000.00	6,949.71	5,467.44	5,343.73	36.23	273.55	-42.49	239.95	-6,782.10	8,207.77	8,036.10	171.67	47.810		
8,100.00	6,949.65	5,455.45	5,334.06	37.02	272.81	-42.44	233.55	-6,779.04	8,304.15	8,132.80	171.34	48.465		
8,200.00	6,949.59	5,443.62	5,324.49	37.85	272.08	-42.39	227.28	-6,776.05	8,400.57	8,229.55	171.02	49.121		
8,300.00	6,949.53	5,431.95	5,315.03	38.74	271.36	-42.35	221.12	-6,773.12	8,497.03	8,326.33	170.70	49.777		
8,400.00	6,949.47	5,420.45	5,305.67	39.68	270.66	-42.30	215.08	-6,770.25	8,593.54	8,423.15	170.39	50.433		
8,500.00	6,949.41	5,409.10	5,296.40	40.66	269.96	-42.25	209.16	-6,767.44	8,690.10	8,520.01	170.09	51.090		
8,600.00	6,949.35	5,397.90	5,287.24	41.67	269.27	-42.20	203.34	-6,764.68	8,786.70	8,616.90	169.80	51.748		
8,700.00	6,949.29	5,386.86	5,278.18	42.73	268.59	-42.15	197.64	-6,761.98	8,883.35	8,713.83	169.51	52.405		
8,800.00	6,949.23	5,375.97	5,269.21	43.82	267.92	-42.11	192.04	-6,759.34	8,980.03	8,810.80	169.23	53.063		
8,900.00	6,949.17	5,147.00	5,075.51	44.94	253.82	-41.00	81.41	-6,707.99	9,082.87	8,921.57	161.30	56.310		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066M - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 74-MWD OWSG Rev5											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,000.00	6,949.11	5,147.00	5,075.51	46.09	253.82	41.00	81.41	-6,707.99	9,179.04	9,017.62	161.42	56.864
9,100.00	6,949.05	5,147.00	5,075.51	47.26	253.82	41.00	81.41	-6,707.99	9,275.29	9,113.75	161.54	57.417
9,200.00	6,948.99	5,147.00	5,075.51	48.46	253.82	41.00	81.41	-6,707.99	9,371.62	9,209.96	161.66	57.970
9,300.00	6,948.93	5,147.00	5,075.51	49.68	253.82	41.00	81.41	-6,707.99	9,468.03	9,306.25	161.78	58.523
9,400.00	6,948.87	5,147.00	5,075.51	50.93	253.82	41.00	81.41	-6,707.99	9,564.51	9,402.60	161.90	59.075
9,500.00	6,948.81	5,147.00	5,075.51	52.19	253.82	41.00	81.41	-6,707.99	9,661.06	9,499.04	162.02	59.627
9,600.00	6,948.75	5,147.00	5,075.51	53.47	253.82	41.00	81.41	-6,707.99	9,757.68	9,595.54	162.14	60.179
9,700.00	6,948.69	5,147.00	5,075.51	54.77	253.82	41.00	81.41	-6,707.99	9,854.37	9,692.10	162.26	60.731
9,800.00	6,948.63	5,147.00	5,075.51	56.08	253.82	41.00	81.41	-6,707.99	9,951.12	9,788.74	162.38	61.282
9,900.00	6,948.57	5,147.00	5,075.51	57.41	253.82	41.00	81.41	-6,707.99	10,047.94	9,885.44	162.50	61.833
10,000.00	6,948.51	5,147.00	5,075.51	58.76	253.82	41.00	81.41	-6,707.99	10,144.82	9,982.20	162.62	62.383
10,100.00	6,948.45	5,147.00	5,075.51	60.11	253.82	41.00	81.41	-6,707.99	10,241.76	10,079.02	162.74	62.933
10,200.00	6,948.39	5,147.00	5,075.51	61.48	253.82	41.00	81.41	-6,707.99	10,338.75	10,175.89	162.86	63.483
10,300.00	6,948.33	5,147.00	5,075.51	62.86	253.82	41.00	81.41	-6,707.99	10,435.81	10,272.83	162.98	64.032
10,400.00	6,948.27	5,147.00	5,075.51	64.24	253.82	41.00	81.41	-6,707.99	10,532.92	10,369.82	163.10	64.581
10,500.00	6,948.21	5,147.00	5,075.51	65.64	253.82	41.00	81.41	-6,707.99	10,630.08	10,466.86	163.22	65.129
10,600.00	6,948.15	5,147.00	5,075.51	67.05	253.82	41.00	81.41	-6,707.99	10,727.29	10,563.96	163.33	65.677
10,700.00	6,948.09	5,147.00	5,075.51	68.47	253.82	41.00	81.41	-6,707.99	10,824.56	10,661.11	163.45	66.225
10,800.00	6,948.03	5,147.00	5,075.51	69.89	253.82	41.00	81.41	-6,707.99	10,921.87	10,758.30	163.57	66.772
10,900.00	6,947.97	5,147.00	5,075.51	71.32	253.82	41.00	81.41	-6,707.99	11,019.24	10,855.55	163.69	67.319
11,000.00	6,947.91	5,147.00	5,075.51	72.76	253.82	41.00	81.41	-6,707.99	11,116.65	10,952.84	163.81	67.865
11,100.00	6,947.85	5,147.00	5,075.51	74.21	253.82	41.00	81.41	-6,707.99	11,214.10	11,050.18	163.92	68.411
11,200.00	6,947.79	5,147.00	5,075.51	75.66	253.82	41.00	81.41	-6,707.99	11,311.60	11,147.56	164.04	68.956
11,300.00	6,947.73	5,147.00	5,075.51	77.12	253.82	41.00	81.41	-6,707.99	11,409.14	11,244.99	164.16	69.501
11,400.00	6,947.66	5,147.00	5,075.51	78.58	253.82	41.00	81.41	-6,707.99	11,506.73	11,342.45	164.28	70.046
11,500.00	6,947.60	5,147.00	5,075.51	80.05	253.82	41.00	81.41	-6,707.99	11,604.35	11,439.96	164.39	70.589
11,600.00	6,947.54	5,147.00	5,075.51	81.52	253.82	41.00	81.41	-6,707.99	11,702.02	11,537.51	164.51	71.133
11,700.00	6,947.48	5,147.00	5,075.51	83.00	253.82	41.00	81.41	-6,707.99	11,799.73	11,635.10	164.63	71.676
11,800.00	6,947.42	5,147.00	5,075.51	84.48	253.82	41.00	81.41	-6,707.99	11,897.47	11,732.73	164.74	72.218
11,900.00	6,947.36	5,147.00	5,075.51	85.97	253.82	41.00	81.41	-6,707.99	11,995.25	11,830.39	164.86	72.760
12,000.00	6,947.30	5,147.00	5,075.51	87.46	253.82	41.00	81.41	-6,707.99	12,093.07	11,928.09	164.98	73.302
12,100.00	6,947.24	5,147.00	5,075.51	88.96	253.82	41.00	81.41	-6,707.99	12,190.92	12,025.83	165.09	73.842
12,200.00	6,947.18	5,147.00	5,075.51	90.46	253.82	41.00	81.41	-6,707.99	12,288.81	12,123.60	165.21	74.383
12,300.00	6,947.12	5,147.00	5,075.51	91.96	253.82	41.00	81.41	-6,707.99	12,386.73	12,221.40	165.33	74.923
12,400.00	6,947.06	5,147.00	5,075.51	93.47	253.82	41.00	81.41	-6,707.99	12,484.68	12,319.24	165.44	75.462
12,500.00	6,947.00	5,147.00	5,075.51	94.97	253.82	41.00	81.41	-6,707.99	12,582.67	12,417.11	165.56	76.001
12,600.00	6,946.94	5,147.00	5,075.51	96.49	253.82	41.00	81.41	-6,707.99	12,680.69	12,515.01	165.68	76.539
12,700.00	6,946.88	5,147.00	5,075.51	98.00	253.82	41.00	81.41	-6,707.99	12,778.73	12,612.94	165.79	77.076
12,800.00	6,946.82	5,147.00	5,075.51	99.52	253.82	41.00	81.41	-6,707.99	12,876.81	12,710.90	165.91	77.614
12,900.00	6,946.76	5,147.00	5,075.51	101.04	253.82	41.00	81.41	-6,707.99	12,974.92	12,808.89	166.03	78.150
13,000.00	6,946.70	5,147.00	5,075.51	102.56	253.82	41.00	81.41	-6,707.99	13,073.06	12,906.91	166.14	78.686
13,100.00	6,946.64	5,147.00	5,075.51	104.09	253.82	41.00	81.41	-6,707.99	13,171.22	13,004.96	166.26	79.221
13,200.00	6,946.58	5,147.00	5,075.51	105.61	253.82	41.00	81.41	-6,707.99	13,269.41	13,103.04	166.37	79.756
13,300.00	6,946.52	5,147.00	5,075.51	107.14	253.82	41.00	81.41	-6,707.99	13,367.63	13,201.14	166.49	80.291
13,400.00	6,946.46	5,147.00	5,075.51	108.67	253.82	41.00	81.41	-6,707.99	13,465.87	13,299.27	166.61	80.824
13,500.00	6,946.40	5,147.00	5,075.51	110.21	253.82	41.00	81.41	-6,707.99	13,564.15	13,397.42	166.72	81.357
13,600.00	6,946.34	5,147.00	5,075.51	111.74	253.82	41.00	81.41	-6,707.99	13,662.44	13,495.60	166.84	81.890
13,700.00	6,946.28	5,147.00	5,075.51	113.28	253.82	41.00	81.41	-6,707.99	13,760.76	13,593.81	166.96	82.422
13,800.00	6,946.22	5,147.00	5,075.51	114.82	253.82	41.00	81.41	-6,707.99	13,859.10	13,692.03	167.07	82.953
13,900.00	6,946.16	5,147.00	5,075.51	116.36	253.82	41.00	81.41	-6,707.99	13,957.47	13,790.28	167.19	83.484
14,000.00	6,946.10	5,147.00	5,075.51	117.90	253.82	41.00	81.41	-6,707.99	14,055.86	13,888.56	167.30	84.014
14,100.00	6,946.04	5,147.00	5,075.51	119.45	253.82	41.00	81.41	-6,707.99	14,154.28	13,986.86	167.42	84.543

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 066M - OH - OH-SVY												Offset Site Error: 0.00 usft	
Survey Program: 74-MWD OWSG Rev5		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance			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
14,200.00	6,945.98	5,147.00	5,075.51	120.99	253.82	41.00	81.41	-6,707.99	14,252.71	14,085.17	167.54	85.072	
14,300.00	6,945.92	5,147.00	5,075.51	122.54	253.82	41.00	81.41	-6,707.99	14,351.17	14,183.52	167.65	85.601	
14,400.00	6,945.86	5,147.00	5,075.51	124.09	253.82	41.00	81.41	-6,707.99	14,449.65	14,281.88	167.77	86.128	
14,500.00	6,945.80	5,147.00	5,075.51	125.64	253.82	41.00	81.41	-6,707.99	14,548.14	14,380.26	167.89	86.655	
14,600.00	6,945.74	5,147.00	5,075.51	127.19	253.82	41.00	81.41	-6,707.99	14,646.66	14,478.66	168.00	87.182	
14,700.00	6,945.68	5,147.00	5,075.51	128.74	253.82	41.00	81.41	-6,707.99	14,745.20	14,577.09	168.12	87.708	
14,800.00	6,945.62	5,147.00	5,075.51	130.30	253.82	41.00	81.41	-6,707.99	14,843.76	14,675.53	168.23	88.233	
14,900.00	6,945.56	5,147.00	5,075.51	131.85	253.82	41.00	81.41	-6,707.99	14,942.34	14,773.99	168.35	88.757	
15,000.00	6,945.50	5,147.00	5,075.51	133.41	253.82	41.00	81.41	-6,707.99	15,040.94	14,872.47	168.47	89.281	
15,100.00	6,945.44	5,147.00	5,075.51	134.96	253.82	41.00	81.41	-6,707.99	15,139.55	14,970.97	168.58	89.804	
15,200.00	6,945.38	5,147.00	5,075.51	136.52	253.82	41.00	81.41	-6,707.99	15,238.18	15,069.48	168.70	90.327	
15,300.00	6,945.32	5,147.00	5,075.51	138.08	253.82	41.00	81.41	-6,707.99	15,336.84	15,168.02	168.82	90.849	
15,400.00	6,945.26	5,147.00	5,075.51	139.64	253.82	41.00	81.41	-6,707.99	15,435.50	15,266.57	168.93	91.370	
15,500.00	6,945.20	5,147.00	5,075.51	141.20	253.82	41.00	81.41	-6,707.99	15,534.19	15,365.14	169.05	91.891	
15,600.00	6,945.14	5,147.00	5,075.51	142.76	253.82	41.00	81.41	-6,707.99	15,632.89	15,463.72	169.17	92.411	
15,700.00	6,945.08	5,147.00	5,075.51	144.33	253.82	41.00	81.41	-6,707.99	15,731.61	15,562.33	169.28	92.930	
15,800.00	6,945.02	5,147.00	5,075.51	145.89	253.82	41.00	81.41	-6,707.99	15,830.34	15,660.94	169.40	93.449	
15,900.00	6,944.96	5,147.00	5,075.51	147.46	253.82	41.00	81.41	-6,707.99	15,929.09	15,759.58	169.52	93.967	
16,000.00	6,944.90	5,147.00	5,075.51	149.02	253.82	41.00	81.41	-6,707.99	16,027.86	15,858.22	169.63	94.485	
16,100.00	6,944.84	5,147.00	5,075.51	150.59	253.82	41.00	81.41	-6,707.99	16,126.64	15,956.89	169.75	95.001	
16,200.00	6,944.77	5,147.00	5,075.51	152.15	253.82	41.00	81.41	-6,707.99	16,225.44	16,055.57	169.87	95.518	
16,300.00	6,944.71	5,147.00	5,075.51	153.72	253.82	41.00	81.41	-6,707.99	16,324.25	16,154.26	169.99	96.033	
16,400.00	6,944.65	5,147.00	5,075.51	155.29	253.82	41.00	81.41	-6,707.99	16,423.07	16,252.97	170.10	96.548	
16,500.00	6,944.59	5,147.00	5,075.51	156.86	253.82	41.00	81.41	-6,707.99	16,521.91	16,351.69	170.22	97.062	
16,600.00	6,944.53	5,147.00	5,075.51	158.43	253.82	41.00	81.41	-6,707.99	16,620.76	16,450.42	170.34	97.575	
16,700.00	6,944.47	5,147.00	5,075.51	160.00	253.82	41.00	81.41	-6,707.99	16,719.63	16,549.17	170.46	98.088	
16,800.00	6,944.41	5,147.00	5,075.51	161.57	253.82	41.00	81.41	-6,707.99	16,818.51	16,647.94	170.57	98.600	
16,900.00	6,944.35	5,147.00	5,075.51	163.14	253.82	41.00	81.41	-6,707.99	16,917.40	16,746.71	170.69	99.111	
17,000.00	6,944.29	5,147.00	5,075.51	164.71	253.82	41.00	81.41	-6,707.99	17,016.31	16,845.50	170.81	99.622	
17,100.00	6,944.23	5,147.00	5,075.51	166.29	253.82	41.00	81.41	-6,707.99	17,115.23	16,944.30	170.93	100.132	
17,200.00	6,944.17	5,147.00	5,075.51	167.86	253.82	41.00	81.41	-6,707.99	17,214.16	17,043.11	171.04	100.642	
17,300.00	6,944.11	5,147.00	5,075.51	169.43	253.82	41.00	81.41	-6,707.99	17,313.10	17,141.94	171.16	101.150	
17,400.00	6,944.05	5,147.00	5,075.51	171.01	253.82	41.00	81.41	-6,707.99	17,412.06	17,240.78	171.28	101.658	
17,500.00	6,943.99	5,147.00	5,075.51	172.58	253.82	41.00	81.41	-6,707.99	17,511.03	17,339.63	171.40	102.166	
17,600.00	6,943.93	5,147.00	5,075.51	174.16	253.82	41.00	81.41	-6,707.99	17,610.00	17,438.49	171.52	102.672	
17,700.00	6,943.87	5,147.00	5,075.51	175.73	253.82	41.00	81.41	-6,707.99	17,708.99	17,537.36	171.64	103.178	
17,800.00	6,943.81	5,147.00	5,075.51	177.31	253.82	41.00	81.41	-6,707.99	17,808.00	17,636.24	171.75	103.683	
17,900.00	6,943.75	5,147.00	5,075.51	178.89	253.82	41.00	81.41	-6,707.99	17,907.01	17,735.14	171.87	104.188	
18,000.00	6,943.69	5,147.00	5,075.51	180.46	253.82	41.00	81.41	-6,707.99	18,006.03	17,834.04	171.99	104.692	
18,100.00	6,943.63	5,147.00	5,075.51	182.04	253.82	41.00	81.41	-6,707.99	18,105.07	17,932.96	172.11	105.195	
18,200.00	6,943.57	5,147.00	5,075.51	183.62	253.82	41.00	81.41	-6,707.99	18,204.11	18,031.88	172.23	105.697	
18,300.00	6,943.51	5,147.00	5,075.51	185.20	253.82	41.00	81.41	-6,707.99	18,303.17	18,130.82	172.35	106.199	
18,400.00	6,943.45	5,147.00	5,075.51	186.78	253.82	41.00	81.41	-6,707.99	18,402.23	18,229.77	172.47	106.700	
18,500.00	6,943.39	5,147.00	5,075.51	188.36	253.82	41.00	81.41	-6,707.99	18,501.31	18,328.72	172.59	107.200	
18,600.00	6,943.33	5,147.00	5,075.51	189.94	253.82	41.00	81.41	-6,707.99	18,600.40	18,427.69	172.71	107.700	
18,700.00	6,943.27	5,147.00	5,075.51	191.52	253.82	41.00	81.41	-6,707.99	18,699.49	18,526.67	172.82	108.199	
18,800.00	6,943.21	5,147.00	5,075.51	193.10	253.82	41.00	81.41	-6,707.99	18,798.60	18,625.65	172.94	108.697	
18,900.00	6,943.15	5,147.00	5,075.51	194.68	253.82	41.00	81.41	-6,707.99	18,897.71	18,724.65	173.06	109.195	
19,000.00	6,943.09	5,147.00	5,075.51	196.26	253.82	41.00	81.41	-6,707.99	18,996.83	18,823.65	173.18	109.692	
19,100.00	6,943.03	5,147.00	5,075.51	197.84	253.82	41.00	81.41	-6,707.99	19,095.97	18,922.66	173.30	110.188	
19,200.00	6,942.97	5,147.00	5,075.51	199.42	253.82	41.00	81.41	-6,707.99	19,195.11	19,021.69	173.42	110.683	
19,300.00	6,942.91	5,147.00	5,075.51	201.01	253.82	41.00	81.41	-6,707.99	19,294.26	19,120.72	173.54	111.178	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design:		Rosa Pad 26 - (O) RU 066M - OH - OH-SVY											Offset Site Error:		0.00 usft	
Survey Program:		74-MWD OWSG Rev5											Offset Well Error:		0.00 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				
19,400.00	6,942.85	5,147.00	5,075.51	202.59	253.82	41.00	81.41	-6,707.99	19,393.42	19,219.76	173.66	111.672				
19,500.00	6,942.79	5,147.00	5,075.51	204.17	253.82	41.00	81.41	-6,707.99	19,492.59	19,318.80	173.78	112.166				
19,600.00	6,942.73	5,147.00	5,075.51	205.75	253.82	41.00	81.41	-6,707.99	19,591.76	19,417.86	173.90	112.658				
19,700.00	6,942.67	4,601.39	4,580.69	207.34	177.14	37.79	-126.26	-6,613.53	19,665.88	19,526.62	139.26	141.213				
19,800.00	6,942.61	4,597.06	4,576.61	208.92	176.53	37.76	-127.58	-6,612.93	19,764.71	19,625.60	139.11	142.081				
19,900.00	6,942.55	4,592.76	4,572.56	210.51	175.93	37.73	-128.89	-6,612.34	19,863.53	19,724.58	138.96	142.949				
20,000.00	6,942.49	4,588.50	4,568.54	212.09	175.33	37.70	-130.18	-6,611.75	19,962.37	19,823.57	138.80	143.817				
20,100.00	6,942.43	4,584.28	4,564.56	213.68	174.74	37.68	-131.45	-6,611.17	20,061.22	19,922.57	138.65	144.685				
20,200.00	6,942.37	4,580.08	4,560.60	215.26	174.15	37.65	-132.71	-6,610.60	20,160.08	20,021.57	138.51	145.552				
20,300.00	6,942.31	4,575.92	4,556.67	216.85	173.57	37.62	-133.96	-6,610.03	20,258.94	20,120.58	138.36	146.419				
20,400.00	6,942.25	4,571.79	4,552.77	218.43	172.99	37.60	-135.19	-6,609.47	20,357.81	20,219.59	138.22	147.285				
20,500.00	6,942.19	4,567.70	4,548.89	220.02	172.42	37.57	-136.40	-6,608.92	20,456.69	20,318.61	138.08	148.152				
20,600.00	6,942.13	4,563.63	4,545.05	221.60	171.85	37.54	-137.61	-6,608.37	20,555.58	20,417.64	137.94	149.017				
20,700.00	6,942.07	4,559.60	4,541.23	223.19	171.28	37.52	-138.79	-6,607.83	20,654.48	20,516.67	137.80	149.882				
20,808.89	6,942.00	4,555.24	4,537.11	224.92	170.67	37.49	-140.07	-6,607.25	20,762.17	20,624.51	137.66	150.824				

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 067 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 328-A027Ua_INC-ONLY													Offset Well Error:	0.00 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	35.00	35.00	0.00	0.34	-86.17	694.75	-10,373.24	10,396.48					
100.00	100.00	135.00	135.00	0.25	1.33	-86.17	694.75	-10,373.24	10,396.48	10,394.90	1.58	6,576.849		
200.00	200.00	235.00	235.00	0.61	2.31	-86.17	694.75	-10,373.24	10,396.48	10,393.56	2.92	3,555.375		
300.00	300.00	335.01	335.00	0.97	3.37	-86.17	694.75	-10,373.24	10,396.48	10,392.14	4.34	2,397.334		
400.00	400.00	435.01	435.00	1.33	5.34	-86.17	694.75	-10,373.24	10,396.48	10,389.82	6.67	1,559.836		
500.00	500.00	535.01	535.00	1.68	7.31	-86.17	694.75	-10,373.24	10,396.48	10,387.49	8.99	1,155.994		
600.00	599.98	636.11	636.10	2.04	9.30	-87.40	695.51	-10,373.24	10,396.45	10,385.11	11.34	916.545		
700.00	699.84	737.82	737.80	2.41	11.30	-87.43	695.21	-10,373.24	10,396.20	10,382.49	13.70	758.596		
800.00	799.45	834.50	834.45	2.77	13.20	-87.49	694.75	-10,373.24	10,395.78	10,379.82	15.96	651.325		
900.00	898.70	933.75	933.70	3.13	15.09	-87.57	694.75	-10,373.24	10,395.25	10,377.04	18.21	570.721		
1,000.00	997.47	1,032.52	1,032.47	3.50	16.97	-87.67	694.75	-10,373.24	10,394.59	10,374.12	20.47	507.859		
1,100.00	1,095.62	1,131.65	1,131.59	3.89	18.85	-87.78	695.53	-10,373.24	10,393.87	10,371.13	22.74	457.064		
1,200.00	1,193.06	1,230.63	1,230.57	4.30	20.73	-87.92	695.25	-10,373.24	10,392.98	10,367.96	25.03	415.275		
1,245.21	1,236.83	1,275.06	1,275.00	4.48	21.58	-88.00	695.04	-10,373.24	10,392.56	10,366.50	26.06	398.796		
1,300.00	1,289.78	1,324.86	1,324.78	4.72	22.52	-88.07	694.75	-10,373.24	10,392.04	10,364.80	27.24	381.523		
1,400.00	1,386.42	1,421.50	1,421.42	5.15	24.30	-88.20	694.75	-10,373.24	10,391.17	10,361.72	29.45	352.851		
1,500.00	1,483.05	1,518.13	1,518.05	5.59	26.08	-88.34	694.75	-10,373.24	10,390.37	10,358.70	31.67	328.106		
1,600.00	1,579.69	1,615.14	1,615.06	6.04	27.86	-88.48	695.28	-10,373.24	10,389.66	10,355.76	33.90	306.488		
1,700.00	1,676.32	1,712.58	1,712.49	6.49	29.66	-88.61	695.13	-10,373.24	10,388.98	10,352.83	36.14	287.440		
1,800.00	1,772.96	1,809.92	1,809.84	6.94	31.45	-88.75	694.81	-10,373.24	10,388.35	10,349.96	38.39	270.604		
1,900.00	1,869.60	1,904.70	1,904.60	7.40	33.19	-88.89	694.75	-10,373.24	10,387.80	10,347.20	40.59	255.890		
2,000.00	1,966.23	2,001.33	2,001.23	7.86	34.97	-89.03	694.75	-10,373.24	10,387.31	10,344.48	42.84	242.481		
2,100.00	2,062.87	2,098.06	2,097.96	8.33	36.76	-89.16	695.32	-10,373.24	10,386.91	10,341.83	45.08	230.389		
2,200.00	2,159.50	2,195.26	2,195.16	8.79	38.55	-89.30	695.22	-10,373.24	10,386.55	10,339.21	47.34	219.396		
2,300.00	2,256.14	2,292.38	2,292.28	9.26	40.34	-89.44	694.96	-10,373.24	10,386.25	10,336.65	49.60	209.406		
2,400.00	2,352.77	2,387.89	2,387.77	9.73	42.10	-89.57	694.75	-10,373.24	10,386.02	10,334.19	51.83	200.392		
2,500.00	2,449.41	2,484.53	2,484.41	10.20	43.89	-89.71	694.75	-10,373.24	10,385.85	10,331.77	54.08	192.043		
2,600.00	2,546.05	2,581.17	2,581.05	10.67	45.67	-89.85	694.75	-10,373.24	10,385.75	10,329.41	56.33	184.359		
2,700.00	2,642.68	2,678.11	2,677.99	11.14	47.46	-89.98	695.25	-10,373.24	10,385.72	10,327.13	58.59	177.247		
2,717.21	2,659.31	2,694.80	2,694.68	11.22	47.77	-90.01	695.22	-10,373.24	10,385.72	10,326.74	58.98	176.078 CC		
2,800.00	2,739.32	2,775.05	2,774.92	11.61	49.25	-90.12	695.03	-10,373.24	10,385.74	10,324.88	60.86	170.663		
2,900.00	2,835.95	2,871.09	2,870.95	12.08	51.03	-90.26	694.75	-10,373.24	10,385.82	10,322.71	63.11	164.561		
3,000.00	2,932.59	2,967.73	2,967.59	12.55	52.87	-90.40	694.75	-10,373.24	10,385.98	10,320.55	65.42	158.747		
3,100.00	3,029.22	3,064.36	3,064.22	13.03	54.71	-90.53	694.75	-10,373.24	10,386.19	10,318.46	67.74	153.329		
3,200.00	3,125.86	3,161.11	3,160.97	13.50	56.55	-90.67	695.24	-10,373.24	10,386.48	10,316.42	70.05	148.265		
3,300.00	3,222.50	3,257.84	3,257.69	13.97	58.39	-90.81	695.04	-10,373.24	10,386.82	10,314.45	72.37	143.526		
3,400.00	3,319.13	3,354.30	3,354.13	14.45	60.25	-90.95	694.75	-10,373.24	10,387.22	10,312.53	74.70	139.054		
3,500.00	3,415.77	3,450.94	3,450.77	14.92	62.20	-91.08	694.75	-10,373.24	10,387.70	10,310.57	77.13	134.679		
3,600.00	3,512.40	3,547.57	3,547.39	15.40	64.16	-91.22	695.38	-10,373.24	10,388.23	10,308.67	79.56	130.573		
3,700.00	3,609.04	3,644.08	3,643.91	15.88	66.11	-91.35	695.18	-10,373.24	10,388.83	10,306.84	81.99	126.714		
3,800.00	3,705.67	3,740.89	3,740.67	16.35	68.08	-91.49	694.75	-10,373.24	10,389.49	10,305.06	84.43	123.055		
3,900.00	3,802.31	3,837.53	3,837.31	16.83	70.10	-91.63	694.75	-10,373.24	10,390.22	10,303.29	86.93	119.528		
4,000.00	3,898.95	3,934.16	3,933.95	17.30	72.12	-91.77	694.75	-10,373.24	10,391.01	10,301.58	89.42	116.198		
4,100.00	3,995.58	4,030.58	4,030.36	17.78	74.14	-91.90	695.84	-10,373.24	10,391.85	10,299.93	91.92	113.056		
4,200.00	4,092.22	4,126.66	4,126.43	18.26	76.15	-92.04	695.53	-10,373.24	10,392.76	10,298.36	94.40	110.088		
4,300.00	4,188.85	4,222.58	4,222.34	18.73	78.16	-92.18	694.91	-10,373.24	10,393.75	10,296.87	96.89	107.277		
4,400.00	4,285.49	4,320.78	4,320.49	19.21	80.22	-92.32	694.75	-10,373.24	10,394.80	10,295.38	99.42	104.550		
4,500.00	4,382.12	4,417.42	4,417.12	19.69	82.25	-92.45	694.75	-10,373.24	10,395.91	10,293.98	101.93	101.989		
4,600.00	4,478.76	4,513.97	4,513.66	20.17	84.28	-92.58	695.90	-10,373.24	10,397.05	10,292.61	104.44	99.554		
4,700.00	4,575.40	4,609.68	4,609.37	20.64	86.29	-92.72	695.71	-10,373.24	10,398.29	10,291.36	106.92	97.250		
4,800.00	4,672.03	4,705.24	4,704.92	21.12	88.29	-92.86	695.23	-10,373.24	10,399.60	10,290.19	109.41	95.053		
4,900.00	4,768.67	4,804.04	4,803.67	21.60	90.37	-93.00	694.75	-10,373.24	10,400.97	10,289.01	111.96	92.897		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 067 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		328-A027Ua_INC-ONLY						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
5,000.00	4,865.30	4,900.68	4,900.30	22.08	92.41	-93.14	694.75	-10,373.24	10,402.40	10,287.92	114.48	90.870	
5,100.00	4,961.94	4,997.31	4,996.94	22.55	94.44	-93.27	694.75	-10,373.24	10,403.88	10,286.90	116.99	88.931	
5,200.00	5,058.57	5,093.48	5,093.10	23.03	96.47	-93.40	695.99	-10,373.24	10,405.39	10,285.89	119.49	87.080	
5,300.00	5,155.21	5,188.82	5,188.43	23.51	98.48	-93.54	695.75	-10,373.24	10,407.01	10,285.03	121.98	85.319	
5,400.00	5,251.85	5,284.02	5,283.63	23.99	100.48	-93.68	695.23	-10,373.24	10,408.71	10,284.25	124.46	83.630	
5,500.00	5,348.48	5,383.94	5,383.48	24.47	102.59	-93.82	694.75	-10,373.24	10,410.47	10,283.42	127.04	81.943	
5,600.00	5,445.12	5,480.58	5,480.12	24.94	104.63	-93.96	694.75	-10,373.24	10,412.27	10,282.71	129.56	80.365	
5,700.00	5,541.75	5,577.21	5,576.75	25.42	106.67	-94.09	694.75	-10,373.24	10,414.14	10,282.06	132.08	78.848	
5,800.00	5,638.39	5,672.34	5,671.87	25.90	108.68	-94.22	695.74	-10,373.24	10,416.02	10,281.45	134.56	77.405	
5,900.00	5,735.02	5,766.95	5,766.47	26.38	110.68	-94.36	695.34	-10,373.24	10,418.03	10,280.99	137.04	76.023	
6,000.00	5,831.66	5,867.20	5,866.66	26.86	112.80	-94.50	694.75	-10,373.24	10,420.12	10,280.49	139.63	74.625	
6,100.00	5,928.30	5,963.83	5,963.30	27.34	114.84	-94.64	694.75	-10,373.24	10,422.24	10,280.09	142.16	73.316	
6,200.00	6,024.93	6,060.47	6,059.93	27.82	116.89	-94.77	694.75	-10,373.24	10,424.43	10,279.75	144.68	72.053	
6,300.00	6,121.57	6,157.11	6,156.57	28.29	118.93	-94.91	694.75	-10,373.24	10,426.67	10,279.47	147.20	70.834	
6,400.00	6,218.20	6,253.74	6,253.20	28.77	120.98	-95.05	694.75	-10,373.24	10,428.98	10,279.26	149.72	69.656	
6,500.00	6,314.84	6,350.38	6,349.84	29.25	123.02	-95.18	694.75	-10,373.24	10,431.35	10,279.11	152.24	68.518	
6,521.58	6,335.69	6,371.23	6,370.69	29.36	123.46	-95.21	694.75	-10,373.24	10,431.87	10,279.09	152.79	68.277	ES
6,550.00	6,363.15	6,398.68	6,398.15	29.49	124.05	-104.77	694.75	-10,373.24	10,433.20	10,279.69	153.50	67.967	
6,600.00	6,411.28	6,446.81	6,446.28	29.73	125.06	-120.09	694.75	-10,373.24	10,438.59	10,283.83	154.76	67.451	
6,650.00	6,458.93	6,494.47	6,493.93	29.96	126.07	-132.36	694.75	-10,373.24	10,447.86	10,291.87	156.00	66.975	
6,700.00	6,505.83	6,541.37	6,540.83	30.19	127.07	-141.62	694.75	-10,373.24	10,460.96	10,303.75	157.21	66.541	
6,750.00	6,551.67	6,587.20	6,586.67	30.42	128.04	-148.53	694.75	-10,373.24	10,477.80	10,319.40	158.39	66.151	
6,800.00	6,596.17	6,631.70	6,631.17	30.64	128.98	-153.78	694.75	-10,373.24	10,498.27	10,338.73	159.54	65.805	
6,850.00	6,639.06	6,674.59	6,674.06	30.85	129.89	-157.87	694.75	-10,373.24	10,522.24	10,361.61	160.63	65.505	
6,900.00	6,680.07	6,715.61	6,715.07	31.05	130.75	-161.16	694.75	-10,373.24	10,549.57	10,387.90	161.68	65.251	
6,950.00	6,718.96	6,754.49	6,753.96	31.24	131.58	-163.91	694.75	-10,373.24	10,580.09	10,417.43	162.66	65.044	
7,000.00	6,755.47	6,791.01	6,790.47	31.43	132.35	-166.29	694.75	-10,373.24	10,613.60	10,450.02	163.58	64.883	
7,050.00	6,789.40	6,824.93	6,824.40	31.61	133.07	-168.45	694.75	-10,373.24	10,649.90	10,485.47	164.43	64.770	
7,100.00	6,820.52	6,856.05	6,855.52	31.79	133.73	-170.50	694.75	-10,373.24	10,688.76	10,523.56	165.20	64.703	
7,150.00	6,848.64	6,884.18	6,883.64	31.97	134.32	-172.59	694.75	-10,373.24	10,729.94	10,564.05	165.89	64.683	SF
7,200.00	6,873.60	6,909.14	6,908.60	32.14	134.85	-174.87	694.75	-10,373.24	10,773.18	10,606.69	166.49	64.708	
7,250.00	6,895.24	6,930.77	6,930.24	32.31	135.31	-177.58	694.75	-10,373.24	10,818.23	10,651.22	167.01	64.777	
7,300.00	6,913.42	6,948.95	6,948.42	32.49	135.69	-178.87	694.75	-10,373.24	10,864.79	10,697.36	167.43	64.891	
7,350.00	6,928.03	6,963.57	6,963.03	32.67	136.00	-173.64	694.75	-10,373.24	10,912.59	10,744.82	167.77	65.047	
7,400.00	6,938.98	6,974.52	6,973.98	32.86	136.23	-164.75	694.75	-10,373.24	10,961.32	10,793.32	168.01	65.244	
7,450.00	6,946.22	6,981.75	6,981.22	33.06	136.39	-146.79	694.75	-10,373.24	11,010.69	10,842.54	168.15	65.481	
7,500.00	6,949.68	6,985.21	6,984.68	33.26	136.46	-109.17	694.75	-10,373.24	11,060.40	10,892.20	168.20	65.757	
7,521.05	6,950.00	6,985.54	6,985.00	33.35	136.47	-89.65	694.75	-10,373.24	11,081.36	10,913.16	168.20	65.883	
7,600.00	6,949.95	6,985.49	6,984.95	33.72	136.47	-89.65	694.75	-10,373.24	11,159.93	10,991.78	168.14	66.371	
7,700.00	6,949.89	6,985.43	6,984.89	34.24	136.46	-89.64	694.75	-10,373.24	11,259.46	11,091.38	168.08	66.989	
7,800.00	6,949.83	6,985.37	6,984.83	34.84	136.46	-89.64	694.75	-10,373.24	11,358.99	11,190.98	168.02	67.606	
7,900.00	6,949.77	6,985.31	6,984.77	35.50	136.46	-89.64	694.75	-10,373.24	11,458.54	11,290.58	167.96	68.223	
8,000.00	6,949.71	6,985.25	6,984.71	36.23	136.46	-89.63	694.75	-10,373.24	11,558.09	11,390.19	167.90	68.839	
8,100.00	6,949.65	6,985.19	6,984.65	37.02	136.46	-89.63	694.75	-10,373.24	11,657.65	11,489.81	167.85	69.455	
8,200.00	6,949.59	6,985.13	6,984.59	37.85	136.46	-89.63	694.75	-10,373.24	11,757.22	11,589.43	167.79	70.070	
8,300.00	6,949.53	6,985.07	6,984.53	38.74	136.46	-89.63	694.75	-10,373.24	11,856.80	11,689.05	167.74	70.684	
8,400.00	6,949.47	6,985.01	6,984.47	39.68	136.46	-89.62	694.75	-10,373.24	11,956.38	11,788.68	167.69	71.298	
8,500.00	6,949.41	6,984.95	6,984.41	40.66	136.45	-89.62	694.75	-10,373.24	12,055.97	11,888.32	167.65	71.912	
8,600.00	6,949.35	6,984.89	6,984.35	41.67	136.45	-89.62	694.75	-10,373.24	12,155.56	11,987.96	167.61	72.525	
8,700.00	6,949.29	6,984.83	6,984.29	42.73	136.45	-89.61	694.75	-10,373.24	12,255.17	12,087.60	167.56	73.137	
8,800.00	6,949.23	6,984.77	6,984.23	43.82	136.45	-89.61	694.75	-10,373.24	12,354.78	12,187.25	167.52	73.749	
8,900.00	6,949.17	6,984.71	6,984.17	44.94	136.45	-89.61	694.75	-10,373.24	12,454.39	12,286.91	167.49	74.361	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 067 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		328-A027Ua_INC-ONLY						Rule Assigned:		Offset Well Error:		0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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	Warning	
9,000.00	6,949.11	6,984.65	6,984.11	46.09	136.45	89.60	694.75	-10,373.24	12,554.01	12,386.56	167.45	74.971		
9,100.00	6,949.05	6,984.59	6,984.05	47.26	136.45	89.60	694.75	-10,373.24	12,653.64	12,486.22	167.42	75.582		
9,200.00	6,948.99	6,984.53	6,983.99	48.46	136.45	89.60	694.75	-10,373.24	12,753.28	12,585.89	167.39	76.191		
9,300.00	6,948.93	6,984.47	6,983.93	49.68	136.44	89.59	694.75	-10,373.24	12,852.91	12,685.56	167.36	76.800		
9,400.00	6,948.87	6,984.41	6,983.87	50.93	136.44	89.59	694.75	-10,373.24	12,952.56	12,785.23	167.33	77.408		
9,500.00	6,948.81	6,984.35	6,983.81	52.19	136.44	89.59	694.75	-10,373.24	13,052.21	12,884.91	167.30	78.016		
9,600.00	6,948.75	6,984.29	6,983.75	53.47	136.44	89.58	694.75	-10,373.24	13,151.86	12,984.59	167.28	78.623		
9,700.00	6,948.69	6,984.23	6,983.69	54.77	136.44	89.58	694.75	-10,373.24	13,251.52	13,084.27	167.25	79.230		
9,800.00	6,948.63	6,984.17	6,983.63	56.08	136.44	89.58	694.75	-10,373.24	13,351.19	13,183.96	167.23	79.836		
9,900.00	6,948.57	6,984.11	6,983.57	57.41	136.44	89.57	694.75	-10,373.24	13,450.86	13,283.65	167.21	80.441		
10,000.00	6,948.51	6,984.05	6,983.51	58.76	136.44	89.57	694.75	-10,373.24	13,550.54	13,383.34	167.20	81.045		
10,100.00	6,948.45	6,983.99	6,983.45	60.11	136.43	89.57	694.75	-10,373.24	13,650.22	13,483.04	167.18	81.649		
10,200.00	6,948.39	6,983.93	6,983.39	61.48	136.43	89.56	694.75	-10,373.24	13,749.90	13,582.73	167.17	82.252		
10,300.00	6,948.33	6,983.87	6,983.33	62.86	136.43	89.56	694.75	-10,373.24	13,849.59	13,682.44	167.15	82.855		
10,400.00	6,948.27	6,983.80	6,983.27	64.24	136.43	89.56	694.75	-10,373.24	13,949.29	13,782.14	167.14	83.457		
10,500.00	6,948.21	6,983.74	6,983.21	65.64	136.43	89.56	694.75	-10,373.24	14,048.98	13,881.85	167.13	84.058		
10,600.00	6,948.15	6,983.68	6,983.15	67.05	136.43	89.55	694.75	-10,373.24	14,148.69	13,981.56	167.13	84.658		
10,700.00	6,948.09	6,983.62	6,983.09	68.47	136.43	89.55	694.75	-10,373.24	14,248.39	14,081.27	167.12	85.258		
10,800.00	6,948.03	6,983.56	6,983.03	69.89	136.43	89.55	694.75	-10,373.24	14,348.10	14,180.99	167.12	85.857		
10,900.00	6,947.97	6,983.50	6,982.97	71.32	136.42	89.54	694.75	-10,373.24	14,447.82	14,280.71	167.11	86.456		
11,000.00	6,947.91	6,983.44	6,982.91	72.76	136.42	89.54	694.75	-10,373.24	14,547.54	14,380.43	167.11	87.053		
11,100.00	6,947.85	6,983.38	6,982.85	74.21	136.42	89.54	694.75	-10,373.24	14,647.26	14,480.15	167.11	87.650		
11,200.00	6,947.79	6,983.32	6,982.79	75.66	136.42	89.53	694.75	-10,373.24	14,746.99	14,579.87	167.11	88.246		
11,300.00	6,947.73	6,983.26	6,982.73	77.12	136.42	89.53	694.75	-10,373.24	14,846.72	14,679.60	167.11	88.842		
11,400.00	6,947.66	6,983.20	6,982.66	78.58	136.42	89.53	694.75	-10,373.24	14,946.45	14,779.33	167.12	89.436		
11,500.00	6,947.60	6,983.14	6,982.60	80.05	136.42	89.52	694.75	-10,373.24	15,046.19	14,879.06	167.12	90.030		
11,600.00	6,947.54	6,983.08	6,982.54	81.52	136.42	89.52	694.75	-10,373.24	15,145.93	14,978.80	167.13	90.623		
11,700.00	6,947.48	6,983.02	6,982.48	83.00	136.41	89.52	694.75	-10,373.24	15,245.67	15,078.53	167.14	91.216		
11,800.00	6,947.42	6,982.96	6,982.42	84.48	136.41	89.51	694.75	-10,373.24	15,345.42	15,178.27	167.15	91.807		
11,900.00	6,947.36	6,982.90	6,982.36	85.97	136.41	89.51	694.75	-10,373.24	15,445.17	15,278.01	167.16	92.398		
12,000.00	6,947.30	6,982.84	6,982.30	87.46	136.41	89.51	694.75	-10,373.24	15,544.92	15,377.75	167.17	92.988		
12,100.00	6,947.24	6,982.78	6,982.24	88.96	136.41	89.50	694.75	-10,373.24	15,644.68	15,477.49	167.18	93.577		
12,200.00	6,947.18	6,982.72	6,982.18	90.46	136.41	89.50	694.75	-10,373.24	15,744.44	15,577.24	167.20	94.166		
12,300.00	6,947.12	6,982.66	6,982.12	91.96	136.41	89.50	694.75	-10,373.24	15,844.20	15,676.99	167.21	94.754		
12,400.00	6,947.06	6,982.60	6,982.06	93.47	136.40	89.50	694.75	-10,373.24	15,943.97	15,776.74	167.23	95.341		
12,500.00	6,947.00	6,982.54	6,982.00	94.97	136.40	89.49	694.75	-10,373.24	16,043.74	15,876.49	167.25	95.927		
12,600.00	6,946.94	6,982.48	6,981.94	96.49	136.40	89.49	694.75	-10,373.24	16,143.51	15,976.24	167.27	96.512		
12,700.00	6,946.88	6,982.42	6,981.88	98.00	136.40	89.49	694.75	-10,373.24	16,243.28	16,075.99	167.29	97.096		
12,800.00	6,946.82	6,982.36	6,981.82	99.52	136.40	89.48	694.75	-10,373.24	16,343.06	16,175.75	167.31	97.680		
12,900.00	6,946.76	6,982.30	6,981.76	101.04	136.40	89.48	694.75	-10,373.24	16,442.84	16,275.50	167.34	98.263		
13,000.00	6,946.70	6,982.24	6,981.70	102.56	136.40	89.48	694.75	-10,373.24	16,542.62	16,375.26	167.36	98.845		
13,100.00	6,946.64	6,982.18	6,981.64	104.09	136.40	89.47	694.75	-10,373.24	16,642.41	16,475.02	167.39	99.426		
13,200.00	6,946.58	6,982.12	6,981.58	105.61	136.39	89.47	694.75	-10,373.24	16,742.20	16,574.78	167.41	100.006		
13,300.00	6,946.52	6,982.06	6,981.52	107.14	136.39	89.47	694.75	-10,373.24	16,841.99	16,674.55	167.44	100.586		
13,400.00	6,946.46	6,982.00	6,981.46	108.67	136.39	89.46	694.75	-10,373.24	16,941.78	16,774.31	167.47	101.164		
13,500.00	6,946.40	6,981.94	6,981.40	110.21	136.39	89.46	694.75	-10,373.24	17,041.57	16,874.08	167.50	101.742		
13,600.00	6,946.34	6,981.88	6,981.34	111.74	136.39	89.46	694.75	-10,373.24	17,141.37	16,973.84	167.53	102.319		
13,700.00	6,946.28	6,981.82	6,981.28	113.28	136.39	89.45	694.75	-10,373.24	17,241.17	17,073.61	167.56	102.895		
13,800.00	6,946.22	6,981.76	6,981.22	114.82	136.39	89.45	694.75	-10,373.24	17,340.97	17,173.38	167.59	103.470		
13,900.00	6,946.16	6,981.70	6,981.16	116.36	136.39	89.45	694.75	-10,373.24	17,440.78	17,273.15	167.63	104.044		
14,000.00	6,946.10	6,981.64	6,981.10	117.90	136.38	89.44	694.75	-10,373.24	17,540.59	17,372.92	167.66	104.618		
14,100.00	6,946.04	6,981.58	6,981.04	119.45	136.38	89.44	694.75	-10,373.24	17,640.39	17,472.69	167.70	105.190		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 067 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		328-A027Ua_INC-ONLY						Rule Assigned:				Offset Well Error:	0.00 usft
Measured Depth	Vertical	Measured	Vertical	Semi Major Axis	Offset	Highside	Offset Wellbore Centre		Distance		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)	Minimum Separation (usft)		
14,200.00	6,945.98	6,981.52	6,980.98	120.99	136.38	89.44	694.75	-10,373.24	17,740.21	17,572.47	167.74	105.762	
14,300.00	6,945.92	6,981.46	6,980.92	122.54	136.38	89.43	694.75	-10,373.24	17,840.02	17,672.24	167.78	106.333	
14,400.00	6,945.86	6,981.40	6,980.86	124.09	136.38	89.43	694.75	-10,373.24	17,939.83	17,772.02	167.81	106.903	
14,500.00	6,945.80	6,981.34	6,980.80	125.64	136.38	89.43	694.75	-10,373.24	18,039.65	17,871.80	167.85	107.472	
14,600.00	6,945.74	6,981.28	6,980.74	127.19	136.38	89.43	694.75	-10,373.24	18,139.47	17,971.58	167.90	108.040	
14,700.00	6,945.68	6,981.22	6,980.68	128.74	136.38	89.42	694.75	-10,373.24	18,239.29	18,071.35	167.94	108.607	
14,800.00	6,945.62	6,981.16	6,980.62	130.30	136.37	89.42	694.75	-10,373.24	18,339.12	18,171.13	167.98	109.174	
14,900.00	6,945.56	6,981.10	6,980.56	131.85	136.37	89.42	694.75	-10,373.24	18,438.94	18,270.92	168.03	109.739	
15,000.00	6,945.50	6,981.04	6,980.50	133.41	136.37	89.41	694.75	-10,373.24	18,538.77	18,370.70	168.07	110.304	
15,100.00	6,945.44	6,980.98	6,980.44	134.96	136.37	89.41	694.75	-10,373.24	18,638.60	18,470.48	168.12	110.867	
15,200.00	6,945.38	6,980.92	6,980.38	136.52	136.37	89.41	694.75	-10,373.24	18,738.43	18,570.26	168.16	111.430	
15,300.00	6,945.32	6,980.85	6,980.32	138.08	136.37	89.40	694.75	-10,373.24	18,838.26	18,670.05	168.21	111.992	
15,400.00	6,945.26	6,980.79	6,980.26	139.64	136.37	89.40	694.75	-10,373.24	18,938.09	18,769.84	168.26	112.553	
15,500.00	6,945.20	6,980.73	6,980.20	141.20	136.37	89.40	694.75	-10,373.24	19,037.93	18,869.62	168.31	113.113	
15,600.00	6,945.14	6,980.67	6,980.14	142.76	136.36	89.39	694.75	-10,373.24	19,137.77	18,969.41	168.36	113.672	
15,700.00	6,945.08	6,980.61	6,980.08	144.33	136.36	89.39	694.75	-10,373.24	19,237.61	19,069.20	168.41	114.230	
15,800.00	6,945.02	6,980.55	6,980.02	145.89	136.36	89.39	694.75	-10,373.24	19,337.45	19,168.99	168.46	114.788	
15,900.00	6,944.96	6,980.49	6,979.96	147.46	136.36	89.38	694.75	-10,373.24	19,437.29	19,268.78	168.52	115.344	
16,000.00	6,944.90	6,980.43	6,979.90	149.02	136.36	89.38	694.75	-10,373.24	19,537.14	19,368.57	168.57	115.899	
16,100.00	6,944.84	6,980.37	6,979.84	150.59	136.36	89.38	694.75	-10,373.24	19,636.98	19,468.36	168.62	116.454	
16,200.00	6,944.77	6,980.31	6,979.77	152.15	136.36	89.37	694.75	-10,373.24	19,736.83	19,568.15	168.68	117.007	
16,300.00	6,944.71	6,980.25	6,979.71	153.72	136.36	89.37	694.75	-10,373.24	19,836.68	19,667.94	168.74	117.560	
16,400.00	6,944.65	6,980.19	6,979.65	155.29	136.35	89.37	694.75	-10,373.24	19,936.53	19,767.74	168.79	118.112	
16,500.00	6,944.59	6,980.13	6,979.59	156.86	136.35	89.36	694.75	-10,373.24	20,036.38	19,867.53	168.85	118.663	
16,600.00	6,944.53	6,980.07	6,979.53	158.43	136.35	89.36	694.75	-10,373.24	20,136.23	19,967.32	168.91	119.213	
16,700.00	6,944.47	6,980.01	6,979.47	160.00	136.35	89.36	694.75	-10,373.24	20,236.09	20,067.12	168.97	119.761	
16,800.00	6,944.41	6,979.95	6,979.41	161.57	136.35	89.36	694.75	-10,373.24	20,335.95	20,166.92	169.03	120.309	
16,900.00	6,944.35	6,979.89	6,979.35	163.14	136.35	89.35	694.75	-10,373.24	20,435.80	20,266.71	169.09	120.856	
17,000.00	6,944.29	6,979.83	6,979.29	164.71	136.35	89.35	694.75	-10,373.24	20,535.66	20,366.51	169.15	121.403	
17,100.00	6,944.23	6,979.77	6,979.23	166.29	136.34	89.35	694.75	-10,373.24	20,635.52	20,466.31	169.22	121.948	
17,200.00	6,944.17	6,979.71	6,979.17	167.86	136.34	89.34	694.75	-10,373.24	20,735.39	20,566.11	169.28	122.492	
17,300.00	6,944.11	6,979.65	6,979.11	169.43	136.34	89.34	694.75	-10,373.24	20,835.25	20,665.91	169.34	123.035	
17,400.00	6,944.05	6,979.59	6,979.05	171.01	136.34	89.34	694.75	-10,373.24	20,935.11	20,765.70	169.41	123.578	
17,500.00	6,943.99	6,979.53	6,978.99	172.58	136.34	89.33	694.75	-10,373.24	21,034.98	20,865.50	169.47	124.119	
17,600.00	6,943.93	6,979.47	6,978.93	174.16	136.34	89.33	694.75	-10,373.24	21,134.85	20,965.31	169.54	124.660	
17,700.00	6,943.87	6,979.41	6,978.87	175.73	136.34	89.33	694.75	-10,373.24	21,234.71	21,065.11	169.61	125.199	
17,800.00	6,943.81	6,979.35	6,978.81	177.31	136.34	89.32	694.75	-10,373.24	21,334.58	21,164.91	169.68	125.738	
17,900.00	6,943.75	6,979.29	6,978.75	178.89	136.33	89.32	694.75	-10,373.24	21,434.45	21,264.71	169.74	126.275	
18,000.00	6,943.69	6,979.23	6,978.69	180.46	136.33	89.32	694.75	-10,373.24	21,534.33	21,364.51	169.81	126.812	
18,100.00	6,943.63	6,979.17	6,978.63	182.04	136.33	89.31	694.75	-10,373.24	21,634.20	21,464.32	169.88	127.348	
18,200.00	6,943.57	6,979.11	6,978.57	183.62	136.33	89.31	694.75	-10,373.24	21,734.07	21,564.12	169.95	127.883	
18,300.00	6,943.51	6,979.05	6,978.51	185.20	136.33	89.31	694.75	-10,373.24	21,833.95	21,663.93	170.02	128.417	
18,400.00	6,943.45	6,978.99	6,978.45	186.78	136.33	89.30	694.75	-10,373.24	21,933.83	21,763.73	170.10	128.950	
18,500.00	6,943.39	6,978.93	6,978.39	188.36	136.33	89.30	694.75	-10,373.24	22,033.70	21,863.54	170.17	129.482	
18,600.00	6,943.33	6,978.87	6,978.33	189.94	136.33	89.30	694.75	-10,373.24	22,133.58	21,963.34	170.24	130.013	
18,700.00	6,943.27	6,978.81	6,978.27	191.52	136.32	89.30	694.75	-10,373.24	22,233.46	22,063.15	170.32	130.543	
18,800.00	6,943.21	6,978.75	6,978.21	193.10	136.32	89.29	694.75	-10,373.24	22,333.34	22,162.95	170.39	131.072	
18,900.00	6,943.15	6,978.69	6,978.15	194.68	136.32	89.29	694.75	-10,373.24	22,433.23	22,262.76	170.47	131.600	
19,000.00	6,943.09	6,978.63	6,978.09	196.26	136.32	89.29	694.75	-10,373.24	22,533.11	22,362.57	170.54	132.127	
19,100.00	6,943.03	6,978.57	6,978.03	197.84	136.32	89.28	694.75	-10,373.24	22,632.99	22,462.38	170.62	132.654	
19,200.00	6,942.97	6,978.51	6,977.97	199.42	136.32	89.28	694.75	-10,373.24	22,732.88	22,562.18	170.69	133.179	
19,300.00	6,942.91	6,978.45	6,977.91	201.01	136.32	89.28	694.75	-10,373.24	22,832.76	22,661.99	170.77	133.703	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 067 - OH - OH-INC													Offset Site Error: 0.00 usft
Survey Program: 328-A027Ua_INC-ONLY													Offset Well Error: 0.00 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)			
19,400.00	6,942.85	6,978.39	6,977.85	202.59	136.32	89.27	694.75	-10,373.24	22,932.65	22,761.80	170.85	134.227	
19,500.00	6,942.79	6,978.33	6,977.79	204.17	136.31	89.27	694.75	-10,373.24	23,032.54	22,861.61	170.93	134.749	
19,600.00	6,942.73	6,978.27	6,977.73	205.75	136.31	89.27	694.75	-10,373.24	23,132.43	22,961.42	171.01	135.271	
19,700.00	6,942.67	6,978.21	6,977.67	207.34	136.31	89.26	694.75	-10,373.24	23,232.32	23,061.23	171.09	135.792	
19,800.00	6,942.61	6,978.15	6,977.61	208.92	136.31	89.26	694.75	-10,373.24	23,332.21	23,161.04	171.17	136.311	
19,900.00	6,942.55	6,978.09	6,977.55	210.51	136.31	89.26	694.75	-10,373.24	23,432.10	23,260.85	171.25	136.830	
20,000.00	6,942.49	6,978.03	6,977.49	212.09	136.31	89.25	694.75	-10,373.24	23,531.99	23,360.66	171.33	137.348	
20,100.00	6,942.43	6,977.96	6,977.43	213.68	136.31	89.25	694.75	-10,373.24	23,631.89	23,460.47	171.41	137.865	
20,200.00	6,942.37	6,977.90	6,977.37	215.26	136.31	89.25	694.75	-10,373.24	23,731.78	23,560.29	171.50	138.381	
20,300.00	6,942.31	6,977.84	6,977.31	216.85	136.30	89.24	694.75	-10,373.24	23,831.68	23,660.10	171.58	138.896	
20,400.00	6,942.25	6,977.78	6,977.25	218.43	136.30	89.24	694.75	-10,373.24	23,931.57	23,759.91	171.66	139.410	
20,500.00	6,942.19	6,977.72	6,977.19	220.02	136.30	89.24	694.75	-10,373.24	24,031.47	23,859.72	171.75	139.923	
20,600.00	6,942.13	6,977.66	6,977.13	221.60	136.30	89.23	694.75	-10,373.24	24,131.37	23,959.54	171.83	140.435	
20,700.00	6,942.07	6,977.60	6,977.07	223.19	136.30	89.23	694.75	-10,373.24	24,231.27	24,059.35	171.92	140.946	
20,808.89	6,942.00	6,977.54	6,977.00	224.92	136.30	89.23	694.75	-10,373.24	24,340.05	24,168.03	172.01	141.502	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 068 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 350-A027Ua_INC-ONLY													Offset Well Error:	0.00 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	0.00	0.00	169.41	-1,238.93	231.58	1,260.53					
100.00	100.00	81.00	81.00	0.25	0.80	169.41	-1,238.93	231.58	1,260.39	1,259.34	1.05	1,201.598		
200.00	200.00	181.00	181.00	0.61	1.78	169.41	-1,238.93	231.58	1,260.39	1,258.00	2.39	526.845		
300.00	300.00	281.00	281.00	0.97	2.77	169.41	-1,238.93	231.58	1,260.39	1,256.65	3.74	337.387		
400.00	400.00	381.01	381.00	1.33	4.04	169.41	-1,238.93	231.58	1,260.39	1,255.02	5.36	234.976		
500.00	500.00	481.01	481.00	1.68	5.94	169.41	-1,238.93	231.58	1,260.39	1,252.76	7.63	165.291	CC	
600.00	599.98	580.99	580.98	2.04	7.84	168.20	-1,238.93	231.58	1,262.10	1,252.21	9.89	127.655	ES	
700.00	699.84	678.62	678.61	2.41	9.70	168.22	-1,238.15	231.58	1,266.45	1,254.35	12.11	104.610		
800.00	799.45	775.16	775.14	2.77	11.54	168.26	-1,238.44	231.58	1,275.28	1,260.98	14.31	89.139		
900.00	898.70	879.74	879.70	3.13	13.52	168.33	-1,238.93	231.58	1,287.69	1,271.04	16.65	77.328		
1,000.00	997.47	978.51	978.47	3.50	15.34	168.41	-1,238.93	231.58	1,303.02	1,284.18	18.84	69.166		
1,100.00	1,095.62	1,076.66	1,076.62	3.89	17.15	168.50	-1,238.93	231.58	1,321.73	1,300.71	21.02	62.890		
1,200.00	1,193.06	1,172.74	1,172.70	4.30	18.92	168.60	-1,238.42	231.58	1,343.29	1,320.13	23.16	58.005		
1,245.21	1,236.83	1,215.51	1,215.47	4.48	19.71	168.64	-1,238.48	231.58	1,354.43	1,330.31	24.12	56.159		
1,300.00	1,289.78	1,267.21	1,267.17	4.72	20.66	168.76	-1,238.59	231.58	1,368.38	1,343.11	25.27	54.145		
1,400.00	1,386.42	1,367.48	1,367.42	5.15	22.51	168.97	-1,238.93	231.58	1,393.97	1,366.49	27.49	50.710		
1,500.00	1,483.05	1,464.11	1,464.05	5.59	24.30	169.17	-1,238.93	231.58	1,419.26	1,389.61	29.64	47.876		
1,600.00	1,579.69	1,560.75	1,560.69	6.04	26.08	169.36	-1,238.93	231.58	1,444.56	1,412.76	31.80	45.423		
1,700.00	1,676.32	1,655.76	1,655.70	6.49	27.84	169.54	-1,238.45	231.58	1,469.40	1,435.47	33.93	43.304		
1,800.00	1,772.96	1,749.77	1,749.71	6.94	29.57	169.72	-1,238.64	231.58	1,494.92	1,458.88	36.04	41.474		
1,900.00	1,869.60	1,850.67	1,850.60	7.40	31.43	169.90	-1,238.93	231.58	1,520.54	1,482.25	38.29	39.712		
2,000.00	1,966.23	1,947.31	1,947.23	7.86	33.22	170.07	-1,238.93	231.58	1,545.89	1,505.44	40.45	38.213		
2,100.00	2,062.87	2,043.94	2,043.87	8.33	35.01	170.23	-1,238.93	231.58	1,571.26	1,528.64	42.62	36.865		
2,200.00	2,159.50	2,138.93	2,138.85	8.79	36.76	170.38	-1,238.42	231.58	1,596.13	1,551.37	44.76	35.661		
2,300.00	2,256.14	2,232.91	2,232.83	9.26	38.50	170.53	-1,238.59	231.58	1,621.70	1,574.82	46.88	34.596		
2,400.00	2,352.77	2,333.87	2,333.77	9.73	40.37	170.68	-1,238.93	231.58	1,647.42	1,598.29	49.13	33.530		
2,500.00	2,449.41	2,430.51	2,430.41	10.20	42.26	170.83	-1,238.93	231.58	1,672.83	1,621.42	51.41	32.538		
2,600.00	2,546.05	2,527.14	2,527.05	10.67	44.15	170.96	-1,238.93	231.58	1,698.25	1,644.56	53.69	31.631		
2,700.00	2,642.68	2,622.48	2,622.38	11.14	46.02	171.09	-1,238.40	231.58	1,723.15	1,667.21	55.94	30.802		
2,800.00	2,739.32	2,716.26	2,716.16	11.61	47.86	171.22	-1,238.55	231.58	1,748.74	1,690.57	58.16	30.066		
2,900.00	2,835.95	2,809.96	2,809.86	12.08	49.70	171.34	-1,238.85	231.58	1,774.49	1,714.11	60.38	29.388		
3,000.00	2,932.59	2,913.73	2,913.59	12.55	51.84	171.48	-1,238.93	231.58	1,800.00	1,737.08	62.92	28.608		
3,100.00	3,029.22	3,010.37	3,010.22	13.03	53.86	171.60	-1,238.93	231.58	1,825.46	1,760.14	65.33	27.943		
3,200.00	3,125.86	3,107.00	3,106.86	13.50	55.88	171.71	-1,238.93	231.58	1,850.93	1,783.19	67.73	27.326		
3,300.00	3,222.50	3,203.64	3,203.50	13.97	57.90	171.83	-1,238.93	231.58	1,876.40	1,806.26	70.14	26.751		
3,400.00	3,319.13	3,298.69	3,298.53	14.45	59.89	171.93	-1,237.08	231.58	1,900.04	1,827.53	72.52	26.202		
3,500.00	3,415.77	3,391.70	3,391.53	14.92	61.83	172.03	-1,237.24	231.58	1,925.70	1,850.86	74.84	25.730		
3,600.00	3,512.40	3,484.61	3,484.44	15.40	63.77	172.13	-1,237.59	231.58	1,951.54	1,874.37	77.17	25.290		
3,700.00	3,609.04	3,577.44	3,577.26	15.88	65.72	172.23	-1,238.10	231.58	1,977.58	1,898.08	79.49	24.878		
3,800.00	3,705.67	3,686.95	3,686.67	16.35	68.00	172.35	-1,238.93	231.58	2,003.86	1,921.67	82.19	24.382		
3,900.00	3,802.31	3,783.58	3,783.31	16.83	70.04	172.45	-1,238.93	231.58	2,029.37	1,944.76	84.61	23.986		
4,000.00	3,898.95	3,880.22	3,879.95	17.30	72.07	172.54	-1,238.93	231.58	2,054.88	1,967.85	87.03	23.611		
4,100.00	3,995.58	3,973.91	3,973.63	17.78	74.04	172.63	-1,237.88	231.58	2,079.36	1,989.97	89.39	23.263		
4,200.00	4,092.22	4,063.88	4,063.59	18.26	75.94	172.71	-1,238.15	231.58	2,105.17	2,013.51	91.66	22.967		
4,300.00	4,188.85	4,153.71	4,153.42	18.73	77.83	172.79	-1,238.71	231.58	2,131.29	2,037.37	93.93	22.691		
4,400.00	4,285.49	4,266.84	4,266.49	19.21	80.21	172.89	-1,238.93	231.58	2,156.99	2,060.26	96.73	22.300		
4,500.00	4,382.12	4,363.47	4,363.12	19.69	82.25	172.98	-1,238.93	231.58	2,182.53	2,083.37	99.15	22.011		
4,600.00	4,478.76	4,457.76	4,457.40	20.17	84.24	173.05	-1,237.87	231.58	2,207.02	2,105.49	101.53	21.738		
4,700.00	4,575.40	4,547.33	4,546.97	20.64	86.13	173.13	-1,238.11	231.58	2,232.82	2,129.02	103.80	21.511		
4,800.00	4,672.03	4,636.76	4,636.39	21.12	88.02	173.20	-1,238.63	231.58	2,258.93	2,152.87	106.06	21.298		
4,900.00	4,768.67	4,750.09	4,749.67	21.60	90.41	173.29	-1,238.93	231.58	2,284.72	2,175.85	108.87	20.985		
5,000.00	4,865.30	4,846.73	4,846.30	22.08	92.45	173.37	-1,238.93	231.58	2,310.28	2,198.97	111.31	20.756		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 068 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 350-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)			
5,100.00	4,961.94	4,942.22	4,941.79	22.55	94.47	173.44	-1,237.83	231.58	2,334.74	2,221.02	113.71	20.532	
5,200.00	5,058.57	5,031.64	5,031.20	23.03	96.36	173.50	-1,238.01	231.58	2,360.50	2,244.52	115.98	20.352	
5,300.00	5,155.21	5,120.91	5,120.47	23.51	98.25	173.57	-1,238.46	231.58	2,386.56	2,268.31	118.24	20.183	
5,400.00	5,251.85	5,233.35	5,232.85	23.99	100.63	173.65	-1,238.93	231.58	2,412.54	2,291.50	121.04	19.932	
5,500.00	5,348.48	5,329.98	5,329.48	24.47	102.67	173.72	-1,238.93	231.58	2,438.12	2,314.64	123.48	19.746	
5,600.00	5,445.12	5,426.28	5,425.77	24.94	104.71	173.78	-1,237.88	231.58	2,462.65	2,336.74	125.90	19.560	
5,700.00	5,541.75	5,514.95	5,514.43	25.42	106.59	173.84	-1,238.04	231.58	2,488.40	2,360.24	128.16	19.417	
5,800.00	5,638.39	5,603.47	5,602.95	25.90	108.46	173.90	-1,238.47	231.58	2,514.46	2,384.05	130.41	19.282	
5,900.00	5,735.02	5,716.60	5,716.02	26.38	110.86	173.97	-1,238.93	231.58	2,540.44	2,407.22	133.22	19.069	
6,000.00	5,831.66	5,813.23	5,812.66	26.86	112.91	174.03	-1,238.93	231.58	2,566.03	2,430.37	135.66	18.915	
6,100.00	5,928.30	5,909.87	5,909.30	27.34	114.95	174.09	-1,238.93	231.58	2,591.62	2,453.52	138.10	18.766	
6,200.00	6,024.93	5,999.26	5,998.67	27.82	116.85	174.14	-1,237.93	231.58	2,616.23	2,475.86	140.37	18.638	
6,300.00	6,121.57	6,087.86	6,087.27	28.29	118.72	174.19	-1,238.31	231.58	2,642.24	2,499.62	142.62	18.526	
6,400.00	6,218.20	6,199.85	6,199.20	28.77	121.10	174.26	-1,238.93	231.58	2,668.41	2,523.00	145.42	18.350	
6,500.00	6,314.84	6,296.49	6,295.84	29.25	123.15	174.31	-1,238.93	231.58	2,694.01	2,546.16	147.86	18.220	
6,521.58	6,335.69	6,317.34	6,316.69	29.36	123.59	174.33	-1,238.93	231.58	2,699.54	2,551.16	148.38	18.193	
6,550.00	6,363.15	6,344.80	6,344.15	29.49	124.17	164.18	-1,238.93	231.58	2,706.75	2,557.68	149.08	18.157	
6,600.00	6,411.28	6,392.93	6,392.28	29.73	125.19	147.94	-1,238.93	231.58	2,719.14	2,568.84	150.29	18.092	
6,650.00	6,458.93	6,440.59	6,439.93	29.96	126.20	134.91	-1,238.93	231.58	2,731.08	2,579.58	151.50	18.027	
6,700.00	6,505.83	6,487.48	6,486.83	30.19	127.20	125.05	-1,238.93	231.58	2,742.53	2,589.85	152.69	17.962	
6,750.00	6,551.67	6,532.55	6,531.89	30.42	128.15	117.68	-1,237.41	231.58	2,751.98	2,598.14	153.83	17.889	
6,800.00	6,596.17	6,574.18	6,573.51	30.64	129.04	112.10	-1,237.44	231.58	2,762.47	2,607.57	154.90	17.834	
6,850.00	6,639.06	6,614.28	6,613.61	30.85	129.89	107.82	-1,237.52	231.58	2,772.53	2,616.59	155.93	17.780	
6,900.00	6,680.07	6,652.61	6,651.94	31.05	130.70	104.48	-1,237.62	231.58	2,782.15	2,625.23	156.92	17.729	
6,950.00	6,718.96	6,688.93	6,688.26	31.24	131.47	101.83	-1,237.76	231.58	2,791.38	2,633.51	157.87	17.682	
7,000.00	6,755.47	6,723.03	6,722.35	31.43	132.19	99.69	-1,237.92	231.58	2,800.24	2,641.48	158.77	17.638	
7,050.00	6,789.40	6,754.69	6,754.01	31.61	132.86	97.95	-1,238.09	231.58	2,808.78	2,649.18	159.61	17.598	
7,100.00	6,820.52	6,783.73	6,783.05	31.79	133.48	96.50	-1,238.27	231.58	2,817.04	2,656.65	160.39	17.564	
7,150.00	6,848.64	6,809.96	6,809.28	31.97	134.04	95.27	-1,238.45	231.58	2,825.06	2,663.95	161.11	17.535	
7,200.00	6,873.60	6,833.23	6,832.55	32.14	134.53	94.22	-1,238.63	231.58	2,832.87	2,671.11	161.77	17.512	
7,250.00	6,895.24	6,876.99	6,876.24	32.31	135.46	93.73	-1,238.93	231.58	2,840.56	2,677.65	162.91	17.436	
7,300.00	6,913.42	6,895.17	6,894.42	32.49	135.84	92.94	-1,238.93	231.58	2,847.91	2,684.45	163.46	17.422	
7,350.00	6,928.03	6,909.79	6,909.03	32.67	136.15	92.21	-1,238.93	231.58	2,855.15	2,691.22	163.93	17.417 SF	
7,400.00	6,938.98	6,920.74	6,919.98	32.86	136.39	91.52	-1,238.93	231.58	2,862.31	2,697.99	164.32	17.419	
7,450.00	6,946.22	6,927.97	6,927.22	33.06	136.54	90.87	-1,238.93	231.58	2,869.37	2,704.75	164.62	17.430	
7,500.00	6,949.68	6,931.43	6,930.68	33.26	136.61	90.25	-1,238.93	231.58	2,876.33	2,711.49	164.84	17.449	
7,521.05	6,950.00	6,931.76	6,931.00	33.35	136.62	90.00	-1,238.93	231.58	2,879.23	2,714.32	164.90	17.460	
7,600.00	6,949.95	6,931.71	6,930.95	33.72	136.62	89.99	-1,238.93	231.58	2,891.08	2,725.95	165.13	17.508	
7,700.00	6,949.89	6,931.65	6,930.89	34.24	136.62	89.99	-1,238.93	231.58	2,909.11	2,743.67	165.43	17.585	
7,800.00	6,949.83	6,931.59	6,930.83	34.84	136.62	89.99	-1,238.93	231.58	2,930.44	2,764.68	165.76	17.679	
7,900.00	6,949.77	6,931.53	6,930.77	35.50	136.61	89.99	-1,238.93	231.58	2,955.00	2,788.89	166.10	17.790	
8,000.00	6,949.71	6,931.47	6,930.71	36.23	136.61	89.99	-1,238.93	231.58	2,982.71	2,816.25	166.46	17.919	
8,100.00	6,949.65	6,931.41	6,930.65	37.02	136.61	89.99	-1,238.93	231.58	3,013.49	2,846.67	166.82	18.064	
8,200.00	6,949.59	6,931.35	6,930.59	37.85	136.61	89.99	-1,238.93	231.58	3,047.24	2,880.04	167.20	18.226	
8,300.00	6,949.53	6,931.29	6,930.53	38.74	136.61	89.99	-1,238.93	231.58	3,083.87	2,916.30	167.57	18.403	
8,400.00	6,949.47	6,931.23	6,930.47	39.68	136.61	89.98	-1,238.93	231.58	3,123.26	2,955.32	167.94	18.597	
8,500.00	6,949.41	6,931.17	6,930.41	40.66	136.61	89.98	-1,238.93	231.58	3,165.33	2,997.02	168.32	18.806	
8,600.00	6,949.35	6,931.11	6,930.35	41.67	136.61	89.98	-1,238.93	231.58	3,209.97	3,041.28	168.68	19.030	
8,700.00	6,949.29	6,931.05	6,930.29	42.73	136.60	89.98	-1,238.93	231.58	3,257.06	3,088.02	169.04	19.267	
8,800.00	6,949.23	6,930.99	6,930.23	43.82	136.60	89.98	-1,238.93	231.58	3,306.51	3,137.11	169.40	19.519	
8,900.00	6,949.17	6,930.93	6,930.17	44.94	136.60	89.98	-1,238.93	231.58	3,358.21	3,188.46	169.74	19.784	
9,000.00	6,949.11	6,930.87	6,930.11	46.09	136.60	89.98	-1,238.93	231.58	3,412.05	3,241.97	170.08	20.062	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 068 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		350-A027Ua_INC-ONLY						Rule Assigned:		Offset Well Error:		0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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	Warning	
9,100.00	6,949.05	6,930.81	6,930.05	47.26	136.60	89.98	-1,238.93	231.58	3,467.95	3,297.54	170.40	20.351		
9,200.00	6,948.99	6,930.75	6,929.99	48.46	136.60	89.97	-1,238.93	231.58	3,525.79	3,355.07	170.72	20.653		
9,300.00	6,948.93	6,930.69	6,929.93	49.68	136.60	89.97	-1,238.93	231.58	3,585.49	3,414.47	171.02	20.965		
9,400.00	6,948.87	6,930.63	6,929.87	50.93	136.60	89.97	-1,238.93	231.58	3,646.96	3,475.65	171.31	21.288		
9,500.00	6,948.81	6,930.57	6,929.81	52.19	136.59	89.97	-1,238.93	231.58	3,710.10	3,538.51	171.59	21.622		
9,600.00	6,948.75	6,930.51	6,929.75	53.47	136.59	89.97	-1,238.93	231.58	3,774.84	3,602.98	171.86	21.965		
9,700.00	6,948.69	6,930.45	6,929.69	54.77	136.59	89.97	-1,238.93	231.58	3,841.09	3,668.97	172.12	22.316		
9,800.00	6,948.63	6,930.38	6,929.63	56.08	136.59	89.97	-1,238.93	231.58	3,908.78	3,736.41	172.37	22.677		
9,900.00	6,948.57	6,930.32	6,929.57	57.41	136.59	89.97	-1,238.93	231.58	3,977.82	3,805.22	172.60	23.046		
10,000.00	6,948.51	6,930.26	6,929.51	58.76	136.59	89.97	-1,238.93	231.58	4,048.16	3,875.33	172.83	23.423		
10,100.00	6,948.45	6,930.20	6,929.45	60.11	136.59	89.96	-1,238.93	231.58	4,119.73	3,946.68	173.05	23.807		
10,200.00	6,948.39	6,930.14	6,929.39	61.48	136.58	89.96	-1,238.93	231.58	4,192.46	4,019.21	173.26	24.198		
10,300.00	6,948.33	6,930.08	6,929.33	62.86	136.58	89.96	-1,238.93	231.58	4,266.30	4,092.84	173.45	24.596		
10,400.00	6,948.27	6,930.02	6,929.27	64.24	136.58	89.96	-1,238.93	231.58	4,341.18	4,167.53	173.64	25.000		
10,500.00	6,948.21	6,929.96	6,929.21	65.64	136.58	89.96	-1,238.93	231.58	4,417.06	4,243.23	173.83	25.411		
10,600.00	6,948.15	6,929.90	6,929.15	67.05	136.58	89.96	-1,238.93	231.58	4,493.88	4,319.88	174.00	25.827		
10,700.00	6,948.09	6,929.84	6,929.09	68.47	136.58	89.96	-1,238.93	231.58	4,571.60	4,397.43	174.17	26.248		
10,800.00	6,948.03	6,929.78	6,929.03	69.89	136.58	89.96	-1,238.93	231.58	4,650.17	4,475.84	174.33	26.675		
10,900.00	6,947.97	6,929.72	6,928.97	71.32	136.58	89.95	-1,238.93	231.58	4,729.55	4,555.06	174.48	27.106		
11,000.00	6,947.91	6,929.66	6,928.91	72.76	136.57	89.95	-1,238.93	231.58	4,809.69	4,635.06	174.63	27.542		
11,100.00	6,947.85	6,929.60	6,928.85	74.21	136.57	89.95	-1,238.93	231.58	4,890.57	4,715.80	174.77	27.982		
11,200.00	6,947.79	6,929.54	6,928.79	75.66	136.57	89.95	-1,238.93	231.58	4,972.15	4,797.24	174.91	28.427		
11,300.00	6,947.73	6,929.48	6,928.73	77.12	136.57	89.95	-1,238.93	231.58	5,054.39	4,879.34	175.04	28.875		
11,400.00	6,947.66	6,929.42	6,928.66	78.58	136.57	89.95	-1,238.93	231.58	5,137.25	4,962.08	175.17	29.328		
11,500.00	6,947.60	6,929.36	6,928.60	80.05	136.57	89.95	-1,238.93	231.58	5,220.72	5,045.43	175.29	29.783		
11,600.00	6,947.54	6,929.30	6,928.54	81.52	136.57	89.95	-1,238.93	231.58	5,304.76	5,129.35	175.41	30.242		
11,700.00	6,947.48	6,929.24	6,928.48	83.00	136.57	89.94	-1,238.93	231.58	5,389.34	5,213.82	175.52	30.705		
11,800.00	6,947.42	6,929.18	6,928.42	84.48	136.56	89.94	-1,238.93	231.58	5,474.45	5,298.82	175.63	31.170		
11,900.00	6,947.36	6,929.12	6,928.36	85.97	136.56	89.94	-1,238.93	231.58	5,560.05	5,384.31	175.74	31.638		
12,000.00	6,947.30	6,929.06	6,928.30	87.46	136.56	89.94	-1,238.93	231.58	5,646.12	5,470.28	175.84	32.109		
12,100.00	6,947.24	6,929.00	6,928.24	88.96	136.56	89.94	-1,238.93	231.58	5,732.65	5,556.70	175.94	32.583		
12,200.00	6,947.18	6,928.94	6,928.18	90.46	136.56	89.94	-1,238.93	231.58	5,819.60	5,643.56	176.04	33.058		
12,300.00	6,947.12	6,928.88	6,928.12	91.96	136.56	89.94	-1,238.93	231.58	5,906.97	5,730.84	176.13	33.537		
12,400.00	6,947.06	6,928.82	6,928.06	93.47	136.56	89.94	-1,238.93	231.58	5,994.74	5,818.51	176.23	34.017		
12,500.00	6,947.00	6,928.76	6,928.00	94.97	136.56	89.94	-1,238.93	231.58	6,082.88	5,906.57	176.32	34.500		
12,600.00	6,946.94	6,928.70	6,927.94	96.49	136.55	89.93	-1,238.93	231.58	6,171.39	5,994.98	176.40	34.984		
12,700.00	6,946.88	6,928.64	6,927.88	98.00	136.55	89.93	-1,238.93	231.58	6,260.24	6,083.75	176.49	35.471		
12,800.00	6,946.82	6,928.58	6,927.82	99.52	136.55	89.93	-1,238.93	231.58	6,349.42	6,172.85	176.57	35.959		
12,900.00	6,946.76	6,928.52	6,927.76	101.04	136.55	89.93	-1,238.93	231.58	6,438.92	6,262.26	176.65	36.449		
13,000.00	6,946.70	6,928.46	6,927.70	102.56	136.55	89.93	-1,238.93	231.58	6,528.72	6,351.99	176.73	36.941		
13,100.00	6,946.64	6,928.40	6,927.64	104.09	136.55	89.93	-1,238.93	231.58	6,618.82	6,442.01	176.81	37.434		
13,200.00	6,946.58	6,928.34	6,927.58	105.61	136.55	89.93	-1,238.93	231.58	6,709.20	6,532.31	176.89	37.929		
13,300.00	6,946.52	6,928.28	6,927.52	107.14	136.55	89.93	-1,238.93	231.58	6,799.84	6,622.88	176.97	38.425		
13,400.00	6,946.46	6,928.22	6,927.46	108.67	136.54	89.92	-1,238.93	231.58	6,890.75	6,713.71	177.04	38.922		
13,500.00	6,946.40	6,928.16	6,927.40	110.21	136.54	89.92	-1,238.93	231.58	6,981.90	6,804.79	177.11	39.420		
13,600.00	6,946.34	6,928.10	6,927.34	111.74	136.54	89.92	-1,238.93	231.58	7,073.30	6,896.11	177.19	39.920		
13,700.00	6,946.28	6,928.04	6,927.28	113.28	136.54	89.92	-1,238.93	231.58	7,164.92	6,987.66	177.26	40.421		
13,800.00	6,946.22	6,927.98	6,927.22	114.82	136.54	89.92	-1,238.93	231.58	7,256.77	7,079.44	177.33	40.923		
13,900.00	6,946.16	6,927.92	6,927.16	116.36	136.54	89.92	-1,238.93	231.58	7,348.82	7,171.42	177.40	41.426		
14,000.00	6,946.10	6,927.86	6,927.10	117.90	136.54	89.92	-1,238.93	231.58	7,441.08	7,263.62	177.47	41.929		
14,100.00	6,946.04	6,927.80	6,927.04	119.45	136.54	89.92	-1,238.93	231.58	7,533.54	7,356.01	177.53	42.434		
14,200.00	6,945.98	6,927.74	6,926.98	120.99	136.53	89.91	-1,238.93	231.58	7,626.20	7,448.59	177.60	42.940		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 068 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		350-A027Ua_INC-ONLY				Offset			Semi Major Axis		Rule Assigned:		Offset Well Error:	0.00 usft
Reference	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore Centre		Distance				Warning	
Measured Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	(usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	6,945.92	6,927.68	6,926.92	122.54	136.53	89.91	-1,238.93	231.58	7,719.03	7,541.36	177.67	43.446		
14,400.00	6,945.86	6,927.62	6,926.86	124.09	136.53	89.91	-1,238.93	231.58	7,812.04	7,634.30	177.74	43.953		
14,500.00	6,945.80	6,927.56	6,926.80	125.64	136.53	89.91	-1,238.93	231.58	7,905.22	7,727.42	177.80	44.461		
14,600.00	6,945.74	6,927.49	6,926.74	127.19	136.53	89.91	-1,238.93	231.58	7,998.57	7,820.70	177.87	44.969		
14,700.00	6,945.68	6,927.43	6,926.68	128.74	136.53	89.91	-1,238.93	231.58	8,092.07	7,914.14	177.93	45.479		
14,800.00	6,945.62	6,927.37	6,926.62	130.30	136.53	89.91	-1,238.93	231.58	8,185.73	8,007.73	178.00	45.988		
14,900.00	6,945.56	6,927.31	6,926.56	131.85	136.52	89.91	-1,238.93	231.58	8,279.54	8,101.48	178.06	46.498		
15,000.00	6,945.50	6,927.25	6,926.50	133.41	136.52	89.90	-1,238.93	231.58	8,373.49	8,195.36	178.12	47.009		
15,100.00	6,945.44	6,927.19	6,926.44	134.96	136.52	89.90	-1,238.93	231.58	8,467.57	8,289.39	178.19	47.520		
15,200.00	6,945.38	6,927.13	6,926.38	136.52	136.52	89.90	-1,238.93	231.58	8,561.80	8,383.55	178.25	48.032		
15,300.00	6,945.32	6,927.07	6,926.32	138.08	136.52	89.90	-1,238.93	231.58	8,656.15	8,477.84	178.31	48.544		
15,400.00	6,945.26	6,927.01	6,926.26	139.64	136.52	89.90	-1,238.93	231.58	8,750.63	8,572.25	178.38	49.057		
15,500.00	6,945.20	6,926.95	6,926.20	141.20	136.52	89.90	-1,238.93	231.58	8,845.23	8,666.79	178.44	49.569		
15,600.00	6,945.14	6,926.89	6,926.14	142.76	136.52	89.90	-1,238.93	231.58	8,939.94	8,761.44	178.50	50.083		
15,700.00	6,945.08	6,926.83	6,926.08	144.33	136.51	89.90	-1,238.93	231.58	9,034.77	8,856.21	178.57	50.596		
15,800.00	6,945.02	6,926.77	6,926.02	145.89	136.51	89.90	-1,238.93	231.58	9,129.71	8,951.09	178.63	51.110		
15,900.00	6,944.96	6,926.71	6,925.96	147.46	136.51	89.89	-1,238.93	231.58	9,224.76	9,046.07	178.69	51.624		
16,000.00	6,944.90	6,926.65	6,925.90	149.02	136.51	89.89	-1,238.93	231.58	9,319.91	9,141.16	178.76	52.138		
16,100.00	6,944.84	6,926.59	6,925.84	150.59	136.51	89.89	-1,238.93	231.58	9,415.17	9,236.35	178.82	52.652		
16,200.00	6,944.77	6,926.53	6,925.77	152.15	136.51	89.89	-1,238.93	231.58	9,510.52	9,331.63	178.88	53.167		
16,300.00	6,944.71	6,926.47	6,925.71	153.72	136.51	89.89	-1,238.93	231.58	9,605.96	9,427.02	178.94	53.682		
16,400.00	6,944.65	6,926.41	6,925.65	155.29	136.51	89.89	-1,238.93	231.58	9,701.50	9,522.49	179.01	54.196		
16,500.00	6,944.59	6,926.35	6,925.59	156.86	136.50	89.89	-1,238.93	231.58	9,797.12	9,618.05	179.07	54.711		
16,600.00	6,944.53	6,926.29	6,925.53	158.43	136.50	89.89	-1,238.93	231.58	9,892.83	9,713.70	179.13	55.226		
16,700.00	6,944.47	6,926.23	6,925.47	160.00	136.50	89.88	-1,238.93	231.58	9,988.63	9,809.43	179.20	55.741		
16,800.00	6,944.41	6,926.17	6,925.41	161.57	136.50	89.88	-1,238.93	231.58	10,084.50	9,905.25	179.26	56.257		
16,900.00	6,944.35	6,926.11	6,925.35	163.14	136.50	89.88	-1,238.93	231.58	10,180.46	10,001.14	179.32	56.772		
17,000.00	6,944.29	6,926.05	6,925.29	164.71	136.50	89.88	-1,238.93	231.58	10,276.49	10,097.11	179.39	57.287		
17,100.00	6,944.23	6,925.99	6,925.23	166.29	136.50	89.88	-1,238.93	231.58	10,372.60	10,193.15	179.45	57.802		
17,200.00	6,944.17	6,925.93	6,925.17	167.86	136.50	89.88	-1,238.93	231.58	10,468.78	10,289.27	179.51	58.317		
17,300.00	6,944.11	6,925.87	6,925.11	169.43	136.49	89.88	-1,238.93	231.58	10,565.04	10,385.46	179.58	58.833		
17,400.00	6,944.05	6,925.81	6,925.05	171.01	136.49	89.88	-1,238.93	231.58	10,661.36	10,481.72	179.64	59.348		
17,500.00	6,943.99	6,925.75	6,924.99	172.58	136.49	89.87	-1,238.93	231.58	10,757.75	10,578.04	179.71	59.863		
17,600.00	6,943.93	6,925.69	6,924.93	174.16	136.49	89.87	-1,238.93	231.58	10,854.20	10,674.43	179.77	60.378		
17,700.00	6,943.87	6,925.63	6,924.87	175.73	136.49	89.87	-1,238.93	231.58	10,950.72	10,770.88	179.84	60.893		
17,800.00	6,943.81	6,925.57	6,924.81	177.31	136.49	89.87	-1,238.93	231.58	11,047.30	10,867.39	179.90	61.408		
17,900.00	6,943.75	6,925.51	6,924.75	178.89	136.49	89.87	-1,238.93	231.58	11,143.94	10,963.97	179.97	61.922		
18,000.00	6,943.69	6,925.45	6,924.69	180.46	136.49	89.87	-1,238.93	231.58	11,240.63	11,060.60	180.03	62.437		
18,100.00	6,943.63	6,925.39	6,924.63	182.04	136.48	89.87	-1,238.93	231.58	11,337.39	11,157.29	180.10	62.951		
18,200.00	6,943.57	6,925.33	6,924.57	183.62	136.48	89.87	-1,238.93	231.58	11,434.20	11,254.04	180.16	63.465		
18,300.00	6,943.51	6,925.27	6,924.51	185.20	136.48	89.86	-1,238.93	231.58	11,531.07	11,350.84	180.23	63.980		
18,400.00	6,943.45	6,925.21	6,924.45	186.78	136.48	89.86	-1,238.93	231.58	11,627.99	11,447.69	180.30	64.493		
18,500.00	6,943.39	6,925.15	6,924.39	188.36	136.48	89.86	-1,238.93	231.58	11,724.96	11,544.59	180.36	65.007		
18,600.00	6,943.33	6,925.09	6,924.33	189.94	136.48	89.86	-1,238.93	231.58	11,821.98	11,641.55	180.43	65.521		
18,700.00	6,943.27	6,925.03	6,924.27	191.52	136.48	89.86	-1,238.93	231.58	11,919.05	11,738.55	180.50	66.034		
18,800.00	6,943.21	6,924.97	6,924.21	193.10	136.48	89.86	-1,238.93	231.58	12,016.17	11,835.60	180.57	66.547		
18,900.00	6,943.15	6,924.91	6,924.15	194.68	136.47	89.86	-1,238.93	231.58	12,113.33	11,932.70	180.63	67.060		
19,000.00	6,943.09	6,924.85	6,924.09	196.26	136.47	89.86	-1,238.93	231.58	12,210.54	12,029.84	180.70	67.573		
19,100.00	6,943.03	6,924.79	6,924.03	197.84	136.47	89.86	-1,238.93	231.58	12,307.80	12,127.03	180.77	68.085		
19,200.00	6,942.97	6,924.73	6,923.97	199.42	136.47	89.85	-1,238.93	231.58	12,405.10	12,224.26	180.84	68.597		
19,300.00	6,942.91	6,924.67	6,923.91	201.01	136.47	89.85	-1,238.93	231.58	12,502.44	12,321.53	180.91	69.109		
19,400.00	6,942.85	6,924.61	6,923.85	202.59	136.47	89.85	-1,238.93	231.58	12,599.82	12,418.85	180.98	69.620		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 068 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 350-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
19,500.00	6,942.79	6,924.54	6,923.79	204.17	136.47	89.85	-1,238.93	231.58	12,697.25	12,516.20	181.05	70.132
19,600.00	6,942.73	6,924.48	6,923.73	205.75	136.46	89.85	-1,238.93	231.58	12,794.71	12,613.59	181.12	70.643
19,700.00	6,942.67	6,924.42	6,923.67	207.34	136.46	89.85	-1,238.93	231.58	12,892.22	12,711.03	181.19	71.153
19,800.00	6,942.61	6,924.36	6,923.61	208.92	136.46	89.85	-1,238.93	231.58	12,989.76	12,808.50	181.26	71.664
19,900.00	6,942.55	6,924.30	6,923.55	210.51	136.46	89.85	-1,238.93	231.58	13,087.34	12,906.00	181.33	72.174
20,000.00	6,942.49	6,924.24	6,923.49	212.09	136.46	89.84	-1,238.93	231.58	13,184.95	13,003.55	181.40	72.684
20,100.00	6,942.43	6,924.18	6,923.43	213.68	136.46	89.84	-1,238.93	231.58	13,282.60	13,101.13	181.47	73.193
20,200.00	6,942.37	6,924.12	6,923.37	215.26	136.46	89.84	-1,238.93	231.58	13,380.28	13,198.74	181.55	73.702
20,300.00	6,942.31	6,924.06	6,923.31	216.85	136.46	89.84	-1,238.93	231.58	13,478.00	13,296.38	181.62	74.211
20,400.00	6,942.25	6,924.00	6,923.25	218.43	136.45	89.84	-1,238.93	231.58	13,575.75	13,394.06	181.69	74.719
20,500.00	6,942.19	6,923.94	6,923.19	220.02	136.45	89.84	-1,238.93	231.58	13,673.54	13,491.78	181.76	75.227
20,600.00	6,942.13	6,923.88	6,923.13	221.60	136.45	89.84	-1,238.93	231.58	13,771.35	13,589.52	181.84	75.735
20,700.00	6,942.07	6,923.82	6,923.07	223.19	136.45	89.84	-1,238.93	231.58	13,869.20	13,687.29	181.91	76.242
20,808.89	6,942.00	6,923.76	6,923.00	224.92	136.45	89.83	-1,238.93	231.58	13,975.78	13,793.79	181.99	76.794

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 119 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 265-A027Ua_INC-ONLY													Offset Well Error:	0.00 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	6.00	6.00	0.00	0.05	-121.91	-2,084.82	-3,348.15	3,944.19					
100.00	100.00	106.00	106.00	0.25	0.94	-121.91	-2,084.82	-3,348.15	3,944.19	3,943.00	1.19	3,314.303		
200.00	200.00	206.00	206.00	0.61	1.82	-121.91	-2,084.82	-3,348.15	3,944.19	3,941.75	2.43	1,620.258		
300.00	300.00	306.00	306.00	0.97	3.09	-121.91	-2,084.82	-3,348.15	3,944.19	3,940.13	4.05	972.919		
346.91	346.91	352.84	352.84	1.14	3.93	-121.91	-2,084.73	-3,348.15	3,944.14	3,939.07	5.07	778.576 CC		
400.00	400.00	403.28	403.28	1.33	4.84	-121.91	-2,084.76	-3,348.15	3,944.16	3,937.99	6.16	639.783		
500.00	500.00	506.00	506.00	1.68	6.69	-121.91	-2,084.82	-3,348.15	3,944.19	3,935.81	8.38	470.934		
600.00	599.98	603.16	603.15	2.04	8.44	-123.13	-2,084.58	-3,348.15	3,945.01	3,934.52	10.49	376.230 ES		
700.00	699.84	705.85	705.84	2.41	10.29	-123.15	-2,084.82	-3,348.15	3,948.01	3,935.31	12.69	311.076		
800.00	799.45	805.46	805.45	2.77	12.05	-123.18	-2,084.82	-3,348.15	3,952.79	3,937.97	14.82	266.795		
900.00	898.70	904.71	904.70	3.13	13.81	-123.21	-2,084.82	-3,348.15	3,959.49	3,942.56	16.94	233.762		
1,000.00	997.47	1,002.35	1,002.34	3.50	15.54	-123.25	-2,084.57	-3,348.15	3,968.00	3,948.97	19.04	208.416		
1,100.00	1,095.62	1,098.71	1,098.70	3.89	17.24	-123.30	-2,084.66	-3,348.15	3,978.66	3,957.53	21.13	188.328		
1,200.00	1,193.06	1,199.07	1,199.06	4.30	19.02	-123.36	-2,084.82	-3,348.15	3,991.34	3,968.03	23.30	171.300		
1,245.21	1,236.83	1,242.85	1,242.83	4.48	19.83	-123.38	-2,084.82	-3,348.15	3,997.68	3,973.39	24.29	164.595		
1,300.00	1,289.78	1,295.80	1,295.78	4.72	20.80	-123.55	-2,084.82	-3,348.15	4,005.64	3,980.15	25.48	157.183		
1,400.00	1,386.42	1,392.43	1,392.42	5.15	22.58	-123.85	-2,084.82	-3,348.15	4,020.24	3,992.57	27.67	145.284		
1,500.00	1,483.05	1,488.18	1,488.17	5.59	24.34	-124.14	-2,084.56	-3,348.15	4,034.82	4,004.97	29.85	135.174		
1,600.00	1,579.69	1,582.93	1,582.91	6.04	26.08	-124.43	-2,084.64	-3,348.15	4,049.69	4,017.68	32.01	126.504		
1,700.00	1,676.32	1,677.64	1,677.62	6.49	27.82	-124.71	-2,084.79	-3,348.15	4,064.71	4,030.54	34.18	118.928		
1,800.00	1,772.96	1,779.00	1,778.96	6.94	29.85	-125.02	-2,084.82	-3,348.15	4,079.78	4,043.14	36.63	111.369		
1,900.00	1,869.60	1,875.63	1,875.60	7.40	31.81	-125.31	-2,084.82	-3,348.15	4,094.93	4,055.90	39.02	104.937		
2,000.00	1,966.23	1,970.65	1,970.61	7.86	33.73	-125.58	-2,084.01	-3,348.15	4,109.71	4,068.33	41.38	99.314		
2,100.00	2,062.87	2,061.60	2,061.55	8.33	35.58	-125.85	-2,084.18	-3,348.15	4,125.17	4,081.52	43.66	94.490		
2,200.00	2,159.50	2,152.43	2,152.38	8.79	37.42	-126.12	-2,084.56	-3,348.15	4,140.87	4,094.94	45.93	90.153		
2,300.00	2,256.14	2,262.25	2,262.14	9.26	39.71	-126.44	-2,084.82	-3,348.15	4,156.57	4,107.92	48.65	85.430		
2,400.00	2,352.77	2,343.16	2,343.03	9.73	41.42	-126.67	-2,084.49	-3,348.15	4,172.07	4,121.27	50.80	82.128		
2,500.00	2,449.41	2,455.56	2,455.41	10.20	43.92	-126.99	-2,084.82	-3,348.15	4,188.00	4,134.26	53.74	77.937		
2,600.00	2,546.05	2,552.20	2,552.05	10.67	46.12	-127.27	-2,084.82	-3,348.15	4,203.86	4,147.49	56.37	74.574		
2,700.00	2,642.68	2,647.32	2,647.16	11.14	48.29	-127.52	-2,083.74	-3,348.15	4,219.17	4,160.20	58.97	71.543		
2,800.00	2,739.32	2,735.92	2,735.76	11.61	50.31	-127.77	-2,083.94	-3,348.15	4,235.35	4,173.92	61.43	68.951		
2,900.00	2,835.95	2,824.39	2,824.22	12.08	52.33	-128.02	-2,084.40	-3,348.15	4,251.81	4,187.93	63.87	66.567		
3,000.00	2,932.59	2,938.88	2,938.59	12.55	54.93	-128.34	-2,084.82	-3,348.15	4,268.27	4,201.36	66.91	63.790		
3,100.00	3,029.22	3,035.52	3,035.22	13.03	57.11	-128.61	-2,084.82	-3,348.15	4,284.61	4,215.08	69.53	61.620		
3,200.00	3,125.86	3,132.16	3,131.86	13.50	59.30	-128.87	-2,084.82	-3,348.15	4,301.04	4,228.89	72.15	59.610		
3,300.00	3,222.50	3,228.79	3,228.50	13.97	61.49	-129.13	-2,084.82	-3,348.15	4,317.56	4,242.79	74.77	57.741		
3,400.00	3,319.13	3,325.43	3,325.13	14.45	63.68	-129.39	-2,084.82	-3,348.15	4,334.17	4,256.78	77.39	56.001		
3,500.00	3,415.77	3,418.97	3,418.61	14.92	65.79	-129.60	-2,081.01	-3,348.15	4,348.45	4,268.50	79.94	54.393		
3,600.00	3,512.40	3,508.09	3,507.72	15.40	67.81	-129.84	-2,081.23	-3,348.15	4,365.37	4,282.98	82.39	52.984		
3,700.00	3,609.04	3,597.09	3,596.71	15.88	69.83	-130.07	-2,081.69	-3,348.15	4,382.56	4,297.72	84.83	51.661		
3,800.00	3,705.67	3,685.97	3,685.57	16.35	71.84	-130.31	-2,082.39	-3,348.15	4,399.99	4,312.72	87.27	50.417		
3,900.00	3,802.31	3,774.74	3,774.31	16.83	73.85	-130.55	-2,083.33	-3,348.15	4,417.69	4,327.98	89.71	49.245		
4,000.00	3,898.95	3,905.49	3,904.95	17.30	76.83	-130.90	-2,084.82	-3,348.15	4,435.66	4,342.52	93.13	47.628		
4,100.00	3,995.58	4,001.53	4,000.98	17.78	79.10	-131.14	-2,084.45	-3,348.15	4,452.62	4,356.79	95.83	46.464		
4,200.00	4,092.22	4,084.10	4,083.55	18.26	81.05	-131.35	-2,084.67	-3,348.15	4,470.08	4,371.88	98.20	45.519		
4,300.00	4,188.85	4,192.56	4,191.89	18.73	84.17	-131.62	-2,084.66	-3,348.15	4,487.42	4,385.66	101.76	44.098		
4,400.00	4,285.49	4,292.32	4,291.49	19.21	87.63	-131.87	-2,084.82	-3,348.15	4,504.98	4,399.34	105.64	42.643		
4,500.00	4,382.12	4,389.08	4,388.12	19.69	91.03	-132.11	-2,084.82	-3,348.15	4,522.51	4,413.04	109.47	41.311		
4,600.00	4,478.76	4,485.86	4,484.76	20.17	94.64	-132.35	-2,084.82	-3,348.15	4,540.12	4,426.61	113.51	39.998		
4,700.00	4,575.40	4,582.67	4,581.40	20.64	98.39	-132.58	-2,084.82	-3,348.15	4,557.80	4,440.12	117.69	38.728		
4,800.00	4,672.03	4,667.79	4,666.42	21.12	101.76	-132.78	-2,084.43	-3,348.15	4,575.32	4,453.84	121.48	37.663		
4,900.00	4,768.67	4,776.32	4,774.67	21.60	106.49	-133.04	-2,084.82	-3,348.15	4,593.40	4,466.76	126.64	36.270		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 119 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		265-A027Ua_INC-ONLY					Rule Assigned:			Offset Well Error:		0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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	Warning	
5,000.00	4,865.30	4,869.98	4,868.28	22.08	110.36	-133.25	-2,083.26	-3,348.15	4,610.25	4,479.32	130.93	35.211		
5,100.00	4,961.94	4,923.29	4,921.56	22.55	112.56	-133.38	-2,083.68	-3,348.15	4,628.75	4,495.22	133.53	34.665		
5,200.00	5,058.57	5,066.77	5,064.57	23.03	118.62	-133.73	-2,084.82	-3,348.15	4,647.36	4,507.31	140.05	33.184		
5,300.00	5,155.21	5,163.59	5,161.21	23.51	122.84	-133.95	-2,084.82	-3,348.15	4,665.49	4,520.81	144.68	32.247		
5,400.00	5,251.85	5,248.25	5,245.71	23.99	126.61	-134.14	-2,084.07	-3,348.15	4,683.18	4,534.31	148.87	31.458		
5,500.00	5,348.48	5,354.47	5,351.72	24.47	131.37	-134.38	-2,083.80	-3,348.15	4,701.25	4,547.18	154.06	30.515		
5,600.00	5,445.12	5,454.10	5,451.12	24.94	135.74	-134.62	-2,084.82	-3,348.15	4,720.30	4,561.45	158.85	29.715		
5,700.00	5,541.75	5,518.01	5,514.97	25.42	138.42	-134.75	-2,083.66	-3,348.15	4,738.01	4,576.07	161.93	29.259		
5,800.00	5,638.39	5,629.99	5,626.71	25.90	143.00	-135.00	-2,084.23	-3,348.15	4,756.80	4,589.85	166.95	28.493		
5,900.00	5,735.02	5,736.26	5,732.83	26.38	147.48	-135.24	-2,083.94	-3,348.15	4,775.11	4,603.26	171.86	27.786		
6,000.00	5,831.66	5,841.30	5,837.66	26.86	152.22	-135.48	-2,084.82	-3,348.15	4,794.34	4,617.32	177.02	27.084		
6,100.00	5,928.30	5,938.22	5,934.30	27.34	156.74	-135.69	-2,084.82	-3,348.15	4,813.02	4,631.06	181.96	26.451		
6,200.00	6,024.93	6,011.18	6,007.20	27.82	160.03	-135.83	-2,083.52	-3,348.15	4,830.88	4,645.23	185.65	26.022		
6,300.00	6,121.57	6,131.80	6,127.57	28.29	165.27	-136.11	-2,084.82	-3,348.15	4,850.56	4,659.24	191.32	25.353		
6,400.00	6,218.20	6,185.95	6,181.67	28.77	167.52	-136.21	-2,083.92	-3,348.15	4,868.96	4,675.00	193.96	25.103		
6,500.00	6,314.84	6,316.37	6,311.85	29.25	173.17	-136.49	-2,083.72	-3,348.15	4,887.57	4,687.51	200.06	24.431		
6,521.58	6,335.69	6,325.52	6,321.00	29.36	173.58	-136.51	-2,083.76	-3,348.15	4,891.73	4,691.18	200.54	24.392		
6,550.00	6,363.15	6,337.55	6,333.02	29.49	174.11	-146.44	-2,083.86	-3,348.15	4,897.71	4,696.53	201.18	24.345		
6,600.00	6,411.28	6,422.06	6,417.28	29.73	177.89	-162.63	-2,084.82	-3,348.15	4,910.58	4,705.40	205.19	23.932		
6,650.00	6,458.93	6,444.46	6,439.65	29.96	178.91	-175.82	-2,084.10	-3,348.15	4,924.98	4,718.61	206.37	23.865		
6,700.00	6,505.83	6,516.79	6,511.83	30.19	182.16	173.83	-2,084.82	-3,348.15	4,942.75	4,732.93	209.82	23.558		
6,750.00	6,551.67	6,551.07	6,546.07	30.42	183.68	165.68	-2,083.87	-3,348.15	4,961.73	4,750.24	211.49	23.461		
6,800.00	6,596.17	6,567.34	6,562.34	30.64	184.41	158.96	-2,083.98	-3,348.15	4,983.85	4,771.52	212.33	23.473		
6,850.00	6,639.06	6,650.26	6,645.06	30.85	187.99	153.39	-2,084.82	-3,348.15	5,008.30	4,792.23	216.07	23.179		
6,900.00	6,680.07	6,687.80	6,682.56	31.05	189.57	148.36	-2,083.64	-3,348.15	5,033.43	4,815.67	217.76	23.114		
6,950.00	6,718.96	6,703.79	6,698.54	31.24	190.24	143.57	-2,083.71	-3,348.15	5,061.36	4,842.86	218.51	23.163		
7,000.00	6,755.47	6,766.92	6,761.47	31.43	192.89	139.23	-2,084.82	-3,348.15	5,091.60	4,870.34	221.25	23.012		
7,050.00	6,789.40	6,800.85	6,795.40	31.61	194.24	134.83	-2,084.82	-3,348.15	5,122.63	4,899.97	222.66	23.006 SF		
7,100.00	6,820.52	6,831.97	6,826.52	31.79	195.47	130.39	-2,084.82	-3,348.15	5,155.03	4,931.09	223.94	23.020		
7,150.00	6,848.64	6,849.50	6,844.02	31.97	196.17	125.77	-2,083.82	-3,348.15	5,187.93	4,963.27	224.65	23.093		
7,200.00	6,873.60	6,860.67	6,855.19	32.14	196.61	120.96	-2,083.87	-3,348.15	5,222.62	4,997.53	225.09	23.202		
7,250.00	6,895.24	6,870.34	6,864.85	32.31	197.00	116.00	-2,083.95	-3,348.15	5,258.20	5,032.74	225.46	23.322		
7,300.00	6,913.42	6,925.08	6,919.42	32.49	199.16	111.58	-2,084.82	-3,348.15	5,294.77	5,067.13	227.63	23.260		
7,350.00	6,928.03	6,939.69	6,934.03	32.67	199.70	106.61	-2,084.82	-3,348.15	5,331.30	5,103.15	228.15	23.368		
7,400.00	6,938.98	6,950.65	6,944.98	32.86	200.11	101.63	-2,084.82	-3,348.15	5,368.06	5,139.56	228.51	23.492		
7,450.00	6,946.22	6,957.88	6,952.22	33.06	200.38	96.70	-2,084.82	-3,348.15	5,404.86	5,176.15	228.72	23.631		
7,500.00	6,949.68	6,961.34	6,955.68	33.26	200.51	91.92	-2,084.82	-3,348.15	5,441.49	5,212.72	228.77	23.785		
7,521.05	6,950.00	6,961.67	6,956.00	33.35	200.52	89.96	-2,084.82	-3,348.15	5,456.80	5,228.05	228.75	23.855		
7,600.00	6,949.95	6,961.62	6,955.95	33.72	200.52	89.96	-2,084.82	-3,348.15	5,514.36	5,285.72	228.64	24.119		
7,700.00	6,949.89	6,961.56	6,955.89	34.24	200.52	89.96	-2,084.82	-3,348.15	5,588.01	5,359.50	228.52	24.454		
7,800.00	6,949.83	6,961.50	6,955.83	34.84	200.51	89.96	-2,084.82	-3,348.15	5,662.48	5,434.05	228.42	24.789		
7,900.00	6,949.77	6,961.44	6,955.77	35.50	200.51	89.96	-2,084.82	-3,348.15	5,737.71	5,509.36	228.36	25.126		
8,000.00	6,949.71	6,961.38	6,955.71	36.23	200.51	89.96	-2,084.82	-3,348.15	5,813.70	5,585.39	228.31	25.464		
8,100.00	6,949.65	6,961.32	6,955.65	37.02	200.51	89.96	-2,084.82	-3,348.15	5,890.40	5,662.11	228.29	25.802		
8,200.00	6,949.59	6,961.26	6,955.59	37.85	200.50	89.96	-2,084.82	-3,348.15	5,967.79	5,739.50	228.30	26.141		
8,300.00	6,949.53	6,961.20	6,955.53	38.74	200.50	89.96	-2,084.82	-3,348.15	6,045.85	5,817.53	228.32	26.480		
8,400.00	6,949.47	6,961.14	6,955.47	39.68	200.50	89.96	-2,084.82	-3,348.15	6,124.54	5,896.19	228.36	26.820		
8,500.00	6,949.41	6,961.08	6,955.41	40.66	200.50	89.95	-2,084.82	-3,348.15	6,203.85	5,975.44	228.41	27.161		
8,600.00	6,949.35	6,961.02	6,955.35	41.67	200.50	89.95	-2,084.82	-3,348.15	6,283.75	6,055.26	228.48	27.502		
8,700.00	6,949.29	6,960.96	6,955.29	42.73	200.49	89.95	-2,084.82	-3,348.15	6,364.21	6,135.64	228.57	27.844		
8,800.00	6,949.23	6,960.90	6,955.23	43.82	200.49	89.95	-2,084.82	-3,348.15	6,445.22	6,216.56	228.67	28.186		
8,900.00	6,949.17	6,960.84	6,955.17	44.94	200.49	89.95	-2,084.82	-3,348.15	6,526.76	6,297.99	228.78	28.529		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 119 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		265-A027Ua_INC-ONLY					Rule Assigned:			Offset Well Error:		0.00 usft		
Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset 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)				
9,000.00	6,949.11	6,960.78	6,955.11	46.09	200.49	89.95	-2,084.82	-3,348.15	6,608.81	6,379.91	228.90	28.872		
9,100.00	6,949.05	6,960.71	6,955.05	47.26	200.48	89.95	-2,084.82	-3,348.15	6,691.35	6,462.32	229.03	29.216		
9,200.00	6,948.99	6,960.65	6,954.99	48.46	200.48	89.95	-2,084.82	-3,348.15	6,774.35	6,545.18	229.17	29.561		
9,300.00	6,948.93	6,960.59	6,954.93	49.68	200.48	89.95	-2,084.82	-3,348.15	6,857.81	6,628.50	229.31	29.906		
9,400.00	6,948.87	6,960.53	6,954.87	50.93	200.48	89.95	-2,084.82	-3,348.15	6,941.71	6,712.24	229.47	30.251		
9,500.00	6,948.81	6,960.47	6,954.81	52.19	200.48	89.95	-2,084.82	-3,348.15	7,026.03	6,796.40	229.63	30.597		
9,600.00	6,948.75	6,960.41	6,954.75	53.47	200.47	89.94	-2,084.82	-3,348.15	7,110.75	6,880.95	229.79	30.944		
9,700.00	6,948.69	6,960.35	6,954.69	54.77	200.47	89.94	-2,084.82	-3,348.15	7,195.87	6,965.90	229.97	31.291		
9,800.00	6,948.63	6,960.29	6,954.63	56.08	200.47	89.94	-2,084.82	-3,348.15	7,281.36	7,051.22	230.14	31.639		
9,900.00	6,948.57	6,960.23	6,954.57	57.41	200.47	89.94	-2,084.82	-3,348.15	7,367.22	7,136.90	230.32	31.987		
10,000.00	6,948.51	6,960.17	6,954.51	58.76	200.46	89.94	-2,084.82	-3,348.15	7,453.43	7,222.93	230.50	32.336		
10,100.00	6,948.45	6,960.11	6,954.45	60.11	200.46	89.94	-2,084.82	-3,348.15	7,539.99	7,309.30	230.69	32.685		
10,200.00	6,948.39	6,960.05	6,954.39	61.48	200.46	89.94	-2,084.82	-3,348.15	7,626.87	7,396.00	230.87	33.035		
10,300.00	6,948.33	6,959.99	6,954.33	62.86	200.46	89.94	-2,084.82	-3,348.15	7,714.07	7,483.01	231.06	33.385		
10,400.00	6,948.27	6,959.93	6,954.27	64.24	200.46	89.94	-2,084.82	-3,348.15	7,801.58	7,570.32	231.25	33.736		
10,500.00	6,948.21	6,959.87	6,954.21	65.64	200.45	89.94	-2,084.82	-3,348.15	7,889.38	7,657.94	231.44	34.088		
10,600.00	6,948.15	6,959.81	6,954.15	67.05	200.45	89.94	-2,084.82	-3,348.15	7,977.47	7,745.83	231.64	34.440		
10,700.00	6,948.09	6,959.75	6,954.09	68.47	200.45	89.93	-2,084.82	-3,348.15	8,065.84	7,834.01	231.83	34.792		
10,800.00	6,948.03	6,959.69	6,954.03	69.89	200.45	89.93	-2,084.82	-3,348.15	8,154.48	7,922.45	232.02	35.145		
10,900.00	6,947.97	6,959.63	6,953.97	71.32	200.44	89.93	-2,084.82	-3,348.15	8,243.38	8,011.16	232.22	35.498		
11,000.00	6,947.91	6,959.57	6,953.91	72.76	200.44	89.93	-2,084.82	-3,348.15	8,332.52	8,100.11	232.41	35.852		
11,100.00	6,947.85	6,959.51	6,953.85	74.21	200.44	89.93	-2,084.82	-3,348.15	8,421.92	8,189.31	232.61	36.206		
11,200.00	6,947.79	6,959.45	6,953.79	75.66	200.44	89.93	-2,084.82	-3,348.15	8,511.55	8,278.74	232.80	36.561		
11,300.00	6,947.73	6,959.39	6,953.73	77.12	200.44	89.93	-2,084.82	-3,348.15	8,601.40	8,368.41	233.00	36.917		
11,400.00	6,947.66	6,959.33	6,953.66	78.58	200.43	89.93	-2,084.82	-3,348.15	8,691.48	8,458.29	233.19	37.272		
11,500.00	6,947.60	6,959.27	6,953.60	80.05	200.43	89.93	-2,084.82	-3,348.15	8,781.78	8,548.40	233.38	37.628		
11,600.00	6,947.54	6,959.21	6,953.54	81.52	200.43	89.93	-2,084.82	-3,348.15	8,872.28	8,638.71	233.57	37.985		
11,700.00	6,947.48	6,959.15	6,953.48	83.00	200.43	89.93	-2,084.82	-3,348.15	8,962.98	8,729.22	233.76	38.342		
11,800.00	6,947.42	6,959.09	6,953.42	84.48	200.42	89.92	-2,084.82	-3,348.15	9,053.88	8,819.93	233.96	38.699		
11,900.00	6,947.36	6,959.03	6,953.36	85.97	200.42	89.92	-2,084.82	-3,348.15	9,144.97	8,910.83	234.14	39.057		
12,000.00	6,947.30	6,958.97	6,953.30	87.46	200.42	89.92	-2,084.82	-3,348.15	9,236.25	9,001.91	234.33	39.415		
12,100.00	6,947.24	6,958.91	6,953.24	88.96	200.42	89.92	-2,084.82	-3,348.15	9,327.70	9,093.18	234.52	39.774		
12,200.00	6,947.18	6,958.85	6,953.18	90.46	200.42	89.92	-2,084.82	-3,348.15	9,419.33	9,184.62	234.71	40.132		
12,300.00	6,947.12	6,958.79	6,953.12	91.96	200.41	89.92	-2,084.82	-3,348.15	9,511.12	9,276.23	234.89	40.492		
12,400.00	6,947.06	6,958.73	6,953.06	93.47	200.41	89.92	-2,084.82	-3,348.15	9,603.08	9,368.01	235.07	40.851		
12,500.00	6,947.00	6,958.67	6,953.00	94.97	200.41	89.92	-2,084.82	-3,348.15	9,695.20	9,459.94	235.26	41.211		
12,600.00	6,946.94	6,958.61	6,952.94	96.49	200.41	89.92	-2,084.82	-3,348.15	9,787.47	9,552.04	235.44	41.571		
12,700.00	6,946.88	6,958.55	6,952.88	98.00	200.40	89.92	-2,084.82	-3,348.15	9,879.90	9,644.28	235.62	41.932		
12,800.00	6,946.82	6,958.49	6,952.82	99.52	200.40	89.92	-2,084.82	-3,348.15	9,972.47	9,736.67	235.80	42.293		
12,900.00	6,946.76	6,958.43	6,952.76	101.04	200.40	89.91	-2,084.82	-3,348.15	10,065.18	9,829.20	235.97	42.654		
13,000.00	6,946.70	6,958.37	6,952.70	102.56	200.40	89.91	-2,084.82	-3,348.15	10,158.03	9,921.88	236.15	43.015		
13,100.00	6,946.64	6,958.31	6,952.64	104.09	200.39	89.91	-2,084.82	-3,348.15	10,251.01	10,014.69	236.33	43.377		
13,200.00	6,946.58	6,958.25	6,952.58	105.61	200.39	89.91	-2,084.82	-3,348.15	10,344.13	10,107.63	236.50	43.738		
13,300.00	6,946.52	6,958.19	6,952.52	107.14	200.39	89.91	-2,084.82	-3,348.15	10,437.37	10,200.70	236.67	44.101		
13,400.00	6,946.46	6,958.13	6,952.46	108.67	200.39	89.91	-2,084.82	-3,348.15	10,530.74	10,293.90	236.84	44.463		
13,500.00	6,946.40	6,958.07	6,952.40	110.21	200.39	89.91	-2,084.82	-3,348.15	10,624.23	10,387.21	237.01	44.826		
13,600.00	6,946.34	6,958.01	6,952.34	111.74	200.38	89.91	-2,084.82	-3,348.15	10,717.83	10,480.65	237.18	45.188		
13,700.00	6,946.28	6,957.95	6,952.28	113.28	200.38	89.91	-2,084.82	-3,348.15	10,811.55	10,574.20	237.35	45.551		
13,800.00	6,946.22	6,957.89	6,952.22	114.82	200.38	89.91	-2,084.82	-3,348.15	10,905.38	10,667.87	237.51	45.915		
13,900.00	6,946.16	6,957.83	6,952.16	116.36	200.38	89.91	-2,084.82	-3,348.15	10,999.32	10,761.64	237.68	46.278		
14,000.00	6,946.10	6,957.76	6,952.10	117.90	200.37	89.90	-2,084.82	-3,348.15	11,093.37	10,855.53	237.84	46.641		
14,100.00	6,946.04	6,957.70	6,952.04	119.45	200.37	89.90	-2,084.82	-3,348.15	11,187.52	10,949.51	238.01	47.005		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 119 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 265-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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
14,200.00	6,945.98	6,957.64	6,951.98	120.99	200.37	89.90	-2,084.82	-3,348.15	11,281.77	11,043.60	238.17	47.369
14,300.00	6,945.92	6,957.58	6,951.92	122.54	200.37	89.90	-2,084.82	-3,348.15	11,376.12	11,137.79	238.33	47.733
14,400.00	6,945.86	6,957.52	6,951.86	124.09	200.37	89.90	-2,084.82	-3,348.15	11,470.56	11,232.07	238.49	48.097
14,500.00	6,945.80	6,957.46	6,951.80	125.64	200.36	89.90	-2,084.82	-3,348.15	11,565.10	11,326.45	238.64	48.462
14,600.00	6,945.74	6,957.40	6,951.74	127.19	200.36	89.90	-2,084.82	-3,348.15	11,659.73	11,420.93	238.80	48.826
14,700.00	6,945.68	6,957.34	6,951.68	128.74	200.36	89.90	-2,084.82	-3,348.15	11,754.44	11,515.49	238.96	49.191
14,800.00	6,945.62	6,957.28	6,951.62	130.30	200.36	89.90	-2,084.82	-3,348.15	11,849.25	11,610.14	239.11	49.556
14,900.00	6,945.56	6,957.22	6,951.56	131.85	200.35	89.90	-2,084.82	-3,348.15	11,944.11	11,704.87	239.26	49.920
15,000.00	6,945.50	6,957.16	6,951.50	133.41	200.35	89.89	-2,084.82	-3,348.15	12,039.11	11,799.69	239.42	50.285
15,100.00	6,945.44	6,957.10	6,951.44	134.96	200.35	89.89	-2,084.82	-3,348.15	12,134.16	11,894.59	239.57	50.650
15,200.00	6,945.38	6,957.04	6,951.38	136.52	200.35	89.89	-2,084.82	-3,348.15	12,229.29	11,989.57	239.72	51.015
15,300.00	6,945.32	6,956.98	6,951.32	138.08	200.35	89.89	-2,084.82	-3,348.15	12,324.50	12,084.63	239.87	51.381
15,400.00	6,945.26	6,956.92	6,951.26	139.64	200.34	89.89	-2,084.82	-3,348.15	12,419.78	12,179.77	240.02	51.746
15,500.00	6,945.20	6,956.86	6,951.20	141.20	200.34	89.89	-2,084.82	-3,348.15	12,515.14	12,274.98	240.16	52.111
15,600.00	6,945.14	6,956.80	6,951.14	142.76	200.34	89.89	-2,084.82	-3,348.15	12,610.57	12,370.26	240.31	52.476
15,700.00	6,945.08	6,956.74	6,951.08	144.33	200.34	89.89	-2,084.82	-3,348.15	12,706.07	12,465.62	240.45	52.842
15,800.00	6,945.02	6,956.68	6,951.02	145.89	200.33	89.89	-2,084.82	-3,348.15	12,801.64	12,561.04	240.60	53.207
15,900.00	6,944.96	6,956.62	6,950.96	147.46	200.33	89.89	-2,084.82	-3,348.15	12,897.27	12,656.53	240.74	53.573
16,000.00	6,944.90	6,956.56	6,950.90	149.02	200.33	89.89	-2,084.82	-3,348.15	12,992.98	12,752.09	240.89	53.938
16,100.00	6,944.84	6,956.50	6,950.84	150.59	200.33	89.88	-2,084.82	-3,348.15	13,088.74	12,847.71	241.03	54.304
16,200.00	6,944.77	6,956.44	6,950.77	152.15	200.33	89.88	-2,084.82	-3,348.15	13,184.57	12,943.40	241.17	54.670
16,300.00	6,944.71	6,956.38	6,950.71	153.72	200.32	89.88	-2,084.82	-3,348.15	13,280.46	13,039.15	241.31	55.035
16,400.00	6,944.65	6,956.32	6,950.65	155.29	200.32	89.88	-2,084.82	-3,348.15	13,376.41	13,134.96	241.45	55.401
16,500.00	6,944.59	6,956.26	6,950.59	156.86	200.32	89.88	-2,084.82	-3,348.15	13,472.42	13,230.83	241.59	55.766
16,600.00	6,944.53	6,956.20	6,950.53	158.43	200.32	89.88	-2,084.82	-3,348.15	13,568.49	13,326.76	241.72	56.132
16,700.00	6,944.47	6,956.14	6,950.47	160.00	200.31	89.88	-2,084.82	-3,348.15	13,664.61	13,422.75	241.86	56.498
16,800.00	6,944.41	6,956.08	6,950.41	161.57	200.31	89.88	-2,084.82	-3,348.15	13,760.79	13,518.79	242.00	56.863
16,900.00	6,944.35	6,956.02	6,950.35	163.14	200.31	89.88	-2,084.82	-3,348.15	13,857.02	13,614.89	242.13	57.229
17,000.00	6,944.29	6,955.96	6,950.29	164.71	200.31	89.88	-2,084.82	-3,348.15	13,953.30	13,711.04	242.27	57.594
17,100.00	6,944.23	6,955.90	6,950.23	166.29	200.31	89.88	-2,084.82	-3,348.15	14,049.64	13,807.24	242.40	57.960
17,200.00	6,944.17	6,955.84	6,950.17	167.86	200.30	89.87	-2,084.82	-3,348.15	14,146.03	13,903.49	242.54	58.325
17,300.00	6,944.11	6,955.78	6,950.11	169.43	200.30	89.87	-2,084.82	-3,348.15	14,242.47	13,999.80	242.67	58.691
17,400.00	6,944.05	6,955.72	6,950.05	171.01	200.30	89.87	-2,084.82	-3,348.15	14,338.95	14,096.15	242.80	59.056
17,500.00	6,943.99	6,955.66	6,949.99	172.58	200.30	89.87	-2,084.82	-3,348.15	14,435.49	14,192.56	242.93	59.421
17,600.00	6,943.93	6,955.60	6,949.93	174.16	200.29	89.87	-2,084.82	-3,348.15	14,532.07	14,289.01	243.07	59.787
17,700.00	6,943.87	6,955.54	6,949.87	175.73	200.29	89.87	-2,084.82	-3,348.15	14,628.70	14,385.50	243.20	60.152
17,800.00	6,943.81	6,955.48	6,949.81	177.31	200.29	89.87	-2,084.82	-3,348.15	14,725.37	14,482.05	243.33	60.517
17,900.00	6,943.75	6,955.42	6,949.75	178.89	200.29	89.87	-2,084.82	-3,348.15	14,822.09	14,578.63	243.45	60.882
18,000.00	6,943.69	6,955.36	6,949.69	180.46	200.28	89.87	-2,084.82	-3,348.15	14,918.85	14,675.26	243.58	61.247
18,100.00	6,943.63	6,955.30	6,949.63	182.04	200.28	89.87	-2,084.82	-3,348.15	15,015.65	14,771.94	243.71	61.612
18,200.00	6,943.57	6,955.24	6,949.57	183.62	200.28	89.87	-2,084.82	-3,348.15	15,112.49	14,868.65	243.84	61.977
18,300.00	6,943.51	6,955.18	6,949.51	185.20	200.28	89.86	-2,084.82	-3,348.15	15,209.38	14,965.41	243.97	62.342
18,400.00	6,943.45	6,955.12	6,949.45	186.78	200.28	89.86	-2,084.82	-3,348.15	15,306.30	15,062.21	244.09	62.707
18,500.00	6,943.39	6,955.06	6,949.39	188.36	200.27	89.86	-2,084.82	-3,348.15	15,403.27	15,159.05	244.22	63.071
18,600.00	6,943.33	6,955.00	6,949.33	189.94	200.27	89.86	-2,084.82	-3,348.15	15,500.27	15,255.92	244.35	63.436
18,700.00	6,943.27	6,954.94	6,949.27	191.52	200.27	89.86	-2,084.82	-3,348.15	15,597.31	15,352.84	244.47	63.800
18,800.00	6,943.21	6,954.88	6,949.21	193.10	200.27	89.86	-2,084.82	-3,348.15	15,694.39	15,449.79	244.60	64.165
18,900.00	6,943.15	6,954.81	6,949.15	194.68	200.26	89.86	-2,084.82	-3,348.15	15,791.50	15,546.78	244.72	64.529
19,000.00	6,943.09	6,954.75	6,949.09	196.26	200.26	89.86	-2,084.82	-3,348.15	15,888.65	15,643.81	244.84	64.893
19,100.00	6,943.03	6,954.69	6,949.03	197.84	200.26	89.86	-2,084.82	-3,348.15	15,985.84	15,740.87	244.97	65.257
19,200.00	6,942.97	6,954.63	6,948.97	199.42	200.26	89.86	-2,084.82	-3,348.15	16,083.06	15,837.97	245.09	65.621
19,300.00	6,942.91	6,954.57	6,948.91	201.01	200.26	89.86	-2,084.82	-3,348.15	16,180.31	15,935.10	245.21	65.985

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 119 - OH - OH-INC													Offset Site Error: 0.00 usft
Survey Program: 265-A027Ua_INC-ONLY													Offset Well Error: 0.00 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)			
19,400.00	6,942.85	6,954.51	6,948.85	202.59	200.25	89.85	-2,084.82	-3,348.15	16,277.60	16,032.26	245.34	66.348	
19,500.00	6,942.79	6,954.45	6,948.79	204.17	200.25	89.85	-2,084.82	-3,348.15	16,374.92	16,129.46	245.46	66.712	
19,600.00	6,942.73	6,954.39	6,948.73	205.75	200.25	89.85	-2,084.82	-3,348.15	16,472.27	16,226.69	245.58	67.075	
19,700.00	6,942.67	6,954.33	6,948.67	207.34	200.25	89.85	-2,084.82	-3,348.15	16,569.65	16,323.95	245.70	67.438	
19,800.00	6,942.61	6,954.27	6,948.61	208.92	200.24	89.85	-2,084.82	-3,348.15	16,667.07	16,421.25	245.82	67.801	
19,900.00	6,942.55	6,954.21	6,948.55	210.51	200.24	89.85	-2,084.82	-3,348.15	16,764.51	16,518.57	245.94	68.164	
20,000.00	6,942.49	6,954.15	6,948.49	212.09	200.24	89.85	-2,084.82	-3,348.15	16,861.99	16,615.92	246.06	68.527	
20,100.00	6,942.43	6,954.09	6,948.43	213.68	200.24	89.85	-2,084.82	-3,348.15	16,959.49	16,713.31	246.18	68.890	
20,200.00	6,942.37	6,954.03	6,948.37	215.26	200.24	89.85	-2,084.82	-3,348.15	17,057.02	16,810.72	246.30	69.252	
20,300.00	6,942.31	6,953.97	6,948.31	216.85	200.23	89.85	-2,084.82	-3,348.15	17,154.58	16,908.16	246.42	69.615	
20,400.00	6,942.25	6,953.91	6,948.25	218.43	200.23	89.85	-2,084.82	-3,348.15	17,252.17	17,005.63	246.54	69.977	
20,500.00	6,942.19	6,953.85	6,948.19	220.02	200.23	89.84	-2,084.82	-3,348.15	17,349.79	17,103.13	246.66	70.339	
20,600.00	6,942.13	6,953.79	6,948.13	221.60	200.23	89.84	-2,084.82	-3,348.15	17,447.43	17,200.66	246.78	70.701	
20,700.00	6,942.07	6,953.73	6,948.07	223.19	200.22	89.84	-2,084.82	-3,348.15	17,545.10	17,298.21	246.90	71.063	
20,808.89	6,942.00	6,953.67	6,948.00	224.92	200.22	89.84	-2,084.82	-3,348.15	17,651.48	17,404.46	247.02	71.457	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125 - OH - OH-INC													Offset Site Error: 0.00 usft
Survey Program: 173-A027Ua_INC-ONLY													Offset Well Error: 0.00 usft
Reference													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis 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)			
0.00	0.00	161.00	161.00	0.00	1.49	-77.48	1,240.94	-5,587.67	5,723.81				
100.00	100.00	261.00	261.00	0.25	3.27	-77.48	1,240.94	-5,587.67	5,723.81	5,720.28	3.52	1,624.071	
200.00	200.00	364.22	364.21	0.61	5.24	-77.48	1,241.11	-5,587.67	5,723.85	5,718.00	5.85	978.983	
300.00	300.00	461.02	461.00	0.97	7.11	-77.48	1,240.94	-5,587.67	5,723.81	5,715.73	8.08	708.641	
400.00	400.00	562.49	562.47	1.33	9.10	-77.47	1,241.34	-5,587.67	5,723.90	5,713.47	10.43	548.782	
500.00	500.00	669.37	669.34	1.68	11.20	-77.48	1,240.92	-5,587.67	5,723.81	5,710.92	12.89	444.078	
600.00	599.98	761.02	760.98	2.04	13.01	-78.73	1,240.94	-5,587.67	5,723.47	5,708.42	15.05	380.257	
700.00	699.84	860.88	860.84	2.41	14.97	-78.80	1,240.94	-5,587.67	5,722.45	5,705.07	17.38	329.342	
800.00	799.45	961.34	961.30	2.77	16.95	-78.91	1,241.81	-5,587.67	5,720.94	5,701.23	19.71	290.201	
900.00	898.70	1,063.64	1,063.59	3.13	18.97	-79.08	1,241.61	-5,587.67	5,718.55	5,696.46	22.09	258.834	
1,000.00	997.47	1,165.35	1,165.30	3.50	20.97	-79.30	1,241.15	-5,587.67	5,715.49	5,691.02	24.47	233.563	
1,100.00	1,095.62	1,256.71	1,256.62	3.89	22.89	-79.55	1,240.94	-5,587.67	5,711.87	5,685.09	26.78	213.285	
1,200.00	1,193.06	1,354.14	1,354.06	4.30	25.02	-79.84	1,240.94	-5,587.67	5,707.75	5,678.43	29.31	194.709	
1,245.21	1,236.83	1,397.92	1,397.83	4.48	25.98	-79.99	1,240.94	-5,587.67	5,705.71	5,675.25	30.46	187.321	
1,300.00	1,289.78	1,450.86	1,450.78	4.72	27.14	-80.13	1,240.94	-5,587.67	5,703.19	5,671.35	31.85	179.070	
1,400.00	1,386.42	1,550.37	1,550.28	5.15	29.31	-80.37	1,241.64	-5,587.67	5,698.83	5,664.37	34.46	165.393	
1,500.00	1,483.05	1,649.75	1,649.66	5.59	31.49	-80.63	1,241.25	-5,587.67	5,694.36	5,657.29	37.07	153.617	
1,600.00	1,579.69	1,740.87	1,740.69	6.04	33.55	-80.87	1,240.94	-5,587.67	5,690.02	5,650.45	39.57	143.787	
1,700.00	1,676.32	1,837.55	1,837.32	6.49	35.82	-81.11	1,240.94	-5,587.67	5,685.86	5,643.56	42.30	134.417	
1,800.00	1,772.96	1,934.18	1,933.96	6.94	37.88	-81.36	1,240.94	-5,587.67	5,681.81	5,637.00	44.81	126.804	
1,900.00	1,869.60	2,030.82	2,030.60	7.40	39.93	-81.61	1,240.94	-5,587.67	5,677.87	5,630.55	47.32	119.992	
2,000.00	1,966.23	2,130.24	2,129.99	7.86	42.04	-81.86	1,242.12	-5,587.67	5,674.25	5,624.35	49.89	113.731	
2,100.00	2,062.87	2,231.23	2,230.98	8.33	44.19	-82.12	1,241.58	-5,587.67	5,670.45	5,617.95	52.50	108.008	
2,200.00	2,159.50	2,320.80	2,320.50	8.79	46.09	-82.36	1,240.94	-5,587.67	5,666.75	5,611.88	54.87	103.279	
2,300.00	2,256.14	2,417.43	2,417.14	9.26	48.15	-82.61	1,240.94	-5,587.67	5,663.26	5,605.88	57.39	98.681	
2,400.00	2,352.77	2,514.07	2,513.77	9.73	50.20	-82.86	1,240.94	-5,587.67	5,659.90	5,599.99	59.91	94.471	
2,500.00	2,449.41	2,612.05	2,611.74	10.20	52.29	-83.10	1,241.71	-5,587.67	5,656.76	5,594.30	62.46	90.561	
2,600.00	2,546.05	2,710.71	2,710.40	10.67	54.38	-83.36	1,241.42	-5,587.67	5,653.58	5,588.55	65.03	86.936	
2,700.00	2,642.68	2,804.05	2,803.68	11.14	56.39	-83.61	1,240.94	-5,587.67	5,650.49	5,582.99	67.51	83.705	
2,800.00	2,739.32	2,900.69	2,900.32	11.61	58.86	-83.86	1,240.94	-5,587.67	5,647.59	5,577.14	70.45	80.167	
2,900.00	2,835.95	2,997.33	2,996.95	12.08	61.33	-84.11	1,240.94	-5,587.67	5,644.80	5,571.41	73.39	76.914	
3,000.00	2,932.59	3,095.35	3,094.96	12.55	63.83	-84.35	1,242.26	-5,587.67	5,642.29	5,565.92	76.37	73.881	
3,100.00	3,029.22	3,194.86	3,194.46	13.03	66.38	-84.61	1,241.85	-5,587.67	5,639.68	5,560.29	79.39	71.039	
3,200.00	3,125.86	3,294.16	3,293.75	13.50	68.92	-84.88	1,241.00	-5,587.67	5,637.14	5,554.74	82.40	68.411	
3,300.00	3,222.50	3,384.07	3,383.50	13.97	71.89	-85.11	1,240.94	-5,587.67	5,634.80	5,548.95	85.85	65.633	
3,400.00	3,319.13	3,480.71	3,480.13	14.45	75.14	-85.37	1,240.94	-5,587.67	5,632.60	5,543.02	89.58	62.879	
3,500.00	3,415.77	3,577.34	3,576.77	14.92	78.39	-85.62	1,240.94	-5,587.67	5,630.50	5,537.20	93.30	60.346	
3,600.00	3,512.40	3,677.07	3,676.44	15.40	81.75	-85.86	1,243.17	-5,587.67	5,628.74	5,531.61	97.13	57.949	
3,700.00	3,609.04	3,776.79	3,776.13	15.88	85.10	-86.13	1,242.31	-5,587.67	5,626.80	5,525.84	100.96	55.731	
3,800.00	3,705.67	3,876.21	3,875.51	16.35	88.44	-86.40	1,240.84	-5,587.67	5,624.93	5,520.15	104.78	53.682	
3,900.00	3,802.31	3,964.50	3,963.31	16.83	92.07	-86.63	1,240.94	-5,587.67	5,623.31	5,514.42	108.89	51.643	
4,000.00	3,898.95	4,061.46	4,059.95	17.30	96.01	-86.88	1,240.94	-5,587.67	5,621.80	5,508.49	113.31	49.616	
4,100.00	3,995.58	4,158.10	4,156.58	17.78	99.91	-87.13	1,240.94	-5,587.67	5,620.41	5,502.73	117.68	47.761	
4,200.00	4,092.22	4,261.32	4,259.70	18.26	104.07	-87.39	1,242.34	-5,587.67	5,619.24	5,496.93	122.31	45.941	
4,300.00	4,188.85	4,351.79	4,349.85	18.73	107.66	-87.64	1,240.94	-5,587.67	5,617.99	5,491.60	126.38	44.452	
4,400.00	4,285.49	4,448.60	4,446.49	19.21	111.38	-87.89	1,240.94	-5,587.67	5,616.95	5,486.36	130.59	43.013	
4,500.00	4,382.12	4,548.00	4,545.85	19.69	115.23	-88.15	1,241.83	-5,587.67	5,616.08	5,481.17	134.91	41.628	
4,600.00	4,478.76	4,642.08	4,639.76	20.17	118.88	-88.40	1,240.94	-5,587.67	5,615.23	5,476.19	139.04	40.385	
4,700.00	4,575.40	4,738.71	4,736.40	20.64	122.65	-88.65	1,240.94	-5,587.67	5,614.55	5,471.26	143.29	39.184	
4,800.00	4,672.03	4,835.96	4,833.56	21.12	126.44	-88.88	1,243.75	-5,587.67	5,614.09	5,466.54	147.56	38.047	
4,900.00	4,768.67	4,935.17	4,932.73	21.60	130.31	-89.15	1,242.90	-5,587.67	5,613.60	5,461.70	151.91	36.955	
5,000.00	4,865.30	5,033.82	5,031.31	22.08	134.16	-89.43	1,240.88	-5,587.67	5,613.20	5,456.97	156.23	35.929	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 173-A027Ua_INC-ONLY													Offset Well Error:	0.00 usft
Reference Offset													Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis 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)				
5,100.00	4,961.94	5,125.85	5,122.94	22.55	137.77	-89.67	1,240.94	-5,587.67	5,612.99	5,452.66	160.32	35.010		
5,200.00	5,058.57	5,224.64	5,221.65	23.03	141.65	-89.92	1,241.93	-5,587.67	5,612.92	5,448.23	164.68	34.084		
5,250.80	5,107.67	5,274.90	5,271.88	23.27	143.62	-90.06	1,240.86	-5,587.67	5,612.89	5,445.99	166.90	33.631 CC		
5,300.00	5,155.21	5,319.45	5,316.21	23.51	145.38	-90.18	1,240.94	-5,587.67	5,612.92	5,444.02	168.89	33.234		
5,400.00	5,251.85	5,416.09	5,412.85	23.99	149.20	-90.43	1,240.94	-5,587.67	5,613.06	5,439.87	173.18	32.411		
5,500.00	5,348.48	5,513.22	5,509.90	24.47	153.03	-90.66	1,243.11	-5,587.67	5,613.34	5,435.84	177.49	31.626		
5,600.00	5,445.12	5,610.21	5,606.83	24.94	156.86	-90.93	1,241.65	-5,587.67	5,613.70	5,431.90	181.80	30.879		
5,700.00	5,541.75	5,706.50	5,702.75	25.42	160.59	-91.19	1,240.94	-5,587.67	5,614.19	5,428.18	186.01	30.183		
5,800.00	5,638.39	5,803.13	5,799.39	25.90	164.30	-91.44	1,240.94	-5,587.67	5,614.80	5,424.60	190.20	29.521		
5,900.00	5,735.02	5,899.71	5,895.88	26.38	168.01	-91.67	1,244.16	-5,587.67	5,615.50	5,421.11	194.39	28.888		
6,000.00	5,831.66	5,995.69	5,991.81	26.86	171.70	-91.92	1,243.54	-5,587.67	5,616.34	5,417.79	198.56	28.286		
6,100.00	5,928.30	6,091.21	6,087.27	27.34	175.37	-92.19	1,241.96	-5,587.67	5,617.32	5,414.62	202.70	27.712		
6,200.00	6,024.93	6,190.30	6,185.93	27.82	179.19	-92.46	1,240.94	-5,587.67	5,618.43	5,411.43	207.00	27.142		
6,300.00	6,121.57	6,286.93	6,282.57	28.29	182.92	-92.71	1,240.94	-5,587.67	5,619.63	5,408.42	211.20	26.608		
6,400.00	6,218.20	6,383.57	6,379.20	28.77	186.64	-92.96	1,240.94	-5,587.67	5,620.94	5,405.54	215.41	26.095		
6,500.00	6,314.84	6,478.74	6,474.27	29.25	190.31	-93.19	1,243.77	-5,587.67	5,622.28	5,402.72	219.55	25.608		
6,521.58	6,335.69	6,499.19	6,494.72	29.36	191.10	-93.24	1,243.59	-5,587.67	5,622.61	5,402.16	220.45	25.506		
6,550.00	6,363.15	6,526.08	6,521.59	29.49	192.14	-102.83	1,243.30	-5,587.67	5,623.68	5,402.06	221.62	25.376 ES		
6,600.00	6,411.28	6,573.15	6,568.64	29.73	193.96	-118.19	1,242.64	-5,587.67	5,628.68	5,405.01	223.67	25.165		
6,650.00	6,458.93	6,619.67	6,615.13	29.96	195.75	-130.50	1,241.78	-5,587.67	5,637.59	5,411.89	225.69	24.979		
6,700.00	6,505.83	6,671.85	6,666.83	30.19	197.75	-139.79	1,240.94	-5,587.67	5,650.35	5,422.44	227.92	24.791		
6,750.00	6,551.67	6,717.69	6,712.67	30.42	199.46	-146.71	1,240.94	-5,587.67	5,666.85	5,437.01	229.85	24.655		
6,800.00	6,596.17	6,762.19	6,757.17	30.64	201.13	-151.94	1,240.94	-5,587.67	5,687.01	5,455.30	231.72	24.543		
6,850.00	6,639.06	6,805.08	6,800.06	30.85	202.73	-156.01	1,240.94	-5,587.67	5,710.71	5,477.20	233.51	24.456		
6,900.00	6,680.07	6,846.10	6,841.07	31.05	204.27	-159.25	1,240.94	-5,587.67	5,737.80	5,502.57	235.23	24.393		
6,950.00	6,718.96	6,884.98	6,879.96	31.24	205.72	-161.93	1,240.94	-5,587.67	5,768.10	5,531.25	236.85	24.354		
7,000.00	6,755.47	6,920.97	6,915.85	31.43	207.07	-164.17	1,244.16	-5,587.67	5,801.25	5,562.90	238.35	24.340 SF		
7,050.00	6,789.40	6,953.78	6,948.65	31.61	208.30	-166.19	1,244.04	-5,587.67	5,837.39	5,597.69	239.71	24.352		
7,100.00	6,820.52	6,983.84	6,978.70	31.79	209.42	-168.06	1,243.84	-5,587.67	5,876.13	5,635.18	240.95	24.387		
7,150.00	6,848.64	7,010.97	7,005.82	31.97	210.44	-169.90	1,243.57	-5,587.67	5,917.23	5,675.16	242.06	24.445		
7,200.00	6,873.60	7,035.02	7,029.85	32.14	211.34	-171.83	1,243.27	-5,587.67	5,960.42	5,717.37	243.05	24.524		
7,250.00	6,895.24	7,055.85	7,050.67	32.31	212.12	-174.06	1,242.96	-5,587.67	6,005.43	5,761.54	243.89	24.623		
7,300.00	6,913.42	7,073.34	7,068.15	32.49	212.77	-176.88	1,242.67	-5,587.67	6,051.99	5,807.40	244.59	24.743		
7,350.00	6,928.03	7,087.40	7,082.20	32.67	213.30	-179.02	1,242.40	-5,587.67	6,099.81	5,854.66	245.15	24.882		
7,400.00	6,938.98	7,097.93	7,092.72	32.86	213.69	-171.97	1,242.19	-5,587.67	6,148.59	5,903.03	245.56	25.039		
7,450.00	6,946.22	7,104.89	7,099.67	33.06	213.95	-156.53	1,242.05	-5,587.67	6,198.03	5,952.21	245.82	25.214		
7,500.00	6,949.68	7,108.22	7,103.01	33.26	214.08	-114.57	1,241.98	-5,587.67	6,247.82	6,001.89	245.93	25.405		
7,521.05	6,950.00	7,108.54	7,103.33	33.35	214.09	-88.59	1,241.97	-5,587.67	6,268.82	6,022.88	245.94	25.490		
7,600.00	6,949.95	7,108.52	7,103.31	33.72	214.09	-88.58	1,241.97	-5,587.67	6,347.56	6,101.66	245.90	25.814		
7,700.00	6,949.89	7,108.50	7,103.28	34.24	214.09	-88.58	1,241.97	-5,587.67	6,447.29	6,201.44	245.85	26.224		
7,800.00	6,949.83	7,108.47	7,103.25	34.84	214.09	-88.58	1,241.97	-5,587.67	6,547.04	6,301.23	245.81	26.634		
7,900.00	6,949.77	7,108.45	7,103.23	35.50	214.09	-88.58	1,241.97	-5,587.67	6,646.79	6,401.02	245.77	27.044		
8,000.00	6,949.71	7,108.42	7,103.20	36.23	214.08	-88.57	1,241.97	-5,587.67	6,746.55	6,500.81	245.74	27.454		
8,100.00	6,949.65	7,108.39	7,103.18	37.02	214.08	-88.57	1,241.97	-5,587.67	6,846.32	6,600.62	245.70	27.864		
8,200.00	6,949.59	7,108.37	7,103.15	37.85	214.08	-88.57	1,241.98	-5,587.67	6,946.09	6,700.42	245.67	28.274		
8,300.00	6,949.53	7,108.34	7,103.13	38.74	214.08	-88.56	1,241.98	-5,587.67	7,045.87	6,800.23	245.64	28.684		
8,400.00	6,949.47	7,108.32	7,103.10	39.68	214.08	-88.56	1,241.98	-5,587.67	7,145.66	6,900.05	245.61	29.094		
8,500.00	6,949.41	7,108.29	7,103.08	40.66	214.08	-88.56	1,241.98	-5,587.67	7,245.45	6,999.87	245.58	29.503		
8,600.00	6,949.35	7,108.27	7,103.05	41.67	214.08	-88.55	1,241.98	-5,587.67	7,345.25	7,099.69	245.56	29.912		
8,700.00	6,949.29	7,108.24	7,103.02	42.73	214.08	-88.55	1,241.98	-5,587.67	7,445.05	7,199.51	245.54	30.322		
8,800.00	6,949.23	7,108.22	7,103.00	43.82	214.08	-88.55	1,241.98	-5,587.67	7,544.86	7,299.34	245.51	30.731		
8,900.00	6,949.17	7,108.19	7,102.97	44.94	214.08	-88.54	1,241.98	-5,587.67	7,644.67	7,399.17	245.50	31.140		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 173-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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
9,000.00	6,949.11	7,108.16	7,102.95	46.09	214.07	88.54	1,241.98	-5,587.67	7,744.49	7,499.01	245.48	31.549
9,100.00	6,949.05	7,108.14	7,102.92	47.26	214.07	88.54	1,241.98	-5,587.67	7,844.31	7,598.85	245.46	31.957
9,200.00	6,948.99	7,108.11	7,102.90	48.46	214.07	88.53	1,241.98	-5,587.67	7,944.14	7,698.69	245.45	32.366
9,300.00	6,948.93	7,108.09	7,102.87	49.68	214.07	88.53	1,241.98	-5,587.67	8,043.97	7,798.53	245.44	32.774
9,400.00	6,948.87	7,108.06	7,102.85	50.93	214.07	88.53	1,241.98	-5,587.67	8,143.81	7,898.38	245.43	33.182
9,500.00	6,948.81	7,108.04	7,102.82	52.19	214.07	88.52	1,241.98	-5,587.67	8,243.64	7,998.23	245.42	33.590
9,600.00	6,948.75	7,108.01	7,102.79	53.47	214.07	88.52	1,241.98	-5,587.67	8,343.49	8,098.08	245.41	33.998
9,700.00	6,948.69	7,107.98	7,102.77	54.77	214.07	88.52	1,241.98	-5,587.67	8,443.34	8,197.93	245.40	34.406
9,800.00	6,948.63	7,107.96	7,102.74	56.08	214.07	88.52	1,241.98	-5,587.67	8,543.19	8,297.79	245.40	34.813
9,900.00	6,948.57	7,107.93	7,102.72	57.41	214.07	88.51	1,241.98	-5,587.67	8,643.04	8,397.64	245.40	35.221
10,000.00	6,948.51	7,107.91	7,102.69	58.76	214.06	88.51	1,241.99	-5,587.67	8,742.90	8,497.50	245.40	35.628
10,100.00	6,948.45	7,107.88	7,102.67	60.11	214.06	88.51	1,241.99	-5,587.67	8,842.76	8,597.36	245.40	36.035
10,200.00	6,948.39	7,107.86	7,102.64	61.48	214.06	88.50	1,241.99	-5,587.67	8,942.62	8,697.23	245.40	36.441
10,300.00	6,948.33	7,107.83	7,102.61	62.86	214.06	88.50	1,241.99	-5,587.67	9,042.49	8,797.09	245.40	36.848
10,400.00	6,948.27	7,107.80	7,102.59	64.24	214.06	88.50	1,241.99	-5,587.67	9,142.36	8,896.96	245.40	37.254
10,500.00	6,948.21	7,107.78	7,102.56	65.64	214.06	88.49	1,241.99	-5,587.67	9,242.23	8,996.82	245.41	37.660
10,600.00	6,948.15	7,107.75	7,102.54	67.05	214.06	88.49	1,241.99	-5,587.67	9,342.11	9,096.69	245.42	38.066
10,700.00	6,948.09	7,107.73	7,102.51	68.47	214.06	88.49	1,241.99	-5,587.67	9,441.98	9,196.56	245.42	38.472
10,800.00	6,948.03	7,107.70	7,102.49	69.89	214.06	88.48	1,241.99	-5,587.67	9,541.87	9,296.43	245.43	38.878
10,900.00	6,947.97	7,107.68	7,102.46	71.32	214.06	88.48	1,241.99	-5,587.67	9,641.75	9,396.30	245.44	39.283
11,000.00	6,947.91	7,107.65	7,102.43	72.76	214.06	88.48	1,241.99	-5,587.67	9,741.63	9,496.18	245.46	39.688
11,100.00	6,947.85	7,107.62	7,102.41	74.21	214.05	88.47	1,241.99	-5,587.67	9,841.52	9,596.05	245.47	40.093
11,200.00	6,947.79	7,107.60	7,102.38	75.66	214.05	88.47	1,241.99	-5,587.67	9,941.41	9,695.93	245.48	40.497
11,300.00	6,947.73	7,107.57	7,102.36	77.12	214.05	88.47	1,241.99	-5,587.67	10,041.30	9,795.81	245.50	40.902
11,400.00	6,947.66	7,107.55	7,102.33	78.58	214.05	88.46	1,241.99	-5,587.67	10,141.20	9,895.68	245.51	41.306
11,500.00	6,947.60	7,107.52	7,102.31	80.05	214.05	88.46	1,241.99	-5,587.67	10,241.09	9,995.56	245.53	41.710
11,600.00	6,947.54	7,107.49	7,102.28	81.52	214.05	88.46	1,241.99	-5,587.67	10,340.99	10,095.44	245.55	42.114
11,700.00	6,947.48	7,107.47	7,102.25	83.00	214.05	88.45	1,241.99	-5,587.67	10,440.89	10,195.32	245.57	42.517
11,800.00	6,947.42	7,107.44	7,102.23	84.48	214.05	88.45	1,242.00	-5,587.67	10,540.79	10,295.20	245.59	42.920
11,900.00	6,947.36	7,107.42	7,102.20	85.97	214.05	88.45	1,242.00	-5,587.67	10,640.70	10,395.09	245.61	43.323
12,000.00	6,947.30	7,107.39	7,102.18	87.46	214.05	88.45	1,242.00	-5,587.67	10,740.60	10,494.97	245.64	43.726
12,100.00	6,947.24	7,107.37	7,102.15	88.96	214.04	88.44	1,242.00	-5,587.67	10,840.51	10,594.85	245.66	44.128
12,200.00	6,947.18	7,107.34	7,102.12	90.46	214.04	88.44	1,242.00	-5,587.67	10,940.42	10,694.74	245.68	44.530
12,300.00	6,947.12	7,107.31	7,102.10	91.96	214.04	88.44	1,242.00	-5,587.67	11,040.33	10,794.62	245.71	44.932
12,400.00	6,947.06	7,107.29	7,102.07	93.47	214.04	88.43	1,242.00	-5,587.67	11,140.24	10,894.51	245.74	45.334
12,500.00	6,947.00	7,107.26	7,102.05	94.97	214.04	88.43	1,242.00	-5,587.67	11,240.16	10,994.39	245.77	45.735
12,600.00	6,946.94	7,107.24	7,102.02	96.49	214.04	88.43	1,242.00	-5,587.67	11,340.07	11,094.28	245.79	46.136
12,700.00	6,946.88	7,107.21	7,102.00	98.00	214.04	88.42	1,242.00	-5,587.67	11,439.99	11,194.17	245.82	46.537
12,800.00	6,946.82	7,107.18	7,101.97	99.52	214.04	88.42	1,242.00	-5,587.67	11,539.91	11,294.05	245.86	46.938
12,900.00	6,946.76	7,107.16	7,101.94	101.04	214.04	88.42	1,242.00	-5,587.67	11,639.83	11,393.94	245.89	47.338
13,000.00	6,946.70	7,107.13	7,101.92	102.56	214.04	88.41	1,242.00	-5,587.67	11,739.75	11,493.83	245.92	47.738
13,100.00	6,946.64	7,107.11	7,101.89	104.09	214.03	88.41	1,242.00	-5,587.67	11,839.67	11,593.72	245.95	48.138
13,200.00	6,946.58	7,107.08	7,101.87	105.61	214.03	88.41	1,242.00	-5,587.67	11,939.60	11,693.61	245.99	48.537
13,300.00	6,946.52	7,107.05	7,101.84	107.14	214.03	88.40	1,242.00	-5,587.67	12,039.52	11,793.50	246.02	48.936
13,400.00	6,946.46	7,107.03	7,101.81	108.67	214.03	88.40	1,242.00	-5,587.67	12,139.45	11,893.39	246.06	49.335
13,500.00	6,946.40	7,107.00	7,101.79	110.21	214.03	88.40	1,242.00	-5,587.67	12,239.38	11,993.28	246.10	49.734
13,600.00	6,946.34	7,106.98	7,101.76	111.74	214.03	88.39	1,242.01	-5,587.67	12,339.31	12,093.17	246.14	50.132
13,700.00	6,946.28	7,106.95	7,101.74	113.28	214.03	88.39	1,242.01	-5,587.67	12,439.24	12,193.06	246.18	50.530
13,800.00	6,946.22	7,106.92	7,101.71	114.82	214.03	88.39	1,242.01	-5,587.67	12,539.17	12,292.95	246.22	50.927
13,900.00	6,946.16	7,106.90	7,101.68	116.36	214.03	88.38	1,242.01	-5,587.67	12,639.10	12,392.84	246.26	51.325
14,000.00	6,946.10	7,106.87	7,101.66	117.90	214.03	88.38	1,242.01	-5,587.67	12,739.03	12,492.73	246.30	51.722
14,100.00	6,946.04	7,106.85	7,101.63	119.45	214.03	88.38	1,242.01	-5,587.67	12,838.97	12,592.62	246.34	52.118

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 173-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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
14,200.00	6,945.98	7,106.82	7,101.61	120.99	214.02	88.37	1,242.01	-5,587.67	12,938.90	12,692.51	246.39	52.515
14,300.00	6,945.92	7,106.79	7,101.58	122.54	214.02	88.37	1,242.01	-5,587.67	13,038.84	12,792.41	246.43	52.911
14,400.00	6,945.86	7,106.77	7,101.55	124.09	214.02	88.37	1,242.01	-5,587.67	13,138.77	12,892.30	246.48	53.306
14,500.00	6,945.80	7,106.74	7,101.53	125.64	214.02	88.36	1,242.01	-5,587.67	13,238.71	12,992.19	246.52	53.702
14,600.00	6,945.74	7,106.72	7,101.50	127.19	214.02	88.36	1,242.01	-5,587.67	13,338.65	13,092.08	246.57	54.097
14,700.00	6,945.68	7,106.69	7,101.48	128.74	214.02	88.36	1,242.01	-5,587.67	13,438.59	13,191.97	246.62	54.492
14,800.00	6,945.62	7,106.66	7,101.45	130.30	214.02	88.36	1,242.01	-5,587.67	13,538.53	13,291.87	246.67	54.886
14,900.00	6,945.56	7,106.64	7,101.42	131.85	214.02	88.35	1,242.01	-5,587.67	13,638.47	13,391.76	246.72	55.280
15,000.00	6,945.50	7,106.61	7,101.40	133.41	214.02	88.35	1,242.01	-5,587.67	13,738.42	13,491.65	246.77	55.674
15,100.00	6,945.44	7,106.59	7,101.37	134.96	214.02	88.35	1,242.01	-5,587.67	13,838.36	13,591.54	246.82	56.067
15,200.00	6,945.38	7,106.56	7,101.34	136.52	214.01	88.34	1,242.01	-5,587.67	13,938.30	13,691.44	246.87	56.461
15,300.00	6,945.32	7,106.53	7,101.32	138.08	214.01	88.34	1,242.01	-5,587.67	14,038.25	13,791.33	246.92	56.853
15,400.00	6,945.26	7,106.51	7,101.29	139.64	214.01	88.34	1,242.02	-5,587.67	14,138.19	13,891.22	246.97	57.246
15,500.00	6,945.20	7,106.48	7,101.27	141.20	214.01	88.33	1,242.02	-5,587.67	14,238.14	13,991.11	247.03	57.638
15,600.00	6,945.14	7,106.45	7,101.24	142.76	214.01	88.33	1,242.02	-5,587.67	14,338.09	14,091.01	247.08	58.030
15,700.00	6,945.08	7,106.43	7,101.21	144.33	214.01	88.33	1,242.02	-5,587.67	14,438.04	14,190.90	247.14	58.421
15,800.00	6,945.02	7,106.40	7,101.19	145.89	214.01	88.32	1,242.02	-5,587.67	14,537.99	14,290.79	247.19	58.812
15,900.00	6,944.96	7,106.38	7,101.16	147.46	214.01	88.32	1,242.02	-5,587.67	14,637.93	14,390.68	247.25	59.203
16,000.00	6,944.90	7,106.35	7,101.14	149.02	214.01	88.32	1,242.02	-5,587.67	14,737.88	14,490.58	247.31	59.593
16,100.00	6,944.84	7,106.32	7,101.11	150.59	214.01	88.31	1,242.02	-5,587.67	14,837.84	14,590.47	247.37	59.983
16,200.00	6,944.77	7,106.30	7,101.08	152.15	214.00	88.31	1,242.02	-5,587.67	14,937.79	14,690.36	247.43	60.373
16,300.00	6,944.71	7,106.27	7,101.06	153.72	214.00	88.31	1,242.02	-5,587.67	15,037.74	14,790.25	247.49	60.762
16,400.00	6,944.65	7,106.24	7,101.03	155.29	214.00	88.30	1,242.02	-5,587.67	15,137.69	14,890.15	247.55	61.151
16,500.00	6,944.59	7,106.22	7,101.00	156.86	214.00	88.30	1,242.02	-5,587.67	15,237.64	14,990.04	247.61	61.540
16,600.00	6,944.53	7,106.19	7,100.98	158.43	214.00	88.30	1,242.02	-5,587.67	15,337.60	15,089.93	247.67	61.928
16,700.00	6,944.47	7,106.17	7,100.95	160.00	214.00	88.29	1,242.02	-5,587.67	15,437.55	15,189.82	247.73	62.316
16,800.00	6,944.41	7,106.14	7,100.93	161.57	214.00	88.29	1,242.02	-5,587.67	15,537.51	15,289.71	247.79	62.703
16,900.00	6,944.35	7,106.11	7,100.90	163.14	214.00	88.29	1,242.02	-5,587.67	15,637.46	15,389.61	247.86	63.090
17,000.00	6,944.29	7,106.09	7,100.87	164.71	214.00	88.28	1,242.02	-5,587.67	15,737.42	15,489.50	247.92	63.477
17,100.00	6,944.23	7,106.06	7,100.85	166.29	214.00	88.28	1,242.02	-5,587.67	15,837.38	15,589.39	247.99	63.864
17,200.00	6,944.17	7,106.03	7,100.82	167.86	213.99	88.28	1,242.03	-5,587.67	15,937.33	15,689.28	248.05	64.250
17,300.00	6,944.11	7,106.01	7,100.79	169.43	213.99	88.27	1,242.03	-5,587.67	16,037.29	15,789.17	248.12	64.635
17,400.00	6,944.05	7,105.98	7,100.77	171.01	213.99	88.27	1,242.03	-5,587.67	16,137.25	15,889.06	248.19	65.021
17,500.00	6,943.99	7,105.96	7,100.74	172.58	213.99	88.27	1,242.03	-5,587.67	16,237.21	15,988.96	248.25	65.405
17,600.00	6,943.93	7,105.93	7,100.72	174.16	213.99	88.26	1,242.03	-5,587.67	16,337.17	16,088.85	248.32	65.790
17,700.00	6,943.87	7,105.90	7,100.69	175.73	213.99	88.26	1,242.03	-5,587.67	16,437.13	16,188.74	248.39	66.174
17,800.00	6,943.81	7,105.88	7,100.66	177.31	213.99	88.26	1,242.03	-5,587.67	16,537.09	16,288.63	248.46	66.558
17,900.00	6,943.75	7,105.85	7,100.64	178.89	213.99	88.25	1,242.03	-5,587.67	16,637.05	16,388.52	248.53	66.941
18,000.00	6,943.69	7,105.82	7,100.61	180.46	213.99	88.25	1,242.03	-5,587.67	16,737.01	16,488.41	248.60	67.324
18,100.00	6,943.63	7,105.80	7,100.58	182.04	213.99	88.25	1,242.03	-5,587.67	16,836.97	16,588.30	248.67	67.707
18,200.00	6,943.57	7,105.77	7,100.56	183.62	213.99	88.25	1,242.03	-5,587.67	16,936.94	16,688.19	248.75	68.089
18,300.00	6,943.51	7,105.74	7,100.53	185.20	213.98	88.24	1,242.03	-5,587.67	17,036.90	16,788.08	248.82	68.471
18,400.00	6,943.45	7,105.72	7,100.50	186.78	213.98	88.24	1,242.03	-5,587.67	17,136.86	16,887.97	248.89	68.853
18,500.00	6,943.39	7,105.69	7,100.48	188.36	213.98	88.24	1,242.03	-5,587.67	17,236.83	16,987.86	248.97	69.234
18,600.00	6,943.33	7,105.67	7,100.45	189.94	213.98	88.23	1,242.03	-5,587.67	17,336.79	17,087.75	249.04	69.615
18,700.00	6,943.27	7,105.64	7,100.42	191.52	213.98	88.23	1,242.03	-5,587.67	17,436.75	17,187.64	249.11	69.995
18,800.00	6,943.21	7,105.61	7,100.40	193.10	213.98	88.23	1,242.03	-5,587.67	17,536.72	17,287.53	249.19	70.375
18,900.00	6,943.15	7,105.59	7,100.37	194.68	213.98	88.22	1,242.03	-5,587.67	17,636.68	17,387.42	249.27	70.754
19,000.00	6,943.09	7,105.56	7,100.35	196.26	213.98	88.22	1,242.04	-5,587.67	17,736.65	17,487.31	249.34	71.134
19,100.00	6,943.03	7,105.53	7,100.32	197.84	213.98	88.22	1,242.04	-5,587.67	17,836.62	17,587.20	249.42	71.512
19,200.00	6,942.97	7,105.51	7,100.29	199.42	213.98	88.21	1,242.04	-5,587.67	17,936.58	17,687.08	249.50	71.891
19,300.00	6,942.91	7,105.48	7,100.27	201.01	213.97	88.21	1,242.04	-5,587.67	18,036.55	17,786.97	249.58	72.269

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 173-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,400.00	6,942.85	7,105.45	7,100.24	202.59	213.97	88.21	1,242.04	-5,587.67	18,136.52	17,886.86	249.65	72.647	
19,500.00	6,942.79	7,105.43	7,100.21	204.17	213.97	88.20	1,242.04	-5,587.67	18,236.48	17,986.75	249.73	73.024	
19,600.00	6,942.73	7,105.40	7,100.19	205.75	213.97	88.20	1,242.04	-5,587.67	18,336.45	18,086.64	249.81	73.401	
19,700.00	6,942.67	7,105.37	7,100.16	207.34	213.97	88.20	1,242.04	-5,587.67	18,436.42	18,186.53	249.89	73.777	
19,800.00	6,942.61	7,105.35	7,100.13	208.92	213.97	88.19	1,242.04	-5,587.67	18,536.39	18,286.41	249.97	74.153	
19,900.00	6,942.55	7,105.32	7,100.11	210.51	213.97	88.19	1,242.04	-5,587.67	18,636.36	18,386.30	250.06	74.529	
20,000.00	6,942.49	7,105.29	7,100.08	212.09	213.97	88.19	1,242.04	-5,587.67	18,736.33	18,486.19	250.14	74.904	
20,100.00	6,942.43	7,105.27	7,100.05	213.68	213.97	88.18	1,242.04	-5,587.67	18,836.30	18,586.07	250.22	75.279	
20,200.00	6,942.37	7,105.24	7,100.03	215.26	213.97	88.18	1,242.04	-5,587.67	18,936.26	18,685.96	250.30	75.653	
20,300.00	6,942.31	7,105.21	7,100.00	216.85	213.96	88.18	1,242.04	-5,587.67	19,036.24	18,785.85	250.39	76.027	
20,400.00	6,942.25	7,105.19	7,099.97	218.43	213.96	88.17	1,242.04	-5,587.67	19,136.21	18,885.74	250.47	76.401	
20,500.00	6,942.19	7,105.16	7,099.95	220.02	213.96	88.17	1,242.04	-5,587.67	19,236.18	18,985.62	250.55	76.774	
20,600.00	6,942.13	7,105.13	7,099.92	221.60	213.96	88.17	1,242.04	-5,587.67	19,336.15	19,085.51	250.64	77.147	
20,700.00	6,942.07	7,105.11	7,099.89	223.19	213.96	88.16	1,242.04	-5,587.67	19,436.12	19,185.39	250.72	77.520	
20,808.89	6,942.00	7,105.08	7,099.87	224.92	213.96	88.16	1,242.05	-5,587.67	19,544.97	19,294.15	250.82	77.925	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125E - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		130-A027Ua_INC-ONLY						Rule Assigned:				Offset Well Error:	0.00 usft	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Distance		Minimum Separation	Separation Factor	Warning	
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	(usft)			
0.00	0.00	15.00	15.00	0.00	0.15	-104.24	-1,371.29	-5,404.85	5,576.10					
100.00	100.00	115.00	115.00	0.25	1.13	-104.24	-1,371.29	-5,404.85	5,576.10	5,574.72	1.38	4,029.894		
200.00	200.00	215.00	215.00	0.61	3.02	-104.24	-1,371.29	-5,404.85	5,576.10	5,572.47	3.63	1,537.273		
215.55	215.55	229.98	229.97	0.67	3.32	-104.23	-1,370.98	-5,404.85	5,576.02	5,572.03	3.99	1,397.817		
300.00	300.00	307.08	307.07	0.97	4.90	-104.24	-1,371.22	-5,404.85	5,576.09	5,570.22	5.87	950.318		
400.00	400.00	415.03	415.00	1.33	7.11	-104.24	-1,371.29	-5,404.85	5,576.10	5,567.67	8.43	661.193		
431.72	431.72	446.37	446.34	1.44	7.75	-104.23	-1,370.75	-5,404.85	5,575.97	5,566.78	9.19	606.875	CC	
500.00	500.00	508.67	508.64	1.68	9.02	-104.23	-1,370.90	-5,404.85	5,576.01	5,565.30	10.71	520.790		
600.00	599.98	615.03	614.98	2.04	11.20	-105.47	-1,371.29	-5,404.85	5,576.56	5,563.32	13.24	421.197		
700.00	699.84	714.89	714.84	2.41	13.24	-105.49	-1,371.29	-5,404.85	5,577.96	5,562.32	15.64	356.646		
800.00	799.45	814.51	814.45	2.77	15.28	-105.53	-1,371.29	-5,404.85	5,580.30	5,562.27	18.04	309.366	ES	
900.00	898.70	910.37	910.31	3.13	17.24	-105.58	-1,370.58	-5,404.85	5,583.42	5,563.05	20.36	274.176		
1,000.00	997.47	1,005.59	1,005.52	3.50	19.18	-105.64	-1,370.93	-5,404.85	5,587.77	5,565.09	22.69	246.305		
1,100.00	1,095.62	1,110.74	1,110.62	3.89	21.37	-105.74	-1,371.29	-5,404.85	5,593.11	5,567.85	25.26	221.441		
1,200.00	1,193.06	1,208.17	1,208.06	4.30	23.44	-105.84	-1,371.29	-5,404.85	5,599.38	5,571.65	27.73	201.922		
1,245.21	1,236.83	1,251.95	1,251.83	4.48	24.37	-105.89	-1,371.29	-5,404.85	5,602.56	5,573.71	28.85	194.211		
1,300.00	1,289.78	1,304.72	1,304.59	4.72	25.49	-106.01	-1,370.27	-5,404.85	5,606.29	5,576.09	30.20	185.642		
1,400.00	1,386.42	1,396.21	1,396.08	5.15	27.44	-106.24	-1,370.44	-5,404.85	5,613.71	5,581.14	32.57	172.350		
1,500.00	1,483.05	1,487.54	1,487.41	5.59	29.38	-106.48	-1,370.92	-5,404.85	5,621.33	5,586.39	34.95	160.852		
1,600.00	1,579.69	1,594.87	1,594.69	6.04	31.66	-106.75	-1,371.29	-5,404.85	5,629.02	5,591.35	37.67	149.431		
1,700.00	1,676.32	1,691.51	1,691.32	6.49	33.71	-106.99	-1,371.29	-5,404.85	5,636.72	5,596.55	40.17	140.324		
1,800.00	1,772.96	1,788.14	1,787.96	6.94	35.77	-107.24	-1,371.29	-5,404.85	5,644.53	5,601.86	42.67	132.276		
1,900.00	1,869.60	1,880.32	1,880.12	7.40	37.73	-107.46	-1,370.25	-5,404.85	5,652.15	5,607.07	45.08	125.372		
2,000.00	1,966.23	1,971.86	1,971.66	7.86	39.68	-107.69	-1,370.64	-5,404.85	5,660.29	5,612.80	47.48	119.209		
2,100.00	2,062.87	2,078.13	2,077.87	8.33	41.98	-107.96	-1,371.29	-5,404.85	5,668.59	5,618.35	50.24	112.828		
2,200.00	2,159.50	2,174.77	2,174.50	8.79	44.29	-108.20	-1,371.29	-5,404.85	5,676.83	5,623.82	53.00	107.107		
2,300.00	2,256.14	2,271.40	2,271.14	9.26	46.59	-108.44	-1,371.29	-5,404.85	5,685.16	5,629.40	55.76	101.952		
2,400.00	2,352.77	2,363.29	2,363.01	9.73	48.78	-108.65	-1,370.38	-5,404.85	5,693.32	5,634.91	58.41	97.469		
2,500.00	2,449.41	2,453.76	2,453.48	10.20	50.94	-108.88	-1,370.78	-5,404.85	5,701.99	5,640.97	61.03	93.434		
2,600.00	2,546.05	2,561.45	2,561.05	10.67	53.48	-109.15	-1,371.29	-5,404.85	5,710.79	5,646.77	64.02	89.197		
2,700.00	2,642.68	2,658.08	2,657.68	11.14	55.71	-109.39	-1,371.29	-5,404.85	5,719.54	5,652.83	66.71	85.734		
2,800.00	2,739.32	2,754.72	2,754.32	11.61	57.94	-109.62	-1,371.29	-5,404.85	5,728.39	5,658.99	69.40	82.541		
2,900.00	2,835.95	2,843.26	2,842.82	12.08	59.98	-109.82	-1,369.53	-5,404.85	5,736.77	5,664.87	71.90	79.787		
3,000.00	2,932.59	2,929.71	2,929.26	12.55	61.97	-110.03	-1,370.13	-5,404.85	5,746.04	5,671.69	74.35	77.280		
3,100.00	3,029.22	3,044.75	3,044.22	13.03	64.53	-110.32	-1,371.29	-5,404.85	5,755.55	5,678.18	77.37	74.388		
3,200.00	3,125.86	3,141.39	3,140.86	13.50	66.33	-110.56	-1,371.29	-5,404.85	5,764.81	5,685.18	79.63	72.393		
3,300.00	3,222.50	3,238.02	3,237.50	13.97	68.13	-110.79	-1,371.29	-5,404.85	5,774.16	5,692.27	81.89	70.510		
3,400.00	3,319.13	3,333.45	3,332.92	14.45	69.91	-111.01	-1,370.37	-5,404.85	5,783.29	5,699.16	84.13	68.743		
3,500.00	3,415.77	3,425.73	3,425.20	14.92	71.63	-111.23	-1,370.52	-5,404.85	5,792.90	5,706.59	86.31	67.119		
3,600.00	3,512.40	3,517.92	3,517.38	15.40	73.35	-111.45	-1,370.87	-5,404.85	5,802.68	5,714.19	88.48	65.579		
3,700.00	3,609.04	3,624.60	3,624.04	15.88	75.34	-111.71	-1,371.29	-5,404.85	5,812.57	5,721.63	90.93	63.921		
3,800.00	3,705.67	3,720.98	3,720.42	16.35	77.14	-111.93	-1,371.02	-5,404.85	5,822.31	5,729.12	93.20	62.474		
3,900.00	3,802.31	3,810.89	3,810.33	16.83	78.82	-112.15	-1,371.17	-5,404.85	5,832.32	5,736.98	95.34	61.176		
4,000.00	3,898.95	3,914.52	3,913.95	17.30	81.07	-112.39	-1,371.29	-5,404.85	5,842.40	5,744.36	98.04	59.592		
4,100.00	3,995.58	4,010.22	4,009.64	17.78	83.27	-112.61	-1,370.78	-5,404.85	5,852.34	5,751.64	100.70	58.118		
4,200.00	4,092.22	4,098.64	4,098.05	18.26	85.30	-112.82	-1,370.98	-5,404.85	5,862.65	5,759.46	103.19	56.816		
4,300.00	4,188.85	4,204.51	4,203.85	18.73	88.03	-113.07	-1,371.29	-5,404.85	5,873.09	5,766.71	106.37	55.212		
4,400.00	4,285.49	4,287.59	4,286.92	19.21	90.45	-113.25	-1,370.68	-5,404.85	5,883.28	5,774.03	109.25	53.851		
4,500.00	4,382.12	4,397.91	4,397.12	19.69	93.78	-113.51	-1,371.29	-5,404.85	5,894.02	5,780.98	113.03	52.144		
4,600.00	4,478.76	4,494.65	4,493.76	20.17	96.78	-113.74	-1,371.29	-5,404.85	5,904.62	5,788.13	116.49	50.688		
4,700.00	4,575.40	4,567.03	4,566.11	20.64	98.98	-113.90	-1,370.84	-5,404.85	5,915.20	5,796.05	119.15	49.647		
4,800.00	4,672.03	4,676.07	4,675.06	21.12	102.24	-114.15	-1,370.71	-5,404.85	5,925.90	5,803.03	122.86	48.231		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125E - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 130-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)				Warning
4,900.00	4,768.67	4,784.74	4,783.67	21.60	105.48	-114.40	-1,371.29	-5,404.85	5,937.00	5,810.44	126.56	46.912
5,000.00	4,865.30	4,862.02	4,860.92	22.08	107.78	-114.57	-1,370.63	-5,404.85	5,947.74	5,818.43	129.31	45.996
5,100.00	4,961.94	4,978.15	4,976.94	22.55	111.38	-114.84	-1,371.29	-5,404.85	5,959.04	5,825.67	133.37	44.681
5,200.00	5,058.57	5,064.72	5,063.48	23.03	114.15	-115.02	-1,370.12	-5,404.85	5,969.71	5,833.13	136.59	43.707
5,300.00	5,155.21	5,171.63	5,170.21	23.51	117.58	-115.27	-1,371.29	-5,404.85	5,981.44	5,840.97	140.47	42.583
5,400.00	5,251.85	5,268.27	5,266.85	23.99	120.78	-115.49	-1,371.29	-5,404.85	5,992.78	5,848.65	144.13	41.580
5,500.00	5,348.48	5,340.79	5,339.32	24.47	123.19	-115.64	-1,370.19	-5,404.85	6,003.78	5,856.80	146.98	40.847
5,600.00	5,445.12	5,461.78	5,460.12	24.94	127.22	-115.92	-1,371.29	-5,404.85	6,015.71	5,864.24	151.47	39.716
5,700.00	5,541.75	5,558.53	5,556.75	25.42	130.43	-116.13	-1,371.29	-5,404.85	6,027.31	5,872.18	155.13	38.854
5,800.00	5,638.39	5,645.80	5,644.00	25.90	133.27	-116.32	-1,370.29	-5,404.85	6,038.57	5,880.16	158.41	38.119
5,900.00	5,735.02	5,751.97	5,750.02	26.38	136.72	-116.56	-1,371.29	-5,404.85	6,050.77	5,888.46	162.32	37.278
6,000.00	5,831.66	5,838.36	5,836.39	26.86	139.53	-116.74	-1,370.39	-5,404.85	6,062.24	5,896.66	165.58	36.612
6,100.00	5,928.30	5,945.40	5,943.30	27.34	143.09	-116.98	-1,371.29	-5,404.85	6,074.58	5,904.99	169.59	35.819
6,200.00	6,024.93	6,036.19	6,034.06	27.82	146.25	-117.17	-1,370.10	-5,404.85	6,086.07	5,912.87	173.20	35.139
6,300.00	6,121.57	6,138.90	6,136.57	28.29	149.83	-117.40	-1,371.29	-5,404.85	6,098.72	5,921.49	177.23	34.411
6,400.00	6,218.20	6,233.41	6,231.04	28.77	153.14	-117.60	-1,370.16	-5,404.85	6,110.41	5,929.42	180.99	33.762
6,500.00	6,314.84	6,332.37	6,329.84	29.25	156.59	-117.82	-1,371.29	-5,404.85	6,123.21	5,938.33	184.88	33.120
6,521.58	6,335.69	6,353.23	6,350.69	29.36	157.28	-117.86	-1,371.29	-5,404.85	6,125.87	5,940.21	185.66	32.994
6,550.00	6,363.15	6,380.68	6,378.15	29.49	158.18	-127.60	-1,371.29	-5,404.85	6,129.94	5,943.24	186.69	32.834
6,600.00	6,411.28	6,428.81	6,426.28	29.73	159.77	-143.32	-1,371.29	-5,404.85	6,139.79	5,951.30	188.49	32.573
6,650.00	6,458.93	6,467.45	6,464.88	29.96	161.04	-156.09	-1,369.96	-5,404.85	6,152.40	5,962.44	189.96	32.387
6,700.00	6,505.83	6,498.65	6,496.07	30.19	162.07	-165.99	-1,370.14	-5,404.85	6,169.04	5,977.87	191.17	32.269
6,750.00	6,551.67	6,529.07	6,526.48	30.42	163.07	-173.70	-1,370.49	-5,404.85	6,188.97	5,996.63	192.34	32.177
6,800.00	6,596.17	6,613.92	6,611.17	30.64	165.78	-179.92	-1,371.29	-5,404.85	6,211.95	6,016.73	195.22	31.820
6,850.00	6,639.06	6,656.81	6,654.06	30.85	167.10	174.86	-1,371.29	-5,404.85	6,237.61	6,040.93	196.68	31.714
6,900.00	6,680.07	6,697.82	6,695.07	31.05	168.36	170.23	-1,371.29	-5,404.85	6,266.02	6,067.95	198.07	31.636
6,950.00	6,718.96	6,725.01	6,722.23	31.24	169.20	165.89	-1,370.11	-5,404.85	6,296.47	6,097.47	199.00	31.640
7,000.00	6,755.47	6,750.03	6,747.25	31.43	169.97	161.60	-1,370.26	-5,404.85	6,329.97	6,130.12	199.85	31.674
7,050.00	6,789.40	6,773.24	6,770.45	31.61	170.68	157.19	-1,370.48	-5,404.85	6,365.71	6,165.09	200.62	31.730
7,100.00	6,820.52	6,838.44	6,835.52	31.79	172.66	152.70	-1,371.29	-5,404.85	6,403.56	6,200.91	202.66	31.598 SF
7,150.00	6,848.64	6,866.56	6,863.64	31.97	173.46	147.65	-1,371.29	-5,404.85	6,442.90	6,239.42	203.49	31.663
7,200.00	6,873.60	6,891.52	6,888.60	32.14	174.18	142.01	-1,371.29	-5,404.85	6,483.77	6,279.57	204.20	31.751
7,250.00	6,895.24	6,913.16	6,910.24	32.31	174.80	135.63	-1,371.29	-5,404.85	6,525.93	6,321.13	204.81	31.864
7,300.00	6,913.42	6,931.34	6,928.42	32.49	175.32	128.42	-1,371.29	-5,404.85	6,569.14	6,363.84	205.29	31.999
7,350.00	6,928.03	6,945.95	6,943.03	32.67	175.73	120.38	-1,371.29	-5,404.85	6,613.12	6,407.46	205.66	32.156
7,400.00	6,938.98	6,956.49	6,953.54	32.86	176.04	111.65	-1,370.15	-5,404.85	6,657.13	6,451.24	205.89	32.333
7,450.00	6,946.22	6,961.66	6,958.72	33.06	176.18	102.53	-1,370.15	-5,404.85	6,701.91	6,495.95	205.96	32.540
7,500.00	6,949.68	6,964.13	6,961.19	33.26	176.25	93.52	-1,370.16	-5,404.85	6,746.69	6,540.76	205.93	32.762
7,521.05	6,950.00	6,964.37	6,961.42	33.35	176.26	89.87	-1,370.16	-5,404.85	6,765.47	6,559.58	205.89	32.859
7,600.00	6,949.95	6,964.33	6,961.39	33.72	176.26	89.87	-1,370.16	-5,404.85	6,835.90	6,630.17	205.73	33.227
7,700.00	6,949.89	6,964.29	6,961.35	34.24	176.26	89.86	-1,370.16	-5,404.85	6,925.38	6,719.84	205.54	33.693
7,800.00	6,949.83	6,964.25	6,961.31	34.84	176.26	89.86	-1,370.16	-5,404.85	7,015.14	6,809.77	205.37	34.159
7,900.00	6,949.77	6,964.21	6,961.27	35.50	176.26	89.86	-1,370.16	-5,404.85	7,105.17	6,899.96	205.21	34.624
8,000.00	6,949.71	6,964.17	6,961.22	36.23	176.26	89.86	-1,370.16	-5,404.85	7,195.47	6,990.40	205.07	35.088
8,100.00	6,949.65	6,964.12	6,961.18	37.02	176.25	89.86	-1,370.16	-5,404.85	7,286.01	7,081.08	204.94	35.552
8,200.00	6,949.59	6,964.08	6,961.14	37.85	176.25	89.86	-1,370.16	-5,404.85	7,376.81	7,171.99	204.82	36.016
8,300.00	6,949.53	6,964.04	6,961.10	38.74	176.25	89.86	-1,370.16	-5,404.85	7,467.84	7,263.12	204.72	36.478
8,400.00	6,949.47	6,964.00	6,961.06	39.68	176.25	89.86	-1,370.16	-5,404.85	7,559.09	7,354.46	204.63	36.941
8,500.00	6,949.41	6,963.96	6,961.01	40.66	176.25	89.86	-1,370.16	-5,404.85	7,650.56	7,446.02	204.55	37.402
8,600.00	6,949.35	6,963.92	6,960.97	41.67	176.25	89.86	-1,370.16	-5,404.85	7,742.25	7,537.77	204.48	37.863
8,700.00	6,949.29	6,963.87	6,960.93	42.73	176.25	89.86	-1,370.16	-5,404.85	7,834.14	7,629.71	204.42	38.323
8,800.00	6,949.23	6,963.83	6,960.89	43.82	176.25	89.86	-1,370.16	-5,404.85	7,926.22	7,721.85	204.37	38.783

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125E - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 130-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Ellipses (usft)			Warning
8,900.00	6,949.17	6,963.79	6,960.85	44.94	176.24	89.85	-1,370.16	-5,404.85	8,018.49	7,814.16	204.34	39.242
9,000.00	6,949.11	6,963.75	6,960.81	46.09	176.24	89.85	-1,370.16	-5,404.85	8,110.95	7,906.65	204.31	39.700
9,100.00	6,949.05	6,963.71	6,960.76	47.26	176.24	89.85	-1,370.16	-5,404.85	8,203.59	7,999.30	204.28	40.158
9,200.00	6,948.99	6,963.66	6,960.72	48.46	176.24	89.85	-1,370.16	-5,404.85	8,296.39	8,092.12	204.27	40.615
9,300.00	6,948.93	6,963.62	6,960.68	49.68	176.24	89.85	-1,370.16	-5,404.85	8,389.36	8,185.10	204.27	41.071
9,400.00	6,948.87	6,963.58	6,960.64	50.93	176.24	89.85	-1,370.16	-5,404.85	8,482.49	8,278.23	204.27	41.527
9,500.00	6,948.81	6,963.54	6,960.60	52.19	176.24	89.85	-1,370.15	-5,404.85	8,575.78	8,371.50	204.27	41.982
9,600.00	6,948.75	6,963.50	6,960.55	53.47	176.24	89.85	-1,370.15	-5,404.85	8,669.21	8,464.92	204.29	42.436
9,700.00	6,948.69	6,963.45	6,960.51	54.77	176.24	89.85	-1,370.15	-5,404.85	8,762.79	8,558.48	204.31	42.890
9,800.00	6,948.63	6,963.41	6,960.47	56.08	176.23	89.85	-1,370.15	-5,404.85	8,856.51	8,652.18	204.34	43.343
9,900.00	6,948.57	6,963.37	6,960.43	57.41	176.23	89.85	-1,370.15	-5,404.85	8,950.37	8,746.00	204.37	43.796
10,000.00	6,948.51	6,963.33	6,960.39	58.76	176.23	89.85	-1,370.15	-5,404.85	9,044.36	8,839.95	204.40	44.248
10,100.00	6,948.45	6,963.29	6,960.34	60.11	176.23	89.85	-1,370.15	-5,404.85	9,138.47	8,934.03	204.44	44.699
10,200.00	6,948.39	6,963.24	6,960.30	61.48	176.23	89.84	-1,370.15	-5,404.85	9,232.71	9,028.22	204.49	45.150
10,300.00	6,948.33	6,963.20	6,960.26	62.86	176.23	89.84	-1,370.15	-5,404.85	9,327.07	9,122.53	204.54	45.600
10,400.00	6,948.27	6,963.16	6,960.22	64.24	176.23	89.84	-1,370.15	-5,404.85	9,421.54	9,216.95	204.59	46.050
10,500.00	6,948.21	6,963.12	6,960.18	65.64	176.23	89.84	-1,370.15	-5,404.85	9,516.13	9,311.48	204.65	46.499
10,600.00	6,948.15	6,963.08	6,960.13	67.05	176.22	89.84	-1,370.15	-5,404.85	9,610.83	9,406.12	204.71	46.948
10,700.00	6,948.09	6,963.03	6,960.09	68.47	176.22	89.84	-1,370.15	-5,404.85	9,705.63	9,500.86	204.78	47.396
10,800.00	6,948.03	6,962.99	6,960.05	69.89	176.22	89.84	-1,370.15	-5,404.85	9,800.54	9,595.70	204.85	47.843
10,900.00	6,947.97	6,962.95	6,960.01	71.32	176.22	89.84	-1,370.15	-5,404.85	9,895.55	9,690.63	204.92	48.290
11,000.00	6,947.91	6,962.91	6,959.96	72.76	176.22	89.84	-1,370.15	-5,404.85	9,990.65	9,785.66	204.99	48.737
11,100.00	6,947.85	6,962.86	6,959.92	74.21	176.22	89.84	-1,370.15	-5,404.85	10,085.85	9,880.79	205.07	49.183
11,200.00	6,947.79	6,962.82	6,959.88	75.66	176.22	89.84	-1,370.15	-5,404.85	10,181.15	9,976.00	205.15	49.629
11,300.00	6,947.73	6,962.78	6,959.84	77.12	176.22	89.84	-1,370.15	-5,404.85	10,276.53	10,071.30	205.23	50.074
11,400.00	6,947.66	6,962.74	6,959.80	78.58	176.21	89.84	-1,370.15	-5,404.85	10,372.00	10,166.69	205.31	50.519
11,500.00	6,947.60	6,962.70	6,959.75	80.05	176.21	89.83	-1,370.15	-5,404.85	10,467.55	10,262.15	205.40	50.963
11,600.00	6,947.54	6,962.65	6,959.71	81.52	176.21	89.83	-1,370.15	-5,404.85	10,563.18	10,357.70	205.48	51.407
11,700.00	6,947.48	6,962.61	6,959.67	83.00	176.21	89.83	-1,370.15	-5,404.85	10,658.90	10,453.33	205.57	51.850
11,800.00	6,947.42	6,962.57	6,959.63	84.48	176.21	89.83	-1,370.15	-5,404.85	10,754.69	10,549.03	205.66	52.293
11,900.00	6,947.36	6,962.53	6,959.58	85.97	176.21	89.83	-1,370.15	-5,404.85	10,850.56	10,644.81	205.76	52.735
12,000.00	6,947.30	6,962.48	6,959.54	87.46	176.21	89.83	-1,370.15	-5,404.85	10,946.51	10,740.66	205.85	53.177
12,100.00	6,947.24	6,962.44	6,959.50	88.96	176.21	89.83	-1,370.15	-5,404.85	11,042.52	10,836.58	205.94	53.619
12,200.00	6,947.18	6,962.40	6,959.46	90.46	176.21	89.83	-1,370.15	-5,404.85	11,138.61	10,932.57	206.04	54.060
12,300.00	6,947.12	6,962.36	6,959.42	91.96	176.20	89.83	-1,370.15	-5,404.85	11,234.76	11,028.62	206.14	54.501
12,400.00	6,947.06	6,962.32	6,959.37	93.47	176.20	89.83	-1,370.15	-5,404.85	11,330.98	11,124.74	206.24	54.941
12,500.00	6,947.00	6,962.27	6,959.33	94.97	176.20	89.83	-1,370.15	-5,404.85	11,427.27	11,220.93	206.34	55.381
12,600.00	6,946.94	6,962.23	6,959.29	96.49	176.20	89.83	-1,370.15	-5,404.85	11,523.61	11,317.17	206.44	55.821
12,700.00	6,946.88	6,962.19	6,959.25	98.00	176.20	89.83	-1,370.15	-5,404.85	11,620.02	11,413.48	206.54	56.260
12,800.00	6,946.82	6,962.15	6,959.20	99.52	176.20	89.82	-1,370.15	-5,404.85	11,716.50	11,509.85	206.64	56.699
12,900.00	6,946.76	6,962.10	6,959.16	101.04	176.20	89.82	-1,370.15	-5,404.85	11,813.02	11,606.28	206.75	57.137
13,000.00	6,946.70	6,962.06	6,959.12	102.56	176.20	89.82	-1,370.15	-5,404.85	11,909.61	11,702.76	206.85	57.575
13,100.00	6,946.64	6,962.02	6,959.08	104.09	176.19	89.82	-1,370.15	-5,404.85	12,006.25	11,799.29	206.96	58.013
13,200.00	6,946.58	6,961.98	6,959.03	105.61	176.19	89.82	-1,370.15	-5,404.85	12,102.95	11,895.88	207.07	58.450
13,300.00	6,946.52	6,961.93	6,958.99	107.14	176.19	89.82	-1,370.15	-5,404.85	12,199.70	11,992.53	207.17	58.887
13,400.00	6,946.46	6,961.89	6,958.95	108.67	176.19	89.82	-1,370.15	-5,404.85	12,296.50	12,089.22	207.28	59.323
13,500.00	6,946.40	6,961.85	6,958.91	110.21	176.19	89.82	-1,370.15	-5,404.85	12,393.35	12,185.97	207.39	59.759
13,600.00	6,946.34	6,961.81	6,958.86	111.74	176.19	89.82	-1,370.15	-5,404.85	12,490.26	12,282.76	207.50	60.195
13,700.00	6,946.28	6,961.76	6,958.82	113.28	176.19	89.82	-1,370.15	-5,404.85	12,587.21	12,379.60	207.60	60.631
13,800.00	6,946.22	6,961.72	6,958.78	114.82	176.19	89.82	-1,370.15	-5,404.85	12,684.21	12,476.49	207.71	61.066
13,900.00	6,946.16	6,961.68	6,958.74	116.36	176.18	89.82	-1,370.15	-5,404.85	12,781.25	12,573.43	207.82	61.500
14,000.00	6,946.10	6,961.64	6,958.69	117.90	176.18	89.81	-1,370.15	-5,404.85	12,878.34	12,670.41	207.93	61.935

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125E - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 130-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance						
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
Warning												
14,100.00	6,946.04	6,961.59	6,958.65	119.45	176.18	89.81	-1,370.15	-5,404.85	12,975.47	12,767.43	208.05	62.368
14,200.00	6,945.98	6,961.55	6,958.61	120.99	176.18	89.81	-1,370.15	-5,404.85	13,072.65	12,864.49	208.16	62.802
14,300.00	6,945.92	6,961.51	6,958.57	122.54	176.18	89.81	-1,370.15	-5,404.85	13,169.87	12,961.60	208.27	63.235
14,400.00	6,945.86	6,961.47	6,958.52	124.09	176.18	89.81	-1,370.15	-5,404.85	13,267.13	13,058.75	208.38	63.668
14,500.00	6,945.80	6,961.42	6,958.48	125.64	176.18	89.81	-1,370.15	-5,404.85	13,364.43	13,155.94	208.49	64.101
14,600.00	6,945.74	6,961.38	6,958.44	127.19	176.18	89.81	-1,370.15	-5,404.85	13,461.77	13,253.17	208.60	64.533
14,700.00	6,945.68	6,961.34	6,958.40	128.74	176.17	89.81	-1,370.15	-5,404.85	13,559.15	13,350.44	208.72	64.964
14,800.00	6,945.62	6,961.30	6,958.35	130.30	176.17	89.81	-1,370.15	-5,404.85	13,656.57	13,447.74	208.83	65.396
14,900.00	6,945.56	6,961.25	6,958.31	131.85	176.17	89.81	-1,370.15	-5,404.85	13,754.02	13,545.08	208.94	65.827
15,000.00	6,945.50	6,961.21	6,958.27	133.41	176.17	89.81	-1,370.15	-5,404.85	13,851.51	13,642.46	209.06	66.258
15,100.00	6,945.44	6,961.17	6,958.22	134.96	176.17	89.81	-1,370.15	-5,404.85	13,949.04	13,739.87	209.17	66.688
15,200.00	6,945.38	6,961.12	6,958.18	136.52	176.17	89.81	-1,370.15	-5,404.85	14,046.60	13,837.32	209.28	67.118
15,300.00	6,945.32	6,961.08	6,958.14	138.08	176.17	89.80	-1,370.15	-5,404.85	14,144.20	13,934.80	209.40	67.548
15,400.00	6,945.26	6,961.04	6,958.10	139.64	176.17	89.80	-1,370.15	-5,404.85	14,241.83	14,032.32	209.51	67.977
15,500.00	6,945.20	6,961.00	6,958.05	141.20	176.16	89.80	-1,370.15	-5,404.85	14,339.49	14,129.86	209.62	68.406
15,600.00	6,945.14	6,960.95	6,958.01	142.76	176.16	89.80	-1,370.15	-5,404.85	14,437.18	14,227.44	209.74	68.834
15,700.00	6,945.08	6,960.91	6,957.97	144.33	176.16	89.80	-1,370.15	-5,404.85	14,534.90	14,325.05	209.85	69.263
15,800.00	6,945.02	6,960.87	6,957.93	145.89	176.16	89.80	-1,370.15	-5,404.85	14,632.66	14,422.69	209.97	69.690
15,900.00	6,944.96	6,960.83	6,957.88	147.46	176.16	89.80	-1,370.15	-5,404.85	14,730.44	14,520.36	210.08	70.118
16,000.00	6,944.90	6,960.78	6,957.84	149.02	176.16	89.80	-1,370.15	-5,404.85	14,828.26	14,618.06	210.20	70.545
16,100.00	6,944.84	6,960.74	6,957.80	150.59	176.16	89.80	-1,370.15	-5,404.85	14,926.10	14,715.79	210.31	70.972
16,200.00	6,944.77	6,960.70	6,957.75	152.15	176.16	89.80	-1,370.15	-5,404.85	15,023.98	14,813.55	210.42	71.398
16,300.00	6,944.71	6,960.65	6,957.71	153.72	176.16	89.80	-1,370.15	-5,404.85	15,121.88	14,911.34	210.54	71.824
16,400.00	6,944.65	6,960.61	6,957.67	155.29	176.15	89.80	-1,370.15	-5,404.85	15,219.80	15,009.15	210.65	72.250
16,500.00	6,944.59	6,960.57	6,957.63	156.86	176.15	89.79	-1,370.15	-5,404.85	15,317.76	15,106.99	210.77	72.675
16,600.00	6,944.53	6,960.53	6,957.58	158.43	176.15	89.79	-1,370.15	-5,404.85	15,415.74	15,204.85	210.88	73.100
16,700.00	6,944.47	6,960.48	6,957.54	160.00	176.15	89.79	-1,370.15	-5,404.85	15,513.74	15,302.74	211.00	73.525
16,800.00	6,944.41	6,960.44	6,957.50	161.57	176.15	89.79	-1,370.15	-5,404.85	15,611.78	15,400.66	211.11	73.949
16,900.00	6,944.35	6,960.40	6,957.45	163.14	176.15	89.79	-1,370.15	-5,404.85	15,709.83	15,498.60	211.23	74.373
17,000.00	6,944.29	6,960.35	6,957.41	164.71	176.15	89.79	-1,370.15	-5,404.85	15,807.91	15,596.57	211.35	74.797
17,100.00	6,944.23	6,960.31	6,957.37	166.29	176.15	89.79	-1,370.15	-5,404.85	15,906.02	15,694.56	211.46	75.220
17,200.00	6,944.17	6,960.27	6,957.33	167.86	176.14	89.79	-1,370.15	-5,404.85	16,004.15	15,792.57	211.58	75.643
17,300.00	6,944.11	6,960.22	6,957.28	169.43	176.14	89.79	-1,370.15	-5,404.85	16,102.30	15,890.61	211.69	76.065
17,400.00	6,944.05	6,960.18	6,957.24	171.01	176.14	89.79	-1,370.15	-5,404.85	16,200.47	15,988.66	211.81	76.487
17,500.00	6,943.99	6,960.14	6,957.20	172.58	176.14	89.79	-1,370.15	-5,404.85	16,298.67	16,086.74	211.92	76.909
17,600.00	6,943.93	6,960.10	6,957.15	174.16	176.14	89.79	-1,370.15	-5,404.85	16,396.88	16,184.85	212.04	77.330
17,700.00	6,943.87	6,960.05	6,957.11	175.73	176.14	89.79	-1,370.15	-5,404.85	16,495.12	16,282.97	212.15	77.751
17,800.00	6,943.81	6,960.01	6,957.07	177.31	176.14	89.78	-1,370.15	-5,404.85	16,593.38	16,381.11	212.27	78.172
17,900.00	6,943.75	6,959.97	6,957.02	178.89	176.14	89.78	-1,370.15	-5,404.85	16,691.66	16,479.28	212.38	78.592
18,000.00	6,943.69	6,959.92	6,956.98	180.46	176.13	89.78	-1,370.15	-5,404.85	16,789.96	16,577.46	212.50	79.012
18,100.00	6,943.63	6,959.88	6,956.94	182.04	176.13	89.78	-1,370.15	-5,404.85	16,888.29	16,675.67	212.62	79.431
18,200.00	6,943.57	6,959.84	6,956.90	183.62	176.13	89.78	-1,370.15	-5,404.85	16,986.63	16,773.90	212.73	79.850
18,300.00	6,943.51	6,959.79	6,956.85	185.20	176.13	89.78	-1,370.15	-5,404.85	17,084.99	16,872.14	212.85	80.269
18,400.00	6,943.45	6,959.75	6,956.81	186.78	176.13	89.78	-1,370.15	-5,404.85	17,183.37	16,970.40	212.96	80.687
18,500.00	6,943.39	6,959.71	6,956.77	188.36	176.13	89.78	-1,370.15	-5,404.85	17,281.76	17,068.68	213.08	81.105
18,600.00	6,943.33	6,959.66	6,956.72	189.94	176.13	89.78	-1,370.15	-5,404.85	17,380.18	17,166.98	213.19	81.523
18,700.00	6,943.27	6,959.62	6,956.68	191.52	176.13	89.78	-1,370.15	-5,404.85	17,478.61	17,265.30	213.31	81.940
18,800.00	6,943.21	6,959.58	6,956.64	193.10	176.12	89.78	-1,370.15	-5,404.85	17,577.06	17,363.64	213.43	82.357
18,900.00	6,943.15	6,959.54	6,956.59	194.68	176.12	89.78	-1,370.15	-5,404.85	17,675.53	17,461.99	213.54	82.773
19,000.00	6,943.09	6,959.49	6,956.55	196.26	176.12	89.77	-1,370.15	-5,404.85	17,774.02	17,560.36	213.66	83.189
19,100.00	6,943.03	6,959.45	6,956.51	197.84	176.12	89.77	-1,370.15	-5,404.85	17,872.52	17,658.75	213.77	83.605
19,200.00	6,942.97	6,959.41	6,956.46	199.42	176.12	89.77	-1,370.15	-5,404.85	17,971.04	17,757.15	213.89	84.020

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 125E - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 130-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,300.00	6,942.91	6,959.36	6,956.42	201.01	176.12	89.77	-1,370.15	-5,404.85	18,069.58	17,855.57	214.01	84.435	
19,400.00	6,942.85	6,959.32	6,956.38	202.59	176.12	89.77	-1,370.15	-5,404.85	18,168.13	17,954.01	214.12	84.850	
19,500.00	6,942.79	6,959.28	6,956.33	204.17	176.12	89.77	-1,370.15	-5,404.85	18,266.69	18,052.46	214.24	85.264	
19,600.00	6,942.73	6,959.23	6,956.29	205.75	176.11	89.77	-1,370.15	-5,404.85	18,365.28	18,150.92	214.35	85.678	
19,700.00	6,942.67	6,959.19	6,956.25	207.34	176.11	89.77	-1,370.15	-5,404.85	18,463.88	18,249.41	214.47	86.091	
19,800.00	6,942.61	6,959.15	6,956.20	208.92	176.11	89.77	-1,370.15	-5,404.85	18,562.49	18,347.90	214.59	86.504	
19,900.00	6,942.55	6,959.10	6,956.16	210.51	176.11	89.77	-1,370.15	-5,404.85	18,661.12	18,446.42	214.70	86.917	
20,000.00	6,942.49	6,959.06	6,956.12	212.09	176.11	89.77	-1,370.15	-5,404.85	18,759.76	18,544.94	214.82	87.329	
20,100.00	6,942.43	6,959.02	6,956.07	213.68	176.11	89.77	-1,370.15	-5,404.85	18,858.42	18,643.48	214.93	87.741	
20,200.00	6,942.37	6,958.97	6,956.03	215.26	176.11	89.77	-1,370.15	-5,404.85	18,957.09	18,742.04	215.05	88.152	
20,300.00	6,942.31	6,958.93	6,955.99	216.85	176.11	89.76	-1,370.15	-5,404.85	19,055.77	18,840.60	215.17	88.563	
20,400.00	6,942.25	6,958.89	6,955.94	218.43	176.10	89.76	-1,370.15	-5,404.85	19,154.47	18,939.19	215.28	88.974	
20,500.00	6,942.19	6,958.84	6,955.90	220.02	176.10	89.76	-1,370.15	-5,404.85	19,253.18	19,037.78	215.40	89.384	
20,600.00	6,942.13	6,958.80	6,955.86	221.60	176.10	89.76	-1,370.15	-5,404.85	19,351.91	19,136.39	215.51	89.794	
20,700.00	6,942.07	6,958.76	6,955.81	223.19	176.10	89.76	-1,370.15	-5,404.85	19,450.64	19,235.01	215.63	90.203	
20,808.89	6,942.00	6,958.71	6,955.77	224.92	176.10	89.76	-1,370.15	-5,404.85	19,558.17	19,342.41	215.76	90.649	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153B - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		158-A027Ua_INC-ONLY						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 (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	96.38	-464.61	4,156.72	4,182.61					
100.00	100.00	93.00	93.00	0.25	0.82	96.38	-464.61	4,156.72	4,182.61	4,181.53	1.07	3,891.335		
200.00	200.00	193.00	193.00	0.61	2.06	96.38	-464.61	4,156.72	4,182.61	4,179.94	2.67	1,566.474		
261.43	261.43	254.38	254.38	0.83	3.22	96.38	-464.51	4,156.72	4,182.60	4,178.55	4.05	1,032.855		
300.00	300.00	292.53	292.53	0.97	3.94	96.38	-464.53	4,156.72	4,182.60	4,177.69	4.91	852.141		
400.00	400.00	393.01	393.00	1.33	6.39	96.38	-464.61	4,156.72	4,182.61	4,174.89	7.71	542.211		
500.00	500.00	493.01	493.00	1.68	9.35	96.38	-464.61	4,156.72	4,182.61	4,171.57	11.04	378.922		
582.46	582.45	575.46	575.44	1.98	11.80	95.15	-463.59	4,156.72	4,182.60	4,168.82	13.78	303.563		
600.00	599.98	592.69	592.67	2.04	12.31	95.16	-463.60	4,156.72	4,182.65	4,168.30	14.35	291.428		
700.00	699.84	690.83	690.81	2.41	15.22	95.22	-463.84	4,156.72	4,183.15	4,165.53	17.62	237.399		
800.00	799.45	788.68	788.65	2.77	18.12	95.33	-464.44	4,156.72	4,184.03	4,163.15	20.88	200.356		
900.00	898.70	892.07	891.70	3.13	22.11	95.48	-464.61	4,156.72	4,185.20	4,159.97	25.23	165.867		
1,000.00	997.47	990.83	990.47	3.50	26.13	95.66	-464.61	4,156.72	4,186.74	4,157.12	29.63	141.315		
1,100.00	1,095.62	1,081.98	1,081.50	3.89	29.84	95.83	-462.60	4,156.72	4,188.45	4,154.73	33.72	124.196		
1,200.00	1,193.06	1,186.97	1,186.06	4.30	34.10	96.13	-464.61	4,156.72	4,191.11	4,152.71	38.40	109.154		
1,245.21	1,236.83	1,230.75	1,229.83	4.48	35.86	96.25	-464.61	4,156.72	4,192.37	4,152.02	40.34	103.919		
1,300.00	1,289.78	1,283.69	1,282.78	4.72	37.99	96.44	-464.61	4,156.72	4,193.98	4,151.28	42.70	98.218		
1,400.00	1,386.42	1,380.33	1,379.42	5.15	41.87	96.77	-464.61	4,156.72	4,197.04	4,150.02	47.01	89.274		
1,500.00	1,483.05	1,472.98	1,471.96	5.59	45.59	97.06	-461.71	4,156.72	4,199.82	4,148.65	51.17	82.072		
1,600.00	1,579.69	1,563.13	1,562.07	6.04	49.21	97.38	-462.75	4,156.72	4,203.34	4,148.11	55.24	76.096		
1,700.00	1,676.32	1,670.88	1,669.32	6.49	53.91	97.78	-464.61	4,156.72	4,207.14	4,146.75	60.39	69.666		
1,800.00	1,772.96	1,767.52	1,765.96	6.94	59.62	98.12	-464.61	4,156.72	4,210.82	4,144.27	66.55	63.271		
1,900.00	1,869.60	1,864.16	1,862.60	7.40	65.33	98.45	-464.61	4,156.72	4,214.66	4,141.94	72.72	57.960		
2,000.00	1,966.23	1,955.06	1,953.40	7.86	70.70	98.73	-461.81	4,156.72	4,218.14	4,139.60	78.55	53.703		
2,100.00	2,062.87	2,043.97	2,042.25	8.33	75.95	99.05	-462.94	4,156.72	4,222.49	4,138.24	84.26	50.115		
2,200.00	2,159.50	2,155.75	2,152.50	8.79	83.14	99.45	-464.61	4,156.72	4,227.07	4,135.17	91.91	45.994		
2,300.00	2,256.14	2,252.39	2,249.14	9.26	90.52	99.79	-464.61	4,156.72	4,231.51	4,131.77	99.74	42.424		
2,400.00	2,352.77	2,332.25	2,328.64	9.73	96.61	100.01	-460.77	4,156.72	4,235.37	4,129.07	106.30	39.843		
2,500.00	2,449.41	2,447.52	2,442.41	10.20	105.36	100.45	-464.61	4,156.72	4,240.85	4,125.34	115.52	36.712		
2,600.00	2,546.05	2,544.15	2,539.05	10.67	112.38	100.78	-464.61	4,156.72	4,245.75	4,122.75	123.00	34.517		
2,700.00	2,642.68	2,616.00	2,610.62	11.14	117.61	100.99	-462.31	4,156.72	4,250.37	4,121.68	128.69	33.029		
2,800.00	2,739.32	2,738.69	2,732.32	11.61	126.36	101.44	-464.61	4,156.72	4,255.99	4,118.08	137.91	30.861		
2,900.00	2,835.95	2,835.07	2,828.49	12.08	133.11	101.71	-460.62	4,156.72	4,260.41	4,115.29	145.13	29.356		
3,000.00	2,932.59	2,908.78	2,902.10	12.55	138.28	101.97	-461.49	4,156.72	4,266.15	4,115.40	150.76	28.298		
3,100.00	3,029.22	3,030.14	3,022.22	13.03	146.54	102.42	-464.61	4,156.72	4,272.47	4,112.98	159.49	26.789		
3,200.00	3,125.86	3,126.77	3,118.86	13.50	152.64	102.74	-464.61	4,156.72	4,278.26	4,112.21	166.05	25.765		
3,300.00	3,222.50	3,218.46	3,210.28	13.97	158.42	102.99	-459.77	4,156.72	4,282.97	4,110.67	172.30	24.858		
3,400.00	3,319.13	3,295.36	3,287.07	14.45	163.28	103.26	-460.82	4,156.72	4,289.36	4,111.75	177.61	24.150		
3,500.00	3,415.77	3,418.24	3,408.77	14.92	170.83	103.72	-464.61	4,156.72	4,296.50	4,110.86	185.63	23.145		
3,600.00	3,512.40	3,514.88	3,505.40	15.40	175.55	104.04	-464.61	4,156.72	4,302.87	4,112.05	190.82	22.549		
3,700.00	3,609.04	3,589.94	3,580.31	15.88	179.22	104.26	-462.67	4,156.72	4,308.90	4,113.95	194.95	22.103		
3,800.00	3,705.67	3,708.70	3,698.67	16.35	184.23	104.68	-464.61	4,156.72	4,316.04	4,115.61	200.43	21.534		
3,900.00	3,802.31	3,805.34	3,795.31	16.83	187.44	105.00	-464.61	4,156.72	4,322.84	4,118.74	204.10	21.180		
4,000.00	3,898.95	3,901.97	3,891.95	17.30	190.65	105.32	-464.61	4,156.72	4,329.78	4,122.00	207.78	20.838		
4,100.00	3,995.58	3,998.61	3,988.58	17.78	193.86	105.63	-464.61	4,156.72	4,336.87	4,125.41	211.45	20.510		
4,200.00	4,092.22	4,095.24	4,085.22	18.26	197.08	105.95	-464.61	4,156.72	4,344.09	4,128.96	215.13	20.193		
4,300.00	4,188.85	4,190.76	4,180.55	18.73	200.25	106.18	-457.87	4,156.72	4,349.37	4,130.61	218.77	19.881		
4,400.00	4,285.49	4,281.23	4,270.99	19.21	203.26	106.48	-458.15	4,156.72	4,356.94	4,134.70	222.24	19.605		
4,500.00	4,382.12	4,371.51	4,361.22	19.69	206.26	106.78	-458.85	4,156.72	4,364.78	4,139.09	225.70	19.339		
4,600.00	4,478.76	4,461.59	4,451.26	20.17	209.26	107.09	-459.95	4,156.72	4,372.92	4,143.77	229.15	19.083		
4,700.00	4,575.40	4,551.49	4,541.10	20.64	212.24	107.39	-461.46	4,156.72	4,381.35	4,148.75	232.59	18.837		
4,800.00	4,672.03	4,641.18	4,630.72	21.12	215.23	107.70	-463.38	4,156.72	4,390.08	4,154.05	236.03	18.600		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153B - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 158-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
4,900.00	4,768.67	4,772.60	4,761.67	21.60	218.40	108.14	-464.61	4,156.72	4,398.55	4,158.87	239.67	18.352
5,000.00	4,865.30	4,869.24	4,858.30	22.08	220.19	108.45	-464.61	4,156.72	4,406.87	4,164.95	241.93	18.216
5,100.00	4,961.94	4,965.87	4,954.94	22.55	221.99	108.75	-464.61	4,156.72	4,415.33	4,171.15	244.18	18.082
5,200.00	5,058.57	5,062.51	5,051.57	23.03	223.78	109.06	-464.61	4,156.72	4,423.93	4,177.49	246.43	17.952
5,300.00	5,155.21	5,159.14	5,148.21	23.51	225.57	109.36	-464.61	4,156.72	4,432.65	4,183.97	248.68	17.825
5,400.00	5,251.85	5,255.78	5,244.85	23.99	227.37	109.67	-464.61	4,156.72	4,441.51	4,190.57	250.93	17.700
5,500.00	5,348.48	5,352.42	5,341.48	24.47	229.16	109.97	-464.61	4,156.72	4,450.49	4,197.31	253.18	17.578
5,600.00	5,445.12	5,449.05	5,438.12	24.94	230.96	110.27	-464.61	4,156.72	4,459.61	4,204.18	255.43	17.459
5,700.00	5,541.75	5,545.69	5,534.75	25.42	232.75	110.57	-464.61	4,156.72	4,468.86	4,211.18	257.68	17.343
5,800.00	5,638.39	5,642.32	5,631.39	25.90	234.54	110.87	-464.61	4,156.72	4,478.24	4,218.31	259.93	17.229
5,900.00	5,735.02	5,738.96	5,728.02	26.38	236.34	111.17	-464.61	4,156.72	4,487.74	4,225.57	262.17	17.117
6,000.00	5,831.66	5,835.60	5,824.66	26.86	238.13	111.47	-464.61	4,156.72	4,497.37	4,232.95	264.42	17.008
6,100.00	5,928.30	5,932.23	5,921.30	27.34	239.93	111.76	-464.61	4,156.72	4,507.13	4,240.46	266.67	16.902
6,200.00	6,024.93	6,028.87	6,017.93	27.82	241.72	112.06	-464.61	4,156.72	4,517.01	4,248.10	268.91	16.797
6,300.00	6,121.57	6,125.50	6,114.57	28.29	243.51	112.35	-464.61	4,156.72	4,527.02	4,255.86	271.16	16.695
6,400.00	6,218.20	6,222.14	6,211.20	28.77	245.31	112.64	-464.61	4,156.72	4,537.15	4,263.75	273.40	16.595
6,500.00	6,314.84	6,318.77	6,307.84	29.25	247.10	112.93	-464.61	4,156.72	4,547.40	4,271.76	275.64	16.497
6,521.58	6,335.69	6,339.63	6,328.69	29.36	247.49	112.99	-464.61	4,156.72	4,549.63	4,273.50	276.13	16.477
6,550.00	6,363.15	6,367.08	6,356.15	29.49	248.00	103.49	-464.61	4,156.72	4,552.00	4,275.23	276.77	16.447
6,600.00	6,411.28	6,415.21	6,404.28	29.73	248.89	88.39	-464.61	4,156.72	4,553.36	4,275.47	277.89	16.386
6,650.00	6,458.93	6,462.87	6,451.93	29.96	249.78	76.51	-464.61	4,156.72	4,551.17	4,272.16	279.01	16.312
6,700.00	6,505.83	6,509.76	6,498.83	30.19	250.65	67.84	-464.61	4,156.72	4,545.45	4,265.33	280.12	16.227
6,750.00	6,551.67	6,555.60	6,544.67	30.42	251.50	61.70	-464.61	4,156.72	4,536.24	4,255.03	281.21	16.131
6,800.00	6,596.17	6,600.10	6,589.17	30.64	252.33	57.44	-464.61	4,156.72	4,523.64	4,241.36	282.28	16.026
6,850.00	6,639.06	6,642.99	6,632.06	30.85	253.12	54.56	-464.61	4,156.72	4,507.71	4,224.40	283.31	15.911
6,900.00	6,680.07	6,684.01	6,673.07	31.05	253.88	52.75	-464.61	4,156.72	4,488.59	4,204.27	284.32	15.787
6,950.00	6,718.96	6,722.89	6,711.96	31.24	254.61	51.78	-464.61	4,156.72	4,466.40	4,181.12	285.28	15.656
7,000.00	6,755.47	6,759.41	6,748.47	31.43	255.28	51.54	-464.61	4,156.72	4,441.29	4,155.10	286.19	15.518
7,050.00	6,789.40	6,793.33	6,782.40	31.61	255.91	51.95	-464.61	4,156.72	4,413.43	4,126.37	287.06	15.375
7,100.00	6,820.52	6,824.45	6,813.52	31.79	256.49	52.99	-464.61	4,156.72	4,383.01	4,095.13	287.88	15.225
7,150.00	6,848.64	6,852.58	6,841.64	31.97	257.01	54.64	-464.61	4,156.72	4,350.22	4,061.58	288.63	15.072
7,200.00	6,873.60	6,877.53	6,866.60	32.14	257.48	56.93	-464.61	4,156.72	4,315.27	4,025.94	289.33	14.915
7,250.00	6,895.24	6,899.17	6,888.24	32.31	257.88	59.93	-464.61	4,156.72	4,278.39	3,988.42	289.97	14.755
7,300.00	6,913.42	6,917.35	6,906.42	32.49	258.22	63.67	-464.61	4,156.72	4,239.80	3,949.26	290.54	14.593
7,350.00	6,928.03	6,931.96	6,921.03	32.67	258.49	68.22	-464.61	4,156.72	4,199.75	3,908.71	291.04	14.430
7,400.00	6,938.98	6,942.92	6,931.98	32.86	258.69	73.63	-464.61	4,156.72	4,158.48	3,867.01	291.48	14.267
7,450.00	6,946.22	6,950.15	6,939.22	33.06	258.83	79.88	-464.61	4,156.72	4,116.25	3,824.41	291.84	14.104
7,500.00	6,949.68	6,953.61	6,942.68	33.26	258.89	86.91	-464.61	4,156.72	4,073.30	3,781.17	292.14	13.943
7,521.05	6,950.00	6,953.93	6,943.00	33.35	258.90	90.06	-464.61	4,156.72	4,055.07	3,762.83	292.24	13.876
7,600.00	6,949.95	6,953.89	6,942.95	33.72	258.89	90.06	-464.61	4,156.72	3,986.76	3,694.15	292.61	13.625
7,700.00	6,949.89	6,953.83	6,942.89	34.24	258.89	90.06	-464.61	4,156.72	3,900.81	3,607.71	293.11	13.309
7,800.00	6,949.83	6,953.77	6,942.83	34.84	258.89	90.06	-464.61	4,156.72	3,815.55	3,521.91	293.64	12.994
7,900.00	6,949.77	6,953.71	6,942.77	35.50	258.89	90.05	-464.61	4,156.72	3,731.02	3,436.81	294.21	12.682
8,000.00	6,949.71	6,953.65	6,942.71	36.23	258.89	90.05	-464.61	4,156.72	3,647.27	3,352.46	294.81	12.371
8,100.00	6,949.65	6,953.59	6,942.65	37.02	258.89	90.05	-464.61	4,156.72	3,564.36	3,268.90	295.46	12.064
8,200.00	6,949.59	6,953.53	6,942.59	37.85	258.89	90.05	-464.61	4,156.72	3,482.34	3,186.20	296.15	11.759
8,300.00	6,949.53	6,953.47	6,942.53	38.74	258.89	90.05	-464.61	4,156.72	3,401.29	3,104.41	296.88	11.457
8,400.00	6,949.47	6,953.41	6,942.47	39.68	258.89	90.05	-464.61	4,156.72	3,321.28	3,023.61	297.66	11.158
8,500.00	6,949.41	6,953.35	6,942.41	40.66	258.88	90.04	-464.61	4,156.72	3,242.37	2,943.88	298.49	10.863
8,600.00	6,949.35	6,953.29	6,942.35	41.67	258.88	90.04	-464.61	4,156.72	3,164.65	2,865.28	299.37	10.571
8,700.00	6,949.29	6,953.23	6,942.29	42.73	258.88	90.04	-464.61	4,156.72	3,088.22	2,787.92	300.30	10.284
8,800.00	6,949.23	6,953.16	6,942.23	43.82	258.88	90.04	-464.61	4,156.72	3,013.17	2,711.89	301.28	10.001

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 158-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
8,900.00	6,949.17	6,953.10	6,942.17		44.94	258.88	90.04	-464.61	4,156.72	2,939.60	2,637.28	302.32	9.723
9,000.00	6,949.11	6,953.04	6,942.11	46.09	258.88	90.03	-464.61	4,156.72	2,867.64	2,564.22	303.42	9.451	
9,100.00	6,949.05	6,952.98	6,942.05	47.26	258.88	90.03	-464.61	4,156.72	2,797.39	2,492.83	304.57	9.185	
9,200.00	6,948.99	6,952.92	6,941.99	48.46	258.88	90.03	-464.61	4,156.72	2,729.01	2,423.24	305.77	8.925	
9,300.00	6,948.93	6,952.86	6,941.93	49.68	258.88	90.03	-464.61	4,156.72	2,662.62	2,355.59	307.03	8.672	
9,400.00	6,948.87	6,952.80	6,941.87	50.93	258.87	90.03	-464.61	4,156.72	2,598.39	2,290.05	308.35	8.427	
9,500.00	6,948.81	6,952.74	6,941.81	52.19	258.87	90.03	-464.61	4,156.72	2,536.48	2,226.77	309.71	8.190	
9,600.00	6,948.75	6,952.68	6,941.75	53.47	258.87	90.02	-464.61	4,156.72	2,477.05	2,165.93	311.12	7.962	
9,700.00	6,948.69	6,952.62	6,941.69	54.77	258.87	90.02	-464.61	4,156.72	2,420.30	2,107.73	312.57	7.743	
9,800.00	6,948.63	6,952.56	6,941.63	56.08	258.87	90.02	-464.61	4,156.72	2,366.42	2,052.36	314.06	7.535	
9,900.00	6,948.57	6,952.50	6,941.57	57.41	258.87	90.02	-464.61	4,156.72	2,315.60	2,000.04	315.57	7.338	
10,000.00	6,948.51	6,952.44	6,941.51	58.76	258.87	90.02	-464.61	4,156.72	2,268.06	1,950.97	317.10	7.153	
10,100.00	6,948.45	6,952.38	6,941.45	60.11	258.87	90.02	-464.61	4,156.72	2,224.00	1,905.37	318.63	6.980	
10,200.00	6,948.39	6,952.32	6,941.39	61.48	258.87	90.01	-464.61	4,156.72	2,183.63	1,863.49	320.15	6.821	
10,300.00	6,948.33	6,952.26	6,941.33	62.86	258.86	90.01	-464.61	4,156.72	2,147.17	1,825.52	321.64	6.676	
10,400.00	6,948.27	6,952.20	6,941.27	64.24	258.86	90.01	-464.61	4,156.72	2,114.81	1,791.71	323.10	6.545	
10,500.00	6,948.21	6,952.14	6,941.21	65.64	258.86	90.01	-464.61	4,156.72	2,086.74	1,762.24	324.50	6.431	
10,600.00	6,948.15	6,952.08	6,941.15	67.05	258.86	90.01	-464.61	4,156.72	2,063.14	1,737.33	325.82	6.332	
10,700.00	6,948.09	6,952.02	6,941.09	68.47	258.86	90.01	-464.61	4,156.72	2,044.17	1,717.12	327.05	6.250	
10,800.00	6,948.03	6,951.96	6,941.03	69.89	258.86	90.00	-464.61	4,156.72	2,029.95	1,701.79	328.17	6.186	
10,900.00	6,947.97	6,951.90	6,940.97	71.32	258.86	90.00	-464.61	4,156.72	2,020.59	1,691.43	329.16	6.139	
11,000.00	6,947.91	6,951.84	6,940.91	72.76	258.86	90.00	-464.61	4,156.72	2,016.15	1,686.13	330.03	6.109	
11,039.62	6,947.88	6,951.82	6,940.88	73.33	258.86	90.00	-464.61	4,156.72	2,015.76	1,685.43	330.33	6.102 CC, ES	
11,100.00	6,947.85	6,951.78	6,940.85	74.21	258.86	90.00	-464.61	4,156.72	2,016.67	1,685.92	330.74	6.097 SF	
11,200.00	6,947.79	6,951.72	6,940.79	75.66	258.85	90.00	-464.61	4,156.72	2,022.13	1,690.82	331.31	6.103	
11,300.00	6,947.73	6,951.66	6,940.73	77.12	258.85	90.00	-464.61	4,156.72	2,032.51	1,700.78	331.73	6.127	
11,400.00	6,947.66	6,951.60	6,940.66	78.58	258.85	89.99	-464.61	4,156.72	2,047.72	1,715.73	331.99	6.168	
11,500.00	6,947.60	6,951.54	6,940.60	80.05	258.85	89.99	-464.61	4,156.72	2,067.67	1,735.55	332.11	6.226	
11,600.00	6,947.54	6,951.48	6,940.54	81.52	258.85	89.99	-464.61	4,156.72	2,092.21	1,760.11	332.09	6.300	
11,700.00	6,947.48	6,951.42	6,940.48	83.00	258.85	89.99	-464.61	4,156.72	2,121.18	1,789.23	331.95	6.390	
11,800.00	6,947.42	6,951.36	6,940.42	84.48	258.85	89.99	-464.61	4,156.72	2,154.41	1,822.73	331.68	6.495	
11,900.00	6,947.36	6,951.30	6,940.36	85.97	258.85	89.99	-464.61	4,156.72	2,191.70	1,860.39	331.31	6.615	
12,000.00	6,947.30	6,951.24	6,940.30	87.46	258.85	89.98	-464.61	4,156.72	2,232.85	1,902.00	330.85	6.749	
12,100.00	6,947.24	6,951.18	6,940.24	88.96	258.84	89.98	-464.61	4,156.72	2,277.65	1,947.34	330.31	6.896	
12,200.00	6,947.18	6,951.12	6,940.18	90.46	258.84	89.98	-464.61	4,156.72	2,325.89	1,996.19	329.70	7.054	
12,300.00	6,947.12	6,951.06	6,940.12	91.96	258.84	89.98	-464.61	4,156.72	2,377.36	2,048.32	329.05	7.225	
12,400.00	6,947.06	6,951.00	6,940.06	93.47	258.84	89.98	-464.61	4,156.72	2,431.86	2,103.51	328.35	7.406	
12,500.00	6,947.00	6,950.94	6,940.00	94.97	258.84	89.98	-464.61	4,156.72	2,489.18	2,161.56	327.62	7.598	
12,600.00	6,946.94	6,950.88	6,939.94	96.49	258.84	89.97	-464.61	4,156.72	2,549.13	2,222.26	326.87	7.799	
12,700.00	6,946.88	6,950.82	6,939.88	98.00	258.84	89.97	-464.61	4,156.72	2,611.54	2,285.44	326.11	8.008	
12,800.00	6,946.82	6,950.76	6,939.82	99.52	258.84	89.97	-464.61	4,156.72	2,676.24	2,350.90	325.33	8.226	
12,900.00	6,946.76	6,950.70	6,939.76	101.04	258.84	89.97	-464.61	4,156.72	2,743.05	2,418.49	324.56	8.452	
13,000.00	6,946.70	6,950.64	6,939.70	102.56	258.83	89.97	-464.61	4,156.72	2,811.83	2,488.04	323.80	8.684	
13,100.00	6,946.64	6,950.58	6,939.64	104.09	258.83	89.96	-464.61	4,156.72	2,882.44	2,559.40	323.04	8.923	
13,200.00	6,946.58	6,950.52	6,939.58	105.61	258.83	89.96	-464.61	4,156.72	2,954.75	2,632.46	322.29	9.168	
13,300.00	6,946.52	6,950.46	6,939.52	107.14	258.83	89.96	-464.61	4,156.72	3,028.63	2,707.08	321.56	9.419	
13,400.00	6,946.46	6,950.40	6,939.46	108.67	258.83	89.96	-464.61	4,156.72	3,103.98	2,783.14	320.84	9.675	
13,500.00	6,946.40	6,950.34	6,939.40	110.21	258.83	89.96	-464.61	4,156.72	3,180.69	2,860.55	320.14	9.935	
13,600.00	6,946.34	6,950.28	6,939.34	111.74	258.83	89.96	-464.61	4,156.72	3,258.66	2,939.19	319.46	10.200	
13,700.00	6,946.28	6,950.21	6,939.28	113.28	258.83	89.95	-464.61	4,156.72	3,337.80	3,019.00	318.81	10.470	
13,800.00	6,946.22	6,950.15	6,939.22	114.82	258.83	89.95	-464.61	4,156.72	3,418.04	3,099.87	318.17	10.743	
13,900.00	6,946.16	6,950.09	6,939.16	116.36	258.82	89.95	-464.61	4,156.72	3,499.30	3,181.75	317.55	11.020	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153B - OH - OH-INC											Offset Site Error: 0.00 usft
Survey Program: 158-A027Ua_INC-ONLY											Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		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)	
14,000.00	6,946.10	6,950.03	6,939.10	117.90	258.82	89.95	-464.61	4,156.72	3,581.50	3,264.55	11.300
14,100.00	6,946.04	6,949.97	6,939.04	119.45	258.82	89.95	-464.61	4,156.72	3,664.59	3,348.21	11.583
14,200.00	6,945.98	6,949.91	6,938.98	120.99	258.82	89.95	-464.61	4,156.72	3,748.51	3,432.68	11.869
14,300.00	6,945.92	6,949.85	6,938.92	122.54	258.82	89.94	-464.61	4,156.72	3,833.20	3,517.90	12.158
14,400.00	6,945.86	6,949.79	6,938.86	124.09	258.82	89.94	-464.61	4,156.72	3,918.60	3,603.83	12.449
14,500.00	6,945.80	6,949.73	6,938.80	125.64	258.82	89.94	-464.61	4,156.72	4,004.69	3,690.40	12.742
14,600.00	6,945.74	6,949.67	6,938.74	127.19	258.82	89.94	-464.61	4,156.72	4,091.41	3,777.60	13.038
14,700.00	6,945.68	6,949.61	6,938.68	128.74	258.82	89.94	-464.61	4,156.72	4,178.72	3,865.36	13.335
14,800.00	6,945.62	6,949.55	6,938.62	130.30	258.81	89.94	-464.61	4,156.72	4,266.59	3,953.67	13.635
14,900.00	6,945.56	6,949.49	6,938.56	131.85	258.81	89.93	-464.61	4,156.72	4,354.98	4,042.48	13.936
15,000.00	6,945.50	6,949.43	6,938.50	133.41	258.81	89.93	-464.61	4,156.72	4,443.86	4,131.77	14.239
15,100.00	6,945.44	6,949.37	6,938.44	134.96	258.81	89.93	-464.61	4,156.72	4,533.21	4,221.51	14.543
15,200.00	6,945.38	6,949.31	6,938.38	136.52	258.81	89.93	-464.61	4,156.72	4,622.99	4,311.66	14.849
15,300.00	6,945.32	6,949.25	6,938.32	138.08	258.81	89.93	-464.61	4,156.72	4,713.19	4,402.22	15.156
15,400.00	6,945.26	6,949.19	6,938.26	139.64	258.81	89.93	-464.61	4,156.72	4,803.77	4,493.14	15.465
15,500.00	6,945.20	6,949.13	6,938.20	141.20	258.81	89.92	-464.61	4,156.72	4,894.72	4,584.42	15.774
15,600.00	6,945.14	6,949.07	6,938.14	142.76	258.81	89.92	-464.61	4,156.72	4,986.02	4,676.03	16.085
15,700.00	6,945.08	6,949.01	6,938.08	144.33	258.80	89.92	-464.61	4,156.72	5,077.64	4,767.96	16.396
15,800.00	6,945.02	6,948.95	6,938.02	145.89	258.80	89.92	-464.61	4,156.72	5,169.58	4,860.18	16.709
15,900.00	6,944.96	6,948.89	6,937.96	147.46	258.80	89.92	-464.61	4,156.72	5,261.81	4,952.69	17.022
16,000.00	6,944.90	6,948.83	6,937.90	149.02	258.80	89.92	-464.61	4,156.72	5,354.31	5,045.46	17.336
16,100.00	6,944.84	6,948.77	6,937.84	150.59	258.80	89.91	-464.61	4,156.72	5,447.09	5,138.49	17.651
16,200.00	6,944.77	6,948.71	6,937.77	152.15	258.80	89.91	-464.61	4,156.72	5,540.11	5,231.76	17.967
16,300.00	6,944.71	6,948.65	6,937.71	153.72	258.80	89.91	-464.61	4,156.72	5,633.37	5,325.26	18.283
16,400.00	6,944.65	6,948.59	6,937.65	155.29	258.80	89.91	-464.61	4,156.72	5,726.87	5,418.97	18.600
16,500.00	6,944.59	6,948.53	6,937.59	156.86	258.80	89.91	-464.61	4,156.72	5,820.57	5,512.90	18.918
16,600.00	6,944.53	6,948.47	6,937.53	158.43	258.79	89.90	-464.61	4,156.72	5,914.49	5,607.02	19.236
16,700.00	6,944.47	6,948.41	6,937.47	160.00	258.79	89.90	-464.61	4,156.72	6,008.60	5,701.32	19.555
16,800.00	6,944.41	6,948.35	6,937.41	161.57	258.79	89.90	-464.61	4,156.72	6,102.89	5,795.81	19.874
16,900.00	6,944.35	6,948.29	6,937.35	163.14	258.79	89.90	-464.61	4,156.72	6,197.37	5,890.46	20.193
17,000.00	6,944.29	6,948.23	6,937.29	164.71	258.79	89.90	-464.61	4,156.72	6,292.01	5,985.28	20.513
17,100.00	6,944.23	6,948.17	6,937.23	166.29	258.79	89.90	-464.61	4,156.72	6,386.82	6,080.26	20.833
17,200.00	6,944.17	6,948.11	6,937.17	167.86	258.79	89.89	-464.61	4,156.72	6,481.79	6,175.38	21.154
17,300.00	6,944.11	6,948.05	6,937.11	169.43	258.79	89.89	-464.61	4,156.72	6,576.90	6,270.65	21.475
17,400.00	6,944.05	6,947.99	6,937.05	171.01	258.78	89.89	-464.61	4,156.72	6,672.16	6,366.05	21.796
17,500.00	6,943.99	6,947.93	6,936.99	172.58	258.78	89.89	-464.61	4,156.72	6,767.56	6,461.58	22.118
17,600.00	6,943.93	6,947.87	6,936.93	174.16	258.78	89.89	-464.61	4,156.72	6,863.08	6,557.24	22.440
17,700.00	6,943.87	6,947.81	6,936.87	175.73	258.78	89.89	-464.61	4,156.72	6,958.73	6,653.01	22.762
17,800.00	6,943.81	6,947.75	6,936.81	177.31	258.78	89.88	-464.61	4,156.72	7,054.51	6,748.91	23.084
17,900.00	6,943.75	6,947.69	6,936.75	178.89	258.78	89.88	-464.61	4,156.72	7,150.39	6,844.91	23.407
18,000.00	6,943.69	6,947.63	6,936.69	180.46	258.78	89.88	-464.61	4,156.72	7,246.39	6,941.01	23.729
18,100.00	6,943.63	6,947.57	6,936.63	182.04	258.78	89.88	-464.61	4,156.72	7,342.50	7,037.22	24.052
18,200.00	6,943.57	6,947.51	6,936.57	183.62	258.78	89.88	-464.61	4,156.72	7,438.71	7,133.53	24.375
18,300.00	6,943.51	6,947.45	6,936.51	185.20	258.77	89.88	-464.61	4,156.72	7,535.01	7,229.93	24.698
18,400.00	6,943.45	6,947.39	6,936.45	186.78	258.77	89.87	-464.61	4,156.72	7,631.42	7,326.42	25.021
18,500.00	6,943.39	6,947.32	6,936.39	188.36	258.77	89.87	-464.61	4,156.72	7,727.91	7,423.00	25.345
18,600.00	6,943.33	6,947.26	6,936.33	189.94	258.77	89.87	-464.61	4,156.72	7,824.49	7,519.66	25.668
18,700.00	6,943.27	6,947.20	6,936.27	191.52	258.77	89.87	-464.61	4,156.72	7,921.16	7,616.40	25.991
18,800.00	6,943.21	6,947.14	6,936.21	193.10	258.77	89.87	-464.61	4,156.72	8,017.91	7,713.22	26.315
18,900.00	6,943.15	6,947.08	6,936.15	194.68	258.77	89.87	-464.61	4,156.72	8,114.73	7,810.11	26.639
19,000.00	6,943.09	6,947.02	6,936.09	196.26	258.77	89.86	-464.61	4,156.72	8,211.64	7,907.08	26.962
19,100.00	6,943.03	6,946.96	6,936.03	197.84	258.77	89.86	-464.61	4,156.72	8,308.61	8,004.11	27.286

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153B - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 158-A027Ua_INC-ONLY												Offset Well Error:	0.00 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	
19,200.00	6,942.97	6,946.90	6,935.97	199.42	258.76	89.86	-464.61	4,156.72	8,405.66	8,101.21	304.45	27.610	
19,300.00	6,942.91	6,946.84	6,935.91	201.01	258.76	89.86	-464.61	4,156.72	8,502.78	8,198.38	304.40	27.933	
19,400.00	6,942.85	6,946.78	6,935.85	202.59	258.76	89.86	-464.61	4,156.72	8,599.96	8,295.61	304.35	28.257	
19,500.00	6,942.79	6,946.72	6,935.79	204.17	258.76	89.86	-464.61	4,156.72	8,697.20	8,392.90	304.30	28.581	
19,600.00	6,942.73	6,946.66	6,935.73	205.75	258.76	89.85	-464.61	4,156.72	8,794.51	8,490.25	304.26	28.904	
19,700.00	6,942.67	6,946.60	6,935.67	207.34	258.76	89.85	-464.61	4,156.72	8,891.88	8,587.65	304.23	29.228	
19,800.00	6,942.61	6,946.54	6,935.61	208.92	258.76	89.85	-464.61	4,156.72	8,989.30	8,685.11	304.19	29.551	
19,900.00	6,942.55	6,946.48	6,935.55	210.51	258.76	89.85	-464.61	4,156.72	9,086.78	8,782.62	304.16	29.875	
20,000.00	6,942.49	6,946.42	6,935.49	212.09	258.76	89.85	-464.61	4,156.72	9,184.32	8,880.19	304.13	30.198	
20,100.00	6,942.43	6,946.36	6,935.43	213.68	258.75	89.84	-464.61	4,156.72	9,281.91	8,977.80	304.11	30.522	
20,200.00	6,942.37	6,946.30	6,935.37	215.26	258.75	89.84	-464.61	4,156.72	9,379.55	9,075.46	304.08	30.845	
20,300.00	6,942.31	6,946.24	6,935.31	216.85	258.75	89.84	-464.61	4,156.72	9,477.23	9,173.17	304.06	31.169	
20,400.00	6,942.25	6,946.18	6,935.25	218.43	258.75	89.84	-464.61	4,156.72	9,574.97	9,270.92	304.05	31.492	
20,500.00	6,942.19	6,946.12	6,935.19	220.02	258.75	89.84	-464.61	4,156.72	9,672.75	9,368.72	304.03	31.815	
20,600.00	6,942.13	6,946.06	6,935.13	221.60	258.75	89.84	-464.61	4,156.72	9,770.58	9,466.56	304.02	32.138	
20,700.00	6,942.07	6,946.00	6,935.07	223.19	258.75	89.83	-464.61	4,156.72	9,868.45	9,564.44	304.01	32.461	
20,808.89	6,942.00	6,945.93	6,935.00	224.92	258.75	89.83	-464.61	4,156.72	9,975.06	9,671.06	304.00	32.813	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153C - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 349-MWD OWSG Rev5													Offset Well Error:	0.00 usft
Reference													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	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	47.82	1,080.22	1,192.33	1,612.51					
100.00	100.00	0.00	0.00	0.25	0.00	47.82	1,080.22	1,192.33	1,608.91	1,608.66	0.25	6,405.198		
200.00	200.00	103.49	103.49	0.61	1.14	47.81	1,080.20	1,191.84	1,608.56	1,606.82	1.74	922.770		
300.00	300.00	215.95	215.94	0.97	2.37	47.78	1,080.15	1,190.22	1,607.46	1,604.12	3.33	482.138		
400.00	400.00	328.37	328.33	1.33	3.61	47.71	1,080.06	1,187.45	1,605.58	1,600.66	4.92	326.055		
500.00	500.00	423.70	423.61	1.68	3.92	47.66	1,079.71	1,184.91	1,603.37	1,597.79	5.58	287.257		
600.00	599.98	509.00	508.89	2.04	3.99	46.56	1,077.81	1,184.77	1,600.56	1,594.54	6.02	265.885		
700.00	699.84	570.57	570.37	2.41	4.03	46.81	1,075.43	1,186.94	1,597.04	1,590.62	6.42	248.602		
800.00	799.45	637.54	637.09	2.77	4.05	47.21	1,072.37	1,191.72	1,593.40	1,586.60	6.80	234.231		
900.00	898.70	697.04	696.11	3.13	4.11	47.70	1,069.02	1,198.40	1,589.86	1,582.68	7.18	221.302		
1,000.00	997.47	769.80	767.86	3.50	4.21	48.46	1,063.77	1,209.33	1,586.18	1,578.59	7.58	209.183		
1,100.00	1,095.62	832.17	828.89	3.89	4.33	49.25	1,058.34	1,220.94	1,582.45	1,574.45	8.00	197.895		
1,200.00	1,193.06	894.88	889.83	4.30	4.45	50.16	1,052.30	1,234.40	1,578.89	1,570.45	8.44	187.136		
1,245.21	1,236.83	919.56	913.67	4.48	4.50	50.55	1,049.83	1,240.29	1,577.54	1,568.90	8.64	182.530		
1,300.00	1,289.78	949.19	942.20	4.72	4.57	51.00	1,046.88	1,247.75	1,576.48	1,567.58	8.90	177.182		
1,333.09	1,321.76	968.00	960.24	4.86	4.62	51.30	1,045.00	1,252.74	1,576.33	1,567.27	9.06	174.036		
1,400.00	1,386.42	1,006.15	996.61	5.15	4.72	51.91	1,040.91	1,263.52	1,577.06	1,567.67	9.40	167.836		
1,500.00	1,483.05	1,063.00	1,050.20	5.59	4.90	52.89	1,033.94	1,281.15	1,580.67	1,570.74	9.93	159.159		
1,600.00	1,579.69	1,126.00	1,108.93	6.04	5.09	54.01	1,025.45	1,302.30	1,587.19	1,576.67	10.52	150.896		
1,700.00	1,676.32	1,189.00	1,166.83	6.49	5.31	55.20	1,015.64	1,325.09	1,596.48	1,585.33	11.15	143.165		
1,800.00	1,772.96	1,237.37	1,210.60	6.94	5.50	56.15	1,007.45	1,343.97	1,609.19	1,597.45	11.74	137.056		
1,900.00	1,869.60	1,281.00	1,249.56	7.40	5.68	57.02	999.84	1,362.08	1,625.56	1,613.25	12.31	132.056		
2,000.00	1,966.23	1,328.51	1,291.45	7.86	5.92	57.98	991.45	1,382.85	1,645.54	1,632.63	12.92	127.406		
2,100.00	2,062.87	1,378.63	1,334.90	8.33	6.21	59.01	982.27	1,406.07	1,669.18	1,655.63	13.55	123.172		
2,200.00	2,159.50	1,439.00	1,386.80	8.79	6.63	60.24	970.98	1,434.78	1,695.67	1,681.41	14.26	118.897		
2,300.00	2,256.14	1,491.17	1,430.98	9.26	7.05	61.33	960.44	1,460.45	1,725.07	1,710.14	14.92	115.599		
2,400.00	2,352.77	1,534.00	1,466.82	9.73	7.42	62.22	951.56	1,482.16	1,757.51	1,742.01	15.50	113.423		
2,500.00	2,449.41	1,579.26	1,504.18	10.20	7.85	63.16	941.99	1,505.84	1,793.08	1,777.00	16.09	111.457		
2,600.00	2,546.05	1,630.74	1,545.87	10.67	8.36	64.25	930.39	1,533.71	1,831.68	1,814.94	16.74	109.438		
2,700.00	2,642.68	1,691.00	1,594.48	11.14	8.99	65.50	916.45	1,566.49	1,872.27	1,854.81	17.46	107.232		
2,800.00	2,739.32	1,733.95	1,628.68	11.61	9.46	66.39	906.19	1,590.35	1,915.47	1,897.47	18.00	106.391		
2,900.00	2,835.95	1,787.00	1,670.42	12.08	10.07	67.47	893.50	1,620.54	1,961.28	1,942.63	18.64	105.193		
3,000.00	2,932.59	1,842.39	1,713.90	12.55	10.72	68.56	880.54	1,652.31	2,009.01	1,989.71	19.30	104.119		
3,100.00	3,029.22	1,901.34	1,759.71	13.03	11.43	69.72	866.27	1,686.55	2,058.70	2,038.72	19.98	103.037		
3,200.00	3,125.86	1,973.59	1,815.59	13.50	12.32	71.11	847.80	1,728.46	2,109.71	2,088.90	20.81	101.401		
3,300.00	3,222.50	2,025.26	1,855.38	13.97	12.97	72.09	834.34	1,758.56	2,162.19	2,140.80	21.40	101.055		
3,400.00	3,319.13	2,093.39	1,907.67	14.45	13.83	73.35	816.55	1,798.44	2,216.12	2,193.96	22.16	99.995		
3,500.00	3,415.77	2,132.00	1,937.24	14.92	14.33	74.04	806.55	1,821.17	2,271.48	2,248.89	22.59	100.545		
3,600.00	3,512.40	2,335.03	2,094.85	15.40	16.90	77.44	755.45	1,938.41	2,327.52	2,302.69	24.83	93.734		
3,700.00	3,609.04	2,747.46	2,444.63	15.88	21.14	83.08	667.52	2,137.32	2,370.98	2,342.10	28.88	82.105		
3,800.00	3,705.67	3,519.37	3,171.35	16.35	25.61	90.54	566.54	2,364.80	2,394.39	2,360.44	33.95	70.529		
3,900.00	3,802.31	4,018.79	3,667.70	16.83	29.34	94.01	547.50	2,404.48	2,399.19	2,360.49	38.70	61.994		
4,000.00	3,898.95	4,114.53	3,763.43	17.30	33.36	94.60	547.21	2,405.53	2,402.35	2,358.61	43.74	54.920		
4,100.00	3,995.58	4,210.26	3,859.16	17.78	37.44	95.19	546.91	2,406.62	2,405.82	2,357.05	48.77	49.329		
4,200.00	4,092.22	4,305.99	3,954.88	18.26	41.55	95.77	546.60	2,407.74	2,409.61	2,355.82	53.79	44.797		
4,300.00	4,188.85	4,401.72	4,050.60	18.73	45.70	96.36	546.28	2,408.89	2,413.70	2,354.89	58.80	41.048		
4,400.00	4,285.49	4,497.43	4,146.31	19.21	49.86	96.94	545.96	2,410.07	2,418.09	2,354.28	63.81	37.896		
4,500.00	4,382.12	4,593.15	4,242.01	19.69	54.04	97.53	545.62	2,411.29	2,422.79	2,353.98	68.81	35.210		
4,600.00	4,478.76	4,688.86	4,337.71	20.17	58.22	98.11	545.28	2,412.53	2,427.80	2,353.99	73.81	32.894		
4,700.00	4,575.40	4,784.56	4,433.41	20.64	62.41	98.68	544.93	2,413.81	2,433.11	2,354.30	78.80	30.877		
4,800.00	4,672.03	4,880.26	4,529.10	21.12	66.61	99.26	544.57	2,415.12	2,438.71	2,354.92	83.79	29.105		
4,900.00	4,768.67	4,975.95	4,624.78	21.60	70.81	99.83	544.20	2,416.46	2,444.62	2,355.85	88.78	27.537		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153C - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		349-MWD OWSG Rev5					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	
5,000.00	4,865.30	5,071.64	4,720.46	22.08	75.02	100.40	543.82	2,417.84	2,450.82	2,357.07	93.76	26.140		
5,100.00	4,961.94	5,167.32	4,816.13	22.55	79.23	100.97	543.43	2,419.24	2,457.32	2,358.59	98.73	24.888		
5,200.00	5,058.57	5,263.00	4,911.79	23.03	83.44	101.53	543.04	2,420.68	2,464.12	2,360.41	103.71	23.760		
5,300.00	5,155.21	5,358.67	5,007.45	23.51	87.66	102.10	542.63	2,422.15	2,471.20	2,362.52	108.68	22.739		
5,400.00	5,251.85	5,454.33	5,103.10	23.99	91.88	102.66	542.22	2,423.65	2,478.57	2,364.93	113.64	21.810		
5,500.00	5,348.48	5,549.99	5,198.75	24.47	96.10	103.21	541.80	2,425.18	2,486.23	2,367.63	118.60	20.963		
5,600.00	5,445.12	5,645.65	5,294.39	24.94	100.33	103.76	541.37	2,426.74	2,494.17	2,370.61	123.56	20.186		
5,700.00	5,541.75	5,741.36	5,390.09	25.42	104.36	104.31	540.93	2,428.34	2,502.40	2,374.11	128.29	19.506		
5,800.00	5,638.39	5,837.87	5,486.58	25.90	105.52	104.86	540.48	2,429.96	2,510.88	2,380.94	129.94	19.323		
5,900.00	5,735.02	5,934.38	5,583.08	26.38	106.67	105.41	540.03	2,431.59	2,519.61	2,388.01	131.60	19.146		
6,000.00	5,831.66	6,030.89	5,679.57	26.86	107.82	105.95	539.59	2,433.21	2,528.58	2,395.33	133.25	18.976		
6,100.00	5,928.30	6,127.40	5,776.07	27.34	108.97	106.49	539.14	2,434.83	2,537.79	2,402.89	134.90	18.813		
6,200.00	6,024.93	6,223.91	5,872.57	27.82	110.12	107.03	538.69	2,436.46	2,547.23	2,410.68	136.55	18.655		
6,300.00	6,121.57	6,320.42	5,969.06	28.29	110.61	107.56	538.25	2,438.08	2,556.91	2,419.38	137.53	18.592		
6,400.00	6,218.20	6,416.93	6,065.56	28.77	110.83	108.09	537.80	2,439.71	2,566.82	2,428.59	138.23	18.569		
6,500.00	6,314.84	6,513.44	6,162.06	29.25	111.04	108.61	537.35	2,441.33	2,576.95	2,438.02	138.93	18.549		
6,521.58	6,335.69	6,534.27	6,182.88	29.36	111.09	108.73	537.25	2,441.68	2,579.17	2,440.09	139.08	18.544		
6,550.00	6,363.15	6,561.70	6,210.31	29.49	111.15	99.30	537.13	2,442.14	2,581.51	2,442.23	139.28	18.535		
6,600.00	6,411.28	6,609.84	6,258.44	29.73	111.26	84.34	536.90	2,442.95	2,582.77	2,443.13	139.64	18.497		
6,650.00	6,458.93	6,657.57	6,306.16	29.96	111.37	72.59	536.68	2,443.76	2,580.40	2,440.41	139.99	18.433		
6,700.00	6,505.83	6,704.61	6,353.19	30.19	111.47	64.03	536.47	2,444.55	2,574.45	2,434.10	140.35	18.343		
6,750.00	6,551.67	6,748.83	6,397.41	30.42	111.58	57.98	536.26	2,445.30	2,564.97	2,424.27	140.70	18.230		
6,800.00	6,596.17	6,790.04	6,438.61	30.64	111.67	53.79	536.05	2,446.05	2,552.09	2,411.05	141.05	18.094		
6,850.00	6,639.06	6,829.87	6,478.43	30.85	111.77	50.98	535.84	2,446.83	2,535.92	2,394.53	141.39	17.936		
6,900.00	6,680.07	6,868.09	6,516.64	31.05	111.86	49.22	535.62	2,447.62	2,516.57	2,374.85	141.72	17.757		
6,950.00	6,718.96	6,904.47	6,553.01	31.24	111.95	48.30	535.40	2,448.42	2,494.18	2,352.14	142.05	17.559		
7,000.00	6,755.47	6,938.79	6,587.32	31.43	112.03	48.11	535.18	2,449.22	2,468.90	2,326.54	142.37	17.342		
7,050.00	6,789.40	6,970.86	6,619.38	31.61	112.10	48.56	534.96	2,450.00	2,440.90	2,298.22	142.68	17.108		
7,100.00	6,820.52	7,000.46	6,648.97	31.79	112.18	49.63	534.76	2,450.75	2,410.36	2,267.38	142.98	16.858		
7,150.00	6,848.64	7,027.42	6,675.92	31.97	112.24	51.32	534.56	2,451.46	2,377.48	2,234.21	143.27	16.594		
7,200.00	6,873.60	7,051.57	6,700.06	32.14	112.30	53.65	534.38	2,452.11	2,342.47	2,198.91	143.56	16.318		
7,250.00	6,895.24	7,072.75	6,721.23	32.31	112.35	56.68	534.22	2,452.71	2,305.55	2,161.72	143.83	16.030		
7,300.00	6,913.42	7,090.83	6,739.31	32.49	112.39	60.44	534.08	2,453.22	2,266.96	2,122.86	144.10	15.732		
7,350.00	6,928.03	7,105.68	6,754.15	32.67	112.43	65.01	533.96	2,453.65	2,226.94	2,082.58	144.36	15.427		
7,400.00	6,938.98	7,117.21	6,765.67	32.86	112.45	70.41	533.86	2,453.99	2,185.73	2,041.12	144.61	15.115		
7,450.00	6,946.22	7,125.32	6,773.77	33.06	112.47	76.61	533.80	2,454.23	2,143.59	1,998.73	144.85	14.798		
7,500.00	6,949.68	7,129.95	6,778.40	33.26	112.48	83.54	533.76	2,454.37	2,100.77	1,955.68	145.09	14.479		
7,521.05	6,950.00	7,130.84	6,779.30	33.35	112.49	86.62	533.75	2,454.40	2,082.60	1,937.41	145.19	14.344		
7,600.00	6,949.95	7,133.04	6,781.50	33.72	112.49	86.74	533.73	2,454.47	2,014.72	1,869.16	145.56	13.841		
7,700.00	6,949.89	7,135.84	6,784.29	34.24	112.50	86.90	533.71	2,454.55	1,929.96	1,783.88	146.08	13.212		
7,800.00	6,949.83	7,138.65	6,787.11	34.84	112.51	87.05	533.69	2,454.64	1,846.72	1,700.06	146.65	12.593		
7,900.00	6,949.77	7,141.49	6,789.94	35.50	112.51	87.21	533.66	2,454.72	1,765.21	1,617.93	147.28	11.985		
8,000.00	6,949.71	7,144.34	6,792.79	36.23	112.52	87.36	533.64	2,454.81	1,685.69	1,537.71	147.98	11.391		
8,100.00	6,949.65	7,147.21	6,795.66	37.02	112.53	87.52	533.61	2,454.90	1,608.45	1,459.71	148.74	10.814		
8,200.00	6,949.59	7,150.09	6,798.54	37.85	112.53	87.68	533.59	2,454.99	1,533.84	1,384.26	149.58	10.254		
8,300.00	6,949.53	7,153.00	6,801.45	38.74	112.54	87.84	533.57	2,455.08	1,462.25	1,311.76	150.49	9.717		
8,400.00	6,949.47	7,155.92	6,804.37	39.68	112.55	88.00	533.54	2,455.17	1,394.16	1,242.70	151.47	9.204		
8,500.00	6,949.41	7,158.87	6,807.31	40.66	112.55	88.16	533.52	2,455.26	1,330.11	1,177.60	152.51	8.721		
8,600.00	6,949.35	7,161.83	6,810.27	41.67	112.56	88.32	533.49	2,455.35	1,270.69	1,117.09	153.60	8.273		
8,700.00	6,949.29	7,164.81	6,813.25	42.73	112.57	88.48	533.46	2,455.44	1,216.60	1,061.88	154.72	7.863		
8,800.00	6,949.23	7,167.81	6,816.25	43.82	112.57	88.65	533.44	2,455.54	1,168.57	1,012.74	155.84	7.499		
8,900.00	6,949.17	7,170.83	6,819.27	44.94	112.58	88.81	533.41	2,455.63	1,127.38	970.48	156.90	7.185		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153C - OH - OH-SVY												Offset Site Error:	0.00 usft
Survey Program: 349-MWD OWSG Rev5												Offset Well Error:	0.00 usft
Rule Assigned:													
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
9,000.00	6,949.11	7,173.87	6,822.30	46.09	112.59	88.98	533.39	2,455.73	1,093.79	935.93	157.86	6.929	
9,100.00	6,949.05	7,176.93	6,825.36	47.26	112.60	89.15	533.36	2,455.82	1,068.53	909.87	158.66	6.735	
9,200.00	6,948.99	7,180.01	6,828.44	48.46	112.60	89.32	533.33	2,455.92	1,052.20	892.95	159.25	6.607	
9,300.00	6,948.93	7,183.11	6,831.54	49.68	112.61	89.49	533.31	2,456.02	1,045.22	885.63	159.58	6.550	
9,323.30	6,948.92	7,183.83	6,832.26	49.97	112.61	89.53	533.30	2,456.04	1,044.96	885.33	159.62	6.547	CC, ES, SF
9,400.00	6,948.87	7,186.23	6,834.65	50.93	112.62	89.66	533.28	2,456.12	1,047.76	888.13	159.63	6.564	
9,500.00	6,948.81	7,189.37	6,837.79	52.19	112.63	89.83	533.25	2,456.22	1,059.77	900.36	159.41	6.648	
9,600.00	6,948.75	7,192.53	6,840.95	53.47	112.63	90.00	533.22	2,456.32	1,080.92	921.99	158.93	6.801	
9,700.00	6,948.69	7,195.71	6,844.13	54.77	112.64	90.18	533.19	2,456.42	1,110.70	952.45	158.25	7.019	
9,800.00	6,948.63	7,198.91	6,847.34	56.08	112.65	90.35	533.17	2,456.53	1,148.43	991.02	157.42	7.296	
9,900.00	6,948.57	7,202.14	6,850.56	57.41	112.66	90.53	533.14	2,456.63	1,193.37	1,036.88	156.48	7.626	
10,000.00	6,948.51	7,205.39	6,853.80	58.76	112.67	90.71	533.11	2,456.74	1,244.72	1,089.21	155.51	8.004	
10,100.00	6,948.45	7,208.66	6,857.07	60.11	112.67	90.89	533.08	2,456.85	1,301.73	1,147.21	154.52	8.424	
10,200.00	6,948.39	7,211.95	6,860.36	61.48	112.68	91.07	533.05	2,456.95	1,363.70	1,210.14	153.56	8.881	
10,300.00	6,948.33	7,215.26	6,863.67	62.86	112.69	91.25	533.02	2,457.06	1,429.97	1,277.33	152.64	9.368	
10,400.00	6,948.27	7,218.60	6,867.01	64.24	112.70	91.43	532.99	2,457.17	1,499.98	1,348.20	151.77	9.883	
10,500.00	6,948.21	7,221.95	6,870.36	65.64	112.70	91.61	532.96	2,457.28	1,573.22	1,422.25	150.97	10.421	
10,600.00	6,948.15	7,225.34	6,873.74	67.05	112.71	91.80	532.93	2,457.40	1,649.27	1,499.04	150.24	10.978	
10,700.00	6,948.09	7,228.74	6,877.14	68.47	112.72	91.99	532.90	2,457.51	1,727.76	1,578.20	149.56	11.552	
10,800.00	6,948.03	7,232.17	6,880.57	69.89	112.73	92.17	532.86	2,457.62	1,808.37	1,659.41	148.95	12.140	
10,900.00	6,947.97	7,235.62	6,884.02	71.32	112.74	92.36	532.83	2,457.74	1,890.82	1,742.42	148.40	12.741	
11,000.00	6,947.91	7,239.10	6,887.50	72.76	112.75	92.55	532.80	2,457.86	1,974.89	1,826.98	147.91	13.352	
11,100.00	6,947.85	7,242.60	6,890.99	74.21	112.75	92.74	532.77	2,457.97	2,060.37	1,912.92	147.46	13.973	
11,200.00	6,947.79	7,246.12	6,894.52	75.66	112.76	92.94	532.73	2,458.09	2,147.11	2,000.05	147.06	14.601	
11,300.00	6,947.73	7,249.67	6,898.07	77.12	112.77	93.13	532.70	2,458.21	2,234.95	2,088.25	146.70	15.235	
11,400.00	6,947.66	7,253.06	6,901.45	78.58	112.78	93.31	532.67	2,458.33	2,323.77	2,177.40	146.37	15.876	
11,500.00	6,947.60	7,256.60	6,904.99	80.05	112.78	93.51	532.64	2,458.45	2,413.45	2,267.37	146.08	16.522	
11,600.00	6,947.54	7,260.17	6,908.55	81.52	112.79	93.70	532.60	2,458.57	2,503.92	2,358.10	145.82	17.171	
11,700.00	6,947.48	7,263.75	6,912.14	83.00	112.80	93.90	532.57	2,458.70	2,595.08	2,449.49	145.59	17.825	
11,800.00	6,947.42	7,267.36	6,915.74	84.48	112.81	94.09	532.53	2,458.82	2,686.86	2,541.48	145.38	18.482	
11,900.00	6,947.36	7,270.99	6,919.36	85.97	112.82	94.29	532.50	2,458.94	2,779.21	2,634.01	145.19	19.141	
12,000.00	6,947.30	7,274.63	6,923.01	87.46	112.82	94.49	532.47	2,459.07	2,872.06	2,727.03	145.03	19.803	
12,100.00	6,947.24	7,278.30	6,926.68	88.96	112.83	94.69	532.43	2,459.20	2,965.38	2,820.49	144.88	20.467	
12,200.00	6,947.18	7,281.99	6,930.36	90.46	112.84	94.89	532.39	2,459.33	3,059.11	2,914.35	144.75	21.133	
12,300.00	6,947.12	7,285.70	6,934.07	91.96	112.85	95.09	532.36	2,459.46	3,153.22	3,008.58	144.64	21.800	
12,400.00	6,947.06	7,289.44	6,937.80	93.47	112.86	95.29	532.32	2,459.59	3,247.69	3,103.15	144.54	22.469	
12,500.00	6,947.00	7,293.19	6,941.56	94.97	112.87	95.50	532.29	2,459.72	3,342.47	3,198.01	144.45	23.139	
12,600.00	6,946.94	7,296.97	6,945.33	96.49	112.87	95.70	532.25	2,459.85	3,437.54	3,293.16	144.38	23.810	
12,700.00	6,946.88	7,300.77	6,949.13	98.00	112.88	95.91	532.21	2,459.99	3,532.88	3,388.57	144.31	24.481	
12,800.00	6,946.82	7,304.59	6,952.95	99.52	112.89	96.11	532.18	2,460.12	3,628.47	3,484.21	144.25	25.153	
12,900.00	6,946.76	7,308.44	6,956.79	101.04	112.90	96.32	532.14	2,460.26	3,724.28	3,580.08	144.21	25.826	
13,000.00	6,946.70	7,312.30	6,960.65	102.56	112.91	96.53	532.10	2,460.40	3,820.31	3,676.14	144.17	26.499	
13,100.00	6,946.64	7,316.19	6,964.54	104.09	112.92	96.74	532.06	2,460.53	3,916.53	3,772.40	144.14	27.173	
13,200.00	6,946.58	7,320.11	6,968.45	105.61	112.93	96.95	532.02	2,460.67	4,012.94	3,868.83	144.11	27.846	
13,300.00	6,946.52	7,324.05	6,972.39	107.14	112.93	97.16	531.98	2,460.82	4,109.51	3,965.42	144.09	28.520	
13,400.00	6,946.46	7,328.01	6,976.35	108.67	112.94	97.38	531.95	2,460.96	4,206.24	4,062.16	144.08	29.194	
13,500.00	6,946.40	7,331.99	6,980.33	110.21	112.95	97.59	531.91	2,461.10	4,303.11	4,159.04	144.07	29.867	
13,600.00	6,946.34	7,336.00	6,984.33	111.74	112.96	97.81	531.87	2,461.25	4,400.13	4,256.05	144.07	30.541	
13,700.00	6,946.28	7,340.03	6,988.36	113.28	112.97	98.02	531.82	2,461.40	4,497.27	4,353.19	144.08	31.214	
13,800.00	6,946.22	7,344.09	6,992.42	114.82	112.98	98.24	531.78	2,461.54	4,594.52	4,450.44	144.08	31.888	
13,900.00	6,946.16	7,348.17	6,996.50	116.36	112.99	98.46	531.74	2,461.69	4,691.90	4,547.80	144.10	32.561	
14,000.00	6,946.10	7,352.28	7,000.60	117.90	113.00	98.68	531.70	2,461.84	4,789.37	4,645.26	144.11	33.233	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153C - OH - OH-SVY												Offset Site Error: 0.00 usft		
Survey Program: 349-MWD OWSG Rev5		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance				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	
14,100.00	6,946.04	7,356.42	7,004.73	119.45	113.01	98.90	531.66	2,462.00	4,886.95	4,742.81	144.13	33.906		
14,200.00	6,945.98	7,360.57	7,008.89	120.99	113.02	99.12	531.62	2,462.15	4,984.62	4,840.46	144.16	34.577		
14,300.00	6,945.92	7,364.76	7,013.07	122.54	113.02	99.34	531.57	2,462.30	5,082.37	4,938.19	144.19	35.249		
14,400.00	6,945.86	7,368.97	7,017.28	124.09	113.03	99.57	531.53	2,462.46	5,180.21	5,035.99	144.22	35.920		
14,500.00	6,945.80	7,373.21	7,021.51	125.64	113.04	99.79	531.49	2,462.62	5,278.13	5,133.88	144.25	36.590		
14,600.00	6,945.74	7,377.47	7,025.77	127.19	113.05	100.02	531.44	2,462.78	5,376.12	5,231.83	144.29	37.260		
14,700.00	6,945.68	7,381.76	7,030.06	128.74	113.06	100.24	531.40	2,462.94	5,474.18	5,329.85	144.33	37.930		
14,800.00	6,945.62	7,386.07	7,034.37	130.30	113.07	100.47	531.36	2,463.10	5,572.31	5,427.94	144.37	38.598		
14,900.00	6,945.56	7,390.42	7,038.71	131.85	113.08	100.70	531.31	2,463.26	5,670.49	5,526.08	144.41	39.266		
15,000.00	6,945.50	7,394.79	7,043.08	133.41	113.09	100.93	531.26	2,463.43	5,768.74	5,624.29	144.46	39.934		
15,100.00	6,945.44	7,399.19	7,047.47	134.96	113.10	101.16	531.22	2,463.60	5,867.05	5,722.54	144.51	40.601		
15,200.00	6,945.38	7,403.62	7,051.90	136.52	113.11	101.39	531.17	2,463.77	5,965.41	5,820.85	144.56	41.267		
15,300.00	6,945.32	7,408.07	7,056.35	138.08	113.12	101.63	531.13	2,463.94	6,063.82	5,919.21	144.61	41.932		
15,400.00	6,945.26	7,412.55	7,060.83	139.64	113.13	101.86	531.08	2,464.11	6,162.27	6,017.61	144.67	42.597		
15,500.00	6,945.20	7,417.07	7,065.34	141.20	113.14	102.10	531.03	2,464.28	6,260.78	6,116.06	144.72	43.260		
15,600.00	6,945.14	7,421.61	7,069.88	142.76	113.15	102.33	530.98	2,464.46	6,359.33	6,214.54	144.78	43.924		
15,700.00	6,945.08	7,426.18	7,074.44	144.33	113.16	102.57	530.93	2,464.63	6,457.92	6,313.07	144.84	44.586		
15,800.00	6,945.02	7,430.78	7,079.04	145.89	113.17	102.81	530.88	2,464.81	6,556.55	6,411.64	144.91	45.247		
15,900.00	6,944.96	7,435.41	7,083.67	147.46	113.18	103.05	530.83	2,464.99	6,655.21	6,510.25	144.97	45.908		
16,000.00	6,944.90	7,440.07	7,088.33	149.02	113.19	103.29	530.78	2,465.17	6,753.92	6,608.88	145.04	46.568		
16,100.00	6,944.84	7,444.76	7,093.01	150.59	113.20	103.53	530.73	2,465.36	6,852.66	6,707.56	145.10	47.226		
16,200.00	6,944.77	7,449.49	7,097.73	152.15	113.21	103.78	530.68	2,465.54	6,951.43	6,806.26	145.17	47.884		
16,300.00	6,944.71	7,454.24	7,102.48	153.72	113.23	104.02	530.63	2,465.73	7,050.24	6,905.00	145.24	48.541		
16,400.00	6,944.65	7,459.02	7,107.26	155.29	113.24	104.27	530.58	2,465.92	7,149.07	7,003.76	145.31	49.198		
16,500.00	6,944.59	7,463.84	7,112.07	156.86	113.25	104.51	530.53	2,466.11	7,247.94	7,102.55	145.39	49.853		
16,600.00	6,944.53	7,468.69	7,116.92	158.43	113.26	104.76	530.47	2,466.30	7,346.83	7,201.37	145.46	50.507		
16,700.00	6,944.47	7,473.57	7,121.80	160.00	113.27	105.01	530.42	2,466.50	7,445.75	7,300.21	145.54	51.160		
16,800.00	6,944.41	7,478.48	7,126.71	161.57	113.28	105.26	530.37	2,466.70	7,544.70	7,399.08	145.61	51.813		
16,900.00	6,944.35	7,483.43	7,131.65	163.14	113.29	105.51	530.31	2,466.89	7,643.67	7,497.98	145.69	52.464		
17,000.00	6,944.29	7,488.41	7,136.62	164.71	113.30	105.76	530.26	2,467.09	7,742.66	7,596.89	145.77	53.115		
17,100.00	6,944.23	7,493.43	7,141.63	166.29	113.31	106.01	530.20	2,467.30	7,841.68	7,695.83	145.85	53.764		
17,200.00	6,944.17	7,498.47	7,146.68	167.86	113.32	106.27	530.14	2,467.50	7,940.72	7,794.79	145.94	54.413		
17,300.00	6,944.11	7,503.56	7,151.76	169.43	113.34	106.52	530.09	2,467.71	8,039.78	7,893.76	146.02	55.060		
17,400.00	6,944.05	7,508.67	7,156.87	171.01	113.35	106.78	530.03	2,467.92	8,138.86	7,992.76	146.10	55.706		
17,500.00	6,943.99	7,513.83	7,162.02	172.58	113.36	107.03	529.97	2,468.13	8,237.96	8,091.78	146.19	56.352		
17,600.00	6,943.93	7,519.01	7,167.20	174.16	113.37	107.29	529.91	2,468.34	8,337.08	8,190.81	146.28	56.996		
17,700.00	6,943.87	7,524.24	7,172.42	175.73	113.38	107.55	529.85	2,468.56	8,436.22	8,289.86	146.36	57.639		
17,800.00	6,943.81	7,529.50	7,177.67	177.31	113.39	107.81	529.79	2,468.78	8,535.38	8,388.93	146.45	58.281		
17,900.00	6,943.75	7,534.79	7,182.96	178.89	113.41	108.07	529.73	2,469.00	8,634.55	8,488.01	146.54	58.922		
18,000.00	6,943.69	7,540.13	7,188.29	180.46	113.42	108.33	529.67	2,469.22	8,733.74	8,587.11	146.63	59.562		
18,100.00	6,943.63	7,545.50	7,193.66	182.04	113.43	108.60	529.61	2,469.45	8,832.95	8,686.22	146.72	60.201		
18,200.00	6,943.57	7,550.91	7,199.06	183.62	113.44	108.86	529.55	2,469.67	8,932.17	8,785.35	146.82	60.839		
18,300.00	6,943.51	7,556.35	7,204.50	185.20	113.46	109.13	529.48	2,469.90	9,031.40	8,884.49	146.91	61.475		
18,400.00	6,943.45	7,561.84	7,209.98	186.78	113.47	109.39	529.42	2,470.13	9,130.65	8,983.65	147.01	62.111		
18,500.00	6,943.39	7,567.37	7,215.50	188.36	113.48	109.66	529.35	2,470.37	9,229.91	9,082.81	147.10	62.745		
18,600.00	6,943.33	7,572.93	7,221.06	189.94	113.49	109.93	529.29	2,470.61	9,329.19	9,181.99	147.20	63.379		
18,700.00	6,943.27	7,578.53	7,226.66	191.52	113.51	110.19	529.22	2,470.85	9,428.48	9,281.18	147.30	64.011		
18,800.00	6,943.21	7,584.18	7,232.30	193.10	113.52	110.46	529.16	2,471.09	9,527.78	9,380.39	147.39	64.642		
18,900.00	6,943.15	7,589.86	7,237.98	194.68	113.53	110.73	529.09	2,471.33	9,627.09	9,479.60	147.49	65.271		
19,000.00	6,943.09	7,595.59	7,243.70	196.26	113.54	111.01	529.02	2,471.58	9,726.42	9,578.82	147.59	65.900		
19,100.00	6,943.03	7,601.36	7,249.46	197.84	113.56	111.28	528.95	2,471.83	9,825.75	9,678.06	147.69	66.528		
19,200.00	6,942.97	7,607.16	7,255.26	199.42	113.57	111.55	528.88	2,472.08	9,925.10	9,777.30	147.80	67.154		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 153C - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 349-MWD OWSG Rev5													Offset Well Error:	0.00 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		
19,300.00	6,942.91	7,613.02	7,261.11	201.01	113.58	111.83	528.81	2,472.34	10,024.46	9,876.56	147.90	67.779		
19,400.00	6,942.85	7,618.91	7,267.00	202.59	113.60	112.10	528.74	2,472.60	10,123.83	9,975.82	148.00	68.403		
19,500.00	6,942.79	7,624.85	7,272.93	204.17	113.61	112.38	528.67	2,472.86	10,223.20	10,075.10	148.11	69.025		
19,600.00	6,942.73	7,630.83	7,278.91	205.75	113.62	112.66	528.60	2,473.12	10,322.59	10,174.38	148.21	69.647		
19,700.00	6,942.67	7,636.86	7,284.93	207.34	113.64	112.93	528.52	2,473.39	10,421.99	10,273.67	148.32	70.267		
19,800.00	6,942.61	7,642.93	7,290.99	208.92	113.65	113.21	528.45	2,473.66	10,521.39	10,372.96	148.43	70.886		
19,900.00	6,942.55	7,649.05	7,297.10	210.51	113.67	113.49	528.37	2,473.93	10,620.80	10,472.27	148.53	71.504		
20,000.00	6,942.49	7,655.21	7,303.26	212.09	113.68	113.77	528.30	2,474.21	10,720.23	10,571.58	148.64	72.121		
20,100.00	6,942.43	7,661.42	7,309.46	213.68	113.69	114.05	528.22	2,474.49	10,819.66	10,670.90	148.75	72.736		
20,200.00	6,942.37	7,667.68	7,315.71	215.26	113.71	114.34	528.14	2,474.77	10,919.09	10,770.23	148.86	73.350		
20,300.00	6,942.31	7,673.98	7,322.01	216.85	113.72	114.62	528.06	2,475.06	11,018.54	10,869.57	148.97	73.963		
20,400.00	6,942.25	7,680.33	7,328.36	218.43	113.74	114.90	527.98	2,475.34	11,117.99	10,968.91	149.09	74.574		
20,500.00	6,942.19	7,686.73	7,334.75	220.02	113.75	115.19	527.90	2,475.64	11,217.45	11,068.25	149.20	75.185		
20,600.00	6,942.13	7,693.18	7,341.19	221.60	113.77	115.47	527.82	2,475.93	11,316.92	11,167.61	149.31	75.794		
20,700.00	6,942.07	7,699.68	7,347.68	223.19	113.78	115.76	527.74	2,476.23	11,416.39	11,266.97	149.43	76.402		
20,808.89	6,942.00	7,706.82	7,354.81	224.92	113.80	116.07	527.65	2,476.56	11,524.71	11,375.16	149.55	77.062		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 181D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 374-B001Mb_MWD+HRGM													Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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	0.00	0.00	-86.09	1,017.17	-14,879.59	14,914.45					
100.00	100.00	38.04	38.04	0.25	0.07	-86.09	1,017.19	-14,879.59	14,914.32	14,914.00	0.32	N/A		
200.00	200.00	138.15	138.15	0.61	0.25	-86.09	1,017.40	-14,879.58	14,914.32	14,913.46	0.86	N/A		
300.00	300.00	238.26	238.26	0.97	0.43	-86.09	1,017.86	-14,879.54	14,914.32	14,912.92	1.39	N/A		
400.00	400.00	338.36	338.36	1.33	0.61	-86.08	1,018.56	-14,879.49	14,914.31	14,912.38	1.93	7,716.771		
444.99	444.99	383.00	382.99	1.49	0.70	-86.08	1,018.95	-14,879.46	14,914.31	14,912.12	2.19	6,809.934	CC	
500.00	500.00	414.00	413.99	1.68	0.81	-86.08	1,019.39	-14,879.46	14,914.35	14,911.86	2.50	5,969.614		
600.00	599.98	445.00	444.98	2.04	0.93	-87.30	1,020.05	-14,879.53	14,914.66	14,911.69	2.97	5,026.220	ES	
700.00	699.84	476.00	475.97	2.41	1.04	-87.29	1,021.04	-14,879.75	14,915.29	14,911.86	3.44	4,340.476		
800.00	799.45	491.48	491.43	2.77	1.10	-87.27	1,021.68	-14,879.94	14,916.27	14,912.42	3.85	3,872.129		
900.00	898.70	507.00	506.93	3.13	1.15	-87.25	1,022.43	-14,880.17	14,917.61	14,913.33	4.27	3,490.453		
1,000.00	997.47	537.00	536.87	3.50	1.26	-87.23	1,024.21	-14,880.76	14,919.29	14,914.54	4.76	3,136.321		
1,100.00	1,095.62	552.14	551.97	3.89	1.32	-87.19	1,025.29	-14,881.14	14,921.36	14,916.16	5.20	2,869.829		
1,200.00	1,193.06	568.00	567.77	4.30	1.38	-87.15	1,026.53	-14,881.61	14,923.81	14,918.15	5.66	2,636.579		
1,245.21	1,236.83	568.00	567.77	4.48	1.38	-87.13	1,026.53	-14,881.61	14,925.06	14,919.21	5.85	2,552.093		
1,300.00	1,289.78	583.29	583.00	4.72	1.44	-87.14	1,027.83	-14,882.15	14,926.68	14,920.55	6.14	2,432.608		
1,400.00	1,386.42	599.00	598.63	5.15	1.50	-87.15	1,029.31	-14,882.78	14,930.11	14,923.49	6.63	2,253.562		
1,500.00	1,483.05	616.15	615.66	5.59	1.56	-87.16	1,031.08	-14,883.56	14,934.10	14,926.97	7.13	2,095.291		
1,600.00	1,579.69	630.00	629.42	6.04	1.61	-87.17	1,032.60	-14,884.24	14,938.64	14,931.02	7.62	1,959.650		
1,700.00	1,676.32	630.00	629.42	6.49	1.61	-87.17	1,032.60	-14,884.24	14,943.81	14,935.74	8.07	1,851.361		
1,800.00	1,772.96	660.58	659.71	6.94	1.73	-87.18	1,036.40	-14,885.98	14,949.42	14,940.78	8.64	1,730.260		
1,900.00	1,869.60	691.00	689.73	7.40	1.84	-87.20	1,040.84	-14,888.06	14,955.75	14,946.54	9.21	1,623.838		
2,000.00	1,966.23	691.00	689.73	7.86	1.84	-87.20	1,040.84	-14,888.06	14,962.52	14,952.85	9.67	1,547.866		
2,100.00	2,062.87	691.00	689.73	8.33	1.84	-87.20	1,040.84	-14,888.06	14,969.95	14,959.83	10.12	1,478.593		
2,200.00	2,159.50	722.00	720.19	8.79	1.97	-87.21	1,046.01	-14,890.57	14,977.96	14,967.26	10.71	1,399.128		
2,300.00	2,256.14	722.00	720.19	9.26	1.97	-87.21	1,046.01	-14,890.57	14,986.52	14,975.35	11.16	1,342.307		
2,400.00	2,352.77	737.17	735.05	9.73	2.03	-87.21	1,048.76	-14,891.96	14,995.68	14,984.00	11.69	1,283.214		
2,500.00	2,449.41	753.00	750.51	10.20	2.09	-87.22	1,051.78	-14,893.49	15,005.41	14,993.20	12.21	1,228.920		
2,600.00	2,546.05	753.00	750.51	10.67	2.09	-87.22	1,051.78	-14,893.49	15,015.75	15,003.08	12.67	1,185.095		
2,700.00	2,642.68	783.00	779.68	11.14	2.21	-87.22	1,058.01	-14,896.67	15,026.61	15,013.35	13.26	1,133.588		
2,800.00	2,739.32	783.00	779.68	11.61	2.21	-87.22	1,058.01	-14,896.67	15,038.06	15,024.34	13.72	1,096.418		
2,900.00	2,835.95	797.34	793.56	12.08	2.27	-87.23	1,061.22	-14,898.34	15,050.10	15,035.86	14.24	1,057.103		
3,000.00	2,932.59	814.00	809.63	12.55	2.34	-87.23	1,065.10	-14,900.41	15,062.74	15,047.98	14.77	1,019.960		
3,100.00	3,029.22	814.00	809.63	13.03	2.34	-87.23	1,065.10	-14,900.41	15,075.95	15,060.73	15.23	990.134		
3,200.00	3,125.86	814.00	809.63	13.50	2.34	-87.23	1,065.10	-14,900.41	15,089.81	15,074.13	15.68	962.139		
3,300.00	3,222.50	814.00	809.63	13.97	2.34	-87.23	1,065.10	-14,900.41	15,104.32	15,088.18	16.14	935.821		
3,400.00	3,319.13	842.64	837.10	14.45	2.48	-87.23	1,072.15	-14,904.38	15,119.16	15,102.44	16.73	903.853		
3,500.00	3,415.77	876.00	868.84	14.92	2.64	-87.23	1,080.94	-14,909.68	15,134.99	15,117.65	17.34	873.063		
3,600.00	3,512.40	876.00	868.84	15.40	2.64	-87.23	1,080.94	-14,909.68	15,151.03	15,133.24	17.79	851.700		
3,700.00	3,609.04	876.00	868.84	15.88	2.64	-87.23	1,080.94	-14,909.68	15,167.71	15,149.47	18.24	831.488		
3,800.00	3,705.67	876.00	868.84	16.35	2.64	-87.23	1,080.94	-14,909.68	15,185.04	15,166.35	18.69	812.343		
3,900.00	3,802.31	876.00	868.84	16.83	2.64	-87.23	1,080.94	-14,909.68	15,203.00	15,183.86	19.14	794.188		
4,000.00	3,898.95	907.00	898.04	17.30	2.80	-87.23	1,089.77	-14,915.19	15,221.51	15,201.76	19.74	770.973		
4,100.00	3,995.58	907.00	898.04	17.78	2.80	-87.23	1,089.77	-14,915.19	15,240.54	15,220.35	20.19	754.843		
4,200.00	4,092.22	920.77	910.91	18.26	2.87	-87.23	1,093.91	-14,917.78	15,260.16	15,239.46	20.71	736.969		
4,300.00	4,188.85	938.00	926.95	18.73	2.96	-87.22	1,099.27	-14,921.10	15,280.32	15,259.08	21.24	719.433		
4,400.00	4,285.49	952.97	940.82	19.21	3.04	-87.22	1,104.09	-14,924.04	15,300.99	15,279.23	21.76	703.082		
4,500.00	4,382.12	970.00	956.49	19.69	3.14	-87.21	1,109.79	-14,927.46	15,322.19	15,299.90	22.30	687.229		
4,600.00	4,478.76	986.42	971.53	20.17	3.24	-87.21	1,115.47	-14,930.82	15,343.91	15,321.08	22.83	672.149		
4,700.00	4,575.40	1,002.00	985.72	20.64	3.33	-87.20	1,121.02	-14,934.07	15,366.13	15,342.78	23.35	657.958		
4,800.00	4,672.03	1,018.64	1,000.79	21.12	3.43	-87.20	1,127.13	-14,937.61	15,388.88	15,364.99	23.89	644.170		
4,900.00	4,768.67	1,033.00	1,013.70	21.60	3.52	-87.19	1,132.58	-14,940.72	15,412.14	15,387.73	24.41	631.401		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 181D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 374-B001Mb_MWD+HRGM											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
5,000.00	4,865.30	1,064.00	1,041.34	22.08	3.72	-87.17	1,144.84	-14,947.57	15,435.91	15,410.88	25.04	616.570
5,100.00	4,961.94	1,064.00	1,041.34	22.55	3.72	-87.17	1,144.84	-14,947.57	15,460.16	15,434.70	25.47	607.067
5,200.00	5,058.57	1,316.00	1,259.59	23.03	5.60	-86.99	1,258.10	-15,002.52	15,484.69	15,457.00	27.68	559.414
5,300.00	5,155.21	1,347.00	1,286.24	23.51	5.84	-86.96	1,272.47	-15,009.14	15,508.57	15,480.23	28.34	547.144
5,400.00	5,251.85	1,382.04	1,316.30	23.99	6.13	-86.93	1,288.82	-15,016.71	15,532.84	15,503.79	29.04	534.811
5,500.00	5,348.48	1,409.00	1,339.31	24.47	6.34	-86.91	1,301.60	-15,022.55	15,557.44	15,527.76	29.68	524.185
5,600.00	5,445.12	1,442.03	1,367.38	24.94	6.62	-86.88	1,317.42	-15,029.82	15,582.46	15,552.09	30.37	513.137
5,700.00	5,541.75	1,470.00	1,391.06	25.42	6.85	-86.86	1,330.90	-15,036.12	15,607.96	15,576.95	31.01	503.265
5,800.00	5,638.39	1,470.00	1,391.06	25.90	6.85	-86.86	1,330.90	-15,036.12	15,633.96	15,602.53	31.44	497.318
5,900.00	5,735.02	1,500.97	1,417.19	26.38	7.11	-86.83	1,345.89	-15,043.31	15,660.39	15,628.28	32.11	487.734
6,000.00	5,831.66	1,532.00	1,443.29	26.86	7.38	-86.80	1,360.93	-15,050.77	15,687.37	15,654.59	32.78	478.574
6,100.00	5,928.30	1,532.00	1,443.29	27.34	7.38	-86.80	1,360.93	-15,050.77	15,714.77	15,681.58	33.20	473.380
6,200.00	6,024.93	1,595.00	1,496.08	27.82	7.93	-86.75	1,391.60	-15,066.27	15,742.56	15,708.43	34.13	461.218
6,300.00	6,121.57	1,595.00	1,496.08	28.29	7.93	-86.75	1,391.60	-15,066.27	15,770.77	15,736.22	34.55	456.506
6,344.44	6,164.51	6,294.98	5,899.52	28.51	32.62	-87.17	2,487.77	-15,608.33	15,676.96	15,618.13	58.83	266.475
6,400.00	6,218.20	6,349.20	5,953.73	28.77	32.75	-87.22	2,489.11	-15,608.94	15,676.98	15,617.74	59.24	264.618
6,500.00	6,314.84	6,446.81	6,051.29	29.25	33.00	-87.30	2,491.52	-15,610.04	15,677.04	15,617.06	59.99	261.342
6,521.58	6,335.69	6,467.87	6,072.35	29.36	33.05	-87.32	2,492.04	-15,610.28	15,677.06	15,616.91	60.15	260.646
6,550.00	6,363.15	6,495.59	6,100.06	29.49	33.12	-96.85	2,492.72	-15,610.59	15,677.72	15,617.36	60.36	259.746
6,600.00	6,411.28	6,544.15	6,148.60	29.73	33.24	-112.09	2,493.92	-15,611.13	15,681.96	15,621.23	60.73	258.231
6,650.00	6,458.93	6,592.19	6,196.62	29.96	33.36	-124.22	2,495.10	-15,611.67	15,690.09	15,628.99	61.10	256.812
6,700.00	6,505.83	6,639.41	6,243.83	30.19	33.48	-133.29	2,496.26	-15,612.20	15,702.07	15,640.61	61.46	255.500
6,750.00	6,551.67	6,685.52	6,289.92	30.42	33.59	-139.96	2,497.39	-15,612.71	15,717.82	15,656.02	61.81	254.303
6,800.00	6,596.17	6,730.24	6,334.62	30.64	33.70	-144.89	2,498.49	-15,613.21	15,737.26	15,675.11	62.15	253.225
6,850.00	6,639.06	6,773.29	6,377.66	30.85	33.81	-148.59	2,499.54	-15,613.70	15,760.24	15,697.77	62.47	252.272
6,900.00	6,680.07	6,814.40	6,418.76	31.05	33.91	-151.39	2,500.55	-15,614.15	15,786.65	15,723.86	62.78	251.445
6,950.00	6,718.96	6,853.33	6,457.67	31.24	34.01	-153.53	2,501.50	-15,614.59	15,816.30	15,753.22	63.08	250.748
7,000.00	6,755.47	6,889.83	6,494.16	31.43	34.10	-155.16	2,502.40	-15,615.00	15,849.02	15,785.67	63.35	250.181
7,050.00	6,789.40	6,923.68	6,528.00	31.61	34.19	-156.38	2,503.23	-15,615.37	15,884.61	15,821.00	63.60	249.744
7,100.00	6,820.52	6,954.67	6,558.97	31.79	34.26	-157.23	2,503.98	-15,615.72	15,922.84	15,859.00	63.83	249.439
7,150.00	6,848.64	6,982.61	6,586.90	31.97	34.33	-157.76	2,504.66	-15,616.03	15,963.47	15,899.43	64.04	249.262
7,200.00	6,873.60	7,007.32	6,611.60	32.14	34.40	-157.96	2,505.27	-15,616.30	16,006.27	15,942.04	64.23	249.213 SF
7,250.00	6,895.24	7,028.65	6,632.93	32.31	34.45	-157.76	2,505.79	-15,616.54	16,050.95	15,986.56	64.39	249.287
7,300.00	6,913.42	7,046.48	6,650.75	32.49	34.49	-157.04	2,506.22	-15,616.74	16,097.25	16,032.73	64.52	249.482
7,350.00	6,928.03	7,060.69	6,664.96	32.67	34.53	-155.47	2,506.57	-15,616.90	16,144.88	16,080.24	64.63	249.792
7,400.00	6,938.98	7,071.20	6,675.46	32.86	34.56	-152.19	2,506.82	-15,617.01	16,193.54	16,128.82	64.72	250.212
7,450.00	6,946.22	7,077.93	6,682.19	33.06	34.57	-144.09	2,506.99	-15,617.09	16,242.93	16,178.15	64.78	250.735
7,500.00	6,949.68	7,080.85	6,685.11	33.26	34.58	-111.50	2,507.06	-15,617.12	16,292.75	16,227.93	64.82	251.353
7,521.05	6,950.00	7,080.93	6,685.19	33.35	34.58	-71.68	2,507.06	-15,617.12	16,313.78	16,248.95	64.83	251.639
7,600.00	6,949.95	7,079.98	6,684.23	33.72	34.58	-71.61	2,507.04	-15,617.11	16,392.66	16,327.81	64.86	252.743
7,700.00	6,949.89	7,078.76	6,683.02	34.24	34.58	-71.51	2,507.01	-15,617.10	16,492.58	16,427.68	64.90	254.139
7,800.00	6,949.83	7,077.55	6,681.81	34.84	34.57	-71.41	2,506.98	-15,617.08	16,592.50	16,527.56	64.93	255.532
7,900.00	6,949.77	7,076.34	6,680.60	35.50	34.57	-71.31	2,506.95	-15,617.07	16,692.41	16,627.44	64.97	256.922
8,000.00	6,949.71	7,075.12	6,679.38	36.23	34.57	-71.21	2,506.92	-15,617.06	16,792.33	16,727.32	65.01	258.309
8,100.00	6,949.65	7,073.91	6,678.17	37.02	34.56	-71.12	2,506.89	-15,617.04	16,892.25	16,827.20	65.05	259.692
8,200.00	6,949.59	7,072.69	6,676.96	37.85	34.56	-71.02	2,506.86	-15,617.03	16,992.17	16,927.08	65.09	261.073
8,300.00	6,949.53	7,071.48	6,675.74	38.74	34.56	-70.92	2,506.83	-15,617.02	17,092.09	17,026.96	65.13	262.450
8,400.00	6,949.47	7,070.27	6,674.53	39.68	34.55	-70.82	2,506.80	-15,617.00	17,192.01	17,126.85	65.16	263.824
8,500.00	6,949.41	7,069.05	6,673.32	40.66	34.55	-70.73	2,506.77	-15,616.99	17,291.93	17,226.73	65.20	265.194
8,600.00	6,949.35	7,067.84	6,672.10	41.67	34.55	-70.63	2,506.74	-15,616.98	17,391.86	17,326.61	65.25	266.561
8,700.00	6,949.29	7,066.62	6,670.89	42.73	34.54	-70.53	2,506.71	-15,616.96	17,491.78	17,426.49	65.29	267.925
8,800.00	6,949.23	7,065.41	6,669.67	43.82	34.54	-70.43	2,506.68	-15,616.95	17,591.70	17,526.38	65.33	269.285

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 181D - OH - OH-SVY											Offset Site Error:	0.00 usft
Survey Program: 374-B001Mb_MWD+HRGM											Offset Well Error:	0.00 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	Offset		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		
8,900.00	6,949.17	7,064.20	6,668.46	44.94	34.54	-70.34	2,506.65	-15,616.93	17,691.63	17,626.26	65.37	270.642
9,000.00	6,949.11	7,062.98	6,667.25	46.09	34.54	-70.24	2,506.62	-15,616.92	17,791.56	17,726.15	65.41	271.996
9,100.00	6,949.05	7,061.77	6,666.03	47.26	34.53	-70.14	2,506.59	-15,616.91	17,891.48	17,826.03	65.45	273.346
9,200.00	6,948.99	7,060.55	6,664.82	48.46	34.53	-70.05	2,506.57	-15,616.89	17,991.41	17,925.91	65.50	274.693
9,300.00	6,948.93	7,059.34	6,663.61	49.68	34.53	-69.95	2,506.54	-15,616.88	18,091.34	18,025.80	65.54	276.036
9,400.00	6,948.87	7,058.13	6,662.39	50.93	34.52	-69.85	2,506.51	-15,616.87	18,191.27	18,125.68	65.58	277.376
9,500.00	6,948.81	7,056.91	6,661.18	52.19	34.52	-69.76	2,506.48	-15,616.85	18,291.20	18,225.57	65.63	278.712
9,600.00	6,948.75	7,055.70	6,659.96	53.47	34.52	-69.66	2,506.45	-15,616.84	18,391.13	18,325.46	65.67	280.044
9,700.00	6,948.69	7,054.48	6,658.75	54.77	34.51	-69.57	2,506.42	-15,616.83	18,491.06	18,425.34	65.72	281.373
9,800.00	6,948.63	7,053.27	6,657.54	56.08	34.51	-69.47	2,506.39	-15,616.81	18,590.99	18,525.23	65.76	282.699
9,900.00	6,948.57	7,052.05	6,656.32	57.41	34.51	-69.37	2,506.36	-15,616.80	18,690.92	18,625.12	65.81	284.020
10,000.00	6,948.51	7,050.84	6,655.11	58.76	34.51	-69.28	2,506.33	-15,616.79	18,790.86	18,725.00	65.85	285.338
10,100.00	6,948.45	7,049.62	6,653.89	60.11	34.50	-69.18	2,506.30	-15,616.77	18,890.79	18,824.89	65.90	286.653
10,200.00	6,948.39	7,048.41	6,652.68	61.48	34.50	-69.09	2,506.27	-15,616.76	18,990.72	18,924.78	65.95	287.964
10,300.00	6,948.33	7,047.19	6,651.46	62.86	34.50	-68.99	2,506.24	-15,616.75	19,090.66	19,024.66	66.00	289.271
10,400.00	6,948.27	7,045.98	6,650.25	64.24	34.49	-68.90	2,506.21	-15,616.73	19,190.59	19,124.55	66.04	290.574
10,500.00	6,948.21	7,044.76	6,649.03	65.64	34.49	-68.80	2,506.18	-15,616.72	19,290.53	19,224.44	66.09	291.873
10,600.00	6,948.15	7,043.55	6,647.82	67.05	34.49	-68.71	2,506.15	-15,616.71	19,390.47	19,324.33	66.14	293.169
10,700.00	6,948.09	7,042.33	6,646.61	68.47	34.48	-68.61	2,506.12	-15,616.69	19,490.40	19,424.21	66.19	294.461
10,800.00	6,948.03	7,041.12	6,645.39	69.89	34.48	-68.52	2,506.09	-15,616.68	19,590.34	19,524.10	66.24	295.749
10,900.00	6,947.97	7,039.90	6,644.18	71.32	34.48	-68.42	2,506.06	-15,616.67	19,690.28	19,623.99	66.29	297.034
11,000.00	6,947.91	7,038.69	6,642.96	72.76	34.47	-68.33	2,506.03	-15,616.65	19,790.22	19,723.88	66.34	298.314
11,100.00	6,947.85	7,037.47	6,641.75	74.21	34.47	-68.23	2,506.00	-15,616.64	19,890.16	19,823.77	66.39	299.591
11,200.00	6,947.79	7,036.26	6,640.53	75.66	34.47	-68.14	2,505.97	-15,616.62	19,990.10	19,923.66	66.44	300.863
11,300.00	6,947.73	7,035.04	6,639.32	77.12	34.47	-68.04	2,505.94	-15,616.61	20,090.04	20,023.55	66.49	302.132
11,400.00	6,947.66	7,033.83	6,638.10	78.58	34.46	-67.95	2,505.91	-15,616.60	20,189.98	20,123.43	66.55	303.397
11,500.00	6,947.60	7,032.61	6,636.89	80.05	34.46	-67.85	2,505.88	-15,616.58	20,289.92	20,223.32	66.60	304.658
11,600.00	6,947.54	7,031.40	6,635.67	81.52	34.46	-67.76	2,505.85	-15,616.57	20,389.86	20,323.21	66.65	305.915
11,700.00	6,947.48	7,030.18	6,634.46	83.00	34.45	-67.67	2,505.82	-15,616.56	20,489.81	20,423.10	66.71	307.169
11,800.00	6,947.42	7,028.96	6,633.24	84.48	34.45	-67.57	2,505.80	-15,616.54	20,589.75	20,522.99	66.76	308.418
11,900.00	6,947.36	7,027.75	6,632.03	85.97	34.45	-67.48	2,505.77	-15,616.53	20,689.69	20,622.88	66.81	309.663
12,000.00	6,947.30	7,026.53	6,630.81	87.46	34.44	-67.39	2,505.74	-15,616.52	20,789.64	20,722.77	66.87	310.904
12,100.00	6,947.24	7,025.32	6,629.60	88.96	34.44	-67.29	2,505.71	-15,616.50	20,889.58	20,822.66	66.92	312.142
12,200.00	6,947.18	7,024.10	6,628.38	90.46	34.44	-67.20	2,505.68	-15,616.49	20,989.53	20,922.55	66.98	313.375
12,300.00	6,947.12	7,022.89	6,627.16	91.96	34.44	-67.11	2,505.65	-15,616.48	21,089.47	21,022.44	67.03	314.604
12,400.00	6,947.06	7,021.67	6,625.95	93.47	34.43	-67.01	2,505.62	-15,616.46	21,189.42	21,122.33	67.09	315.829
12,500.00	6,947.00	7,020.45	6,624.73	94.97	34.43	-66.92	2,505.59	-15,616.45	21,289.36	21,222.22	67.15	317.050
12,600.00	6,946.94	7,019.24	6,623.52	96.49	34.43	-66.83	2,505.56	-15,616.44	21,389.31	21,322.11	67.21	318.267
12,700.00	6,946.88	7,018.02	6,622.30	98.00	34.42	-66.73	2,505.53	-15,616.42	21,489.26	21,422.00	67.26	319.480
12,800.00	6,946.82	7,016.80	6,621.09	99.52	34.42	-66.64	2,505.50	-15,616.41	21,589.21	21,521.88	67.32	320.689
12,900.00	6,946.76	7,015.59	6,619.87	101.04	34.42	-66.55	2,505.47	-15,616.39	21,689.15	21,621.77	67.38	321.894
13,000.00	6,946.70	7,014.37	6,618.65	102.56	34.41	-66.46	2,505.44	-15,616.38	21,789.10	21,721.66	67.44	323.095
13,100.00	6,946.64	7,013.16	6,617.44	104.09	34.41	-66.36	2,505.41	-15,616.37	21,889.05	21,821.55	67.50	324.291
13,200.00	6,946.58	7,011.94	6,616.22	105.61	34.41	-66.27	2,505.38	-15,616.35	21,989.00	21,921.44	67.56	325.484
13,300.00	6,946.52	7,010.72	6,615.01	107.14	34.40	-66.18	2,505.35	-15,616.34	22,088.95	22,021.33	67.62	326.672
13,400.00	6,946.46	7,009.51	6,613.79	108.67	34.40	-66.09	2,505.32	-15,616.33	22,188.90	22,121.22	67.68	327.857
13,500.00	6,946.40	7,008.29	6,612.57	110.21	34.40	-66.00	2,505.29	-15,616.31	22,288.85	22,221.11	67.74	329.037
13,600.00	6,946.34	7,007.07	6,611.36	111.74	34.40	-65.90	2,505.26	-15,616.30	22,388.80	22,321.00	67.80	330.213
13,700.00	6,946.28	7,005.86	6,610.14	113.28	34.39	-65.81	2,505.23	-15,616.29	22,488.75	22,420.89	67.86	331.384
13,800.00	6,946.22	7,004.64	6,608.93	114.82	34.39	-65.72	2,505.20	-15,616.27	22,588.70	22,520.78	67.93	332.552
13,900.00	6,946.16	7,003.42	6,607.71	116.36	34.39	-65.63	2,505.17	-15,616.26	22,688.65	22,620.67	67.99	333.716
14,000.00	6,946.10	7,002.21	6,606.49	117.90	34.38	-65.54	2,505.14	-15,616.25	22,788.61	22,720.56	68.05	334.875

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 181D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program:		374-B001Mb_MWD+HRGM				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)	Distance Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,100.00	6,946.04	7,000.99	6,605.28	119.45	34.38	-65.45	2,505.11	-15,616.23	22,888.56	22,820.44	68.11	336.030		
14,200.00	6,945.98	6,999.77	6,604.06	120.99	34.38	-65.36	2,505.08	-15,616.22	22,988.51	22,920.33	68.18	337.181		
14,300.00	6,945.92	6,998.56	6,602.84	122.54	34.37	-65.27	2,505.05	-15,616.21	23,088.47	23,020.22	68.24	338.328		
14,400.00	6,945.86	6,997.34	6,601.63	124.09	34.37	-65.17	2,505.02	-15,616.19	23,188.42	23,120.11	68.31	339.470		
14,500.00	6,945.80	6,996.12	6,600.41	125.64	34.37	-65.08	2,504.99	-15,616.18	23,288.37	23,220.00	68.37	340.609		
14,600.00	6,945.74	6,994.90	6,599.19	127.19	34.36	-64.99	2,504.96	-15,616.16	23,388.33	23,319.89	68.44	341.743		
14,700.00	6,945.68	6,993.69	6,597.98	128.74	34.36	-64.90	2,504.93	-15,616.15	23,488.28	23,419.78	68.50	342.873		
14,800.00	6,945.62	6,992.47	6,596.76	130.30	34.36	-64.81	2,504.90	-15,616.14	23,588.24	23,519.67	68.57	343.999		
14,900.00	6,945.56	6,991.25	6,595.54	131.85	34.36	-64.72	2,504.88	-15,616.12	23,688.19	23,619.55	68.64	345.120		
15,000.00	6,945.50	6,990.03	6,594.33	133.41	34.35	-64.63	2,504.85	-15,616.11	23,788.15	23,719.44	68.70	346.238		
15,100.00	6,945.44	6,988.82	6,593.11	134.96	34.35	-64.54	2,504.82	-15,616.10	23,888.10	23,819.33	68.77	347.351		
15,200.00	6,945.38	1,316.00	1,259.59	136.52	5.60	6.04	1,258.10	-15,002.52	24,019.77	23,978.92	40.84	588.079		
15,300.00	6,945.32	1,064.00	1,041.34	138.08	3.72	6.90	1,144.84	-14,947.57	24,116.79	24,077.60	39.18	615.470		
15,400.00	6,945.26	1,064.00	1,041.34	139.64	3.72	6.90	1,144.84	-14,947.57	24,213.76	24,174.47	39.29	616.269		
15,500.00	6,945.20	1,064.00	1,041.34	141.20	3.72	6.90	1,144.84	-14,947.57	24,310.76	24,271.36	39.40	617.059		
15,600.00	6,945.14	1,064.00	1,041.34	142.76	3.72	6.90	1,144.84	-14,947.57	24,407.79	24,368.28	39.51	617.840		
15,700.00	6,945.08	1,064.00	1,041.34	144.33	3.72	6.90	1,144.84	-14,947.57	24,504.83	24,465.22	39.61	618.611		
15,800.00	6,945.02	1,064.00	1,041.34	145.89	3.72	6.90	1,144.84	-14,947.57	24,601.90	24,562.18	39.72	619.374		
15,900.00	6,944.96	1,064.00	1,041.34	147.46	3.72	6.90	1,144.84	-14,947.57	24,699.00	24,659.17	39.83	620.128		
16,000.00	6,944.90	1,064.00	1,041.34	149.02	3.72	6.90	1,144.84	-14,947.57	24,796.12	24,756.18	39.94	620.874		
16,100.00	6,944.84	1,049.95	1,028.86	150.59	3.63	6.94	1,139.20	-14,944.45	24,893.23	24,853.27	39.96	622.889		
16,200.00	6,944.77	1,046.35	1,025.64	152.15	3.61	6.95	1,137.77	-14,943.65	24,990.38	24,950.33	40.05	623.939		
16,300.00	6,944.71	1,033.00	1,013.70	153.72	3.52	6.99	1,132.58	-14,940.72	25,087.56	25,047.48	40.08	625.862		
16,400.00	6,944.65	1,033.00	1,013.70	155.29	3.52	6.99	1,132.58	-14,940.72	25,184.74	25,144.54	40.20	626.564		
16,500.00	6,944.59	1,033.00	1,013.70	156.86	3.52	6.99	1,132.58	-14,940.72	25,281.94	25,241.64	40.31	627.258		
16,600.00	6,944.53	1,033.00	1,013.70	158.43	3.52	6.99	1,132.58	-14,940.72	25,379.16	25,338.75	40.42	627.945		
16,700.00	6,944.47	1,033.00	1,013.70	160.00	3.52	6.99	1,132.58	-14,940.72	25,476.41	25,435.88	40.53	628.624		
16,800.00	6,944.41	1,033.00	1,013.70	161.57	3.52	6.99	1,132.58	-14,940.72	25,573.68	25,533.04	40.64	629.296		
16,900.00	6,944.35	1,033.00	1,013.70	163.14	3.52	6.99	1,132.58	-14,940.72	25,670.96	25,630.21	40.75	629.961		
17,000.00	6,944.29	1,033.00	1,013.70	164.71	3.52	6.99	1,132.58	-14,940.72	25,768.27	25,727.41	40.86	630.619		
17,100.00	6,944.23	1,033.00	1,013.70	166.29	3.52	6.99	1,132.58	-14,940.72	25,865.60	25,824.62	40.97	631.270		
17,200.00	6,944.17	1,018.39	1,000.56	167.86	3.43	7.03	1,127.04	-14,937.56	25,962.91	25,921.90	41.01	633.121		
17,300.00	6,944.11	1,016.10	998.49	169.43	3.42	7.03	1,126.18	-14,937.06	26,060.26	26,019.15	41.11	633.941		
17,400.00	6,944.05	1,002.00	985.72	171.01	3.33	7.07	1,121.02	-14,934.07	26,157.66	26,116.52	41.15	635.721		
17,500.00	6,943.99	1,002.00	985.72	172.58	3.33	7.07	1,121.02	-14,934.07	26,255.04	26,213.78	41.26	636.334		
17,600.00	6,943.93	1,002.00	985.72	174.16	3.33	7.07	1,121.02	-14,934.07	26,352.45	26,311.07	41.37	636.941		
17,700.00	6,943.87	1,002.00	985.72	175.73	3.33	7.07	1,121.02	-14,934.07	26,449.87	26,408.38	41.49	637.542		
17,800.00	6,943.81	1,002.00	985.72	177.31	3.33	7.07	1,121.02	-14,934.07	26,547.31	26,505.71	41.60	638.137		
17,900.00	6,943.75	1,002.00	985.72	178.89	3.33	7.07	1,121.02	-14,934.07	26,644.77	26,603.05	41.72	638.726		
18,000.00	6,943.69	1,002.00	985.72	180.46	3.33	7.07	1,121.02	-14,934.07	26,742.25	26,700.42	41.83	639.309		
18,100.00	6,943.63	1,002.00	985.72	182.04	3.33	7.07	1,121.02	-14,934.07	26,839.74	26,797.80	41.94	639.886		
18,200.00	6,943.57	1,002.00	985.72	183.62	3.33	7.07	1,121.02	-14,934.07	26,937.26	26,895.20	42.06	640.457		
18,300.00	6,943.51	1,002.00	985.72	185.20	3.33	7.07	1,121.02	-14,934.07	27,034.79	26,992.62	42.17	641.023		
18,400.00	6,943.45	1,002.00	985.72	186.78	3.33	7.07	1,121.02	-14,934.07	27,132.34	27,090.05	42.29	641.584		
18,500.00	6,943.39	1,002.00	985.72	188.36	3.33	7.07	1,121.02	-14,934.07	27,229.91	27,187.51	42.41	642.139		
18,600.00	6,943.33	985.48	970.67	189.94	3.23	7.10	1,115.15	-14,930.63	27,327.45	27,285.01	42.44	643.902		
18,700.00	6,943.27	970.00	956.49	191.52	3.14	7.14	1,109.79	-14,927.46	27,425.07	27,382.59	42.48	645.575		
18,800.00	6,943.21	970.00	956.49	193.10	3.14	7.14	1,109.79	-14,927.46	27,522.67	27,480.07	42.60	646.103		
18,900.00	6,943.15	970.00	956.49	194.68	3.14	7.14	1,109.79	-14,927.46	27,620.28	27,577.57	42.71	646.627		
19,000.00	6,943.09	970.00	956.49	196.26	3.14	7.14	1,109.79	-14,927.46	27,717.91	27,675.08	42.83	647.145		
19,100.00	6,943.03	970.00	956.49	197.84	3.14	7.14	1,109.79	-14,927.46	27,815.56	27,772.61	42.95	647.659		
19,200.00	6,942.97	970.00	956.49	199.42	3.14	7.14	1,109.79	-14,927.46	27,913.22	27,870.16	43.06	648.168		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 181D - OH - OH-SVY													Offset Site Error:	0.00 usft
Survey Program: 374-B001Mb_MWD+HRGM													Offset Well Error:	0.00 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)				
19,300.00	6,942.91	970.00	956.49	201.01	3.14	7.14	1,109.79	-14,927.46	28,010.90	27,967.72	43.18	648.672		
19,400.00	6,942.85	970.00	956.49	202.59	3.14	7.14	1,109.79	-14,927.46	28,108.60	28,065.30	43.30	649.171		
19,500.00	6,942.79	970.00	956.49	204.17	3.14	7.14	1,109.79	-14,927.46	28,206.31	28,162.90	43.42	649.666		
19,600.00	6,942.73	970.00	956.49	205.75	3.14	7.14	1,109.79	-14,927.46	28,304.04	28,260.51	43.53	650.156		
19,700.00	6,942.67	970.00	956.49	207.34	3.14	7.14	1,109.79	-14,927.46	28,401.79	28,358.14	43.65	650.642		
19,800.00	6,942.61	970.00	956.49	208.92	3.14	7.14	1,109.79	-14,927.46	28,499.55	28,455.78	43.77	651.123		
19,900.00	6,942.55	970.00	956.49	210.51	3.14	7.14	1,109.79	-14,927.46	28,597.33	28,553.44	43.89	651.600		
20,000.00	6,942.49	954.13	941.89	212.09	3.05	7.17	1,104.48	-14,924.27	28,695.07	28,651.14	43.94	653.104		
20,100.00	6,942.43	938.00	926.95	213.68	2.96	7.20	1,099.27	-14,921.10	28,792.90	28,748.92	43.98	654.609		
20,200.00	6,942.37	938.00	926.95	215.26	2.96	7.20	1,099.27	-14,921.10	28,890.70	28,846.60	44.10	655.063		
20,300.00	6,942.31	938.00	926.95	216.85	2.96	7.20	1,099.27	-14,921.10	28,988.52	28,944.29	44.22	655.514		
20,400.00	6,942.25	938.00	926.95	218.43	2.96	7.20	1,099.27	-14,921.10	29,086.34	29,042.00	44.34	655.961		
20,500.00	6,942.19	938.00	926.95	220.02	2.96	7.20	1,099.27	-14,921.10	29,184.19	29,139.73	44.46	656.403		
20,600.00	6,942.13	938.00	926.95	221.60	2.96	7.20	1,099.27	-14,921.10	29,282.05	29,237.47	44.58	656.842		
20,700.00	6,942.07	938.00	926.95	223.19	2.96	7.20	1,099.27	-14,921.10	29,379.92	29,335.22	44.70	657.277		
20,808.89	6,942.00	938.00	926.95	224.92	2.96	7.20	1,099.27	-14,921.10	29,486.50	29,441.67	44.83	657.747		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 241-A027Ua_INC-ONLY												Offset Well Error:	0.00 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	0.00	0.00	150.89	-1,048.88	583.93	1,200.82				
100.00	100.00	71.00	71.00	0.25	0.76	150.89	-1,048.88	583.93	1,200.47	1,199.46	1.01	1,192.541	
200.00	200.00	171.00	171.00	0.61	1.82	150.89	-1,048.88	583.93	1,200.47	1,198.04	2.43	494.177	
300.00	300.00	271.01	271.00	0.97	3.15	150.89	-1,048.88	583.93	1,200.47	1,196.34	4.12	291.181	
400.00	400.00	371.01	371.00	1.33	5.12	150.89	-1,048.88	583.93	1,200.47	1,194.02	6.45	186.185	
500.00	500.00	471.01	471.00	1.68	7.09	150.89	-1,048.88	583.93	1,200.47	1,191.69	8.77	136.842	
504.97	504.97	475.98	475.96	1.70	7.19	149.65	-1,047.86	583.93	1,199.57	1,190.69	8.89	134.962	CC
600.00	599.98	567.44	567.42	2.04	8.98	149.68	-1,048.01	583.93	1,201.22	1,190.19	11.03	108.927	ES
700.00	699.84	663.54	663.51	2.41	10.87	149.76	-1,048.51	583.93	1,206.19	1,192.91	13.28	90.837	
800.00	799.45	770.51	770.45	2.77	12.94	149.91	-1,048.88	583.93	1,214.04	1,198.33	15.70	77.309	
900.00	898.70	869.76	869.70	3.13	14.82	150.09	-1,048.88	583.93	1,224.61	1,206.66	17.95	68.212	
1,000.00	997.47	968.42	968.36	3.50	16.70	150.30	-1,048.33	583.93	1,237.74	1,217.55	20.19	61.292	
1,100.00	1,095.62	1,064.72	1,064.67	3.89	18.52	150.56	-1,048.42	583.93	1,254.49	1,232.10	22.39	56.017	
1,200.00	1,193.06	1,160.25	1,160.19	4.30	20.34	150.85	-1,048.67	583.93	1,274.46	1,249.87	24.59	51.838	
1,245.21	1,236.83	1,203.14	1,203.08	4.48	21.15	150.99	-1,048.83	583.93	1,284.54	1,258.97	25.57	50.228	
1,300.00	1,289.78	1,260.87	1,260.78	4.72	22.25	151.32	-1,048.88	583.93	1,297.02	1,270.14	26.88	48.254	
1,400.00	1,386.42	1,357.50	1,357.42	5.15	24.09	151.85	-1,048.88	583.93	1,319.81	1,290.72	29.10	45.360	
1,500.00	1,483.05	1,454.14	1,454.05	5.59	25.93	152.36	-1,048.88	583.93	1,342.71	1,311.39	31.32	42.875	
1,600.00	1,579.69	1,548.01	1,547.92	6.04	27.71	152.83	-1,048.16	583.93	1,365.07	1,331.58	33.49	40.765	
1,700.00	1,676.32	1,641.49	1,641.39	6.49	29.49	153.31	-1,048.49	583.93	1,388.46	1,352.81	35.65	38.947	
1,800.00	1,772.96	1,744.07	1,743.96	6.94	31.44	153.81	-1,048.88	583.93	1,411.99	1,374.00	37.99	37.166	
1,900.00	1,869.60	1,840.71	1,840.60	7.40	33.28	154.26	-1,048.88	583.93	1,435.26	1,395.04	40.22	35.685	
2,000.00	1,966.23	1,937.35	1,937.23	7.86	35.12	154.69	-1,048.88	583.93	1,458.62	1,416.17	42.45	34.361	
2,100.00	2,062.87	2,032.67	2,032.55	8.33	36.93	155.10	-1,048.33	583.93	1,481.55	1,436.89	44.65	33.178	
2,200.00	2,159.50	2,127.11	2,126.99	8.79	38.73	155.51	-1,048.50	583.93	1,505.21	1,458.37	46.84	32.135	
2,300.00	2,256.14	2,221.47	2,221.35	9.26	40.53	155.90	-1,048.81	583.93	1,529.08	1,480.06	49.03	31.189	
2,400.00	2,352.77	2,323.92	2,323.77	9.73	42.53	156.31	-1,048.88	583.93	1,552.78	1,501.35	51.43	30.193	
2,500.00	2,449.41	2,420.56	2,420.41	10.20	44.44	156.68	-1,048.88	583.93	1,576.49	1,522.77	53.72	29.345	
2,600.00	2,546.05	2,516.01	2,515.86	10.67	46.32	157.03	-1,048.08	583.93	1,599.52	1,543.53	55.99	28.567	
2,700.00	2,642.68	2,608.91	2,608.76	11.14	48.14	157.37	-1,048.27	583.93	1,623.53	1,565.33	58.21	27.891	
2,800.00	2,739.32	2,701.70	2,701.54	11.61	49.97	157.71	-1,048.68	583.93	1,647.83	1,587.40	60.42	27.271	
2,900.00	2,835.95	2,807.14	2,806.95	12.08	52.05	158.07	-1,048.88	583.93	1,671.93	1,609.03	62.90	26.581	
3,000.00	2,932.59	2,903.78	2,903.59	12.55	53.95	158.39	-1,048.88	583.93	1,695.93	1,630.73	65.19	26.013	
3,100.00	3,029.22	3,000.41	3,000.22	13.03	55.85	158.71	-1,048.88	583.93	1,719.98	1,652.49	67.49	25.485	
3,200.00	3,125.86	3,038.00	3,037.79	13.50	56.59	158.83	-1,048.88	583.93	1,745.07	1,676.55	68.52	25.467	SF
3,300.00	3,222.50	3,038.00	3,037.79	13.97	56.59	158.83	-1,048.88	583.93	1,775.05	1,706.46	68.59	25.879	
3,400.00	3,319.13	3,038.00	3,037.79	14.45	56.59	158.83	-1,048.88	583.93	1,810.07	1,741.59	68.48	26.432	
3,500.00	3,415.77	3,038.00	3,037.79	14.92	56.59	158.83	-1,048.88	583.93	1,849.83	1,781.62	68.21	27.119	
3,600.00	3,512.40	3,038.00	3,037.79	15.40	56.59	158.83	-1,048.88	583.93	1,894.05	1,826.24	67.81	27.934	
3,700.00	3,609.04	3,038.00	3,037.79	15.88	56.59	158.83	-1,048.88	583.93	1,942.41	1,875.13	67.29	28.868	
3,800.00	3,705.67	3,038.00	3,037.79	16.35	56.59	158.83	-1,048.88	583.93	1,994.62	1,927.94	66.68	29.915	
3,900.00	3,802.31	3,038.00	3,037.79	16.83	56.59	158.83	-1,048.88	583.93	2,050.38	1,984.38	66.00	31.069	
4,000.00	3,898.95	3,038.00	3,037.79	17.30	56.59	158.83	-1,048.88	583.93	2,109.40	2,044.14	65.26	32.323	
4,100.00	3,995.58	3,038.00	3,037.79	17.78	56.59	158.83	-1,048.88	583.93	2,171.43	2,106.95	64.49	33.672	
4,200.00	4,092.22	3,038.00	3,037.79	18.26	56.59	158.83	-1,048.88	583.93	2,236.22	2,172.52	63.69	35.110	
4,300.00	4,188.85	3,038.00	3,037.79	18.73	56.59	158.83	-1,048.88	583.93	2,303.52	2,240.64	62.88	36.631	
4,400.00	4,285.49	3,038.00	3,037.79	19.21	56.59	158.83	-1,048.88	583.93	2,373.13	2,311.06	62.07	38.231	
4,500.00	4,382.12	3,038.00	3,037.79	19.69	56.59	158.83	-1,048.88	583.93	2,444.85	2,383.58	61.27	39.905	
4,600.00	4,478.76	3,038.00	3,037.79	20.17	56.59	158.83	-1,048.88	583.93	2,518.50	2,458.02	60.47	41.647	
4,700.00	4,575.40	3,038.00	3,037.79	20.64	56.59	158.83	-1,048.88	583.93	2,593.91	2,534.22	59.69	43.454	
4,800.00	4,672.03	3,038.00	3,037.79	21.12	56.59	158.83	-1,048.88	583.93	2,670.94	2,612.00	58.94	45.320	
4,900.00	4,768.67	3,038.00	3,037.79	21.60	56.59	158.83	-1,048.88	583.93	2,749.44	2,691.25	58.20	47.242	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207 - OH - OH-INC												Offset Site Error: 0.00 usft		
Survey Program: Reference		241-A027Ua_INC-ONLY Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance				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	
5,000.00	4,865.30	3,038.00	3,037.79	22.08	56.59	158.83	-1,048.88	583.93	2,829.31	2,771.82	57.49	49.216		
5,100.00	4,961.94	3,038.00	3,037.79	22.55	56.59	158.83	-1,048.88	583.93	2,910.42	2,853.61	56.80	51.237		
5,200.00	5,058.57	3,038.00	3,037.79	23.03	56.59	158.83	-1,048.88	583.93	2,992.67	2,936.52	56.15	53.302		
5,300.00	5,155.21	3,038.00	3,037.79	23.51	56.59	158.83	-1,048.88	583.93	3,075.97	3,020.46	55.52	55.407		
5,400.00	5,251.85	3,038.00	3,037.79	23.99	56.59	158.83	-1,048.88	583.93	3,160.24	3,105.33	54.91	57.549		
5,500.00	5,348.48	3,038.00	3,037.79	24.47	56.59	158.83	-1,048.88	583.93	3,245.41	3,191.07	54.34	59.724		
5,600.00	5,445.12	3,038.00	3,037.79	24.94	56.59	158.83	-1,048.88	583.93	3,331.40	3,277.61	53.79	61.929		
5,700.00	5,541.75	3,038.00	3,037.79	25.42	56.59	158.83	-1,048.88	583.93	3,418.15	3,364.88	53.27	64.161		
5,800.00	5,638.39	3,038.00	3,037.79	25.90	56.59	158.83	-1,048.88	583.93	3,505.61	3,452.83	52.78	66.417		
5,900.00	5,735.02	3,038.00	3,037.79	26.38	56.59	158.83	-1,048.88	583.93	3,593.72	3,541.41	52.32	68.694		
6,000.00	5,831.66	3,038.00	3,037.79	26.86	56.59	158.83	-1,048.88	583.93	3,682.44	3,630.57	51.87	70.988		
6,100.00	5,928.30	3,038.00	3,037.79	27.34	56.59	158.83	-1,048.88	583.93	3,771.73	3,720.27	51.46	73.298		
6,200.00	6,024.93	3,038.00	3,037.79	27.82	56.59	158.83	-1,048.88	583.93	3,861.54	3,810.47	51.06	75.621		
6,300.00	6,121.57	3,038.00	3,037.79	28.29	56.59	158.83	-1,048.88	583.93	3,951.84	3,901.14	50.69	77.954		
6,400.00	6,218.20	3,038.00	3,037.79	28.77	56.59	158.83	-1,048.88	583.93	4,042.59	3,992.24	50.35	80.294		
6,500.00	6,314.84	3,038.00	3,037.79	29.25	56.59	158.83	-1,048.88	583.93	4,133.77	4,083.75	50.02	82.639		
6,521.58	6,335.69	3,038.00	3,037.79	29.36	56.59	158.83	-1,048.88	583.93	4,153.51	4,103.55	49.95	83.146		
6,550.00	6,363.15	3,038.00	3,037.79	29.49	56.59	144.11	-1,048.88	583.93	4,179.42	4,129.55	49.86	83.815		
6,600.00	6,411.28	3,038.00	3,037.79	29.73	56.59	120.79	-1,048.88	583.93	4,224.49	4,174.79	49.70	84.995		
6,650.00	6,458.93	3,038.00	3,037.79	29.96	56.59	101.91	-1,048.88	583.93	4,268.70	4,219.16	49.54	86.171		
6,700.00	6,505.83	3,038.00	3,037.79	30.19	56.59	87.30	-1,048.88	583.93	4,311.80	4,262.43	49.37	87.339		
6,750.00	6,551.67	3,038.00	3,037.79	30.42	56.59	76.09	-1,048.88	583.93	4,353.55	4,304.36	49.20	88.493		
6,800.00	6,596.17	3,038.00	3,037.79	30.64	56.59	67.42	-1,048.88	583.93	4,393.75	4,344.73	49.02	89.625		
6,850.00	6,639.06	3,038.00	3,037.79	30.85	56.59	60.63	-1,048.88	583.93	4,432.20	4,383.35	48.85	90.731		
6,900.00	6,680.07	3,038.00	3,037.79	31.05	56.59	55.23	-1,048.88	583.93	4,468.69	4,420.01	48.68	91.802		
6,950.00	6,718.96	3,038.00	3,037.79	31.24	56.59	50.89	-1,048.88	583.93	4,503.07	4,454.56	48.51	92.831		
7,000.00	6,755.47	3,038.00	3,037.79	31.43	56.59	47.36	-1,048.88	583.93	4,535.16	4,486.81	48.34	93.809		
7,050.00	6,789.40	3,038.00	3,037.79	31.61	56.59	44.48	-1,048.88	583.93	4,564.82	4,516.63	48.19	94.728		
7,100.00	6,820.52	3,038.00	3,037.79	31.79	56.59	42.12	-1,048.88	583.93	4,591.91	4,543.87	48.04	95.576		
7,150.00	6,848.64	3,038.00	3,037.79	31.97	56.59	40.18	-1,048.88	583.93	4,616.32	4,568.41	47.91	96.346		
7,200.00	6,873.60	3,038.00	3,037.79	32.14	56.59	38.60	-1,048.88	583.93	4,637.94	4,590.14	47.80	97.026		
7,250.00	6,895.24	3,038.00	3,037.79	32.31	56.59	37.32	-1,048.88	583.93	4,656.67	4,608.96	47.71	97.608		
7,300.00	6,913.42	3,038.00	3,037.79	32.49	56.59	36.30	-1,048.88	583.93	4,672.44	4,624.80	47.64	98.082		
7,350.00	6,928.03	3,038.00	3,037.79	32.67	56.59	35.52	-1,048.88	583.93	4,685.17	4,637.58	47.59	98.440		
7,400.00	6,938.98	3,038.00	3,037.79	32.86	56.59	34.95	-1,048.88	583.93	4,694.82	4,647.24	47.58	98.677		
7,450.00	6,946.22	3,038.00	3,037.79	33.06	56.59	34.58	-1,048.88	583.93	4,701.34	4,653.75	47.59	98.786		
7,500.00	6,949.68	3,038.00	3,037.79	33.26	56.59	34.40	-1,048.88	583.93	4,704.70	4,657.07	47.64	98.765		
7,521.05	6,950.00	3,038.00	3,037.79	33.35	56.59	34.38	-1,048.88	583.93	4,705.17	4,657.51	47.66	98.718		
7,600.00	6,949.95	3,038.00	3,037.79	33.72	56.59	34.38	-1,048.88	583.93	4,706.54	4,658.73	47.81	98.448		
7,700.00	6,949.89	3,038.00	3,037.79	34.24	56.59	34.38	-1,048.88	583.93	4,710.18	4,662.10	48.07	97.982		
7,800.00	6,949.83	3,038.00	3,037.79	34.84	56.59	34.38	-1,048.88	583.93	4,715.93	4,667.51	48.42	97.391		
7,900.00	6,949.77	3,038.00	3,037.79	35.50	56.59	34.38	-1,048.88	583.93	4,723.79	4,674.94	48.85	96.691		
8,000.00	6,949.71	3,038.00	3,037.79	36.23	56.59	34.38	-1,048.88	583.93	4,733.76	4,684.39	49.36	95.897		
8,100.00	6,949.65	3,038.00	3,037.79	37.02	56.59	34.38	-1,048.88	583.93	4,745.81	4,695.86	49.94	95.028		
8,200.00	6,949.59	3,038.00	3,037.79	37.85	56.59	34.38	-1,048.88	583.93	4,759.93	4,709.34	50.58	94.101		
8,300.00	6,949.53	3,038.00	3,037.79	38.74	56.59	34.38	-1,048.88	583.93	4,776.10	4,724.82	51.28	93.133		
8,400.00	6,949.47	3,038.00	3,037.79	39.68	56.59	34.38	-1,048.88	583.93	4,794.30	4,742.27	52.03	92.139		
8,500.00	6,949.41	3,038.00	3,037.79	40.66	56.59	34.38	-1,048.88	583.93	4,814.52	4,761.69	52.83	91.134		
8,600.00	6,949.35	3,038.00	3,037.79	41.67	56.59	34.38	-1,048.88	583.93	4,836.71	4,783.05	53.66	90.129		
8,700.00	6,949.29	3,038.00	3,037.79	42.73	56.59	34.38	-1,048.88	583.93	4,860.87	4,806.34	54.53	89.137		
8,800.00	6,949.23	3,038.00	3,037.79	43.82	56.59	34.38	-1,048.88	583.93	4,886.95	4,831.52	55.43	88.166		
8,900.00	6,949.17	3,038.00	3,037.79	44.94	56.59	34.38	-1,048.88	583.93	4,914.93	4,858.58	56.35	87.223		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 241-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Semi Major Axis Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,000.00	6,949.11	3,038.00	3,037.79	46.09	56.59	34.38	-1,048.88	583.93	4,944.77	4,887.48	57.29	86.315
9,100.00	6,949.05	3,038.00	3,037.79	47.26	56.59	34.38	-1,048.88	583.93	4,976.44	4,918.20	58.24	85.448
9,200.00	6,948.99	3,038.00	3,037.79	48.46	56.59	34.38	-1,048.88	583.93	5,009.91	4,950.71	59.20	84.624
9,300.00	6,948.93	3,038.00	3,037.79	49.68	56.59	34.38	-1,048.88	583.93	5,045.14	4,984.96	60.17	83.846
9,400.00	6,948.87	3,038.00	3,037.79	50.93	56.59	34.38	-1,048.88	583.93	5,082.09	5,020.94	61.14	83.116
9,500.00	6,948.81	3,038.00	3,037.79	52.19	56.59	34.38	-1,048.88	583.93	5,120.73	5,058.61	62.12	82.437
9,600.00	6,948.75	3,038.00	3,037.79	53.47	56.59	34.38	-1,048.88	583.93	5,161.02	5,097.93	63.09	81.807
9,700.00	6,948.69	3,038.00	3,037.79	54.77	56.59	34.38	-1,048.88	583.93	5,202.91	5,138.86	64.05	81.227
9,800.00	6,948.63	3,038.00	3,037.79	56.08	56.59	34.38	-1,048.88	583.93	5,246.38	5,181.37	65.01	80.698
9,900.00	6,948.57	3,038.00	3,037.79	57.41	56.59	34.38	-1,048.88	583.93	5,291.39	5,225.42	65.96	80.218
10,000.00	6,948.51	3,038.00	3,037.79	58.76	56.59	34.38	-1,048.88	583.93	5,337.88	5,270.98	66.90	79.786
10,100.00	6,948.45	3,038.00	3,037.79	60.11	56.59	34.38	-1,048.88	583.93	5,385.84	5,318.01	67.83	79.402
10,200.00	6,948.39	3,038.00	3,037.79	61.48	56.59	34.38	-1,048.88	583.93	5,435.20	5,366.46	68.74	79.063
10,300.00	6,948.33	3,038.00	3,037.79	62.86	56.59	34.38	-1,048.88	583.93	5,485.95	5,416.31	69.65	78.770
10,400.00	6,948.27	3,038.00	3,037.79	64.24	56.59	34.38	-1,048.88	583.93	5,538.04	5,467.51	70.53	78.520
10,500.00	6,948.21	3,038.00	3,037.79	65.64	56.59	34.38	-1,048.88	583.93	5,591.43	5,520.03	71.40	78.312
10,600.00	6,948.15	3,038.00	3,037.79	67.05	56.59	34.38	-1,048.88	583.93	5,646.09	5,573.84	72.25	78.144
10,700.00	6,948.09	3,038.00	3,037.79	68.47	56.59	34.38	-1,048.88	583.93	5,701.98	5,628.89	73.09	78.016
10,800.00	6,948.03	3,038.00	3,037.79	69.89	56.59	34.38	-1,048.88	583.93	5,759.06	5,685.16	73.91	77.924
10,900.00	6,947.97	3,038.00	3,037.79	71.32	56.59	34.38	-1,048.88	583.93	5,817.31	5,742.60	74.71	77.869
11,000.00	6,947.91	3,038.00	3,037.79	72.76	56.59	34.38	-1,048.88	583.93	5,876.67	5,801.18	75.49	77.848
11,100.00	6,947.85	3,038.00	3,037.79	74.21	56.59	34.38	-1,048.88	583.93	5,937.13	5,860.88	76.25	77.860
11,200.00	6,947.79	3,038.00	3,037.79	75.66	56.59	34.38	-1,048.88	583.93	5,998.64	5,921.64	77.00	77.904
11,300.00	6,947.73	3,038.00	3,037.79	77.12	56.59	34.38	-1,048.88	583.93	6,061.18	5,983.45	77.73	77.978
11,400.00	6,947.66	3,038.00	3,037.79	78.58	56.59	34.38	-1,048.88	583.93	6,124.72	6,046.28	78.44	78.081
11,500.00	6,947.60	3,038.00	3,037.79	80.05	56.59	34.38	-1,048.88	583.93	6,189.22	6,110.08	79.13	78.212
11,600.00	6,947.54	3,038.00	3,037.79	81.52	56.59	34.38	-1,048.88	583.93	6,254.65	6,174.84	79.81	78.369
11,700.00	6,947.48	3,038.00	3,037.79	83.00	56.59	34.38	-1,048.88	583.93	6,320.99	6,240.52	80.47	78.552
11,800.00	6,947.42	3,038.00	3,037.79	84.48	56.59	34.38	-1,048.88	583.93	6,388.20	6,307.09	81.11	78.759
11,900.00	6,947.36	3,038.00	3,037.79	85.97	56.59	34.38	-1,048.88	583.93	6,456.26	6,374.53	81.74	78.990
12,000.00	6,947.30	3,038.00	3,037.79	87.46	56.59	34.38	-1,048.88	583.93	6,525.15	6,442.80	82.34	79.243
12,100.00	6,947.24	3,038.00	3,037.79	88.96	56.59	34.38	-1,048.88	583.93	6,594.83	6,511.89	82.94	79.517
12,200.00	6,947.18	3,038.00	3,037.79	90.46	56.59	34.38	-1,048.88	583.93	6,665.28	6,581.77	83.51	79.811
12,300.00	6,947.12	3,038.00	3,037.79	91.96	56.59	34.38	-1,048.88	583.93	6,736.49	6,652.41	84.08	80.124
12,400.00	6,947.06	3,038.00	3,037.79	93.47	56.59	34.38	-1,048.88	583.93	6,808.41	6,723.79	84.62	80.457
12,500.00	6,947.00	3,038.00	3,037.79	94.97	56.59	34.38	-1,048.88	583.93	6,881.04	6,795.88	85.15	80.807
12,600.00	6,946.94	3,038.00	3,037.79	96.49	56.59	34.38	-1,048.88	583.93	6,954.35	6,868.67	85.67	81.174
12,700.00	6,946.88	3,038.00	3,037.79	98.00	56.59	34.38	-1,048.88	583.93	7,028.31	6,942.13	86.18	81.557
12,800.00	6,946.82	3,038.00	3,037.79	99.52	56.59	34.38	-1,048.88	583.93	7,102.91	7,016.25	86.67	81.956
12,900.00	6,946.76	3,038.00	3,037.79	101.04	56.59	34.38	-1,048.88	583.93	7,178.13	7,090.99	87.14	82.370
13,000.00	6,946.70	3,038.00	3,037.79	102.56	56.59	34.38	-1,048.88	583.93	7,253.95	7,166.34	87.61	82.798
13,100.00	6,946.64	3,038.00	3,037.79	104.09	56.59	34.38	-1,048.88	583.93	7,330.35	7,242.29	88.06	83.240
13,200.00	6,946.58	3,038.00	3,037.79	105.61	56.59	34.38	-1,048.88	583.93	7,407.31	7,318.81	88.50	83.695
13,300.00	6,946.52	3,038.00	3,037.79	107.14	56.59	34.38	-1,048.88	583.93	7,484.82	7,395.89	88.93	84.162
13,400.00	6,946.46	3,038.00	3,037.79	108.67	56.59	34.38	-1,048.88	583.93	7,562.85	7,473.50	89.35	84.642
13,500.00	6,946.40	3,038.00	3,037.79	110.21	56.59	34.38	-1,048.88	583.93	7,641.40	7,551.64	89.76	85.133
13,600.00	6,946.34	3,038.00	3,037.79	111.74	56.59	34.38	-1,048.88	583.93	7,720.44	7,630.28	90.16	85.635
13,700.00	6,946.28	3,038.00	3,037.79	113.28	56.59	34.38	-1,048.88	583.93	7,799.96	7,709.42	90.54	86.148
13,800.00	6,946.22	3,038.00	3,037.79	114.82	56.59	34.38	-1,048.88	583.93	7,879.95	7,789.03	90.92	86.670
13,900.00	6,946.16	3,038.00	3,037.79	116.36	56.59	34.38	-1,048.88	583.93	7,960.39	7,869.11	91.29	87.203
14,000.00	6,946.10	3,038.00	3,037.79	117.90	56.59	34.38	-1,048.88	583.93	8,041.27	7,949.63	91.64	87.745
14,100.00	6,946.04	3,038.00	3,037.79	119.45	56.59	34.38	-1,048.88	583.93	8,122.58	8,030.59	91.99	88.295

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		241-A027Ua_INC-ONLY						Rule Assigned:					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)			Minimum Separation (usft)	
14,200.00	6,945.98	3,038.00	3,037.79	120.99	56.59	34.38	-1,048.88	583.93	8,204.30	8,111.97	92.33	88.854		
14,300.00	6,945.92	3,038.00	3,037.79	122.54	56.59	34.38	-1,048.88	583.93	8,286.42	8,193.76	92.67	89.422		
14,400.00	6,945.86	3,038.00	3,037.79	124.09	56.59	34.38	-1,048.88	583.93	8,368.93	8,275.94	92.99	89.997		
14,500.00	6,945.80	3,038.00	3,037.79	125.64	56.59	34.38	-1,048.88	583.93	8,451.82	8,358.51	93.31	90.580		
14,600.00	6,945.74	3,038.00	3,037.79	127.19	56.59	34.38	-1,048.88	583.93	8,535.07	8,441.46	93.62	91.171		
14,700.00	6,945.68	3,038.00	3,037.79	128.74	56.59	34.38	-1,048.88	583.93	8,618.68	8,524.76	93.92	91.768		
14,800.00	6,945.62	3,038.00	3,037.79	130.30	56.59	34.38	-1,048.88	583.93	8,702.64	8,608.43	94.21	92.372		
14,900.00	6,945.56	3,038.00	3,037.79	131.85	56.59	34.38	-1,048.88	583.93	8,786.93	8,692.43	94.50	92.982		
15,000.00	6,945.50	3,038.00	3,037.79	133.41	56.59	34.38	-1,048.88	583.93	8,871.55	8,776.77	94.78	93.598		
15,100.00	6,945.44	3,038.00	3,037.79	134.96	56.59	34.38	-1,048.88	583.93	8,956.48	8,861.43	95.06	94.221		
15,200.00	6,945.38	3,038.00	3,037.79	136.52	56.59	34.38	-1,048.88	583.93	9,041.73	8,946.40	95.33	94.849		
15,300.00	6,945.32	3,038.00	3,037.79	138.08	56.59	34.38	-1,048.88	583.93	9,127.27	9,031.68	95.59	95.482		
15,400.00	6,945.26	3,038.00	3,037.79	139.64	56.59	34.38	-1,048.88	583.93	9,213.10	9,117.26	95.85	96.121		
15,500.00	6,945.20	3,038.00	3,037.79	141.20	56.59	34.38	-1,048.88	583.93	9,299.22	9,203.12	96.10	96.765		
15,600.00	6,945.14	3,038.00	3,037.79	142.76	56.59	34.38	-1,048.88	583.93	9,385.61	9,289.27	96.35	97.413		
15,700.00	6,945.08	3,038.00	3,037.79	144.33	56.59	34.38	-1,048.88	583.93	9,472.27	9,375.68	96.59	98.066		
15,800.00	6,945.02	3,038.00	3,037.79	145.89	56.59	34.38	-1,048.88	583.93	9,559.19	9,462.37	96.83	98.724		
15,900.00	6,944.96	3,038.00	3,037.79	147.46	56.59	34.38	-1,048.88	583.93	9,646.37	9,549.31	97.06	99.386		
16,000.00	6,944.90	3,038.00	3,037.79	149.02	56.59	34.38	-1,048.88	583.93	9,733.79	9,636.50	97.29	100.052		
16,100.00	6,944.84	3,038.00	3,037.79	150.59	56.59	34.38	-1,048.88	583.93	9,821.45	9,723.94	97.51	100.722		
16,200.00	6,944.77	3,038.00	3,037.79	152.15	56.59	34.38	-1,048.88	583.93	9,909.34	9,811.61	97.73	101.395		
16,300.00	6,944.71	3,038.00	3,037.79	153.72	56.59	34.38	-1,048.88	583.93	9,997.47	9,899.52	97.94	102.073		
16,400.00	6,944.65	3,038.00	3,037.79	155.29	56.59	34.38	-1,048.88	583.93	10,085.81	9,987.65	98.16	102.753		
16,500.00	6,944.59	3,038.00	3,037.79	156.86	56.59	34.38	-1,048.88	583.93	10,174.37	10,076.01	98.36	103.437		
16,600.00	6,944.53	3,038.00	3,037.79	158.43	56.59	34.38	-1,048.88	583.93	10,263.14	10,164.57	98.57	104.125		
16,700.00	6,944.47	3,038.00	3,037.79	160.00	56.59	34.38	-1,048.88	583.93	10,352.11	10,253.35	98.77	104.815		
16,800.00	6,944.41	3,038.00	3,037.79	161.57	56.59	34.38	-1,048.88	583.93	10,441.29	10,342.33	98.96	105.508		
16,900.00	6,944.35	3,038.00	3,037.79	163.14	56.59	34.38	-1,048.88	583.93	10,530.66	10,431.50	99.15	106.204		
17,000.00	6,944.29	3,038.00	3,037.79	164.71	56.59	34.38	-1,048.88	583.93	10,620.21	10,520.87	99.34	106.903		
17,100.00	6,944.23	3,038.00	3,037.79	166.29	56.59	34.38	-1,048.88	583.93	10,709.96	10,610.42	99.53	107.604		
17,200.00	6,944.17	3,038.00	3,037.79	167.86	56.59	34.38	-1,048.88	583.93	10,799.88	10,700.16	99.71	108.308		
17,300.00	6,944.11	3,038.00	3,037.79	169.43	56.59	34.38	-1,048.88	583.93	10,889.98	10,790.08	99.90	109.014		
17,400.00	6,944.05	3,038.00	3,037.79	171.01	56.59	34.38	-1,048.88	583.93	10,980.25	10,880.17	100.07	109.722		
17,500.00	6,943.99	3,038.00	3,037.79	172.58	56.59	34.38	-1,048.88	583.93	11,070.69	10,970.44	100.25	110.432		
17,600.00	6,943.93	3,038.00	3,037.79	174.16	56.59	34.38	-1,048.88	583.93	11,161.29	11,060.86	100.42	111.145		
17,700.00	6,943.87	3,038.00	3,037.79	175.73	56.59	34.38	-1,048.88	583.93	11,252.05	11,151.45	100.59	111.859		
17,800.00	6,943.81	3,038.00	3,037.79	177.31	56.59	34.38	-1,048.88	583.93	11,342.96	11,242.20	100.76	112.576		
17,900.00	6,943.75	3,038.00	3,037.79	178.89	56.59	34.38	-1,048.88	583.93	11,434.03	11,333.10	100.92	113.294		
18,000.00	6,943.69	3,038.00	3,037.79	180.46	56.59	34.38	-1,048.88	583.93	11,525.24	11,424.16	101.09	114.013		
18,100.00	6,943.63	3,038.00	3,037.79	182.04	56.59	34.38	-1,048.88	583.93	11,616.60	11,515.35	101.25	114.735		
18,200.00	6,943.57	3,038.00	3,037.79	183.62	56.59	34.38	-1,048.88	583.93	11,708.10	11,606.70	101.41	115.458		
18,300.00	6,943.51	3,038.00	3,037.79	185.20	56.59	34.38	-1,048.88	583.93	11,799.74	11,698.18	101.56	116.182		
18,400.00	6,943.45	3,038.00	3,037.79	186.78	56.59	34.38	-1,048.88	583.93	11,891.51	11,789.80	101.72	116.908		
18,500.00	6,943.39	3,038.00	3,037.79	188.36	56.59	34.38	-1,048.88	583.93	11,983.42	11,881.55	101.87	117.635		
18,600.00	6,943.33	3,038.00	3,037.79	189.94	56.59	34.38	-1,048.88	583.93	12,075.45	11,973.43	102.02	118.363		
18,700.00	6,943.27	3,038.00	3,037.79	191.52	56.59	34.38	-1,048.88	583.93	12,167.61	12,065.44	102.17	119.092		
18,800.00	6,943.21	3,038.00	3,037.79	193.10	56.59	34.38	-1,048.88	583.93	12,259.90	12,157.58	102.32	119.823		
18,900.00	6,943.15	3,038.00	3,037.79	194.68	56.59	34.38	-1,048.88	583.93	12,352.30	12,249.84	102.46	120.554		
19,000.00	6,943.09	3,038.00	3,037.79	196.26	56.59	34.38	-1,048.88	583.93	12,444.82	12,342.21	102.61	121.287		
19,100.00	6,943.03	3,038.00	3,037.79	197.84	56.59	34.38	-1,048.88	583.93	12,537.45	12,434.70	102.75	122.020		
19,200.00	6,942.97	3,038.00	3,037.79	199.42	56.59	34.38	-1,048.88	583.93	12,630.20	12,527.31	102.89	122.754		
19,300.00	6,942.91	3,038.00	3,037.79	201.01	56.59	34.38	-1,048.88	583.93	12,723.06	12,620.03	103.03	123.489		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 241-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,400.00	6,942.85	3,038.00	3,037.79	202.59	56.59	34.38	-1,048.88	583.93	12,816.02	12,712.85	103.17	124.225	
19,500.00	6,942.79	3,038.00	3,037.79	204.17	56.59	34.38	-1,048.88	583.93	12,909.09	12,805.79	103.30	124.962	
19,600.00	6,942.73	3,038.00	3,037.79	205.75	56.59	34.38	-1,048.88	583.93	13,002.26	12,898.82	103.44	125.699	
19,700.00	6,942.67	3,038.00	3,037.79	207.34	56.59	34.38	-1,048.88	583.93	13,095.54	12,991.96	103.57	126.437	
19,800.00	6,942.61	3,038.00	3,037.79	208.92	56.59	34.38	-1,048.88	583.93	13,188.91	13,085.20	103.71	127.175	
19,900.00	6,942.55	3,038.00	3,037.79	210.51	56.59	34.38	-1,048.88	583.93	13,282.38	13,178.54	103.84	127.914	
20,000.00	6,942.49	3,038.00	3,037.79	212.09	56.59	34.38	-1,048.88	583.93	13,375.94	13,271.97	103.97	128.653	
20,100.00	6,942.43	3,038.00	3,037.79	213.68	56.59	34.38	-1,048.88	583.93	13,469.60	13,365.50	104.10	129.392	
20,200.00	6,942.37	3,038.00	3,037.79	215.26	56.59	34.38	-1,048.88	583.93	13,563.34	13,459.11	104.23	130.132	
20,300.00	6,942.31	3,038.00	3,037.79	216.85	56.59	34.38	-1,048.88	583.93	13,657.18	13,552.82	104.35	130.872	
20,400.00	6,942.25	3,038.00	3,037.79	218.43	56.59	34.38	-1,048.88	583.93	13,751.10	13,646.62	104.48	131.613	
20,500.00	6,942.19	3,038.00	3,037.79	220.02	56.59	34.38	-1,048.88	583.93	13,845.10	13,740.50	104.61	132.354	
20,600.00	6,942.13	3,038.00	3,037.79	221.60	56.59	34.38	-1,048.88	583.93	13,939.19	13,834.46	104.73	133.095	
20,700.00	6,942.07	3,038.00	3,037.79	223.19	56.59	34.38	-1,048.88	583.93	14,033.37	13,928.51	104.86	133.836	
20,808.89	6,942.00	3,038.00	3,037.79	224.92	56.59	34.38	-1,048.88	583.93	14,136.00	14,031.01	104.99	134.643	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207A - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 343-A027Ua_INC-ONLY													Offset Well Error:	0.00 usft
Reference													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	Warning	
				Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
0.00	0.00	0.00	0.00	0.00	0.00	-10.23	856.65	-154.68	870.62					
100.00	100.00	86.00	86.00	0.25	0.80	-10.23	856.65	-154.68	870.51	869.46	1.05	832.258		
200.00	200.00	186.00	186.00	0.61	1.72	-10.23	856.65	-154.68	870.51	868.18	2.33	373.825		
300.00	300.00	286.00	286.00	0.97	2.64	-10.23	856.65	-154.68	870.51	866.89	3.61	241.048		
400.00	400.00	386.00	386.00	1.33	4.04	-10.23	856.65	-154.68	870.51	865.13	5.37	162.065		
500.00	500.00	486.00	486.00	1.68	6.08	-10.23	856.65	-154.68	870.51	862.74	7.76	112.123		
600.00	599.98	585.98	585.98	2.04	8.11	-11.49	856.65	-154.68	868.80	858.64	10.16	85.541		
700.00	699.84	687.28	687.27	2.41	10.17	-11.57	857.12	-154.68	864.12	851.54	12.58	68.698		
800.00	799.45	788.38	788.37	2.77	12.23	-11.73	856.86	-154.68	855.33	840.34	15.00	57.030		
900.00	898.70	884.77	884.70	3.13	14.34	-11.95	856.65	-154.68	843.20	825.73	17.47	48.254		
1,000.00	997.47	983.53	983.47	3.50	16.69	-12.24	856.65	-154.68	827.90	807.71	20.18	41.019		
1,100.00	1,095.62	1,081.76	1,081.68	3.89	19.02	-12.59	857.96	-154.68	810.53	787.65	22.88	35.422		
1,200.00	1,193.06	1,182.76	1,182.67	4.30	21.41	-13.06	857.72	-154.68	788.34	762.69	25.65	30.735		
1,245.21	1,236.83	1,228.07	1,227.98	4.48	22.49	-13.31	857.46	-154.68	777.09	750.20	26.90	28.893		
1,300.00	1,289.78	1,282.80	1,282.71	4.72	23.79	-13.57	857.03	-154.68	762.95	734.55	28.40	26.868		
1,400.00	1,386.42	1,372.62	1,372.42	5.15	25.84	-14.01	856.65	-154.68	737.53	706.71	30.82	23.933		
1,500.00	1,483.05	1,469.26	1,469.05	5.59	27.98	-14.51	856.65	-154.68	712.55	679.21	33.33	21.377		
1,600.00	1,579.69	1,565.89	1,565.69	6.04	30.12	-15.05	856.65	-154.68	687.62	651.77	35.85	19.179		
1,700.00	1,676.32	1,665.80	1,665.56	6.49	32.34	-15.62	858.05	-154.68	664.12	625.68	38.45	17.274		
1,800.00	1,772.96	1,765.59	1,765.34	6.94	34.55	-16.27	857.29	-154.68	638.61	597.58	41.04	15.561		
1,900.00	1,869.60	1,855.90	1,855.60	7.40	36.43	-16.92	856.65	-154.68	613.25	569.94	43.31	14.160		
2,000.00	1,966.23	1,952.54	1,952.23	7.86	38.23	-17.64	856.65	-154.68	588.62	543.11	45.50	12.935		
2,100.00	2,062.87	2,049.17	2,048.87	8.33	40.04	-18.43	856.65	-154.68	564.08	516.38	47.70	11.825		
2,200.00	2,159.50	2,146.23	2,145.92	8.79	41.85	-19.27	857.59	-154.68	540.55	490.64	49.91	10.831		
2,300.00	2,256.14	2,243.94	2,243.62	9.26	43.67	-20.22	857.40	-154.68	516.07	463.94	52.13	9.899		
2,400.00	2,352.77	2,341.53	2,341.21	9.73	45.50	-21.28	857.00	-154.68	491.54	437.18	54.36	9.043		
2,500.00	2,449.41	2,435.75	2,435.41	10.20	47.35	-22.41	856.65	-154.68	467.22	410.60	56.62	8.251		
2,600.00	2,546.05	2,532.38	2,532.05	10.67	49.41	-23.67	856.65	-154.68	443.43	384.34	59.09	7.504		
2,700.00	2,642.68	2,629.02	2,628.68	11.14	51.46	-25.07	856.65	-154.68	419.87	358.30	61.57	6.819		
2,800.00	2,739.32	2,725.66	2,725.32	11.61	53.52	-26.63	856.65	-154.68	396.57	332.52	64.05	6.191		
2,900.00	2,835.95	2,809.00	2,808.59	12.08	55.29	-28.13	856.65	-154.68	373.83	307.55	66.28	5.641		
2,972.27	2,905.79	2,809.00	2,808.59	12.42	55.29	-28.13	856.65	-154.68	366.78	301.51	65.27	5.619	CC, ES, SF	
3,000.00	2,932.59	2,809.00	2,808.59	12.55	55.29	-28.13	856.65	-154.68	367.83	303.57	64.26	5.724		
3,100.00	3,029.22	2,809.00	2,808.59	13.03	55.29	-28.13	856.65	-154.68	388.39	330.18	58.21	6.673		
3,200.00	3,125.86	2,809.00	2,808.59	13.50	55.29	-28.13	856.65	-154.68	431.73	381.45	50.28	8.586		
3,300.00	3,222.50	2,809.00	2,808.59	13.97	55.29	-28.13	856.65	-154.68	491.87	449.26	42.61	11.543		
3,400.00	3,319.13	2,809.00	2,808.59	14.45	55.29	-28.13	856.65	-154.68	563.46	527.29	36.17	15.580		
3,500.00	3,415.77	2,809.00	2,808.59	14.92	55.29	-28.13	856.65	-154.68	642.67	611.58	31.10	20.667		
3,600.00	3,512.40	2,809.00	2,808.59	15.40	55.29	-28.13	856.65	-154.68	727.03	699.80	27.24	26.694		
3,700.00	3,609.04	2,809.00	2,808.59	15.88	55.29	-28.13	856.65	-154.68	814.94	790.59	24.35	33.465		
3,800.00	3,705.67	2,809.00	2,808.59	16.35	55.29	-28.13	856.65	-154.68	905.36	883.12	22.23	40.718		
3,900.00	3,802.31	2,809.00	2,808.59	16.83	55.29	-28.13	856.65	-154.68	997.61	976.89	20.71	48.162		
4,000.00	3,898.95	2,809.00	2,808.59	17.30	55.29	-28.13	856.65	-154.68	1,091.22	1,071.57	19.65	55.529		
4,100.00	3,995.58	2,809.00	2,808.59	17.78	55.29	-28.13	856.65	-154.68	1,185.88	1,166.94	18.94	62.614		
4,200.00	4,092.22	2,809.00	2,808.59	18.26	55.29	-28.13	856.65	-154.68	1,281.35	1,262.86	18.49	69.290		
4,300.00	4,188.85	2,809.00	2,808.59	18.73	55.29	-28.13	856.65	-154.68	1,377.46	1,359.22	18.24	75.506		
4,400.00	4,285.49	2,809.00	2,808.59	19.21	55.29	-28.13	856.65	-154.68	1,474.09	1,455.95	18.14	81.264		
4,500.00	4,382.12	2,809.00	2,808.59	19.69	55.29	-28.13	856.65	-154.68	1,571.15	1,553.00	18.14	86.597		
4,600.00	4,478.76	2,809.00	2,808.59	20.17	55.29	-28.13	856.65	-154.68	1,668.55	1,650.32	18.22	91.554		
4,700.00	4,575.40	2,809.00	2,808.59	20.64	55.29	-28.13	856.65	-154.68	1,766.24	1,747.87	18.36	96.186		
4,800.00	4,672.03	2,809.00	2,808.59	21.12	55.29	-28.13	856.65	-154.68	1,864.17	1,845.63	18.54	100.540		
4,900.00	4,768.67	2,809.00	2,808.59	21.60	55.29	-28.13	856.65	-154.68	1,962.32	1,943.57	18.75	104.658		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207A - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program:		343-A027Ua_INC-ONLY						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
5,000.00	4,865.30	2,809.00	2,808.59	22.08	55.29	-28.13	856.65	-154.68	2,060.64	2,041.66	18.98	108.573	
5,100.00	4,961.94	2,809.00	2,808.59	22.55	55.29	-28.13	856.65	-154.68	2,159.12	2,139.89	19.22	112.316	
5,200.00	5,058.57	2,809.00	2,808.59	23.03	55.29	-28.13	856.65	-154.68	2,257.73	2,238.25	19.48	115.908	
5,300.00	5,155.21	2,809.00	2,808.59	23.51	55.29	-28.13	856.65	-154.68	2,356.45	2,336.71	19.74	119.367	
5,400.00	5,251.85	2,809.00	2,808.59	23.99	55.29	-28.13	856.65	-154.68	2,455.28	2,435.28	20.01	122.709	
5,500.00	5,348.48	2,809.00	2,808.59	24.47	55.29	-28.13	856.65	-154.68	2,554.21	2,533.93	20.28	125.945	
5,600.00	5,445.12	2,809.00	2,808.59	24.94	55.29	-28.13	856.65	-154.68	2,653.21	2,632.65	20.55	129.085	
5,700.00	5,541.75	2,809.00	2,808.59	25.42	55.29	-28.13	856.65	-154.68	2,752.28	2,731.45	20.83	132.136	
5,800.00	5,638.39	2,809.00	2,808.59	25.90	55.29	-28.13	856.65	-154.68	2,851.42	2,830.32	21.11	135.105	
5,900.00	5,735.02	2,809.00	2,808.59	26.38	55.29	-28.13	856.65	-154.68	2,950.62	2,929.24	21.38	137.996	
6,000.00	5,831.66	2,809.00	2,808.59	26.86	55.29	-28.13	856.65	-154.68	3,049.87	3,028.21	21.66	140.814	
6,100.00	5,928.30	2,809.00	2,808.59	27.34	55.29	-28.13	856.65	-154.68	3,149.17	3,127.23	21.94	143.562	
6,200.00	6,024.93	2,809.00	2,808.59	27.82	55.29	-28.13	856.65	-154.68	3,248.51	3,226.29	22.21	146.244	
6,300.00	6,121.57	2,809.00	2,808.59	28.29	55.29	-28.13	856.65	-154.68	3,347.89	3,325.40	22.49	148.861	
6,400.00	6,218.20	2,809.00	2,808.59	28.77	55.29	-28.13	856.65	-154.68	3,447.30	3,424.53	22.77	151.416	
6,500.00	6,314.84	2,809.00	2,808.59	29.25	55.29	-28.13	856.65	-154.68	3,546.75	3,523.71	23.04	153.911	
6,521.58	6,335.69	2,809.00	2,808.59	29.36	55.29	-28.13	856.65	-154.68	3,568.22	3,545.11	23.10	154.442	
6,550.00	6,363.15	2,809.00	2,808.59	29.49	55.29	-11.93	856.65	-154.68	3,596.51	3,573.32	23.19	155.121	
6,600.00	6,411.28	2,809.00	2,808.59	29.73	55.29	14.85	856.65	-154.68	3,646.26	3,622.92	23.34	156.240	
6,650.00	6,458.93	2,809.00	2,808.59	29.96	55.29	22.59	856.65	-154.68	3,695.73	3,672.23	23.50	157.268	
6,700.00	6,505.83	2,809.00	2,808.59	30.19	55.29	22.68	856.65	-154.68	3,744.64	3,720.97	23.67	158.196	
6,750.00	6,551.67	2,809.00	2,808.59	30.42	55.29	20.99	856.65	-154.68	3,792.70	3,768.85	23.85	159.009	
6,800.00	6,596.17	2,809.00	2,808.59	30.64	55.29	19.09	856.65	-154.68	3,839.66	3,815.61	24.04	159.691	
6,850.00	6,639.06	2,809.00	2,808.59	30.85	55.29	17.39	856.65	-154.68	3,885.27	3,861.02	24.25	160.223	
6,900.00	6,680.07	2,809.00	2,808.59	31.05	55.29	15.95	856.65	-154.68	3,929.30	3,904.83	24.47	160.584	
6,950.00	6,718.96	2,809.00	2,808.59	31.24	55.29	14.76	856.65	-154.68	3,971.55	3,946.84	24.71	160.755	
7,000.00	6,755.47	2,809.00	2,808.59	31.43	55.29	13.78	856.65	-154.68	4,011.80	3,986.84	24.96	160.718	
7,050.00	6,789.40	2,809.00	2,808.59	31.61	55.29	12.98	856.65	-154.68	4,049.88	4,024.64	25.24	160.453	
7,100.00	6,820.52	2,809.00	2,808.59	31.79	55.29	12.33	856.65	-154.68	4,085.61	4,060.06	25.54	159.947	
7,150.00	6,848.64	2,809.00	2,808.59	31.97	55.29	11.80	856.65	-154.68	4,118.84	4,092.96	25.87	159.188	
7,200.00	6,873.60	2,809.00	2,808.59	32.14	55.29	11.38	856.65	-154.68	4,149.42	4,123.18	26.23	158.169	
7,250.00	6,895.24	2,809.00	2,808.59	32.31	55.29	11.04	856.65	-154.68	4,177.23	4,150.60	26.63	156.887	
7,300.00	6,913.42	2,809.00	2,808.59	32.49	55.29	10.79	856.65	-154.68	4,202.14	4,175.09	27.05	155.346	
7,350.00	6,928.03	2,809.00	2,808.59	32.67	55.29	10.60	856.65	-154.68	4,224.07	4,196.56	27.51	153.555	
7,400.00	6,938.98	2,809.00	2,808.59	32.86	55.29	10.49	856.65	-154.68	4,242.92	4,214.92	28.00	151.527	
7,450.00	6,946.22	2,809.00	2,808.59	33.06	55.29	10.44	856.65	-154.68	4,258.62	4,230.09	28.53	149.282	
7,500.00	6,949.68	2,809.00	2,808.59	33.26	55.29	10.45	856.65	-154.68	4,271.10	4,242.02	29.09	146.842	
7,521.05	6,950.00	2,809.00	2,808.59	33.35	55.29	10.47	856.65	-154.68	4,275.39	4,246.06	29.33	145.773	
7,600.00	6,949.95	2,809.00	2,808.59	33.72	55.29	10.47	856.65	-154.68	4,291.06	4,260.77	30.29	141.654	
7,700.00	6,949.89	2,809.00	2,808.59	34.24	55.29	10.47	856.65	-154.68	4,312.90	4,281.32	31.58	136.555	
7,800.00	6,949.83	2,809.00	2,808.59	34.84	55.29	10.47	856.65	-154.68	4,336.94	4,304.00	32.94	131.674	
7,900.00	6,949.77	2,809.00	2,808.59	35.50	55.29	10.47	856.65	-154.68	4,363.14	4,328.80	34.34	127.065	
8,000.00	6,949.71	2,809.00	2,808.59	36.23	55.29	10.47	856.65	-154.68	4,391.46	4,355.69	35.77	122.759	
8,100.00	6,949.65	2,809.00	2,808.59	37.02	55.29	10.47	856.65	-154.68	4,421.86	4,384.63	37.23	118.766	
8,200.00	6,949.59	2,809.00	2,808.59	37.85	55.29	10.47	856.65	-154.68	4,454.30	4,415.60	38.70	115.086	
8,300.00	6,949.53	2,809.00	2,808.59	38.74	55.29	10.47	856.65	-154.68	4,488.73	4,448.55	40.18	111.712	
8,400.00	6,949.47	2,809.00	2,808.59	39.68	55.29	10.47	856.65	-154.68	4,525.12	4,483.46	41.66	108.628	
8,500.00	6,949.41	2,809.00	2,808.59	40.66	55.29	10.47	856.65	-154.68	4,563.40	4,520.27	43.12	105.819	
8,600.00	6,949.35	2,809.00	2,808.59	41.67	55.29	10.47	856.65	-154.68	4,603.54	4,558.96	44.58	103.266	
8,700.00	6,949.29	2,809.00	2,808.59	42.73	55.29	10.47	856.65	-154.68	4,645.48	4,599.46	46.02	100.952	
8,800.00	6,949.23	2,809.00	2,808.59	43.82	55.29	10.47	856.65	-154.68	4,689.18	4,641.75	47.43	98.858	
8,900.00	6,949.17	2,809.00	2,808.59	44.94	55.29	10.47	856.65	-154.68	4,734.59	4,685.77	48.83	96.968	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207A - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		343-A027Ua_INC-ONLY						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	
9,000.00	6,949.11	2,809.00	2,808.59	46.09	55.29	10.47	856.65	-154.68	4,781.66	4,731.47	50.19	95.265		
9,100.00	6,949.05	2,809.00	2,808.59	47.26	55.29	10.47	856.65	-154.68	4,830.35	4,778.81	51.53	93.734		
9,200.00	6,948.99	2,809.00	2,808.59	48.46	55.29	10.47	856.65	-154.68	4,880.59	4,827.75	52.84	92.362		
9,300.00	6,948.93	2,809.00	2,808.59	49.68	55.29	10.47	856.65	-154.68	4,932.35	4,878.23	54.12	91.136		
9,400.00	6,948.87	2,809.00	2,808.59	50.93	55.29	10.47	856.65	-154.68	4,985.58	4,930.22	55.37	90.043		
9,500.00	6,948.81	2,809.00	2,808.59	52.19	55.29	10.47	856.65	-154.68	5,040.24	4,983.65	56.58	89.074		
9,600.00	6,948.75	2,809.00	2,808.59	53.47	55.29	10.47	856.65	-154.68	5,096.27	5,038.50	57.77	88.219		
9,700.00	6,948.69	2,809.00	2,808.59	54.77	55.29	10.47	856.65	-154.68	5,153.63	5,094.71	58.92	87.469		
9,800.00	6,948.63	2,809.00	2,808.59	56.08	55.29	10.47	856.65	-154.68	5,212.27	5,152.24	60.04	86.816		
9,900.00	6,948.57	2,809.00	2,808.59	57.41	55.29	10.47	856.65	-154.68	5,272.17	5,211.04	61.13	86.252		
10,000.00	6,948.51	2,809.00	2,808.59	58.76	55.29	10.47	856.65	-154.68	5,333.26	5,271.08	62.18	85.771		
10,100.00	6,948.45	2,809.00	2,808.59	60.11	55.29	10.47	856.65	-154.68	5,395.52	5,332.31	63.20	85.366		
10,200.00	6,948.39	2,809.00	2,808.59	61.48	55.29	10.47	856.65	-154.68	5,458.90	5,394.70	64.20	85.033		
10,300.00	6,948.33	2,809.00	2,808.59	62.86	55.29	10.47	856.65	-154.68	5,523.36	5,458.20	65.16	84.766		
10,400.00	6,948.27	2,809.00	2,808.59	64.24	55.29	10.47	856.65	-154.68	5,588.87	5,522.77	66.09	84.561		
10,500.00	6,948.21	2,809.00	2,808.59	65.64	55.29	10.47	856.65	-154.68	5,655.38	5,588.39	67.00	84.412		
10,600.00	6,948.15	2,809.00	2,808.59	67.05	55.29	10.47	856.65	-154.68	5,722.87	5,655.00	67.87	84.317		
10,700.00	6,948.09	2,809.00	2,808.59	68.47	55.29	10.47	856.65	-154.68	5,791.31	5,722.59	68.72	84.272		
10,800.00	6,948.03	2,809.00	2,808.59	69.89	55.29	10.47	856.65	-154.68	5,860.65	5,791.10	69.54	84.273		
10,900.00	6,947.97	2,809.00	2,808.59	71.32	55.29	10.47	856.65	-154.68	5,930.86	5,860.52	70.34	84.318		
11,000.00	6,947.91	2,809.00	2,808.59	72.76	55.29	10.47	856.65	-154.68	6,001.92	5,930.81	71.11	84.404		
11,100.00	6,947.85	2,809.00	2,808.59	74.21	55.29	10.47	856.65	-154.68	6,073.79	6,001.94	71.86	84.527		
11,200.00	6,947.79	2,809.00	2,808.59	75.66	55.29	10.47	856.65	-154.68	6,146.46	6,073.88	72.58	84.687		
11,300.00	6,947.73	2,809.00	2,808.59	77.12	55.29	10.47	856.65	-154.68	6,219.88	6,146.60	73.28	84.880		
11,400.00	6,947.66	2,809.00	2,808.59	78.58	55.29	10.47	856.65	-154.68	6,294.03	6,220.07	73.96	85.104		
11,500.00	6,947.60	2,809.00	2,808.59	80.05	55.29	10.47	856.65	-154.68	6,368.89	6,294.27	74.61	85.359		
11,600.00	6,947.54	2,809.00	2,808.59	81.52	55.29	10.47	856.65	-154.68	6,444.43	6,369.18	75.25	85.641		
11,700.00	6,947.48	2,809.00	2,808.59	83.00	55.29	10.47	856.65	-154.68	6,520.63	6,444.76	75.87	85.950		
11,800.00	6,947.42	2,809.00	2,808.59	84.48	55.29	10.47	856.65	-154.68	6,597.46	6,521.00	76.46	86.283		
11,900.00	6,947.36	2,809.00	2,808.59	85.97	55.29	10.47	856.65	-154.68	6,674.91	6,597.87	77.04	86.640		
12,000.00	6,947.30	2,809.00	2,808.59	87.46	55.29	10.47	856.65	-154.68	6,752.96	6,675.35	77.60	87.019		
12,100.00	6,947.24	2,809.00	2,808.59	88.96	55.29	10.47	856.65	-154.68	6,831.57	6,753.42	78.15	87.419		
12,200.00	6,947.18	2,809.00	2,808.59	90.46	55.29	10.47	856.65	-154.68	6,910.74	6,832.06	78.67	87.839		
12,300.00	6,947.12	2,809.00	2,808.59	91.96	55.29	10.47	856.65	-154.68	6,990.44	6,911.25	79.19	88.278		
12,400.00	6,947.06	2,809.00	2,808.59	93.47	55.29	10.47	856.65	-154.68	7,070.66	6,990.97	79.68	88.734		
12,500.00	6,947.00	2,809.00	2,808.59	94.97	55.29	10.47	856.65	-154.68	7,151.37	7,071.21	80.17	89.208		
12,600.00	6,946.94	2,809.00	2,808.59	96.49	55.29	10.47	856.65	-154.68	7,232.57	7,151.93	80.63	89.697		
12,700.00	6,946.88	2,809.00	2,808.59	98.00	55.29	10.47	856.65	-154.68	7,314.23	7,233.14	81.09	90.201		
12,800.00	6,946.82	2,809.00	2,808.59	99.52	55.29	10.47	856.65	-154.68	7,396.34	7,314.82	81.53	90.720		
12,900.00	6,946.76	2,809.00	2,808.59	101.04	55.29	10.47	856.65	-154.68	7,478.89	7,396.94	81.96	91.253		
13,000.00	6,946.70	2,809.00	2,808.59	102.56	55.29	10.47	856.65	-154.68	7,561.86	7,479.49	82.37	91.798		
13,100.00	6,946.64	2,809.00	2,808.59	104.09	55.29	10.47	856.65	-154.68	7,645.24	7,562.46	82.78	92.356		
13,200.00	6,946.58	2,809.00	2,808.59	105.61	55.29	10.47	856.65	-154.68	7,729.01	7,645.84	83.17	92.925		
13,300.00	6,946.52	2,809.00	2,808.59	107.14	55.29	10.47	856.65	-154.68	7,813.17	7,729.61	83.56	93.506		
13,400.00	6,946.46	2,809.00	2,808.59	108.67	55.29	10.47	856.65	-154.68	7,897.69	7,813.76	83.93	94.097		
13,500.00	6,946.40	2,809.00	2,808.59	110.21	55.29	10.47	856.65	-154.68	7,982.57	7,898.28	84.29	94.699		
13,600.00	6,946.34	2,809.00	2,808.59	111.74	55.29	10.47	856.65	-154.68	8,067.80	7,983.15	84.65	95.310		
13,700.00	6,946.28	2,809.00	2,808.59	113.28	55.29	10.47	856.65	-154.68	8,153.36	8,068.37	84.99	95.930		
13,800.00	6,946.22	2,809.00	2,808.59	114.82	55.29	10.47	856.65	-154.68	8,239.25	8,153.92	85.33	96.559		
13,900.00	6,946.16	2,809.00	2,808.59	116.36	55.29	10.47	856.65	-154.68	8,325.46	8,239.80	85.66	97.196		
14,000.00	6,946.10	2,809.00	2,808.59	117.90	55.29	10.47	856.65	-154.68	8,411.97	8,325.99	85.98	97.842		
14,100.00	6,946.04	2,809.00	2,808.59	119.45	55.29	10.47	856.65	-154.68	8,498.77	8,412.48	86.29	98.495		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207A - OH - OH-INC													Offset Site Error: 0.00 usft	
Survey Program:		343-A027Ua_INC-ONLY					Rule Assigned:			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)			Minimum Separation (usft)	
14,200.00	6,945.98	2,809.00	2,808.59	120.99	55.29	10.47	856.65	-154.68	8,585.86	8,499.27	86.59	99.155		
14,300.00	6,945.92	2,809.00	2,808.59	122.54	55.29	10.47	856.65	-154.68	8,673.23	8,586.35	86.89	99.822		
14,400.00	6,945.86	2,809.00	2,808.59	124.09	55.29	10.47	856.65	-154.68	8,760.87	8,673.70	87.18	100.495		
14,500.00	6,945.80	2,809.00	2,808.59	125.64	55.29	10.47	856.65	-154.68	8,848.78	8,761.32	87.46	101.175		
14,600.00	6,945.74	2,809.00	2,808.59	127.19	55.29	10.47	856.65	-154.68	8,936.93	8,849.20	87.74	101.861		
14,700.00	6,945.68	2,809.00	2,808.59	128.74	55.29	10.47	856.65	-154.68	9,025.34	8,937.33	88.01	102.552		
14,800.00	6,945.62	2,809.00	2,808.59	130.30	55.29	10.47	856.65	-154.68	9,113.98	9,025.71	88.27	103.249		
14,900.00	6,945.56	2,809.00	2,808.59	131.85	55.29	10.47	856.65	-154.68	9,202.86	9,114.33	88.53	103.951		
15,000.00	6,945.50	2,809.00	2,808.59	133.41	55.29	10.47	856.65	-154.68	9,291.96	9,203.18	88.78	104.658		
15,100.00	6,945.44	2,809.00	2,808.59	134.96	55.29	10.47	856.65	-154.68	9,381.28	9,292.25	89.03	105.370		
15,200.00	6,945.38	2,809.00	2,808.59	136.52	55.29	10.47	856.65	-154.68	9,470.82	9,381.54	89.27	106.086		
15,300.00	6,945.32	2,809.00	2,808.59	138.08	55.29	10.47	856.65	-154.68	9,560.56	9,471.05	89.51	106.807		
15,400.00	6,945.26	2,809.00	2,808.59	139.64	55.29	10.47	856.65	-154.68	9,650.51	9,560.76	89.75	107.532		
15,500.00	6,945.20	2,809.00	2,808.59	141.20	55.29	10.47	856.65	-154.68	9,740.65	9,650.67	89.97	108.260		
15,600.00	6,945.14	2,809.00	2,808.59	142.76	55.29	10.47	856.65	-154.68	9,830.98	9,740.78	90.20	108.993		
15,700.00	6,945.08	2,809.00	2,808.59	144.33	55.29	10.47	856.65	-154.68	9,921.50	9,831.08	90.42	109.729		
15,800.00	6,945.02	2,809.00	2,808.59	145.89	55.29	10.47	856.65	-154.68	10,012.19	9,921.56	90.63	110.468		
15,900.00	6,944.96	2,809.00	2,808.59	147.46	55.29	10.47	856.65	-154.68	10,103.07	10,012.22	90.85	111.210		
16,000.00	6,944.90	2,809.00	2,808.59	149.02	55.29	10.47	856.65	-154.68	10,194.11	10,103.06	91.05	111.956		
16,100.00	6,944.84	2,809.00	2,808.59	150.59	55.29	10.47	856.65	-154.68	10,285.32	10,194.06	91.26	112.704		
16,200.00	6,944.77	2,809.00	2,808.59	152.15	55.29	10.47	856.65	-154.68	10,376.69	10,285.23	91.46	113.456		
16,300.00	6,944.71	2,809.00	2,808.59	153.72	55.29	10.47	856.65	-154.68	10,468.22	10,376.57	91.66	114.210		
16,400.00	6,944.65	2,809.00	2,808.59	155.29	55.29	10.47	856.65	-154.68	10,559.91	10,468.06	91.85	114.966		
16,500.00	6,944.59	2,809.00	2,808.59	156.86	55.29	10.47	856.65	-154.68	10,651.74	10,559.70	92.04	115.725		
16,600.00	6,944.53	2,809.00	2,808.59	158.43	55.29	10.47	856.65	-154.68	10,743.72	10,651.49	92.23	116.486		
16,700.00	6,944.47	2,809.00	2,808.59	160.00	55.29	10.47	856.65	-154.68	10,835.84	10,743.42	92.42	117.249		
16,800.00	6,944.41	2,809.00	2,808.59	161.57	55.29	10.47	856.65	-154.68	10,928.10	10,835.50	92.60	118.014		
16,900.00	6,944.35	2,809.00	2,808.59	163.14	55.29	10.47	856.65	-154.68	11,020.50	10,927.72	92.78	118.781		
17,000.00	6,944.29	2,809.00	2,808.59	164.71	55.29	10.47	856.65	-154.68	11,113.02	11,020.07	92.96	119.550		
17,100.00	6,944.23	2,809.00	2,808.59	166.29	55.29	10.47	856.65	-154.68	11,205.68	11,112.55	93.13	120.321		
17,200.00	6,944.17	2,809.00	2,808.59	167.86	55.29	10.47	856.65	-154.68	11,298.46	11,205.15	93.30	121.093		
17,300.00	6,944.11	2,809.00	2,808.59	169.43	55.29	10.47	856.65	-154.68	11,391.36	11,297.89	93.47	121.867		
17,400.00	6,944.05	2,809.00	2,808.59	171.01	55.29	10.47	856.65	-154.68	11,484.38	11,390.74	93.64	122.642		
17,500.00	6,943.99	2,809.00	2,808.59	172.58	55.29	10.47	856.65	-154.68	11,577.52	11,483.71	93.81	123.419		
17,600.00	6,943.93	2,809.00	2,808.59	174.16	55.29	10.47	856.65	-154.68	11,670.77	11,576.80	93.97	124.196		
17,700.00	6,943.87	2,809.00	2,808.59	175.73	55.29	10.47	856.65	-154.68	11,764.13	11,670.00	94.13	124.975		
17,800.00	6,943.81	2,809.00	2,808.59	177.31	55.29	10.47	856.65	-154.68	11,857.60	11,763.31	94.29	125.755		
17,900.00	6,943.75	2,809.00	2,808.59	178.89	55.29	10.47	856.65	-154.68	11,951.18	11,856.73	94.45	126.536		
18,000.00	6,943.69	2,809.00	2,808.59	180.46	55.29	10.47	856.65	-154.68	12,044.86	11,950.26	94.60	127.318		
18,100.00	6,943.63	2,809.00	2,808.59	182.04	55.29	10.47	856.65	-154.68	12,138.64	12,043.88	94.76	128.101		
18,200.00	6,943.57	2,809.00	2,808.59	183.62	55.29	10.47	856.65	-154.68	12,232.52	12,137.61	94.91	128.885		
18,300.00	6,943.51	2,809.00	2,808.59	185.20	55.29	10.47	856.65	-154.68	12,326.49	12,231.43	95.06	129.669		
18,400.00	6,943.45	2,809.00	2,808.59	186.78	55.29	10.47	856.65	-154.68	12,420.56	12,325.35	95.21	130.454		
18,500.00	6,943.39	2,809.00	2,808.59	188.36	55.29	10.47	856.65	-154.68	12,514.73	12,419.37	95.36	131.240		
18,600.00	6,943.33	2,809.00	2,808.59	189.94	55.29	10.47	856.65	-154.68	12,608.98	12,513.47	95.50	132.026		
18,700.00	6,943.27	2,809.00	2,808.59	191.52	55.29	10.47	856.65	-154.68	12,703.32	12,607.67	95.65	132.812		
18,800.00	6,943.21	2,809.00	2,808.59	193.10	55.29	10.47	856.65	-154.68	12,797.74	12,701.95	95.79	133.599		
18,900.00	6,943.15	2,809.00	2,808.59	194.68	55.29	10.47	856.65	-154.68	12,892.25	12,796.32	95.93	134.387		
19,000.00	6,943.09	2,809.00	2,808.59	196.26	55.29	10.47	856.65	-154.68	12,986.84	12,890.77	96.07	135.174		
19,100.00	6,943.03	2,809.00	2,808.59	197.84	55.29	10.47	856.65	-154.68	13,081.51	12,985.30	96.21	135.962		
19,200.00	6,942.97	2,809.00	2,808.59	199.42	55.29	10.47	856.65	-154.68	13,176.26	13,079.91	96.35	136.751		
19,300.00	6,942.91	2,809.00	2,808.59	201.01	55.29	10.47	856.65	-154.68	13,271.09	13,174.60	96.49	137.539		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 207A - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 343-A027Ua_INC-ONLY												Offset Well Error:	0.00 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)			
19,400.00	6,942.85	2,809.00	2,808.59	202.59	55.29	10.47	856.65	-154.68	13,365.99	13,269.37	96.63	138.327	
19,500.00	6,942.79	2,809.00	2,808.59	204.17	55.29	10.47	856.65	-154.68	13,460.97	13,364.21	96.76	139.116	
19,600.00	6,942.73	2,809.00	2,808.59	205.75	55.29	10.47	856.65	-154.68	13,556.02	13,459.12	96.89	139.904	
19,700.00	6,942.67	2,809.00	2,808.59	207.34	55.29	10.47	856.65	-154.68	13,651.14	13,554.11	97.03	140.693	
19,800.00	6,942.61	2,809.00	2,808.59	208.92	55.29	10.47	856.65	-154.68	13,746.33	13,649.17	97.16	141.481	
19,900.00	6,942.55	2,809.00	2,808.59	210.51	55.29	10.47	856.65	-154.68	13,841.58	13,744.29	97.29	142.270	
20,000.00	6,942.49	2,809.00	2,808.59	212.09	55.29	10.47	856.65	-154.68	13,936.91	13,839.49	97.42	143.058	
20,100.00	6,942.43	2,809.00	2,808.59	213.68	55.29	10.47	856.65	-154.68	14,032.30	13,934.75	97.55	143.846	
20,200.00	6,942.37	2,809.00	2,808.59	215.26	55.29	10.47	856.65	-154.68	14,127.75	14,030.07	97.68	144.634	
20,300.00	6,942.31	2,809.00	2,808.59	216.85	55.29	10.47	856.65	-154.68	14,223.26	14,125.46	97.81	145.421	
20,400.00	6,942.25	2,809.00	2,808.59	218.43	55.29	10.47	856.65	-154.68	14,318.84	14,220.90	97.93	146.208	
20,500.00	6,942.19	2,809.00	2,808.59	220.02	55.29	10.47	856.65	-154.68	14,414.48	14,316.41	98.06	146.995	
20,600.00	6,942.13	2,809.00	2,808.59	221.60	55.29	10.47	856.65	-154.68	14,510.17	14,411.98	98.19	147.782	
20,700.00	6,942.07	2,809.00	2,808.59	223.19	55.29	10.47	856.65	-154.68	14,605.92	14,507.61	98.31	148.568	
20,808.89	6,942.00	2,809.00	2,808.59	224.92	55.29	10.47	856.65	-154.68	14,710.25	14,611.80	98.45	149.423	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 251 - OH - OH-TD													Offset Site Error: 0.00 usft	
Survey Program: 8300-A028Ua_INC-ONLY_PLANNED_5_DEG		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Rule Assigned: Distance				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	
0.00	0.00	0.00	0.00	0.00	0.00	85.41	289.69	3,611.45	3,623.16					
100.00	100.00	72.00	72.00	0.25	3.14	85.41	289.69	3,611.45	3,623.05	3,619.66	3.39	1,067.889		
200.00	200.00	172.00	172.00	0.61	7.51	85.41	289.69	3,611.45	3,623.05	3,614.94	8.11	446.490		
300.00	300.00	272.00	272.00	0.97	11.87	85.41	289.69	3,611.45	3,623.05	3,610.21	12.84	282.250		
400.00	400.00	372.00	372.00	1.33	16.23	85.41	289.69	3,611.45	3,623.05	3,605.49	17.56	206.346		
500.00	500.00	472.00	472.00	1.68	20.60	85.41	289.69	3,611.45	3,623.05	3,600.77	22.28	162.615		
600.00	599.98	571.98	571.98	2.04	24.96	84.22	289.69	3,611.45	3,622.87	3,595.87	27.00	134.179		
700.00	699.84	671.84	671.84	2.41	29.31	84.31	289.69	3,611.45	3,622.35	3,590.64	31.72	114.215		
800.00	799.45	771.45	771.45	2.77	33.66	84.47	289.69	3,611.45	3,621.50	3,585.07	36.42	99.431		
900.00	898.70	870.70	870.70	3.13	37.99	84.68	289.69	3,611.45	3,620.33	3,579.22	41.12	88.045		
1,000.00	997.47	969.47	969.47	3.50	42.30	84.95	289.69	3,611.45	3,618.90	3,573.10	45.80	79.009		
1,100.00	1,095.62	1,067.62	1,067.62	3.89	46.58	85.28	289.69	3,611.45	3,617.25	3,566.77	50.47	71.665		
1,200.00	1,193.06	1,165.06	1,165.06	4.30	50.84	85.66	289.69	3,611.45	3,615.43	3,560.30	55.13	65.580		
1,245.21	1,236.83	1,208.83	1,208.83	4.48	52.75	85.85	289.69	3,611.45	3,614.57	3,557.34	57.23	63.160		
1,300.00	1,289.78	1,261.78	1,261.78	4.72	55.06	86.07	289.69	3,611.45	3,613.54	3,553.77	59.77	60.456		
1,400.00	1,386.42	1,358.42	1,358.42	5.15	59.27	86.46	289.69	3,611.45	3,611.81	3,547.39	64.42	56.065		
1,500.00	1,483.05	1,455.05	1,455.05	5.59	63.49	86.86	289.69	3,611.45	3,610.26	3,541.18	69.08	52.263		
1,600.00	1,579.69	1,551.69	1,551.69	6.04	67.71	87.25	289.69	3,611.45	3,608.89	3,535.15	73.74	48.939		
1,700.00	1,676.32	1,648.32	1,648.32	6.49	71.92	87.65	289.69	3,611.45	3,607.70	3,529.29	78.41	46.011		
1,800.00	1,772.96	1,744.96	1,744.96	6.94	76.14	88.04	289.69	3,611.45	3,606.70	3,523.62	83.08	43.411		
1,900.00	1,869.60	1,841.60	1,841.60	7.40	80.35	88.43	289.69	3,611.45	3,605.88	3,518.13	87.76	41.089		
2,000.00	1,966.23	1,938.23	1,938.23	7.86	84.57	88.83	289.69	3,611.45	3,605.25	3,512.81	92.43	39.003		
2,100.00	2,062.87	2,034.87	2,034.87	8.33	88.79	89.22	289.69	3,611.45	3,604.80	3,507.68	97.11	37.119		
2,200.00	2,159.50	2,131.50	2,131.50	8.79	93.00	89.62	289.69	3,611.45	3,604.53	3,502.73	101.80	35.409		
2,296.29	2,252.55	2,224.55	2,224.55	9.24	97.06	90.00	289.69	3,611.45	3,604.44	3,498.14	106.31	33.906		
2,300.00	2,256.14	2,228.14	2,228.14	9.26	97.22	90.01	289.69	3,611.45	3,604.44	3,497.96	106.48	33.851		
2,400.00	2,352.77	2,324.77	2,324.77	9.73	101.44	90.41	289.69	3,611.45	3,604.54	3,493.38	111.16	32.426		
2,500.00	2,449.41	2,421.41	2,421.41	10.20	105.65	90.80	289.69	3,611.45	3,604.82	3,488.97	115.85	31.117		
2,600.00	2,546.05	2,518.05	2,518.05	10.67	109.87	91.20	289.69	3,611.45	3,605.29	3,484.75	120.54	29.911		
2,700.00	2,642.68	2,614.68	2,614.68	11.14	114.09	91.59	289.69	3,611.45	3,605.94	3,480.72	125.22	28.796		
2,800.00	2,739.32	2,711.32	2,711.32	11.61	118.30	91.99	289.69	3,611.45	3,606.77	3,476.86	129.91	27.764		
2,900.00	2,835.95	2,807.95	2,807.95	12.08	122.52	92.38	289.69	3,611.45	3,607.79	3,473.19	134.60	26.804		
3,000.00	2,932.59	2,904.59	2,904.59	12.55	126.74	92.78	289.69	3,611.45	3,608.98	3,469.70	139.28	25.911		
3,100.00	3,029.22	3,001.22	3,001.22	13.03	130.95	93.17	289.69	3,611.45	3,610.37	3,466.39	143.97	25.077		
3,200.00	3,125.86	3,097.86	3,097.86	13.50	135.17	93.57	289.69	3,611.45	3,611.93	3,463.27	148.66	24.296		
3,300.00	3,222.50	3,194.50	3,194.50	13.97	139.39	93.96	289.69	3,611.45	3,613.68	3,460.33	153.35	23.565		
3,400.00	3,319.13	3,291.13	3,291.13	14.45	143.60	94.35	289.69	3,611.45	3,615.60	3,457.57	158.04	22.878		
3,500.00	3,415.77	3,387.77	3,387.77	14.92	147.82	94.74	289.69	3,611.45	3,617.71	3,454.99	162.73	22.232		
3,600.00	3,512.40	3,484.40	3,484.40	15.40	152.04	95.14	289.69	3,611.45	3,620.01	3,452.59	167.42	21.623		
3,700.00	3,609.04	3,581.04	3,581.04	15.88	156.25	95.53	289.69	3,611.45	3,622.48	3,450.37	172.10	21.048		
3,800.00	3,705.67	3,677.67	3,677.67	16.35	160.47	95.92	289.69	3,611.45	3,625.13	3,448.34	176.79	20.505		
3,900.00	3,802.31	3,774.31	3,774.31	16.83	164.69	96.31	289.69	3,611.45	3,627.97	3,446.49	181.48	19.991		
4,000.00	3,898.95	3,870.95	3,870.95	17.30	168.90	96.70	289.69	3,611.45	3,630.98	3,444.81	186.17	19.504		
4,100.00	3,995.58	3,967.58	3,967.58	17.78	173.12	97.09	289.69	3,611.45	3,634.18	3,443.32	190.86	19.041		
4,200.00	4,092.22	4,064.22	4,064.22	18.26	177.34	97.48	289.69	3,611.45	3,637.55	3,442.00	195.54	18.602		
4,300.00	4,188.85	4,160.85	4,160.85	18.73	181.55	97.87	289.69	3,611.45	3,641.10	3,440.87	200.23	18.185		
4,400.00	4,285.49	4,257.49	4,257.49	19.21	185.77	98.25	289.69	3,611.45	3,644.83	3,439.91	204.92	17.787		
4,500.00	4,382.12	4,354.12	4,354.12	19.69	189.98	98.64	289.69	3,611.45	3,648.74	3,439.13	209.60	17.408		
4,600.00	4,478.76	4,450.76	4,450.76	20.17	194.20	99.03	289.69	3,611.45	3,652.82	3,438.53	214.29	17.046		
4,700.00	4,575.40	4,547.40	4,547.40	20.64	198.42	99.41	289.69	3,611.45	3,657.08	3,438.11	218.97	16.701		
4,800.00	4,672.03	4,644.03	4,644.03	21.12	202.63	99.80	289.69	3,611.45	3,661.52	3,437.86	223.66	16.371		
4,900.00	4,768.67	4,740.67	4,740.67	21.60	206.85	100.18	289.69	3,611.45	3,666.13	3,437.78	228.34	16.055		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 251 - OH - OH-TD													Offset Site Error: 0.00 usft
Survey Program: 8300-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error: 0.00 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)			
5,000.00	4,865.30	4,837.30	4,837.30	22.08	211.07	100.56	289.69	3,611.45	3,670.91	3,437.89	233.03	15.753	
5,100.00	4,961.94	4,933.94	4,933.94	22.55	215.28	100.94	289.69	3,611.45	3,675.87	3,438.16	237.71	15.464	
5,200.00	5,058.57	5,030.57	5,030.57	23.03	219.50	101.32	289.69	3,611.45	3,681.00	3,438.61	242.39	15.186	
5,300.00	5,155.21	5,127.21	5,127.21	23.51	223.72	101.70	289.69	3,611.45	3,686.31	3,439.23	247.07	14.920	
5,400.00	5,251.85	5,223.85	5,223.85	23.99	227.93	102.08	289.69	3,611.45	3,691.78	3,440.03	251.75	14.664	
5,500.00	5,348.48	5,320.48	5,320.48	24.47	232.15	102.46	289.69	3,611.45	3,697.43	3,441.00	256.43	14.419	
5,600.00	5,445.12	5,417.12	5,417.12	24.94	236.37	102.83	289.69	3,611.45	3,703.25	3,442.13	261.11	14.182	
5,700.00	5,541.75	5,513.75	5,513.75	25.42	240.58	103.21	289.69	3,611.45	3,709.23	3,443.44	265.79	13.955	
5,800.00	5,638.39	5,610.39	5,610.39	25.90	244.80	103.58	289.69	3,611.45	3,715.39	3,444.92	270.47	13.737	
5,900.00	5,735.02	5,707.02	5,707.02	26.38	249.02	103.96	289.69	3,611.45	3,721.71	3,446.56	275.15	13.526	
6,000.00	5,831.66	5,803.66	5,803.66	26.86	253.23	104.33	289.69	3,611.45	3,728.20	3,448.37	279.83	13.323	
6,100.00	5,928.30	5,900.30	5,900.30	27.34	257.45	104.70	289.69	3,611.45	3,734.85	3,450.35	284.50	13.128	
6,200.00	6,024.93	5,996.93	5,996.93	27.82	261.67	105.07	289.69	3,611.45	3,741.67	3,452.50	289.18	12.939	
6,300.00	6,121.57	6,093.57	6,093.57	28.29	265.88	105.43	289.69	3,611.45	3,748.66	3,454.80	293.85	12.757	
6,400.00	6,218.20	6,190.20	6,190.20	28.77	270.10	105.80	289.69	3,611.45	3,755.80	3,457.28	298.53	12.581	
6,500.00	6,314.84	6,286.84	6,286.84	29.25	274.32	106.17	289.69	3,611.45	3,763.11	3,459.91	303.20	12.411	
6,521.58	6,335.69	6,307.69	6,307.69	29.36	275.23	106.24	289.69	3,611.45	3,764.71	3,460.50	304.21	12.375	
6,550.00	6,363.15	6,335.15	6,335.15	29.49	276.42	96.80	289.69	3,611.45	3,766.22	3,460.69	305.54	12.327	
6,600.00	6,411.28	6,383.28	6,383.28	29.73	278.52	81.79	289.69	3,611.45	3,765.97	3,458.10	307.87	12.232	
6,650.00	6,458.93	6,430.93	6,430.93	29.96	280.60	69.98	289.69	3,611.45	3,762.01	3,451.82	310.18	12.128	
6,700.00	6,505.83	6,477.83	6,477.83	30.19	282.65	61.33	289.69	3,611.45	3,754.39	3,441.92	312.47	12.015	
6,750.00	6,551.67	6,523.67	6,523.67	30.42	284.65	55.20	289.69	3,611.45	3,743.16	3,428.46	314.70	11.894	
6,800.00	6,596.17	6,568.17	6,568.17	30.64	286.59	50.91	289.69	3,611.45	3,728.40	3,411.52	316.88	11.766	
6,850.00	6,639.06	6,611.06	6,611.06	30.85	288.46	47.99	289.69	3,611.45	3,710.23	3,391.24	318.98	11.631	
6,900.00	6,680.07	6,652.07	6,652.07	31.05	290.25	46.11	289.69	3,611.45	3,688.75	3,367.75	321.00	11.491	
6,950.00	6,718.96	6,690.96	6,690.96	31.24	291.95	45.06	289.69	3,611.45	3,664.12	3,341.19	322.93	11.347	
7,000.00	6,755.47	6,727.47	6,727.47	31.43	293.54	44.73	289.69	3,611.45	3,636.49	3,311.75	324.74	11.198	
7,050.00	6,789.40	6,761.40	6,761.40	31.61	295.02	45.04	289.69	3,611.45	3,606.05	3,279.61	326.44	11.047	
7,100.00	6,820.52	6,792.52	6,792.52	31.79	296.38	45.99	289.69	3,611.45	3,572.98	3,244.97	328.02	10.893	
7,150.00	6,848.64	6,820.64	6,820.64	31.97	297.61	47.60	289.69	3,611.45	3,537.51	3,208.05	329.45	10.737	
7,200.00	6,873.60	6,845.60	6,845.60	32.14	298.70	49.92	289.69	3,611.45	3,499.84	3,169.09	330.75	10.581	
7,250.00	6,895.24	6,867.24	6,867.24	32.31	299.64	53.06	289.69	3,611.45	3,460.22	3,128.32	331.90	10.425	
7,300.00	6,913.42	6,885.42	6,885.42	32.49	300.43	57.15	289.69	3,611.45	3,418.89	3,085.99	332.90	10.270	
7,350.00	6,928.03	6,900.03	6,900.03	32.67	301.07	62.36	289.69	3,611.45	3,376.10	3,042.37	333.73	10.116	
7,400.00	6,938.98	6,910.98	6,910.98	32.86	301.55	68.84	289.69	3,611.45	3,332.12	2,997.72	334.41	9.964	
7,450.00	6,946.22	6,918.22	6,918.22	33.06	301.86	76.70	289.69	3,611.45	3,287.21	2,952.30	334.92	9.815	
7,500.00	6,949.68	6,921.68	6,921.68	33.26	302.02	85.89	289.69	3,611.45	3,241.64	2,906.38	335.26	9.669	
7,521.05	6,950.00	6,922.00	6,922.00	33.35	302.03	90.08	289.69	3,611.45	3,222.32	2,886.97	335.35	9.609	
7,600.00	6,949.95	6,921.95	6,921.95	33.72	302.03	90.08	289.69	3,611.45	3,149.92	2,814.26	335.66	9.384	
7,700.00	6,949.89	6,921.89	6,921.89	34.24	302.02	90.08	289.69	3,611.45	3,058.68	2,722.61	336.07	9.101	
7,800.00	6,949.83	6,921.83	6,921.83	34.84	302.02	90.07	289.69	3,611.45	2,968.00	2,631.49	336.51	8.820	
7,900.00	6,949.77	6,921.77	6,921.77	35.50	302.02	90.07	289.69	3,611.45	2,877.94	2,540.94	336.99	8.540	
8,000.00	6,949.71	6,921.71	6,921.71	36.23	302.02	90.07	289.69	3,611.45	2,788.55	2,451.04	337.52	8.262	
8,100.00	6,949.65	6,921.65	6,921.65	37.02	302.01	90.06	289.69	3,611.45	2,699.91	2,361.83	338.08	7.986	
8,200.00	6,949.59	6,921.59	6,921.59	37.85	302.01	90.06	289.69	3,611.45	2,612.09	2,273.40	338.69	7.712	
8,300.00	6,949.53	6,921.53	6,921.53	38.74	302.01	90.06	289.69	3,611.45	2,525.18	2,185.82	339.36	7.441	
8,400.00	6,949.47	6,921.47	6,921.47	39.68	302.01	90.06	289.69	3,611.45	2,439.27	2,099.20	340.08	7.173	
8,500.00	6,949.41	6,921.41	6,921.41	40.66	302.00	90.05	289.69	3,611.45	2,354.48	2,013.62	340.86	6.908	
8,600.00	6,949.35	6,921.35	6,921.35	41.67	302.00	90.05	289.69	3,611.45	2,270.92	1,929.22	341.70	6.646	
8,700.00	6,949.29	6,921.29	6,921.29	42.73	302.00	90.05	289.69	3,611.45	2,188.74	1,846.13	342.61	6.388	
8,800.00	6,949.23	6,921.23	6,921.23	43.82	302.00	90.05	289.69	3,611.45	2,108.10	1,764.50	343.60	6.135	
8,900.00	6,949.17	6,921.17	6,921.17	44.94	301.99	90.04	289.69	3,611.45	2,029.18	1,684.52	344.66	5.887	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 251 - OH - OH-TD												Offset Site Error:	0.00 usft
Survey Program: 8300-A028Ua_INC-ONLY_PLANNED_5_DEG												Offset Well Error:	0.00 usft
Reference												Rule Assigned:	
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)			
9,000.00	6,949.11	6,921.11	6,921.11	46.09	301.99	90.04	289.69	3,611.45	1,952.20	1,606.39	345.81	5.645	
9,100.00	6,949.05	6,921.05	6,921.05	47.26	301.99	90.04	289.69	3,611.45	1,877.39	1,530.36	347.04	5.410	
9,200.00	6,948.99	6,920.99	6,920.99	48.46	301.99	90.03	289.69	3,611.45	1,805.02	1,456.67	348.35	5.182	
9,300.00	6,948.93	6,920.93	6,920.93	49.68	301.98	90.03	289.69	3,611.45	1,735.40	1,385.66	349.74	4.962	
9,400.00	6,948.87	6,920.87	6,920.87	50.93	301.98	90.03	289.69	3,611.45	1,668.87	1,317.65	351.22	4.752	
9,500.00	6,948.81	6,920.81	6,920.81	52.19	301.98	90.03	289.69	3,611.45	1,605.81	1,253.06	352.75	4.552	
9,600.00	6,948.75	6,920.75	6,920.75	53.47	301.97	90.02	289.69	3,611.45	1,546.66	1,192.31	354.34	4.365	
9,700.00	6,948.69	6,920.69	6,920.69	54.77	301.97	90.02	289.69	3,611.45	1,491.86	1,135.89	355.97	4.191	
9,800.00	6,948.63	6,920.63	6,920.63	56.08	301.97	90.02	289.69	3,611.45	1,441.93	1,084.34	357.59	4.032	
9,900.00	6,948.57	6,920.57	6,920.57	57.41	301.97	90.02	289.69	3,611.45	1,397.38	1,038.20	359.18	3.891	
10,000.00	6,948.51	6,920.51	6,920.51	58.76	301.96	90.01	289.69	3,611.45	1,358.74	998.06	360.68	3.767	
10,100.00	6,948.45	6,920.45	6,920.45	60.11	301.96	90.01	289.69	3,611.45	1,326.53	964.47	362.06	3.664	
10,200.00	6,948.39	6,920.39	6,920.39	61.48	301.96	90.01	289.69	3,611.45	1,301.22	937.97	363.26	3.582	
10,300.00	6,948.33	6,920.33	6,920.33	62.86	301.96	90.00	289.69	3,611.45	1,283.24	919.01	364.22	3.523	
10,400.00	6,948.27	6,920.27	6,920.27	64.24	301.95	90.00	289.69	3,611.45	1,272.87	907.96	364.91	3.488	
10,482.46	6,948.22	6,920.22	6,920.22	65.40	301.95	90.00	289.69	3,611.45	1,270.20	904.94	365.26	3.478 CC, ES	
10,500.00	6,948.21	6,920.21	6,920.21	65.64	301.95	90.00	289.69	3,611.45	1,270.32	905.01	365.31	3.477 SF	
10,600.00	6,948.15	6,920.15	6,920.15	67.05	301.95	90.00	289.69	3,611.45	1,275.62	910.24	365.38	3.491	
10,700.00	6,948.09	6,920.09	6,920.09	68.47	301.95	89.99	289.69	3,611.45	1,288.69	923.54	365.15	3.529	
10,800.00	6,948.03	6,920.03	6,920.03	69.89	301.94	89.99	289.69	3,611.45	1,309.29	944.65	364.64	3.591	
10,900.00	6,947.97	6,919.97	6,919.97	71.32	301.94	89.99	289.69	3,611.45	1,337.06	973.19	363.88	3.674	
11,000.00	6,947.91	6,919.91	6,919.91	72.76	301.94	89.99	289.69	3,611.45	1,371.58	1,008.67	362.91	3.779	
11,100.00	6,947.85	6,919.85	6,919.85	74.21	301.94	89.98	289.69	3,611.45	1,412.36	1,050.56	361.80	3.904	
11,200.00	6,947.79	6,919.79	6,919.79	75.66	301.93	89.98	289.69	3,611.45	1,458.85	1,098.28	360.57	4.046	
11,300.00	6,947.73	6,919.73	6,919.73	77.12	301.93	89.98	289.69	3,611.45	1,510.55	1,151.27	359.28	4.204	
11,400.00	6,947.66	6,919.66	6,919.66	78.58	301.93	89.98	289.69	3,611.45	1,566.93	1,208.96	357.97	4.377	
11,500.00	6,947.60	6,919.60	6,919.60	80.05	301.92	89.97	289.69	3,611.45	1,627.51	1,270.86	356.65	4.563	
11,600.00	6,947.54	6,919.54	6,919.54	81.52	301.92	89.97	289.69	3,611.45	1,691.83	1,336.47	355.36	4.761	
11,700.00	6,947.48	6,919.48	6,919.48	83.00	301.92	89.97	289.69	3,611.45	1,759.49	1,405.38	354.10	4.969	
11,800.00	6,947.42	6,919.42	6,919.42	84.48	301.92	89.96	289.69	3,611.45	1,830.11	1,477.21	352.90	5.186	
11,900.00	6,947.36	6,919.36	6,919.36	85.97	301.91	89.96	289.69	3,611.45	1,903.37	1,551.61	351.76	5.411	
12,000.00	6,947.30	6,919.30	6,919.30	87.46	301.91	89.96	289.69	3,611.45	1,978.97	1,628.30	350.67	5.643	
12,100.00	6,947.24	6,919.24	6,919.24	88.96	301.91	89.96	289.69	3,611.45	2,056.65	1,707.00	349.65	5.882	
12,200.00	6,947.18	6,919.18	6,919.18	90.46	301.91	89.95	289.69	3,611.45	2,136.19	1,787.50	348.70	6.126	
12,300.00	6,947.12	6,919.12	6,919.12	91.96	301.90	89.95	289.69	3,611.45	2,217.39	1,869.59	347.80	6.375	
12,400.00	6,947.06	6,919.06	6,919.06	93.47	301.90	89.95	289.69	3,611.45	2,300.07	1,953.10	346.97	6.629	
12,500.00	6,947.00	6,919.00	6,919.00	94.97	301.90	89.95	289.69	3,611.45	2,384.08	2,037.89	346.19	6.887	
12,600.00	6,946.94	6,918.94	6,918.94	96.49	301.90	89.94	289.69	3,611.45	2,469.28	2,123.81	345.47	7.148	
12,700.00	6,946.88	6,918.88	6,918.88	98.00	301.89	89.94	289.69	3,611.45	2,555.56	2,210.75	344.80	7.412	
12,800.00	6,946.82	6,918.82	6,918.82	99.52	301.89	89.94	289.69	3,611.45	2,642.80	2,298.62	344.18	7.679	
12,900.00	6,946.76	6,918.76	6,918.76	101.04	301.89	89.93	289.69	3,611.45	2,730.91	2,387.31	343.60	7.948	
13,000.00	6,946.70	6,918.70	6,918.70	102.56	301.89	89.93	289.69	3,611.45	2,819.82	2,476.76	343.06	8.220	
13,100.00	6,946.64	6,918.64	6,918.64	104.09	301.88	89.93	289.69	3,611.45	2,909.45	2,566.89	342.56	8.493	
13,200.00	6,946.58	6,918.58	6,918.58	105.61	301.88	89.93	289.69	3,611.45	2,999.73	2,657.63	342.10	8.769	
13,300.00	6,946.52	6,918.52	6,918.52	107.14	301.88	89.92	289.69	3,611.45	3,090.62	2,748.94	341.67	9.046	
13,400.00	6,946.46	6,918.46	6,918.46	108.67	301.87	89.92	289.69	3,611.45	3,182.05	2,840.77	341.27	9.324	
13,500.00	6,946.40	6,918.40	6,918.40	110.21	301.87	89.92	289.69	3,611.45	3,273.98	2,933.07	340.90	9.604	
13,600.00	6,946.34	6,918.34	6,918.34	111.74	301.87	89.92	289.69	3,611.45	3,366.37	3,025.81	340.56	9.885	
13,700.00	6,946.28	6,918.28	6,918.28	113.28	301.87	89.91	289.69	3,611.45	3,459.18	3,118.94	340.24	10.167	
13,800.00	6,946.22	6,918.22	6,918.22	114.82	301.86	89.91	289.69	3,611.45	3,552.39	3,212.44	339.94	10.450	
13,900.00	6,946.16	6,918.16	6,918.16	116.36	301.86	89.91	289.69	3,611.45	3,645.95	3,306.28	339.67	10.734	
14,000.00	6,946.10	6,918.10	6,918.10	117.90	301.86	89.90	289.69	3,611.45	3,739.85	3,400.43	339.41	11.019	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 251 - OH - OH-TD													Offset Site Error:	0.00 usft
Survey Program:		8300-A028Ua_INC-ONLY_PLANNED_5_DEG										Offset Well Error:	0.00 usft	
Reference	Offset	Semi Major Axis		Rule Assigned:					Distance		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		
14,100.00	6,946.04	6,918.04	6,918.04	119.45	301.86	89.90	289.69	3,611.45	3,834.05	3,494.88	339.18	11.304		
14,200.00	6,945.98	6,917.98	6,917.98	120.99	301.85	89.90	289.69	3,611.45	3,928.55	3,589.59	338.96	11.590		
14,300.00	6,945.92	6,917.92	6,917.92	122.54	301.85	89.90	289.69	3,611.45	4,023.30	3,684.55	338.75	11.877		
14,400.00	6,945.86	6,917.86	6,917.86	124.09	301.85	89.89	289.69	3,611.45	4,118.31	3,779.74	338.57	12.164		
14,500.00	6,945.80	6,917.80	6,917.80	125.64	301.85	89.89	289.69	3,611.45	4,213.55	3,875.16	338.39	12.452		
14,600.00	6,945.74	6,917.74	6,917.74	127.19	301.84	89.89	289.69	3,611.45	4,309.00	3,970.77	338.23	12.740		
14,700.00	6,945.68	6,917.68	6,917.68	128.74	301.84	89.89	289.69	3,611.45	4,404.66	4,066.58	338.08	13.028		
14,800.00	6,945.62	6,917.62	6,917.62	130.30	301.84	89.88	289.69	3,611.45	4,500.50	4,162.56	337.94	13.317		
14,900.00	6,945.56	6,917.56	6,917.56	131.85	301.84	89.88	289.69	3,611.45	4,596.52	4,258.71	337.81	13.607		
15,000.00	6,945.50	6,917.50	6,917.50	133.41	301.83	89.88	289.69	3,611.45	4,692.71	4,355.01	337.70	13.896		
15,100.00	6,945.44	6,917.44	6,917.44	134.96	301.83	89.87	289.69	3,611.45	4,789.05	4,451.47	337.59	14.186		
15,200.00	6,945.38	6,917.38	6,917.38	136.52	301.83	89.87	289.69	3,611.45	4,885.54	4,548.06	337.49	14.476		
15,300.00	6,945.32	6,917.32	6,917.32	138.08	301.82	89.87	289.69	3,611.45	4,982.17	4,644.78	337.40	14.766		
15,400.00	6,945.26	6,917.26	6,917.26	139.64	301.82	89.87	289.69	3,611.45	5,078.93	4,741.62	337.31	15.057		
15,500.00	6,945.20	6,917.20	6,917.20	141.20	301.82	89.86	289.69	3,611.45	5,175.81	4,838.58	337.24	15.348		
15,600.00	6,945.14	6,917.14	6,917.14	142.76	301.82	89.86	289.69	3,611.45	5,272.81	4,935.64	337.17	15.638		
15,700.00	6,945.08	6,917.08	6,917.08	144.33	301.81	89.86	289.69	3,611.45	5,369.92	5,032.82	337.11	15.929		
15,800.00	6,945.02	6,917.02	6,917.02	145.89	301.81	89.86	289.69	3,611.45	5,467.14	5,130.08	337.05	16.220		
15,900.00	6,944.96	6,916.96	6,916.96	147.46	301.81	89.85	289.69	3,611.45	5,564.45	5,227.45	337.00	16.512		
16,000.00	6,944.90	6,916.90	6,916.90	149.02	301.81	89.85	289.69	3,611.45	5,661.85	5,324.90	336.96	16.803		
16,100.00	6,944.84	6,916.84	6,916.84	150.59	301.80	89.85	289.69	3,611.45	5,759.35	5,422.43	336.92	17.094		
16,200.00	6,944.77	6,916.77	6,916.77	152.15	301.80	89.84	289.69	3,611.45	5,856.93	5,520.04	336.88	17.386		
16,300.00	6,944.71	6,916.71	6,916.71	153.72	301.80	89.84	289.69	3,611.45	5,954.59	5,617.73	336.86	17.677		
16,400.00	6,944.65	6,916.65	6,916.65	155.29	301.80	89.84	289.69	3,611.45	6,052.32	5,715.49	336.83	17.968		
16,500.00	6,944.59	6,916.59	6,916.59	156.86	301.79	89.84	289.69	3,611.45	6,150.13	5,813.32	336.81	18.260		
16,600.00	6,944.53	6,916.53	6,916.53	158.43	301.79	89.83	289.69	3,611.45	6,248.01	5,911.22	336.79	18.551		
16,700.00	6,944.47	6,916.47	6,916.47	160.00	301.79	89.83	289.69	3,611.45	6,345.95	6,009.17	336.78	18.843		
16,800.00	6,944.41	6,916.41	6,916.41	161.57	301.79	89.83	289.69	3,611.45	6,443.96	6,107.19	336.77	19.134		
16,900.00	6,944.35	6,916.35	6,916.35	163.14	301.78	89.83	289.69	3,611.45	6,542.03	6,205.26	336.77	19.426		
17,000.00	6,944.29	6,916.29	6,916.29	164.71	301.78	89.82	289.69	3,611.45	6,640.16	6,303.39	336.77	19.717		
17,100.00	6,944.23	6,916.23	6,916.23	166.29	301.78	89.82	289.69	3,611.45	6,738.34	6,401.57	336.77	20.009		
17,200.00	6,944.17	6,916.17	6,916.17	167.86	301.78	89.82	289.69	3,611.45	6,836.57	6,499.79	336.77	20.300		
17,300.00	6,944.11	6,916.11	6,916.11	169.43	301.77	89.81	289.69	3,611.45	6,934.85	6,598.07	336.78	20.591		
17,400.00	6,944.05	6,916.05	6,916.05	171.01	301.77	89.81	289.69	3,611.45	7,033.18	6,696.39	336.79	20.883		
17,500.00	6,943.99	6,915.99	6,915.99	172.58	301.77	89.81	289.69	3,611.45	7,131.56	6,794.76	336.81	21.174		
17,600.00	6,943.93	6,915.93	6,915.93	174.16	301.76	89.81	289.69	3,611.45	7,229.99	6,893.16	336.82	21.465		
17,700.00	6,943.87	6,915.87	6,915.87	175.73	301.76	89.80	289.69	3,611.45	7,328.45	6,991.61	336.84	21.756		
17,800.00	6,943.81	6,915.81	6,915.81	177.31	301.76	89.80	289.69	3,611.45	7,426.96	7,090.09	336.87	22.047		
17,900.00	6,943.75	6,915.75	6,915.75	178.89	301.76	89.80	289.69	3,611.45	7,525.50	7,188.61	336.89	22.338		
18,000.00	6,943.69	6,915.69	6,915.69	180.46	301.75	89.80	289.69	3,611.45	7,624.09	7,287.17	336.92	22.629		
18,100.00	6,943.63	6,915.63	6,915.63	182.04	301.75	89.79	289.69	3,611.45	7,722.71	7,385.76	336.95	22.920		
18,200.00	6,943.57	6,915.57	6,915.57	183.62	301.75	89.79	289.69	3,611.45	7,821.36	7,484.39	336.98	23.210		
18,300.00	6,943.51	6,915.51	6,915.51	185.20	301.75	89.79	289.69	3,611.45	7,920.05	7,583.04	337.01	23.501		
18,400.00	6,943.45	6,915.45	6,915.45	186.78	301.74	89.78	289.69	3,611.45	8,018.78	7,681.73	337.04	23.792		
18,500.00	6,943.39	6,915.39	6,915.39	188.36	301.74	89.78	289.69	3,611.45	8,117.53	7,780.45	337.08	24.082		
18,600.00	6,943.33	6,915.33	6,915.33	189.94	301.74	89.78	289.69	3,611.45	8,216.31	7,879.19	337.12	24.372		
18,700.00	6,943.27	6,915.27	6,915.27	191.52	301.74	89.78	289.69	3,611.45	8,315.12	7,977.96	337.16	24.662		
18,800.00	6,943.21	6,915.21	6,915.21	193.10	301.73	89.77	289.69	3,611.45	8,413.96	8,076.76	337.20	24.952		
18,900.00	6,943.15	6,915.15	6,915.15	194.68	301.73	89.77	289.69	3,611.45	8,512.83	8,175.59	337.25	25.242		
19,000.00	6,943.09	6,915.09	6,915.09	196.26	301.73	89.77	289.69	3,611.45	8,611.72	8,274.43	337.29	25.532		
19,100.00	6,943.03	6,915.03	6,915.03	197.84	301.73	89.77	289.69	3,611.45	8,710.64	8,373.30	337.34	25.822		
19,200.00	6,942.97	6,914.97	6,914.97	199.42	301.72	89.76	289.69	3,611.45	8,809.59	8,472.20	337.39	26.111		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 251 - OH - OH-TD													Offset Site Error:	0.00 usft
Survey Program: 8300-A028Ua_INC-ONLY_PLANNED_5_DEG													Offset Well Error:	0.00 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		
19,300.00	6,942.91	6,914.91	6,914.91	201.01	301.72	89.76	289.69	3,611.45	8,908.55	8,571.12	337.44	26.401		
19,400.00	6,942.85	6,914.85	6,914.85	202.59	301.72	89.76	289.69	3,611.45	9,007.54	8,670.05	337.49	26.690		
19,500.00	6,942.79	6,914.79	6,914.79	204.17	301.71	89.76	289.69	3,611.45	9,106.55	8,769.01	337.54	26.979		
19,600.00	6,942.73	6,914.73	6,914.73	205.75	301.71	89.75	289.69	3,611.45	9,205.59	8,867.99	337.60	27.268		
19,700.00	6,942.67	6,914.67	6,914.67	207.34	301.71	89.75	289.69	3,611.45	9,304.64	8,966.99	337.65	27.557		
19,800.00	6,942.61	6,914.61	6,914.61	208.92	301.71	89.75	289.69	3,611.45	9,403.71	9,066.01	337.71	27.846		
19,900.00	6,942.55	6,914.55	6,914.55	210.51	301.70	89.74	289.69	3,611.45	9,502.81	9,165.04	337.77	28.134		
20,000.00	6,942.49	6,914.49	6,914.49	212.09	301.70	89.74	289.69	3,611.45	9,601.92	9,264.09	337.83	28.423		
20,100.00	6,942.43	6,914.43	6,914.43	213.68	301.70	89.74	289.69	3,611.45	9,701.05	9,363.16	337.89	28.711		
20,200.00	6,942.37	6,914.37	6,914.37	215.26	301.70	89.74	289.69	3,611.45	9,800.20	9,462.25	337.95	28.999		
20,300.00	6,942.31	6,914.31	6,914.31	216.85	301.69	89.73	289.69	3,611.45	9,899.36	9,561.35	338.01	29.287		
20,400.00	6,942.25	6,914.25	6,914.25	218.43	301.69	89.73	289.69	3,611.45	9,998.54	9,660.47	338.08	29.575		
20,500.00	6,942.19	6,914.19	6,914.19	220.02	301.69	89.73	289.69	3,611.45	10,097.74	9,759.60	338.14	29.862		
20,600.00	6,942.13	6,914.13	6,914.13	221.60	301.69	89.73	289.69	3,611.45	10,196.96	9,858.75	338.21	30.150		
20,700.00	6,942.07	6,914.07	6,914.07	223.19	301.68	89.72	289.69	3,611.45	10,296.18	9,957.91	338.28	30.437		
20,808.89	6,942.00	6,914.00	6,914.00	224.92	301.68	89.72	289.69	3,611.45	10,404.25	10,065.90	338.35	30.750		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 374 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program:		166-A027Ua_INC-ONLY						Rule Assigned:				Offset Well Error:	0.00 usft	
Measured Depth	Reference	Measured Depth	Offset	Semi Major Axis			Offset Wellbore Centre		Distance				Warning	
Depth (usft)	Vertical Depth (usft)	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		
0.00	0.00	312.79	312.79	0.00	4.24	82.29	1,039.78	7,681.75	7,751.81					
100.00	100.00	411.01	411.00	0.25	6.52	82.29	1,039.75	7,681.75	7,751.80	7,745.03	6.77	1,145.086		
200.00	200.00	514.69	514.67	0.61	9.02	82.29	1,040.23	7,681.75	7,751.87	7,742.24	9.63	805.084		
300.00	300.00	611.10	611.00	0.97	11.48	82.29	1,039.75	7,681.75	7,751.80	7,739.36	12.44	622.971		
400.00	400.00	711.10	711.00	1.33	14.61	82.29	1,039.75	7,681.75	7,751.80	7,735.86	15.94	486.443		
500.00	500.00	814.36	814.22	1.68	17.85	82.28	1,041.33	7,681.75	7,752.01	7,732.48	19.53	396.929		
600.00	599.98	925.09	924.93	2.04	21.32	81.09	1,040.42	7,681.75	7,751.63	7,728.27	23.36	331.859		
700.00	699.84	1,011.23	1,010.84	2.41	24.25	81.14	1,039.75	7,681.75	7,750.72	7,724.07	26.65	290.810		
800.00	799.45	1,110.85	1,110.45	2.77	27.93	81.23	1,039.75	7,681.75	7,749.38	7,718.69	30.69	252.489		
900.00	898.70	1,215.59	1,215.13	3.13	31.80	81.35	1,041.77	7,681.75	7,747.79	7,712.86	34.93	221.830		
1,000.00	997.47	1,326.61	1,326.11	3.50	35.90	81.53	1,040.50	7,681.75	7,745.28	7,705.88	39.40	196.568		
1,100.00	1,095.62	1,407.48	1,406.62	3.89	39.01	81.71	1,039.75	7,681.75	7,742.33	7,699.43	42.90	180.468		
1,200.00	1,193.06	1,509.60	1,508.70	4.30	43.08	81.93	1,041.29	7,681.75	7,739.24	7,691.86	47.38	163.358		
1,245.21	1,236.83	1,564.54	1,563.61	4.48	45.27	82.07	1,040.69	7,681.75	7,737.55	7,687.80	49.75	155.518		
1,300.00	1,289.78	1,630.56	1,629.58	4.72	47.90	82.21	1,039.13	7,681.75	7,735.40	7,682.78	52.62	147.013		
1,400.00	1,386.42	1,698.60	1,697.42	5.15	50.64	82.33	1,039.75	7,681.75	7,731.83	7,676.04	55.78	138.608		
1,500.00	1,483.05	1,803.64	1,802.39	5.59	54.85	82.52	1,041.37	7,681.75	7,728.51	7,668.07	60.43	127.887		
1,600.00	1,579.69	1,918.15	1,916.81	6.04	59.44	82.75	1,039.08	7,681.75	7,724.87	7,659.40	65.47	117.995		
1,700.00	1,676.32	1,988.90	1,987.32	6.49	62.53	82.88	1,039.75	7,681.75	7,721.55	7,652.54	69.01	111.889		
1,800.00	1,772.96	2,098.45	2,096.79	6.94	67.22	83.08	1,040.78	7,681.75	7,718.42	7,644.26	74.15	104.086		
1,900.00	1,869.60	2,182.58	2,180.60	7.40	70.96	83.24	1,039.75	7,681.75	7,715.13	7,636.77	78.35	98.465		
2,000.00	1,966.23	2,280.33	2,278.28	7.86	75.54	83.42	1,041.67	7,681.75	7,712.23	7,628.83	83.40	92.478		
2,100.00	2,062.87	2,397.74	2,395.60	8.33	81.04	83.65	1,039.83	7,681.75	7,709.07	7,619.71	89.36	86.269		
2,200.00	2,159.50	2,473.00	2,470.50	8.79	84.39	83.80	1,039.75	7,681.75	7,706.12	7,612.95	93.17	82.709		
2,300.00	2,256.14	2,580.10	2,577.50	9.26	89.14	83.99	1,041.30	7,681.75	7,703.43	7,605.04	98.39	78.296		
2,400.00	2,352.77	2,666.69	2,663.77	9.73	92.84	84.16	1,039.75	7,681.75	7,700.54	7,597.98	102.55	75.087		
2,500.00	2,449.41	2,763.82	2,760.86	10.20	96.50	84.34	1,041.25	7,681.75	7,697.99	7,591.31	106.69	72.153		
2,600.00	2,546.05	2,875.72	2,872.70	10.67	100.73	84.56	1,039.75	7,681.75	7,695.31	7,583.93	111.38	69.089		
2,700.00	2,642.68	2,956.87	2,953.68	11.14	104.11	84.72	1,039.75	7,681.75	7,692.80	7,577.56	115.24	66.754		
2,800.00	2,739.32	3,053.50	3,050.32	11.61	108.15	84.90	1,039.75	7,681.75	7,690.39	7,570.65	119.75	64.221		
2,900.00	2,835.95	3,153.72	3,150.47	12.08	112.33	85.08	1,041.83	7,681.75	7,688.21	7,563.81	124.41	61.800		
3,000.00	2,932.59	3,255.49	3,252.19	12.55	116.58	85.28	1,040.61	7,681.75	7,685.89	7,556.77	129.13	59.522		
3,100.00	3,029.22	3,344.05	3,340.22	13.03	120.52	85.45	1,039.75	7,681.75	7,683.68	7,550.14	133.54	57.540		
3,200.00	3,125.86	3,440.68	3,436.86	13.50	125.08	85.64	1,039.75	7,681.75	7,681.62	7,543.05	138.57	55.435		
3,300.00	3,222.50	3,537.32	3,533.50	13.97	129.63	85.82	1,039.75	7,681.75	7,679.64	7,536.03	143.60	53.479		
3,400.00	3,319.13	3,574.00	3,569.63	14.45	131.36	85.89	1,039.75	7,681.75	7,677.98	7,532.18	145.80	52.660		
3,483.74	3,400.05	3,574.00	3,569.63	14.85	131.36	85.89	1,039.75	7,681.75	7,677.52	7,531.34	146.18	52.520		
3,500.00	3,415.77	3,574.00	3,569.63	14.92	131.36	85.89	1,039.75	7,681.75	7,677.54	7,531.29	146.25	52.495		
3,600.00	3,512.40	3,574.00	3,569.63	15.40	131.36	85.89	1,039.75	7,681.75	7,678.40	7,531.72	146.68	52.347		
3,700.00	3,609.04	3,574.00	3,569.63	15.88	131.36	85.89	1,039.75	7,681.75	7,680.57	7,533.48	147.09	52.217		
3,800.00	3,705.67	3,574.00	3,569.63	16.35	131.36	85.89	1,039.75	7,681.75	7,684.03	7,536.56	147.47	52.105		
3,900.00	3,802.31	3,574.00	3,569.63	16.83	131.36	85.89	1,039.75	7,681.75	7,688.80	7,540.97	147.83	52.010		
4,000.00	3,898.95	3,574.00	3,569.63	17.30	131.36	85.89	1,039.75	7,681.75	7,694.86	7,546.69	148.17	51.933		
4,100.00	3,995.58	3,574.00	3,569.63	17.78	131.36	85.89	1,039.75	7,681.75	7,702.22	7,553.73	148.48	51.873		
4,200.00	4,092.22	3,574.00	3,569.63	18.26	131.36	85.89	1,039.75	7,681.75	7,710.86	7,562.09	148.77	51.830		
4,300.00	4,188.85	3,574.00	3,569.63	18.73	131.36	85.89	1,039.75	7,681.75	7,720.79	7,571.75	149.04	51.804		
4,400.00	4,285.49	3,574.00	3,569.63	19.21	131.36	85.89	1,039.75	7,681.75	7,732.00	7,582.72	149.28	51.794		
4,500.00	4,382.12	3,574.00	3,569.63	19.69	131.36	85.89	1,039.75	7,681.75	7,744.49	7,594.99	149.50	51.801		
4,600.00	4,478.76	3,574.00	3,569.63	20.17	131.36	85.89	1,039.75	7,681.75	7,758.25	7,608.54	149.70	51.825		
4,700.00	4,575.40	3,574.00	3,569.63	20.64	131.36	85.89	1,039.75	7,681.75	7,773.26	7,623.39	149.88	51.864		
4,800.00	4,672.03	3,574.00	3,569.63	21.12	131.36	85.89	1,039.75	7,681.75	7,789.54	7,639.51	150.03	51.920		
4,900.00	4,768.67	3,574.00	3,569.63	21.60	131.36	85.89	1,039.75	7,681.75	7,807.06	7,656.90	150.16	51.992		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 374 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 166-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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	
5,000.00	4,865.30	3,574.00	3,569.63	22.08	131.36	85.89	1,039.75	7,681.75	7,825.82	7,675.55	150.27	52.079	
5,100.00	4,961.94	3,574.00	3,569.63	22.55	131.36	85.89	1,039.75	7,681.75	7,845.80	7,695.45	150.35	52.182	
5,200.00	5,058.57	3,574.00	3,569.63	23.03	131.36	85.89	1,039.75	7,681.75	7,867.01	7,716.59	150.42	52.300	
5,300.00	5,155.21	3,574.00	3,569.63	23.51	131.36	85.89	1,039.75	7,681.75	7,889.43	7,738.97	150.46	52.434	
5,400.00	5,251.85	3,574.00	3,569.63	23.99	131.36	85.89	1,039.75	7,681.75	7,913.05	7,762.56	150.49	52.583	
5,500.00	5,348.48	3,574.00	3,569.63	24.47	131.36	85.89	1,039.75	7,681.75	7,937.86	7,787.37	150.49	52.747	
5,600.00	5,445.12	3,574.00	3,569.63	24.94	131.36	85.89	1,039.75	7,681.75	7,963.85	7,813.38	150.47	52.925	
5,700.00	5,541.75	3,574.00	3,569.63	25.42	131.36	85.89	1,039.75	7,681.75	7,991.00	7,840.57	150.44	53.118	
5,800.00	5,638.39	3,574.00	3,569.63	25.90	131.36	85.89	1,039.75	7,681.75	8,019.31	7,868.93	150.38	53.325	
5,900.00	5,735.02	3,574.00	3,569.63	26.38	131.36	85.89	1,039.75	7,681.75	8,048.77	7,898.46	150.31	53.547	
6,000.00	5,831.66	3,574.00	3,569.63	26.86	131.36	85.89	1,039.75	7,681.75	8,079.35	7,929.13	150.22	53.783	
6,100.00	5,928.30	3,574.00	3,569.63	27.34	131.36	85.89	1,039.75	7,681.75	8,111.05	7,960.94	150.11	54.033	
6,200.00	6,024.93	3,574.00	3,569.63	27.82	131.36	85.89	1,039.75	7,681.75	8,143.86	7,993.87	149.99	54.297	
6,300.00	6,121.57	3,574.00	3,569.63	28.29	131.36	85.89	1,039.75	7,681.75	8,177.75	8,027.91	149.85	54.574	
6,400.00	6,218.20	3,574.00	3,569.63	28.77	131.36	85.89	1,039.75	7,681.75	8,212.73	8,063.04	149.69	54.864	
6,500.00	6,314.84	3,574.00	3,569.63	29.25	131.36	85.89	1,039.75	7,681.75	8,248.77	8,099.25	149.52	55.168	
6,521.58	6,335.69	3,574.00	3,569.63	29.36	131.36	85.89	1,039.75	7,681.75	8,256.68	8,107.20	149.48	55.236	
6,550.00	6,363.15	3,574.00	3,569.63	29.49	131.36	76.45	1,039.75	7,681.75	8,266.59	8,117.16	149.43	55.322	
6,600.00	6,411.28	3,574.00	3,569.63	29.73	131.36	61.32	1,039.75	7,681.75	8,281.32	8,132.00	149.32	55.460	
6,650.00	6,458.93	3,574.00	3,569.63	29.96	131.36	49.26	1,039.75	7,681.75	8,292.55	8,143.35	149.20	55.578	
6,700.00	6,505.83	3,574.00	3,569.63	30.19	131.36	40.22	1,039.75	7,681.75	8,300.23	8,151.15	149.08	55.677	
6,750.00	6,551.67	3,574.00	3,569.63	30.42	131.36	33.54	1,039.75	7,681.75	8,304.31	8,155.37	148.94	55.756	
6,800.00	6,596.17	3,574.00	3,569.63	30.64	131.36	28.56	1,039.75	7,681.75	8,304.77	8,155.98	148.79	55.814	
6,850.00	6,639.06	3,574.00	3,569.63	30.85	131.36	24.76	1,039.75	7,681.75	8,301.62	8,152.99	148.64	55.851	
6,900.00	6,680.07	3,574.00	3,569.63	31.05	131.36	21.81	1,039.75	7,681.75	8,294.87	8,146.40	148.47	55.868	
6,950.00	6,718.96	3,574.00	3,569.63	31.24	131.36	19.46	1,039.75	7,681.75	8,284.56	8,136.26	148.30	55.864	
7,000.00	6,755.47	3,574.00	3,569.63	31.43	131.36	17.56	1,039.75	7,681.75	8,270.72	8,122.60	148.12	55.839	
7,050.00	6,789.40	3,574.00	3,569.63	31.61	131.36	15.99	1,039.75	7,681.75	8,253.44	8,105.50	147.93	55.792	
7,100.00	6,820.52	3,574.00	3,569.63	31.79	131.36	14.68	1,039.75	7,681.75	8,232.79	8,085.05	147.74	55.724	
7,150.00	6,848.64	3,574.00	3,569.63	31.97	131.36	13.55	1,039.75	7,681.75	8,208.88	8,061.33	147.55	55.635	
7,200.00	6,873.60	3,574.00	3,569.63	32.14	131.36	12.56	1,039.75	7,681.75	8,181.82	8,034.47	147.35	55.525	
7,250.00	6,895.24	3,574.00	3,569.63	32.31	131.36	11.68	1,039.75	7,681.75	8,151.77	8,004.61	147.16	55.395	
7,300.00	6,913.42	3,574.00	3,569.63	32.49	131.36	10.87	1,039.75	7,681.75	8,118.85	7,971.89	146.96	55.244	
7,350.00	6,928.03	3,574.00	3,569.63	32.67	131.36	10.09	1,039.75	7,681.75	8,083.26	7,936.49	146.77	55.073	
7,400.00	6,938.98	3,574.00	3,569.63	32.86	131.36	9.31	1,039.75	7,681.75	8,045.17	7,898.58	146.59	54.883	
7,450.00	6,946.22	3,574.00	3,569.63	33.06	131.36	8.47	1,039.75	7,681.75	8,004.78	7,858.37	146.41	54.674	
7,500.00	6,949.68	3,574.00	3,569.63	33.26	131.36	7.51	1,039.75	7,681.75	7,962.30	7,816.06	146.24	54.447	
7,521.05	6,950.00	3,574.00	3,569.63	33.35	131.36	7.05	1,039.75	7,681.75	7,943.86	7,797.68	146.17	54.346	
7,600.00	6,949.95	3,574.00	3,569.63	33.72	131.36	7.05	1,039.75	7,681.75	7,874.16	7,728.25	145.91	53.966	
7,700.00	6,949.89	3,574.00	3,569.63	34.24	131.36	7.05	1,039.75	7,681.75	7,786.13	7,640.56	145.57	53.488	
7,800.00	6,949.83	3,574.00	3,569.63	34.84	131.36	7.05	1,039.75	7,681.75	7,698.40	7,553.18	145.22	53.011	
7,900.00	6,949.77	3,574.00	3,569.63	35.50	131.36	7.05	1,039.75	7,681.75	7,610.97	7,466.10	144.87	52.537	
8,000.00	6,949.71	3,574.00	3,569.63	36.23	131.36	7.05	1,039.75	7,681.75	7,523.85	7,379.34	144.51	52.066	
8,100.00	6,949.65	3,574.00	3,569.63	37.02	131.36	7.05	1,039.75	7,681.75	7,437.05	7,292.92	144.14	51.597	
8,200.00	6,949.59	3,574.00	3,569.63	37.85	131.36	7.05	1,039.75	7,681.75	7,350.60	7,206.84	143.76	51.131	
8,300.00	6,949.53	3,574.00	3,569.63	38.74	131.36	7.05	1,039.75	7,681.75	7,264.49	7,121.11	143.38	50.667	
8,400.00	6,949.47	3,574.00	3,569.63	39.68	131.36	7.05	1,039.75	7,681.75	7,178.73	7,035.75	142.98	50.207	
8,500.00	6,949.41	3,574.00	3,569.63	40.66	131.36	7.05	1,039.75	7,681.75	7,093.36	6,950.77	142.58	49.749	
8,600.00	6,949.35	3,574.00	3,569.63	41.67	131.36	7.05	1,039.75	7,681.75	7,008.37	6,866.19	142.17	49.295	
8,700.00	6,949.29	3,574.00	3,569.63	42.73	131.36	7.05	1,039.75	7,681.75	6,923.78	6,782.02	141.75	48.844	
8,800.00	6,949.23	3,574.00	3,569.63	43.82	131.36	7.05	1,039.75	7,681.75	6,839.60	6,698.28	141.32	48.397	
8,900.00	6,949.17	3,574.00	3,569.63	44.94	131.36	7.05	1,039.75	7,681.75	6,755.86	6,614.97	140.88	47.953	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 374 - OH - OH-INC											Offset Site Error:	0.00 usft
Survey Program: 166-A027Ua_INC-ONLY											Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Rule Assigned:		Distance		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
9,000.00	6,949.11	3,574.00	3,569.63	46.09	131.36	7.05	1,039.75	7,681.75	6,672.56	6,532.13	140.43	47.514
9,100.00	6,949.05	3,574.00	3,569.63	47.26	131.36	7.05	1,039.75	7,681.75	6,589.73	6,449.76	139.97	47.078
9,200.00	6,948.99	3,574.00	3,569.63	48.46	131.36	7.05	1,039.75	7,681.75	6,507.39	6,367.88	139.50	46.647
9,300.00	6,948.93	3,574.00	3,569.63	49.68	131.36	7.05	1,039.75	7,681.75	6,425.54	6,286.52	139.02	46.221
9,400.00	6,948.87	3,574.00	3,569.63	50.93	131.36	7.05	1,039.75	7,681.75	6,344.21	6,205.69	138.52	45.799
9,500.00	6,948.81	3,574.00	3,569.63	52.19	131.36	7.05	1,039.75	7,681.75	6,263.43	6,125.41	138.01	45.382
9,600.00	6,948.75	3,574.00	3,569.63	53.47	131.36	7.05	1,039.75	7,681.75	6,183.20	6,045.71	137.49	44.971
9,700.00	6,948.69	3,574.00	3,569.63	54.77	131.36	7.05	1,039.75	7,681.75	6,103.56	5,966.61	136.96	44.566
9,800.00	6,948.63	3,574.00	3,569.63	56.08	131.36	7.05	1,039.75	7,681.75	6,024.53	5,888.13	136.40	44.167
9,900.00	6,948.57	3,574.00	3,569.63	57.41	131.36	7.05	1,039.75	7,681.75	5,946.13	5,810.29	135.84	43.774
10,000.00	6,948.51	3,574.00	3,569.63	58.76	131.36	7.05	1,039.75	7,681.75	5,868.38	5,733.13	135.25	43.388
10,100.00	6,948.45	3,574.00	3,569.63	60.11	131.36	7.05	1,039.75	7,681.75	5,791.32	5,656.67	134.65	43.009
10,200.00	6,948.39	3,574.00	3,569.63	61.48	131.36	7.05	1,039.75	7,681.75	5,714.97	5,580.94	134.03	42.638
10,300.00	6,948.33	3,574.00	3,569.63	62.86	131.36	7.05	1,039.75	7,681.75	5,639.36	5,505.96	133.39	42.276
10,400.00	6,948.27	3,574.00	3,569.63	64.24	131.36	7.05	1,039.75	7,681.75	5,564.52	5,431.78	132.74	41.922
10,500.00	6,948.21	3,574.00	3,569.63	65.64	131.36	7.05	1,039.75	7,681.75	5,490.48	5,358.42	132.06	41.577
10,600.00	6,948.15	3,574.00	3,569.63	67.05	131.36	7.05	1,039.75	7,681.75	5,417.27	5,285.92	131.35	41.242
10,700.00	6,948.09	3,574.00	3,569.63	68.47	131.36	7.05	1,039.75	7,681.75	5,344.93	5,214.30	130.63	40.917
10,800.00	6,948.03	3,574.00	3,569.63	69.89	131.36	7.05	1,039.75	7,681.75	5,273.50	5,143.62	129.88	40.604
10,900.00	6,947.97	3,574.00	3,569.63	71.32	131.36	7.05	1,039.75	7,681.75	5,203.00	5,073.91	129.10	40.302
11,000.00	6,947.91	3,574.00	3,569.63	72.76	131.36	7.05	1,039.75	7,681.75	5,133.49	5,005.20	128.29	40.014
11,100.00	6,947.85	3,574.00	3,569.63	74.21	131.36	7.05	1,039.75	7,681.75	5,065.00	4,937.54	127.46	39.738
11,200.00	6,947.79	3,574.00	3,569.63	75.66	131.36	7.05	1,039.75	7,681.75	4,997.57	4,870.98	126.59	39.478
11,300.00	6,947.73	3,574.00	3,569.63	77.12	131.36	7.05	1,039.75	7,681.75	4,931.24	4,805.55	125.69	39.232
11,400.00	6,947.66	3,574.00	3,569.63	78.58	131.36	7.05	1,039.75	7,681.75	4,866.07	4,741.31	124.76	39.003
11,500.00	6,947.60	3,574.00	3,569.63	80.05	131.36	7.05	1,039.75	7,681.75	4,802.10	4,678.30	123.79	38.792
11,600.00	6,947.54	3,574.00	3,569.63	81.52	131.36	7.05	1,039.75	7,681.75	4,739.37	4,616.58	122.79	38.599
11,700.00	6,947.48	3,574.00	3,569.63	83.00	131.36	7.05	1,039.75	7,681.75	4,677.94	4,556.20	121.74	38.426
11,800.00	6,947.42	3,574.00	3,569.63	84.48	131.36	7.05	1,039.75	7,681.75	4,617.85	4,497.20	120.65	38.274
11,900.00	6,947.36	3,574.00	3,569.63	85.97	131.36	7.05	1,039.75	7,681.75	4,559.17	4,439.65	119.52	38.146
12,000.00	6,947.30	3,574.00	3,569.63	87.46	131.36	7.05	1,039.75	7,681.75	4,501.95	4,383.60	118.34	38.041
12,100.00	6,947.24	3,574.00	3,569.63	88.96	131.36	7.05	1,039.75	7,681.75	4,446.24	4,329.12	117.12	37.963
12,200.00	6,947.18	3,574.00	3,569.63	90.46	131.36	7.05	1,039.75	7,681.75	4,392.10	4,276.25	115.85	37.912
12,300.00	6,947.12	3,574.00	3,569.63	91.96	131.36	7.05	1,039.75	7,681.75	4,339.58	4,225.05	114.53	37.891
12,400.00	6,947.06	3,574.00	3,569.63	93.47	131.36	7.05	1,039.75	7,681.75	4,288.76	4,175.60	113.16	37.901
12,500.00	6,947.00	3,574.00	3,569.63	94.97	131.36	7.05	1,039.75	7,681.75	4,239.69	4,127.95	111.73	37.945
12,600.00	6,946.94	3,574.00	3,569.63	96.49	131.36	7.05	1,039.75	7,681.75	4,192.43	4,082.17	110.26	38.024
12,700.00	6,946.88	3,574.00	3,569.63	98.00	131.36	7.05	1,039.75	7,681.75	4,147.04	4,038.31	108.73	38.141
12,800.00	6,946.82	3,574.00	3,569.63	99.52	131.36	7.05	1,039.75	7,681.75	4,103.58	3,996.44	107.15	38.299
12,900.00	6,946.76	3,574.00	3,569.63	101.04	131.36	7.05	1,039.75	7,681.75	4,062.13	3,956.61	105.51	38.498
13,000.00	6,946.70	3,574.00	3,569.63	102.56	131.36	7.05	1,039.75	7,681.75	4,022.73	3,918.90	103.83	38.743
13,100.00	6,946.64	3,574.00	3,569.63	104.09	131.36	7.05	1,039.75	7,681.75	3,985.45	3,883.35	102.10	39.034
13,200.00	6,946.58	3,574.00	3,569.63	105.61	131.36	7.05	1,039.75	7,681.75	3,950.36	3,850.03	100.33	39.373
13,300.00	6,946.52	3,574.00	3,569.63	107.14	131.36	7.05	1,039.75	7,681.75	3,917.50	3,818.98	98.52	39.762
13,400.00	6,946.46	3,574.00	3,569.63	108.67	131.36	7.05	1,039.75	7,681.75	3,886.94	3,790.25	96.69	40.202
13,500.00	6,946.40	3,574.00	3,569.63	110.21	131.36	7.05	1,039.75	7,681.75	3,858.72	3,763.90	94.83	40.691
13,600.00	6,946.34	3,574.00	3,569.63	111.74	131.36	7.05	1,039.75	7,681.75	3,832.92	3,739.95	92.97	41.228
13,700.00	6,946.28	3,574.00	3,569.63	113.28	131.36	7.05	1,039.75	7,681.75	3,809.56	3,718.43	91.12	41.807
13,800.00	6,946.22	3,574.00	3,569.63	114.82	131.36	7.05	1,039.75	7,681.75	3,788.69	3,699.38	89.32	42.418
13,900.00	6,946.16	3,574.00	3,569.63	116.36	131.36	7.05	1,039.75	7,681.75	3,770.37	3,682.79	87.58	43.049
14,000.00	6,946.10	3,574.00	3,569.63	117.90	131.36	7.05	1,039.75	7,681.75	3,754.62	3,668.65	85.97	43.674
14,100.00	6,946.04	3,574.00	3,569.63	119.45	131.36	7.05	1,039.75	7,681.75	3,741.48	3,656.95	84.53	44.262

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 374 - OH - OH-INC												Offset Site Error:	0.00 usft
Survey Program: 166-A027Ua_INC-ONLY												Offset Well Error:	0.00 usft
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Rule Assigned:					
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
14,200.00	6,945.98	3,574.00	3,569.63	120.99	131.36	7.05	1,039.75	7,681.75	3,730.97	3,647.62	83.34	44.766	
14,300.00	6,945.92	3,574.00	3,569.63	122.54	131.36	7.05	1,039.75	7,681.75	3,723.12	3,640.62	82.50	45.127	
14,400.00	6,945.86	3,574.00	3,569.63	124.09	131.36	7.05	1,039.75	7,681.75	3,717.94	3,635.84	82.11	45.283	
14,500.00	6,945.80	3,574.00	3,569.63	125.64	131.36	7.05	1,039.75	7,681.75	3,715.45	3,633.21	82.24	45.178	
14,542.59	6,945.77	3,574.00	3,569.63	126.30	131.36	7.05	1,039.75	7,681.75	3,715.21	3,632.73	82.47	45.047	CC
14,600.00	6,945.74	3,574.00	3,569.63	127.19	131.36	7.05	1,039.75	7,681.75	3,715.65	3,632.69	82.96	44.789	ES
14,700.00	6,945.68	3,574.00	3,569.63	128.74	131.36	7.05	1,039.75	7,681.75	3,718.54	3,634.29	84.25	44.135	
14,800.00	6,945.62	3,574.00	3,569.63	130.30	131.36	7.05	1,039.75	7,681.75	3,724.11	3,638.05	86.06	43.273	
14,900.00	6,945.56	3,574.00	3,569.63	131.85	131.36	7.05	1,039.75	7,681.75	3,732.36	3,644.07	88.28	42.277	
15,000.00	6,945.50	3,574.00	3,569.63	133.41	131.36	7.05	1,039.75	7,681.75	3,743.26	3,652.44	90.82	41.216	
15,100.00	6,945.44	3,574.00	3,569.63	134.96	131.36	7.05	1,039.75	7,681.75	3,756.79	3,663.21	93.58	40.146	
15,200.00	6,945.38	3,574.00	3,569.63	136.52	131.36	7.05	1,039.75	7,681.75	3,772.92	3,676.44	96.48	39.105	
15,300.00	6,945.32	3,574.00	3,569.63	138.08	131.36	7.05	1,039.75	7,681.75	3,791.62	3,692.15	99.47	38.118	
15,400.00	6,945.26	3,574.00	3,569.63	139.64	131.36	7.05	1,039.75	7,681.75	3,812.86	3,710.36	102.50	37.197	
15,500.00	6,945.20	3,574.00	3,569.63	141.20	131.36	7.05	1,039.75	7,681.75	3,836.58	3,731.04	105.55	36.350	
15,600.00	6,945.14	3,574.00	3,569.63	142.76	131.36	7.05	1,039.75	7,681.75	3,862.75	3,754.19	108.57	35.579	
15,700.00	6,945.08	3,574.00	3,569.63	144.33	131.36	7.05	1,039.75	7,681.75	3,891.32	3,779.76	111.55	34.884	
15,800.00	6,945.02	3,574.00	3,569.63	145.89	131.36	7.05	1,039.75	7,681.75	3,922.22	3,807.74	114.48	34.260	
15,900.00	6,944.96	3,574.00	3,569.63	147.46	131.36	7.05	1,039.75	7,681.75	3,955.41	3,838.07	117.35	33.706	
16,000.00	6,944.90	3,574.00	3,569.63	149.02	131.36	7.05	1,039.75	7,681.75	3,990.84	3,870.69	120.14	33.217	
16,100.00	6,944.84	3,574.00	3,569.63	150.59	131.36	7.05	1,039.75	7,681.75	4,028.43	3,905.58	122.86	32.790	
16,200.00	6,944.77	3,574.00	3,569.63	152.15	131.36	7.05	1,039.75	7,681.75	4,068.14	3,942.65	125.49	32.419	
16,300.00	6,944.71	3,574.00	3,569.63	153.72	131.36	7.05	1,039.75	7,681.75	4,109.89	3,981.87	128.03	32.102	
16,400.00	6,944.65	3,574.00	3,569.63	155.29	131.36	7.05	1,039.75	7,681.75	4,153.64	4,023.16	130.48	31.834	
16,500.00	6,944.59	3,574.00	3,569.63	156.86	131.36	7.05	1,039.75	7,681.75	4,199.31	4,066.47	132.84	31.611	
16,600.00	6,944.53	3,574.00	3,569.63	158.43	131.36	7.05	1,039.75	7,681.75	4,246.84	4,111.73	135.11	31.432	
16,700.00	6,944.47	3,574.00	3,569.63	160.00	131.36	7.05	1,039.75	7,681.75	4,296.18	4,158.89	137.29	31.292	
16,800.00	6,944.41	3,574.00	3,569.63	161.57	131.36	7.05	1,039.75	7,681.75	4,347.26	4,207.87	139.38	31.189	
16,900.00	6,944.35	3,574.00	3,569.63	163.14	131.36	7.05	1,039.75	7,681.75	4,400.01	4,258.62	141.39	31.120	
17,000.00	6,944.29	3,574.00	3,569.63	164.71	131.36	7.05	1,039.75	7,681.75	4,454.39	4,311.09	143.31	31.083	
17,100.00	6,944.23	3,574.00	3,569.63	166.29	131.36	7.05	1,039.75	7,681.75	4,510.33	4,365.19	145.14	31.076	SF
17,200.00	6,944.17	3,574.00	3,569.63	167.86	131.36	7.05	1,039.75	7,681.75	4,567.77	4,420.88	146.89	31.096	
17,300.00	6,944.11	3,574.00	3,569.63	169.43	131.36	7.05	1,039.75	7,681.75	4,626.67	4,478.10	148.56	31.143	
17,400.00	6,944.05	3,574.00	3,569.63	171.01	131.36	7.05	1,039.75	7,681.75	4,686.95	4,536.79	150.16	31.213	
17,500.00	6,943.99	3,574.00	3,569.63	172.58	131.36	7.05	1,039.75	7,681.75	4,748.58	4,596.90	151.68	31.306	
17,600.00	6,943.93	3,574.00	3,569.63	174.16	131.36	7.05	1,039.75	7,681.75	4,811.49	4,658.36	153.14	31.420	
17,700.00	6,943.87	3,574.00	3,569.63	175.73	131.36	7.05	1,039.75	7,681.75	4,875.65	4,721.13	154.52	31.554	
17,800.00	6,943.81	3,574.00	3,569.63	177.31	131.36	7.05	1,039.75	7,681.75	4,941.00	4,785.16	155.84	31.706	
17,900.00	6,943.75	3,574.00	3,569.63	178.89	131.36	7.05	1,039.75	7,681.75	5,007.49	4,850.39	157.10	31.875	
18,000.00	6,943.69	3,574.00	3,569.63	180.46	131.36	7.05	1,039.75	7,681.75	5,075.08	4,916.79	158.29	32.061	
18,100.00	6,943.63	3,574.00	3,569.63	182.04	131.36	7.05	1,039.75	7,681.75	5,143.72	4,984.29	159.43	32.263	
18,200.00	6,943.57	3,574.00	3,569.63	183.62	131.36	7.05	1,039.75	7,681.75	5,213.38	5,052.87	160.52	32.479	
18,300.00	6,943.51	3,574.00	3,569.63	185.20	131.36	7.05	1,039.75	7,681.75	5,284.02	5,122.47	161.55	32.708	
18,400.00	6,943.45	3,574.00	3,569.63	186.78	131.36	7.05	1,039.75	7,681.75	5,355.59	5,193.05	162.54	32.950	
18,500.00	6,943.39	3,574.00	3,569.63	188.36	131.36	7.05	1,039.75	7,681.75	5,428.06	5,264.58	163.47	33.204	
18,600.00	6,943.33	3,574.00	3,569.63	189.94	131.36	7.05	1,039.75	7,681.75	5,501.39	5,337.02	164.37	33.470	
18,700.00	6,943.27	3,574.00	3,569.63	191.52	131.36	7.05	1,039.75	7,681.75	5,575.55	5,410.33	165.22	33.747	
18,800.00	6,943.21	3,574.00	3,569.63	193.10	131.36	7.05	1,039.75	7,681.75	5,650.51	5,484.48	166.03	34.033	
18,900.00	6,943.15	3,574.00	3,569.63	194.68	131.36	7.05	1,039.75	7,681.75	5,726.23	5,559.43	166.80	34.330	
19,000.00	6,943.09	3,574.00	3,569.63	196.26	131.36	7.05	1,039.75	7,681.75	5,802.69	5,635.15	167.54	34.635	
19,100.00	6,943.03	3,574.00	3,569.63	197.84	131.36	7.05	1,039.75	7,681.75	5,879.86	5,711.62	168.24	34.949	
19,200.00	6,942.97	3,574.00	3,569.63	199.42	131.36	7.05	1,039.75	7,681.75	5,957.70	5,788.79	168.91	35.272	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - (O) RU 374 - OH - OH-INC													Offset Site Error:	0.00 usft
Survey Program: 166-A027Ua_INC-ONLY													Offset Well Error:	0.00 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		
19,300.00	6,942.91	3,574.00	3,569.63	201.01	131.36	7.05	1,039.75	7,681.75	6,036.20	5,866.65	169.55	35.602		
19,400.00	6,942.85	3,574.00	3,569.63	202.59	131.36	7.05	1,039.75	7,681.75	6,115.32	5,945.16	170.16	35.939		
19,500.00	6,942.79	3,574.00	3,569.63	204.17	131.36	7.05	1,039.75	7,681.75	6,195.05	6,024.31	170.74	36.283		
19,600.00	6,942.73	3,574.00	3,569.63	205.75	131.36	7.05	1,039.75	7,681.75	6,275.36	6,104.06	171.30	36.635		
19,700.00	6,942.67	3,574.00	3,569.63	207.34	131.36	7.05	1,039.75	7,681.75	6,356.22	6,184.40	171.83	36.992		
19,800.00	6,942.61	3,574.00	3,569.63	208.92	131.36	7.05	1,039.75	7,681.75	6,437.63	6,265.29	172.34	37.355		
19,900.00	6,942.55	3,574.00	3,569.63	210.51	131.36	7.05	1,039.75	7,681.75	6,519.55	6,346.73	172.82	37.724		
20,000.00	6,942.49	3,574.00	3,569.63	212.09	131.36	7.05	1,039.75	7,681.75	6,601.97	6,428.69	173.28	38.099		
20,100.00	6,942.43	3,574.00	3,569.63	213.68	131.36	7.05	1,039.75	7,681.75	6,684.87	6,511.14	173.73	38.479		
20,200.00	6,942.37	3,574.00	3,569.63	215.26	131.36	7.05	1,039.75	7,681.75	6,768.23	6,594.08	174.15	38.863		
20,300.00	6,942.31	3,574.00	3,569.63	216.85	131.36	7.05	1,039.75	7,681.75	6,852.04	6,677.48	174.56	39.253		
20,400.00	6,942.25	3,574.00	3,569.63	218.43	131.36	7.05	1,039.75	7,681.75	6,936.28	6,761.33	174.95	39.647		
20,500.00	6,942.19	3,574.00	3,569.63	220.02	131.36	7.05	1,039.75	7,681.75	7,020.93	6,845.60	175.33	40.045		
20,600.00	6,942.13	3,574.00	3,569.63	221.60	131.36	7.05	1,039.75	7,681.75	7,105.98	6,930.29	175.69	40.447		
20,700.00	6,942.07	3,574.00	3,569.63	223.19	131.36	7.05	1,039.75	7,681.75	7,191.41	7,015.38	176.03	40.853		
20,808.89	6,942.00	3,574.00	3,569.63	224.92	131.36	7.05	1,039.75	7,681.75	7,284.86	7,108.47	176.39	41.299		

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #712H - OH - Prelim #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	0.00 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	0.00	0.00	-14.86	38.59	-10.24	39.92				
100.00	100.00	100.00	100.00	0.25	0.25	-14.86	38.59	-10.24	39.92	39.42	0.50	79.551	
200.00	200.00	200.00	200.00	0.61	0.61	-14.86	38.59	-10.24	39.92	38.70	1.22	32.757	
300.00	300.00	300.00	300.00	0.97	0.97	-14.86	38.59	-10.24	39.92	37.99	1.94	20.624	
400.00	400.00	400.00	400.00	1.33	1.33	-14.86	38.59	-10.24	39.92	37.27	2.65	15.050	
500.00	500.00	500.00	500.00	1.68	1.68	-14.86	38.59	-10.24	39.92	36.55	3.37	11.848	CC
600.00	599.98	598.64	598.62	2.04	2.04	-16.42	40.27	-10.44	39.95	35.87	4.08	9.790	
700.00	699.84	697.28	697.12	2.41	2.40	-17.42	45.33	-11.02	40.04	35.25	4.79	8.361	
800.00	799.45	795.91	795.39	2.77	2.75	-19.08	53.76	-12.00	40.22	34.73	5.49	7.322	
900.00	898.70	894.54	893.29	3.13	3.11	-21.36	65.53	-13.37	40.53	34.33	6.19	6.542	
1,000.00	997.47	993.16	990.73	3.50	3.48	-24.24	80.65	-15.12	41.01	34.11	6.90	5.945	ES
1,100.00	1,095.62	1,091.78	1,087.58	3.89	3.86	-27.64	99.09	-17.25	41.74	34.13	7.61	5.486	
1,200.00	1,193.06	1,190.38	1,183.72	4.30	4.26	-31.49	120.82	-19.77	42.79	34.46	8.33	5.134	
1,245.21	1,236.83	1,234.96	1,226.92	4.48	4.44	-33.34	131.72	-21.04	43.39	34.72	8.67	5.005	
1,300.00	1,289.78	1,289.57	1,279.69	4.72	4.67	-35.51	145.67	-22.65	44.36	35.26	9.10	4.874	
1,400.00	1,386.42	1,389.50	1,376.27	5.15	5.11	-39.19	171.22	-25.62	46.32	36.40	9.92	4.671	
1,500.00	1,483.05	1,489.44	1,472.84	5.59	5.55	-42.57	196.77	-28.58	48.46	37.70	10.75	4.506	
1,600.00	1,579.69	1,589.38	1,569.41	6.04	5.99	-45.65	222.32	-31.54	50.75	39.14	11.61	4.371	
1,700.00	1,676.32	1,689.32	1,665.98	6.49	6.44	-48.46	247.87	-34.50	53.17	40.69	12.48	4.259	
1,800.00	1,772.96	1,789.26	1,762.55	6.94	6.90	-51.01	273.42	-37.46	55.71	42.34	13.37	4.167	
1,900.00	1,869.60	1,889.19	1,859.12	7.40	7.36	-53.34	298.98	-40.42	58.36	44.09	14.27	4.089	
2,000.00	1,966.23	1,989.13	1,955.69	7.86	7.82	-55.47	324.53	-43.39	61.09	45.91	15.18	4.024	
2,100.00	2,062.87	2,089.07	2,052.26	8.33	8.28	-57.41	350.08	-46.35	63.89	47.80	16.10	3.969	
2,200.00	2,159.50	2,189.01	2,148.84	8.79	8.75	-59.19	375.63	-49.31	66.77	49.74	17.02	3.922	
2,300.00	2,256.14	2,288.95	2,245.41	9.26	9.21	-60.82	401.18	-52.27	69.70	51.75	17.95	3.882	
2,400.00	2,352.77	2,388.89	2,341.98	9.73	9.68	-62.31	426.73	-55.23	72.68	53.80	18.89	3.848	
2,500.00	2,449.41	2,488.82	2,438.55	10.20	10.15	-63.69	452.28	-58.20	75.71	55.89	19.83	3.819	
2,600.00	2,546.05	2,588.76	2,535.12	10.67	10.62	-64.96	477.84	-61.16	78.79	58.01	20.77	3.793	
2,700.00	2,642.68	2,688.70	2,631.69	11.14	11.09	-66.13	503.39	-64.12	81.89	60.18	21.72	3.771	
2,800.00	2,739.32	2,788.64	2,728.26	11.61	11.56	-67.22	528.94	-67.08	85.03	62.37	22.66	3.752	
2,900.00	2,835.95	2,888.58	2,824.83	12.08	12.04	-68.23	554.49	-70.04	88.20	64.58	23.61	3.735	
3,000.00	2,932.59	2,988.51	2,921.40	12.55	12.51	-69.17	580.04	-73.00	91.39	66.82	24.56	3.720	
3,100.00	3,029.22	3,088.45	3,017.98	13.03	12.98	-70.05	605.59	-75.97	94.60	69.09	25.52	3.707	
3,200.00	3,125.86	3,188.39	3,114.55	13.50	13.46	-70.87	631.15	-78.93	97.84	71.37	26.47	3.696	
3,300.00	3,222.50	3,288.33	3,211.12	13.97	13.93	-71.63	656.70	-81.89	101.09	73.67	27.43	3.686	
3,400.00	3,319.13	3,388.27	3,307.69	14.45	14.41	-72.35	682.25	-84.85	104.36	75.98	28.38	3.677	
3,500.00	3,415.77	3,488.21	3,404.26	14.92	14.88	-73.02	707.80	-87.81	107.65	78.31	29.34	3.669	
3,600.00	3,512.40	3,588.14	3,500.83	15.40	15.36	-73.66	733.35	-90.78	110.95	80.66	30.30	3.662	
3,700.00	3,609.04	3,688.08	3,597.40	15.88	15.83	-74.26	758.90	-93.74	114.26	83.01	31.25	3.656	
3,800.00	3,705.67	3,788.02	3,693.97	16.35	16.31	-74.82	784.45	-96.70	117.59	85.38	32.21	3.651	
3,900.00	3,802.31	3,887.96	3,790.55	16.83	16.79	-75.35	810.01	-99.66	120.93	87.76	33.17	3.646	
4,000.00	3,898.95	3,987.90	3,887.12	17.30	17.26	-75.86	835.56	-102.62	124.27	90.14	34.13	3.641	
4,100.00	3,995.58	4,087.83	3,983.69	17.78	17.74	-76.34	861.11	-105.58	127.63	92.54	35.09	3.638	
4,200.00	4,092.22	4,187.77	4,080.26	18.26	18.22	-76.79	886.66	-108.55	130.99	94.94	36.05	3.634	
4,300.00	4,188.85	4,287.71	4,176.83	18.73	18.70	-77.22	912.21	-111.51	134.36	97.36	37.00	3.631	
4,400.00	4,285.49	4,387.65	4,273.40	19.21	19.17	-77.63	937.76	-114.47	137.74	99.78	37.96	3.628	
4,500.00	4,382.12	4,487.59	4,369.97	19.69	19.65	-78.02	963.31	-117.43	141.12	102.20	38.92	3.626	
4,600.00	4,478.76	4,587.53	4,466.54	20.17	20.13	-78.39	988.87	-120.39	144.52	104.63	39.88	3.623	
4,700.00	4,575.40	4,687.46	4,563.11	20.64	20.61	-78.74	1,014.42	-123.36	147.91	107.07	40.84	3.622	
4,800.00	4,672.03	4,787.40	4,659.69	21.12	21.08	-79.08	1,039.97	-126.32	151.32	109.51	41.80	3.620	
4,900.00	4,768.67	4,887.34	4,756.26	21.60	21.56	-79.41	1,065.52	-129.28	154.72	111.96	42.76	3.618	
5,000.00	4,865.30	4,987.28	4,852.83	22.08	22.04	-79.72	1,091.07	-132.24	158.13	114.41	43.72	3.617	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #712H - OH - Prelim #1												Offset Site Error:	0.00 usft
Survey Program:		0-MWD+HRGM+MS				Rule Assigned:				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)			Minimum Separation (usft)
5,100.00	4,961.94	5,087.22	4,949.40	22.55	22.52	-80.01	1,116.62	-135.20	161.55	116.87	44.68	3.616	
5,200.00	5,058.57	5,187.15	5,045.97	23.03	23.00	-80.30	1,142.18	-138.16	164.97	119.33	45.64	3.614	
5,300.00	5,155.21	5,287.09	5,142.54	23.51	23.47	-80.57	1,167.73	-141.13	168.40	121.79	46.60	3.613	
5,400.00	5,251.85	5,387.03	5,239.11	23.99	23.95	-80.83	1,193.28	-144.09	171.83	124.26	47.56	3.613	
5,500.00	5,348.48	5,486.97	5,335.68	24.47	24.43	-81.08	1,218.83	-147.05	175.26	126.73	48.52	3.612	
5,600.00	5,445.12	5,586.91	5,432.26	24.94	24.91	-81.33	1,244.38	-150.01	178.69	129.21	49.48	3.611	
5,700.00	5,541.75	5,686.85	5,528.83	25.42	25.39	-81.56	1,269.93	-152.97	182.13	131.69	50.44	3.611	
5,800.00	5,638.39	5,786.78	5,625.40	25.90	25.87	-81.78	1,295.48	-155.94	185.57	134.17	51.40	3.610	
5,900.00	5,735.02	5,886.72	5,721.97	26.38	26.35	-82.00	1,321.04	-158.90	189.01	136.65	52.36	3.610	
6,000.00	5,831.66	5,986.66	5,818.54	26.86	26.82	-82.21	1,346.59	-161.86	192.46	139.14	53.32	3.609	
6,100.00	5,928.30	6,086.60	5,915.11	27.34	27.30	-82.41	1,372.14	-164.82	195.91	141.62	54.29	3.609	
6,200.00	6,024.93	6,186.54	6,011.68	27.82	27.78	-82.60	1,397.69	-167.78	199.36	144.12	55.25	3.609	
6,300.00	6,121.57	6,286.48	6,108.25	28.29	28.26	-82.79	1,423.24	-170.75	202.81	146.61	56.21	3.608	
6,400.00	6,218.20	6,386.41	6,204.82	28.77	28.74	-82.97	1,448.79	-173.71	206.27	149.10	57.17	3.608	
6,500.00	6,314.84	6,486.35	6,301.40	29.25	29.22	-83.15	1,474.34	-176.67	209.73	151.60	58.13	3.608	
6,521.58	6,335.69	6,507.92	6,322.24	29.36	29.32	-83.18	1,479.86	-177.31	210.47	152.14	58.33	3.608 SF	
6,550.00	6,363.15	6,536.29	6,349.65	29.49	29.46	-92.74	1,487.11	-178.15	212.08	153.48	58.61	3.619	
6,600.00	6,411.28	6,575.18	6,387.19	29.73	29.65	-108.08	1,497.05	-180.08	219.00	160.08	58.93	3.717	
6,650.00	6,458.93	6,610.77	6,421.40	29.96	29.82	-120.39	1,506.12	-183.89	232.48	173.42	59.06	3.936	
6,700.00	6,505.83	6,650.00	6,458.79	30.19	30.01	-129.75	1,516.04	-190.36	252.28	192.99	59.29	4.255	
6,750.00	6,551.67	6,674.47	6,481.88	30.42	30.13	-136.53	1,522.18	-195.61	277.59	218.66	58.93	4.711	
6,800.00	6,596.17	6,700.00	6,505.76	30.64	30.26	-141.58	1,528.53	-202.05	308.12	249.48	58.64	5.255	
6,850.00	6,639.06	6,725.14	6,529.00	30.85	30.38	-145.38	1,534.73	-209.36	343.09	284.63	58.46	5.868	
6,900.00	6,680.07	6,750.00	6,551.69	31.05	30.50	-148.25	1,540.78	-217.51	381.92	323.48	58.44	6.535	
6,950.00	6,718.96	6,761.78	6,562.33	31.24	30.56	-150.06	1,543.62	-221.70	423.80	365.86	57.94	7.315	
7,000.00	6,755.47	6,775.12	6,574.28	31.43	30.62	-151.21	1,546.81	-226.68	468.28	410.57	57.71	8.114	
7,050.00	6,789.40	6,785.41	6,583.43	31.61	30.67	-151.50	1,549.25	-230.70	514.76	457.23	57.53	8.948	
7,100.00	6,820.52	6,800.00	6,596.30	31.79	30.74	-151.08	1,552.69	-236.66	562.82	505.12	57.70	9.754	
7,150.00	6,848.64	6,800.00	6,596.30	31.97	30.74	-147.24	1,552.69	-236.66	611.77	554.37	57.40	10.658	
7,200.00	6,873.60	6,800.00	6,596.30	32.14	30.74	-133.08	1,552.69	-236.66	661.42	604.16	57.25	11.552	
7,250.00	6,895.24	6,800.00	6,596.30	32.31	30.74	-51.19	1,552.69	-236.66	711.35	654.11	57.25	12.426	
7,300.00	6,913.42	6,800.00	6,596.30	32.49	30.74	-4.43	1,552.69	-236.66	761.24	703.90	57.35	13.274	
7,350.00	6,928.03	6,800.00	6,596.30	32.67	30.74	4.45	1,552.69	-236.66	810.82	753.28	57.54	14.092	
7,400.00	6,938.98	6,800.00	6,596.30	32.86	30.74	7.78	1,552.69	-236.66	859.85	802.05	57.80	14.877	
7,450.00	6,946.22	6,800.00	6,596.30	33.06	30.74	9.49	1,552.69	-236.66	908.14	850.03	58.11	15.628	
7,500.00	6,949.68	6,780.55	6,579.12	33.26	30.65	10.77	1,548.10	-228.78	955.05	897.13	57.92	16.488	
7,521.05	6,950.00	6,777.39	6,576.31	33.35	30.63	11.11	1,547.35	-227.55	974.53	916.53	58.01	16.800	
7,600.00	6,949.95	6,765.73	6,565.87	33.72	30.57	11.21	1,544.56	-223.14	1,047.47	989.15	58.32	17.962	
7,700.00	6,949.89	6,750.00	6,551.69	34.24	30.50	11.33	1,540.78	-217.51	1,140.60	1,082.00	58.60	19.464	
7,800.00	6,949.83	6,750.00	6,551.69	34.84	30.50	11.33	1,540.78	-217.51	1,234.54	1,175.41	59.14	20.876	
7,900.00	6,949.77	6,729.38	6,532.88	35.50	30.40	11.48	1,535.76	-210.68	1,328.87	1,269.69	59.18	22.454	
8,000.00	6,949.71	6,719.48	6,523.79	36.23	30.35	11.55	1,533.34	-207.63	1,423.84	1,364.45	59.39	23.974	
8,100.00	6,949.65	6,700.00	6,505.76	37.02	30.26	11.68	1,528.53	-202.05	1,519.38	1,459.98	59.40	25.578	
8,200.00	6,949.59	6,700.00	6,505.76	37.85	30.26	11.68	1,528.53	-202.05	1,615.09	1,555.39	59.70	27.054	
8,300.00	6,949.53	6,700.00	6,505.76	38.74	30.26	11.68	1,528.53	-202.05	1,711.28	1,651.34	59.95	28.546	
8,400.00	6,949.47	6,700.00	6,505.76	39.68	30.26	11.68	1,528.53	-202.05	1,807.89	1,747.73	60.16	30.050	
8,500.00	6,949.41	6,681.18	6,488.18	40.66	30.16	11.79	1,523.86	-197.20	1,904.48	1,844.37	60.11	31.685	
8,600.00	6,949.35	6,675.20	6,482.57	41.67	30.13	11.83	1,522.37	-195.78	2,001.47	1,941.27	60.21	33.244	
8,700.00	6,949.29	6,669.65	6,477.35	42.73	30.11	11.86	1,520.98	-194.50	2,098.68	2,038.39	60.30	34.806	
8,800.00	6,949.23	6,650.00	6,458.79	43.82	30.01	11.97	1,516.04	-190.36	2,196.30	2,136.09	60.21	36.475	
8,900.00	6,949.17	6,650.00	6,458.79	44.94	30.01	11.97	1,516.04	-190.36	2,293.76	2,233.41	60.35	38.009	
9,000.00	6,949.11	6,650.00	6,458.79	46.09	30.01	11.97	1,516.04	-190.36	2,391.43	2,330.96	60.47	39.548	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #712H - OH - Prelim #1											Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,100.00	6,949.05	6,650.00	6,458.79	47.26	30.01	11.97	1,516.04	-190.36	2,489.28	2,428.70	60.58	41.091
9,200.00	6,948.99	6,650.00	6,458.79	48.46	30.01	11.97	1,516.04	-190.36	2,587.30	2,526.62	60.68	42.639
9,300.00	6,948.93	6,650.00	6,458.79	49.68	30.01	11.97	1,516.04	-190.36	2,685.47	2,624.70	60.77	44.190
9,400.00	6,948.87	6,650.00	6,458.79	50.93	30.01	11.97	1,516.04	-190.36	2,783.76	2,722.91	60.86	45.743
9,500.00	6,948.81	6,650.00	6,458.79	52.19	30.01	11.97	1,516.04	-190.36	2,882.18	2,821.24	60.94	47.299
9,600.00	6,948.75	6,650.00	6,458.79	53.47	30.01	11.97	1,516.04	-190.36	2,980.69	2,919.69	61.01	48.856
9,700.00	6,948.69	6,650.00	6,458.79	54.77	30.01	11.97	1,516.04	-190.36	3,079.31	3,018.23	61.08	50.415
9,800.00	6,948.63	6,627.36	6,437.26	56.08	29.90	12.08	1,510.33	-186.34	3,177.53	3,116.58	60.95	52.132
9,900.00	6,948.57	6,624.68	6,434.69	57.41	29.89	12.10	1,509.65	-185.91	3,276.19	3,215.19	60.99	53.712
10,000.00	6,948.51	6,622.12	6,432.25	58.76	29.87	12.11	1,509.00	-185.52	3,374.91	3,313.88	61.04	55.292
10,100.00	6,948.45	6,600.00	6,411.07	60.11	29.77	12.21	1,503.38	-182.53	3,474.06	3,413.15	60.92	57.029
10,200.00	6,948.39	6,600.00	6,411.07	61.48	29.77	12.21	1,503.38	-182.53	3,572.83	3,511.85	60.98	58.590
10,300.00	6,948.33	6,600.00	6,411.07	62.86	29.77	12.21	1,503.38	-182.53	3,671.66	3,610.62	61.04	60.152
10,400.00	6,948.27	6,600.00	6,411.07	64.24	29.77	12.21	1,503.38	-182.53	3,770.55	3,709.46	61.10	61.713
10,500.00	6,948.21	6,600.00	6,411.07	65.64	29.77	12.21	1,503.38	-182.53	3,869.51	3,808.35	61.15	63.274
10,600.00	6,948.15	6,600.00	6,411.07	67.05	29.77	12.21	1,503.38	-182.53	3,968.51	3,907.30	61.21	64.835
10,700.00	6,948.09	6,600.00	6,411.07	68.47	29.77	12.21	1,503.38	-182.53	4,067.56	4,006.30	61.26	66.395
10,800.00	6,948.03	6,600.00	6,411.07	69.89	29.77	12.21	1,503.38	-182.53	4,166.66	4,105.34	61.32	67.954
10,900.00	6,947.97	6,600.00	6,411.07	71.32	29.77	12.21	1,503.38	-182.53	4,265.80	4,204.43	61.37	69.512
11,000.00	6,947.91	6,600.00	6,411.07	72.76	29.77	12.21	1,503.38	-182.53	4,364.98	4,303.56	61.42	71.069
11,100.00	6,947.85	6,600.00	6,411.07	74.21	29.77	12.21	1,503.38	-182.53	4,464.19	4,402.72	61.47	72.624
11,200.00	6,947.79	6,600.00	6,411.07	75.66	29.77	12.21	1,503.38	-182.53	4,563.44	4,501.92	61.52	74.178
11,300.00	6,947.73	6,600.00	6,411.07	77.12	29.77	12.21	1,503.38	-182.53	4,662.72	4,601.15	61.57	75.731
11,400.00	6,947.66	6,600.00	6,411.07	78.58	29.77	12.21	1,503.38	-182.53	4,762.03	4,700.42	61.62	77.282
11,500.00	6,947.60	6,600.00	6,411.07	80.05	29.77	12.21	1,503.38	-182.53	4,861.37	4,799.71	61.67	78.832
11,600.00	6,947.54	6,600.00	6,411.07	81.52	29.77	12.21	1,503.38	-182.53	4,960.74	4,899.02	61.72	80.379
11,700.00	6,947.48	6,600.00	6,411.07	83.00	29.77	12.21	1,503.38	-182.53	5,060.13	4,998.37	61.77	81.925
11,800.00	6,947.42	6,600.00	6,411.07	84.48	29.77	12.21	1,503.38	-182.53	5,159.55	5,097.73	61.81	83.469
11,900.00	6,947.36	6,600.00	6,411.07	85.97	29.77	12.21	1,503.38	-182.53	5,258.98	5,197.12	61.86	85.010
12,000.00	6,947.30	6,600.00	6,411.07	87.46	29.77	12.21	1,503.38	-182.53	5,358.44	5,296.53	61.91	86.550
12,100.00	6,947.24	6,600.00	6,411.07	88.96	29.77	12.21	1,503.38	-182.53	5,457.92	5,395.96	61.96	88.087
12,200.00	6,947.18	6,600.00	6,411.07	90.46	29.77	12.21	1,503.38	-182.53	5,557.42	5,495.41	62.01	89.622
12,300.00	6,947.12	6,600.00	6,411.07	91.96	29.77	12.21	1,503.38	-182.53	5,656.93	5,594.87	62.06	91.154
12,400.00	6,947.06	6,600.00	6,411.07	93.47	29.77	12.21	1,503.38	-182.53	5,756.46	5,694.35	62.11	92.684
12,500.00	6,947.00	6,600.00	6,411.07	94.97	29.77	12.21	1,503.38	-182.53	5,856.01	5,793.85	62.16	94.212
12,600.00	6,946.94	6,600.00	6,411.07	96.49	29.77	12.21	1,503.38	-182.53	5,955.57	5,893.36	62.21	95.737
12,700.00	6,946.88	6,600.00	6,411.07	98.00	29.77	12.21	1,503.38	-182.53	6,055.15	5,992.89	62.26	97.259
12,800.00	6,946.82	6,600.00	6,411.07	99.52	29.77	12.21	1,503.38	-182.53	6,154.74	6,092.43	62.31	98.778
12,900.00	6,946.76	6,600.00	6,411.07	101.04	29.77	12.21	1,503.38	-182.53	6,254.34	6,191.98	62.36	100.295
13,000.00	6,946.70	6,600.00	6,411.07	102.56	29.77	12.21	1,503.38	-182.53	6,353.96	6,291.55	62.41	101.809
13,100.00	6,946.64	6,600.00	6,411.07	104.09	29.77	12.21	1,503.38	-182.53	6,453.59	6,391.12	62.46	103.320
13,200.00	6,946.58	6,600.00	6,411.07	105.61	29.77	12.21	1,503.38	-182.53	6,553.22	6,490.71	62.51	104.828
13,300.00	6,946.52	6,576.86	6,388.81	107.14	29.65	12.31	1,497.48	-180.22	6,652.41	6,590.00	62.42	106.578
13,400.00	6,946.46	6,576.12	6,388.10	108.67	29.65	12.32	1,497.29	-180.16	6,752.04	6,689.58	62.47	108.091
13,500.00	6,946.40	6,575.39	6,387.40	110.21	29.65	12.32	1,497.11	-180.10	6,851.69	6,789.17	62.52	109.600
13,600.00	6,946.34	6,574.69	6,386.72	111.74	29.64	12.32	1,496.93	-180.04	6,951.34	6,888.77	62.57	111.106
13,700.00	6,946.28	6,574.00	6,386.06	113.28	29.64	12.33	1,496.75	-179.99	7,050.99	6,988.38	62.62	112.608
13,800.00	6,946.22	6,573.33	6,385.41	114.82	29.64	12.33	1,496.58	-179.94	7,150.66	7,088.00	62.67	114.107
13,900.00	6,946.16	6,550.00	6,362.90	116.36	29.53	12.42	1,490.62	-178.59	7,250.78	7,188.20	62.58	115.873
14,000.00	6,946.10	6,550.00	6,362.90	117.90	29.53	12.42	1,490.62	-178.59	7,350.44	7,287.81	62.63	117.360
14,100.00	6,946.04	6,550.00	6,362.90	119.45	29.53	12.42	1,490.62	-178.59	7,450.11	7,387.42	62.69	118.844
14,200.00	6,945.98	6,550.00	6,362.90	120.99	29.53	12.42	1,490.62	-178.59	7,549.78	7,487.04	62.75	120.325

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #712H - OH - Prelim #1													Offset Site Error:	0.00 usft
Survey Program:		0-MWD+HRGM+MS					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	
14,300.00	6,945.92	6,550.00	6,362.90	122.54	29.53	12.42	1,490.62	-178.59	7,649.47	7,586.67	62.80	121.802		
14,400.00	6,945.86	6,550.00	6,362.90	124.09	29.53	12.42	1,490.62	-178.59	7,749.17	7,686.30	62.86	123.275		
14,500.00	6,945.80	6,550.00	6,362.90	125.64	29.53	12.42	1,490.62	-178.59	7,848.87	7,785.95	62.92	124.745		
14,600.00	6,945.74	6,550.00	6,362.90	127.19	29.53	12.42	1,490.62	-178.59	7,948.58	7,885.60	62.98	126.212		
14,700.00	6,945.68	6,550.00	6,362.90	128.74	29.53	12.42	1,490.62	-178.59	8,048.29	7,985.26	63.04	127.675		
14,800.00	6,945.62	6,550.00	6,362.90	130.30	29.53	12.42	1,490.62	-178.59	8,148.02	8,084.92	63.10	129.134		
14,900.00	6,945.56	6,550.00	6,362.90	131.85	29.53	12.42	1,490.62	-178.59	8,247.75	8,184.59	63.16	130.590		
15,000.00	6,945.50	6,550.00	6,362.90	133.41	29.53	12.42	1,490.62	-178.59	8,347.48	8,284.27	63.22	132.042		
15,100.00	6,945.44	6,550.00	6,362.90	134.96	29.53	12.42	1,490.62	-178.59	8,447.23	8,383.95	63.28	133.490		
15,200.00	6,945.38	6,550.00	6,362.90	136.52	29.53	12.42	1,490.62	-178.59	8,546.98	8,483.63	63.34	134.934		
15,300.00	6,945.32	6,550.00	6,362.90	138.08	29.53	12.42	1,490.62	-178.59	8,646.73	8,583.33	63.40	136.375		
15,400.00	6,945.26	6,550.00	6,362.90	139.64	29.53	12.42	1,490.62	-178.59	8,746.49	8,683.02	63.47	137.812		
15,500.00	6,945.20	6,550.00	6,362.90	141.20	29.53	12.42	1,490.62	-178.59	8,846.26	8,782.73	63.53	139.245		
15,600.00	6,945.14	6,550.00	6,362.90	142.76	29.53	12.42	1,490.62	-178.59	8,946.03	8,882.43	63.59	140.674		
15,700.00	6,945.08	6,550.00	6,362.90	144.33	29.53	12.42	1,490.62	-178.59	9,045.80	8,982.15	63.66	142.100		
15,800.00	6,945.02	6,550.00	6,362.90	145.89	29.53	12.42	1,490.62	-178.59	9,145.58	9,081.86	63.72	143.521		
15,900.00	6,944.96	6,550.00	6,362.90	147.46	29.53	12.42	1,490.62	-178.59	9,245.37	9,181.58	63.79	144.939		
16,000.00	6,944.90	6,550.00	6,362.90	149.02	29.53	12.42	1,490.62	-178.59	9,345.16	9,281.31	63.85	146.352		
16,100.00	6,944.84	6,550.00	6,362.90	150.59	29.53	12.42	1,490.62	-178.59	9,444.96	9,381.04	63.92	147.762		
16,200.00	6,944.77	6,550.00	6,362.90	152.15	29.53	12.42	1,490.62	-178.59	9,544.75	9,480.77	63.99	149.168		
16,300.00	6,944.71	6,550.00	6,362.90	153.72	29.53	12.42	1,490.62	-178.59	9,644.56	9,580.50	64.05	150.569		
16,400.00	6,944.65	6,550.00	6,362.90	155.29	29.53	12.42	1,490.62	-178.59	9,744.36	9,680.24	64.12	151.967		
16,500.00	6,944.59	6,550.00	6,362.90	156.86	29.53	12.42	1,490.62	-178.59	9,844.18	9,779.99	64.19	153.360		
16,600.00	6,944.53	6,550.00	6,362.90	158.43	29.53	12.42	1,490.62	-178.59	9,943.99	9,879.73	64.26	154.750		
16,700.00	6,944.47	6,550.00	6,362.90	160.00	29.53	12.42	1,490.62	-178.59	10,043.81	9,979.48	64.33	156.135		
16,800.00	6,944.41	6,550.00	6,362.90	161.57	29.53	12.42	1,490.62	-178.59	10,143.63	10,079.23	64.40	157.516		
16,900.00	6,944.35	6,550.00	6,362.90	163.14	29.53	12.42	1,490.62	-178.59	10,243.46	10,178.99	64.47	158.893		
17,000.00	6,944.29	6,550.00	6,362.90	164.71	29.53	12.42	1,490.62	-178.59	10,343.29	10,278.75	64.54	160.266		
17,100.00	6,944.23	6,550.00	6,362.90	166.29	29.53	12.42	1,490.62	-178.59	10,443.12	10,378.51	64.61	161.635		
17,200.00	6,944.17	6,550.00	6,362.90	167.86	29.53	12.42	1,490.62	-178.59	10,542.95	10,478.27	64.68	162.999		
17,300.00	6,944.11	6,550.00	6,362.90	169.43	29.53	12.42	1,490.62	-178.59	10,642.79	10,578.04	64.75	164.359		
17,400.00	6,944.05	6,550.00	6,362.90	171.01	29.53	12.42	1,490.62	-178.59	10,742.63	10,677.81	64.83	165.715		
17,500.00	6,943.99	6,550.00	6,362.90	172.58	29.53	12.42	1,490.62	-178.59	10,842.48	10,777.58	64.90	167.067		
17,600.00	6,943.93	6,550.00	6,362.90	174.16	29.53	12.42	1,490.62	-178.59	10,942.33	10,877.35	64.97	168.415		
17,700.00	6,943.87	6,550.00	6,362.90	175.73	29.53	12.42	1,490.62	-178.59	11,042.18	10,977.13	65.05	169.758		
17,800.00	6,943.81	6,550.00	6,362.90	177.31	29.53	12.42	1,490.62	-178.59	11,142.03	11,076.91	65.12	171.097		
17,900.00	6,943.75	6,550.00	6,362.90	178.89	29.53	12.42	1,490.62	-178.59	11,241.88	11,176.69	65.20	172.432		
18,000.00	6,943.69	6,550.00	6,362.90	180.46	29.53	12.42	1,490.62	-178.59	11,341.74	11,276.47	65.27	173.763		
18,100.00	6,943.63	6,550.00	6,362.90	182.04	29.53	12.42	1,490.62	-178.59	11,441.60	11,376.25	65.35	175.089		
18,200.00	6,943.57	6,550.00	6,362.90	183.62	29.53	12.42	1,490.62	-178.59	11,541.46	11,476.04	65.42	176.411		
18,300.00	6,943.51	6,550.00	6,362.90	185.20	29.53	12.42	1,490.62	-178.59	11,641.33	11,575.83	65.50	177.729		
18,400.00	6,943.45	6,550.00	6,362.90	186.78	29.53	12.42	1,490.62	-178.59	11,741.20	11,675.62	65.58	179.042		
18,500.00	6,943.39	6,550.00	6,362.90	188.36	29.53	12.42	1,490.62	-178.59	11,841.07	11,775.41	65.66	180.351		
18,600.00	6,943.33	6,550.00	6,362.90	189.94	29.53	12.42	1,490.62	-178.59	11,940.94	11,875.21	65.73	181.655		
18,700.00	6,943.27	6,550.00	6,362.90	191.52	29.53	12.42	1,490.62	-178.59	12,040.81	11,975.00	65.81	182.956		
18,800.00	6,943.21	6,550.00	6,362.90	193.10	29.53	12.42	1,490.62	-178.59	12,140.69	12,074.80	65.89	184.252		
18,900.00	6,943.15	6,550.00	6,362.90	194.68	29.53	12.42	1,490.62	-178.59	12,240.57	12,174.60	65.97	185.543		
19,000.00	6,943.09	6,550.00	6,362.90	196.26	29.53	12.42	1,490.62	-178.59	12,340.45	12,274.40	66.05	186.830		
19,100.00	6,943.03	6,550.00	6,362.90	197.84	29.53	12.42	1,490.62	-178.59	12,440.33	12,374.20	66.13	188.113		
19,200.00	6,942.97	6,550.00	6,362.90	199.42	29.53	12.42	1,490.62	-178.59	12,540.21	12,474.00	66.21	189.392		
19,300.00	6,942.91	6,550.00	6,362.90	201.01	29.53	12.42	1,490.62	-178.59	12,640.10	12,573.80	66.29	190.666		
19,400.00	6,942.85	6,550.00	6,362.90	202.59	29.53	12.42	1,490.62	-178.59	12,739.99	12,673.61	66.38	191.936		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #712H - OH - Prelim #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS							Rule Assigned:						Offset Well Error:	0.00 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)				
19,500.00	6,942.79	6,550.00	6,362.90	204.17	29.53	12.42	1,490.62	-178.59	12,839.88	12,773.42	66.46	193.201		
19,600.00	6,942.73	6,550.00	6,362.90	205.75	29.53	12.42	1,490.62	-178.59	12,939.77	12,873.23	66.54	194.462		
19,700.00	6,942.67	6,550.00	6,362.90	207.34	29.53	12.42	1,490.62	-178.59	13,039.66	12,973.03	66.62	195.719		
19,800.00	6,942.61	6,550.00	6,362.90	208.92	29.53	12.42	1,490.62	-178.59	13,139.55	13,072.85	66.71	196.971		
19,900.00	6,942.55	6,550.00	6,362.90	210.51	29.53	12.42	1,490.62	-178.59	13,239.45	13,172.66	66.79	198.218		
20,000.00	6,942.49	6,550.00	6,362.90	212.09	29.53	12.42	1,490.62	-178.59	13,339.35	13,272.47	66.88	199.462		
20,100.00	6,942.43	6,550.00	6,362.90	213.68	29.53	12.42	1,490.62	-178.59	13,439.25	13,372.28	66.96	200.701		
20,200.00	6,942.37	6,550.00	6,362.90	215.26	29.53	12.42	1,490.62	-178.59	13,539.15	13,472.10	67.05	201.936		
20,300.00	6,942.31	6,550.00	6,362.90	216.85	29.53	12.42	1,490.62	-178.59	13,639.05	13,571.92	67.13	203.166		
20,400.00	6,942.25	6,550.00	6,362.90	218.43	29.53	12.42	1,490.62	-178.59	13,738.95	13,671.73	67.22	204.392		
20,500.00	6,942.19	6,550.00	6,362.90	220.02	29.53	12.42	1,490.62	-178.59	13,838.86	13,771.55	67.31	205.613		
20,600.00	6,942.13	6,550.00	6,362.90	221.60	29.53	12.42	1,490.62	-178.59	13,938.76	13,871.37	67.39	206.830		
20,700.00	6,942.07	6,550.00	6,362.90	223.19	29.53	12.42	1,490.62	-178.59	14,038.67	13,971.19	67.48	208.043		
20,808.89	6,942.00	6,550.00	6,362.90	224.92	29.53	12.42	1,490.62	-178.59	14,147.46	14,079.88	67.58	209.358		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #714H - OH - Prelim 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	0.00 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	0.00	0.00	-15.28	19.29	-5.27	20.00				
100.00	100.00	100.00	100.00	0.25	0.25	-15.28	19.29	-5.27	20.00	19.50	0.50	39.855	
200.00	200.00	200.00	200.00	0.61	0.61	-15.28	19.29	-5.27	20.00	18.78	1.22	16.411	
300.00	300.00	300.00	300.00	0.97	0.97	-15.28	19.29	-5.27	20.00	18.07	1.94	10.333	
400.00	400.00	400.00	400.00	1.33	1.33	-15.28	19.29	-5.27	20.00	17.35	2.65	7.540	
500.00	500.00	500.00	500.00	1.68	1.68	-15.28	19.29	-5.27	20.00	16.63	3.37	5.936	
600.00	599.98	600.27	600.25	2.04	2.03	-23.02	18.00	-6.46	17.51	13.43	4.07	4.297	
700.00	699.84	699.93	699.84	2.41	2.37	-49.01	15.26	-8.96	12.32	7.55	4.77	2.584	
754.67	754.34	754.27	754.14	2.60	2.55	-78.08	13.77	-10.33	10.86	5.71	5.15	2.110 CC, ES, SF	
800.00	799.45	799.23	799.07	2.77	2.71	-105.93	12.53	-11.47	12.22	6.76	5.47	2.236	
900.00	898.70	898.06	897.84	3.13	3.05	-141.90	9.81	-13.96	23.21	17.03	6.18	3.757	
1,000.00	997.47	996.32	996.03	3.50	3.39	-155.24	7.11	-16.44	40.36	33.47	6.89	5.858	
1,100.00	1,095.62	1,093.88	1,093.51	3.89	3.74	-161.54	4.43	-18.90	61.62	54.02	7.60	8.108	
1,200.00	1,193.06	1,190.61	1,190.18	4.30	4.08	-165.15	1.76	-21.33	86.52	78.21	8.31	10.412	
1,245.21	1,236.83	1,234.04	1,233.58	4.48	4.24	-166.32	0.57	-22.43	98.92	90.29	8.63	11.458	
1,300.00	1,289.78	1,286.56	1,286.06	4.72	4.42	-167.51	-0.87	-23.75	114.40	105.38	9.02	12.684	
1,400.00	1,386.42	1,382.40	1,381.84	5.15	4.76	-169.01	-3.51	-26.17	142.74	133.02	9.72	14.681	
1,500.00	1,483.05	1,478.25	1,477.62	5.59	5.11	-170.02	-6.15	-28.59	171.14	160.71	10.43	16.408	
1,600.00	1,579.69	1,574.10	1,573.40	6.04	5.45	-170.73	-8.79	-31.00	199.57	188.43	11.14	17.914	
1,700.00	1,676.32	1,669.94	1,669.18	6.49	5.79	-171.27	-11.42	-33.42	228.02	216.17	11.85	19.236	
1,800.00	1,772.96	1,765.79	1,764.96	6.94	6.14	-171.69	-14.06	-35.84	256.49	243.92	12.57	20.406	
1,900.00	1,869.60	1,861.64	1,860.74	7.40	6.48	-172.03	-16.70	-38.25	284.97	271.68	13.29	21.447	
2,000.00	1,966.23	1,957.49	1,956.52	7.86	6.83	-172.30	-19.33	-40.67	313.46	299.45	14.01	22.380	
2,100.00	2,062.87	2,053.33	2,052.30	8.33	7.17	-172.53	-21.97	-43.09	341.95	327.22	14.73	23.219	
2,200.00	2,159.50	2,149.18	2,148.08	8.79	7.52	-172.72	-24.61	-45.50	370.44	355.00	15.45	23.979	
2,300.00	2,256.14	2,245.03	2,243.86	9.26	7.87	-172.89	-27.24	-47.92	398.94	382.77	16.17	24.669	
2,400.00	2,352.77	2,340.87	2,339.64	9.73	8.21	-173.03	-29.88	-50.34	427.45	410.55	16.90	25.299	
2,500.00	2,449.41	2,436.72	2,435.42	10.20	8.56	-173.16	-32.52	-52.75	455.95	438.33	17.62	25.876	
2,600.00	2,546.05	2,532.57	2,531.20	10.67	8.90	-173.27	-35.16	-55.17	484.45	466.11	18.35	26.407	
2,700.00	2,642.68	2,628.41	2,626.98	11.14	9.25	-173.37	-37.79	-57.58	512.96	493.89	19.07	26.896	
2,800.00	2,739.32	2,724.26	2,722.76	11.61	9.60	-173.46	-40.43	-60.00	541.47	521.67	19.80	27.349	
2,900.00	2,835.95	2,820.11	2,818.54	12.08	9.94	-173.54	-43.07	-62.42	569.98	549.45	20.53	27.769	
3,000.00	2,932.59	2,915.96	2,914.32	12.55	10.29	-173.61	-45.70	-64.83	598.48	577.24	21.25	28.160	
3,100.00	3,029.22	3,011.80	3,010.10	13.03	10.64	-173.68	-48.34	-67.25	627.00	605.02	21.98	28.524	
3,200.00	3,125.86	3,107.65	3,105.88	13.50	10.98	-173.74	-50.98	-69.67	655.51	632.80	22.71	28.864	
3,300.00	3,222.50	3,203.50	3,201.66	13.97	11.33	-173.79	-53.61	-72.08	684.03	660.59	23.44	29.183	
3,400.00	3,319.13	3,299.34	3,297.44	14.45	11.68	-173.84	-56.25	-74.50	712.54	688.37	24.17	29.482	
3,500.00	3,415.77	3,395.19	3,393.22	14.92	12.02	-173.89	-58.89	-76.92	741.05	716.15	24.90	29.764	
3,600.00	3,512.40	3,491.04	3,489.01	15.40	12.37	-173.93	-61.53	-79.33	769.57	743.94	25.63	30.029	
3,700.00	3,609.04	3,586.89	3,584.79	15.88	12.72	-173.97	-64.16	-81.75	798.08	771.72	26.36	30.279	
3,800.00	3,705.67	3,682.73	3,680.57	16.35	13.06	-174.01	-66.80	-84.17	826.59	799.51	27.09	30.515	
3,900.00	3,802.31	3,778.58	3,776.35	16.83	13.41	-174.04	-69.44	-86.58	855.11	827.29	27.82	30.739	
4,000.00	3,898.95	3,874.43	3,872.13	17.30	13.76	-174.07	-72.07	-89.00	883.62	855.07	28.55	30.951	
4,100.00	3,995.58	3,970.27	3,967.91	17.78	14.11	-174.10	-74.71	-91.42	912.14	882.86	29.28	31.152	
4,200.00	4,092.22	4,066.12	4,063.69	18.26	14.45	-174.13	-77.35	-93.83	940.65	910.64	30.01	31.343	
4,300.00	4,188.85	4,161.97	4,159.47	18.73	14.80	-174.16	-79.98	-96.25	969.17	938.43	30.74	31.525	
4,400.00	4,285.49	4,257.82	4,255.25	19.21	15.15	-174.19	-82.62	-98.67	997.69	966.21	31.47	31.698	
4,500.00	4,382.12	4,353.66	4,351.03	19.69	15.49	-174.21	-85.26	-101.08	1,026.20	994.00	32.21	31.863	
4,600.00	4,478.76	4,449.51	4,446.81	20.17	15.84	-174.23	-87.90	-103.50	1,054.72	1,021.78	32.94	32.021	
4,700.00	4,575.40	4,545.36	4,542.59	20.64	16.19	-174.25	-90.53	-105.91	1,083.24	1,049.56	33.67	32.172	
4,800.00	4,672.03	4,641.20	4,638.37	21.12	16.54	-174.27	-93.17	-108.33	1,111.75	1,077.35	34.40	32.316	
4,900.00	4,768.67	4,737.05	4,734.15	21.60	16.88	-174.29	-95.81	-110.75	1,140.27	1,105.13	35.14	32.454	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #714H - OH - Prelim 1												Offset Site Error:	0.00 usft
Survey Program:		0-MWD+HRGM+MS						Rule Assigned:				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)			Minimum Separation (usft)
5,000.00	4,865.30	4,832.90	4,829.93	22.08	17.23	-174.31	-98.44	-113.16	1,168.79	1,132.92	35.87	32.586	
5,100.00	4,961.94	4,928.75	4,925.71	22.55	17.58	-174.33	-101.08	-115.58	1,197.30	1,160.70	36.60	32.713	
5,200.00	5,058.57	5,024.59	5,021.49	23.03	17.93	-174.35	-103.72	-118.00	1,225.82	1,188.49	37.33	32.834	
5,300.00	5,155.21	5,120.44	5,117.27	23.51	18.27	-174.36	-106.35	-120.41	1,254.34	1,216.27	38.07	32.951	
5,400.00	5,251.85	5,216.29	5,213.05	23.99	18.62	-174.38	-108.99	-122.83	1,282.85	1,244.05	38.80	33.064	
5,500.00	5,348.48	5,312.13	5,308.83	24.47	18.97	-174.39	-111.63	-125.25	1,311.37	1,271.84	39.53	33.172	
5,600.00	5,445.12	5,407.98	5,404.61	24.94	19.32	-174.41	-114.27	-127.66	1,339.89	1,299.62	40.27	33.276	
5,700.00	5,541.75	5,503.83	5,500.39	25.42	19.66	-174.42	-116.90	-130.08	1,368.40	1,327.40	41.00	33.376	
5,800.00	5,638.39	5,599.68	5,596.17	25.90	20.01	-174.43	-119.54	-132.50	1,396.92	1,355.19	41.73	33.472	
5,900.00	5,735.02	5,695.52	5,691.95	26.38	20.36	-174.44	-122.18	-134.91	1,425.44	1,382.97	42.47	33.565	
6,000.00	5,831.66	5,791.37	5,787.73	26.86	20.71	-174.46	-124.81	-137.33	1,453.96	1,410.76	43.20	33.655	
6,100.00	5,928.30	5,887.22	5,883.51	27.34	21.05	-174.47	-127.45	-139.75	1,482.48	1,438.54	43.94	33.742	
6,200.00	6,024.93	5,983.06	5,979.29	27.82	21.40	-174.48	-130.09	-142.16	1,510.99	1,466.32	44.67	33.826	
6,300.00	6,121.57	6,078.91	6,075.07	28.29	21.75	-174.49	-132.72	-144.58	1,539.51	1,494.11	45.40	33.907	
6,400.00	6,218.20	6,174.76	6,170.86	28.77	22.10	-174.50	-135.36	-147.00	1,568.03	1,521.89	46.14	33.985	
6,500.00	6,314.84	6,270.61	6,266.64	29.25	22.44	-174.51	-138.00	-149.41	1,596.55	1,549.67	46.87	34.061	
6,521.58	6,335.69	6,291.29	6,287.31	29.36	22.52	-174.51	-138.57	-149.93	1,602.70	1,555.67	47.03	34.077	
6,550.00	6,363.15	6,318.50	6,314.50	29.49	22.62	175.24	-139.32	-150.62	1,610.86	1,563.62	47.24	34.099	
6,600.00	6,411.28	6,359.37	6,355.32	29.73	22.77	158.79	-140.44	-152.09	1,625.54	1,577.99	47.56	34.180	
6,650.00	6,458.93	6,400.00	6,395.75	29.96	22.91	145.57	-141.54	-155.92	1,640.81	1,592.93	47.87	34.274	
6,700.00	6,505.83	6,428.75	6,424.17	30.19	23.02	135.37	-142.30	-160.19	1,656.64	1,608.54	48.10	34.442	
6,750.00	6,551.67	6,459.44	6,454.26	30.42	23.14	127.63	-143.11	-166.16	1,673.11	1,624.77	48.34	34.613	
6,800.00	6,596.17	6,486.82	6,480.84	30.64	23.24	121.58	-143.81	-172.70	1,690.24	1,641.70	48.55	34.818	
6,850.00	6,639.06	6,510.67	6,503.74	30.85	23.33	116.66	-144.42	-179.32	1,708.09	1,659.37	48.72	35.058	
6,900.00	6,680.07	6,530.94	6,522.99	31.05	23.40	112.49	-144.92	-185.62	1,726.69	1,677.82	48.87	35.336	
6,950.00	6,718.96	6,550.00	6,540.91	31.24	23.48	108.89	-145.39	-192.10	1,746.03	1,697.04	48.99	35.637	
7,000.00	6,755.47	6,561.19	6,551.34	31.43	23.52	105.45	-145.66	-196.16	1,766.10	1,717.05	49.05	36.004	
7,050.00	6,789.40	6,571.59	6,560.96	31.61	23.56	102.29	-145.90	-200.09	1,786.86	1,737.76	49.10	36.390	
7,100.00	6,820.52	6,579.17	6,567.94	31.79	23.59	99.27	-146.08	-203.06	1,808.22	1,759.09	49.13	36.807	
7,150.00	6,848.64	6,584.20	6,572.54	31.97	23.60	96.33	-146.20	-205.07	1,830.09	1,780.96	49.13	37.250	
7,200.00	6,873.60	6,586.93	6,575.04	32.14	23.61	93.47	-146.27	-206.17	1,852.34	1,803.23	49.11	37.715	
7,250.00	6,895.24	6,600.00	6,586.91	32.31	23.66	91.10	-146.57	-211.63	1,874.94	1,825.74	49.21	38.103	
7,300.00	6,913.42	6,586.44	6,574.59	32.49	23.61	87.97	-146.25	-205.97	1,897.50	1,848.45	49.05	38.687	
7,350.00	6,928.03	6,583.64	6,572.03	32.67	23.60	85.35	-146.19	-204.84	1,920.10	1,871.10	49.00	39.183	
7,400.00	6,938.98	6,579.39	6,568.14	32.86	23.59	82.84	-146.09	-203.14	1,942.52	1,893.57	48.96	39.678	
7,450.00	6,946.22	6,573.86	6,563.05	33.06	23.57	80.46	-145.96	-200.97	1,964.62	1,915.70	48.91	40.166	
7,500.00	6,949.68	6,567.17	6,556.88	33.26	23.54	78.23	-145.80	-198.40	1,986.23	1,937.36	48.87	40.644	
7,521.05	6,950.00	6,550.00	6,540.91	33.35	23.48	76.94	-145.39	-192.10	1,995.27	1,946.56	48.71	40.965	
7,600.00	6,949.95	6,550.00	6,540.91	33.72	23.48	76.94	-145.39	-192.10	2,029.55	1,980.77	48.78	41.606	
7,700.00	6,949.89	6,550.00	6,540.91	34.24	23.48	76.94	-145.39	-192.10	2,076.48	2,027.59	48.89	42.472	
7,800.00	6,949.83	6,527.57	6,519.80	34.84	23.39	76.29	-144.84	-184.53	2,126.74	2,077.95	48.79	43.586	
7,900.00	6,949.77	6,516.92	6,509.70	35.50	23.35	75.97	-144.57	-181.20	2,180.34	2,131.51	48.83	44.653	
8,000.00	6,949.71	6,500.00	6,493.52	36.23	23.29	75.48	-144.15	-176.25	2,237.02	2,188.21	48.81	45.827	
8,100.00	6,949.65	6,500.00	6,493.52	37.02	23.29	75.48	-144.15	-176.25	2,296.47	2,247.50	48.97	46.894	
8,200.00	6,949.59	6,500.00	6,493.52	37.85	23.29	75.48	-144.15	-176.25	2,358.67	2,309.54	49.13	48.008	
8,300.00	6,949.53	6,500.00	6,493.52	38.74	23.29	75.48	-144.15	-176.25	2,423.39	2,374.10	49.29	49.165	
8,400.00	6,949.47	6,476.44	6,470.79	39.68	23.20	74.78	-143.55	-170.08	2,490.03	2,440.79	49.24	50.565	
8,500.00	6,949.41	6,470.22	6,464.75	40.66	23.18	74.60	-143.39	-168.59	2,558.98	2,509.63	49.35	51.851	
8,600.00	6,949.35	6,450.00	6,445.03	41.67	23.10	74.00	-142.86	-164.17	2,630.04	2,580.70	49.34	53.301	
8,700.00	6,949.29	6,450.00	6,445.03	42.73	23.10	74.00	-142.86	-164.17	2,702.63	2,653.12	49.51	54.593	
8,800.00	6,949.23	6,450.00	6,445.03	43.82	23.10	74.00	-142.86	-164.17	2,776.92	2,727.26	49.66	55.916	
8,900.00	6,949.17	6,450.00	6,445.03	44.94	23.10	74.00	-142.86	-164.17	2,852.79	2,802.98	49.81	57.268	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #714H - OH - Prelim 1											Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
9,000.00	6,949.11	6,450.00	6,445.03	46.09	23.10	74.00	-142.86	-164.17	2,930.11	2,880.14	49.96	58.646
9,100.00	6,949.05	6,450.00	6,445.03	47.26	23.10	74.00	-142.86	-164.17	3,008.76	2,958.65	50.10	60.049
9,200.00	6,948.99	6,450.00	6,445.03	48.46	23.10	74.00	-142.86	-164.17	3,088.65	3,038.40	50.24	61.475
9,300.00	6,948.93	6,450.00	6,445.03	49.68	23.10	74.00	-142.86	-164.17	3,169.67	3,119.30	50.37	62.922
9,400.00	6,948.87	6,450.00	6,445.03	50.93	23.10	74.00	-142.86	-164.17	3,251.76	3,201.26	50.50	64.387
9,500.00	6,948.81	6,427.25	6,422.69	52.19	23.02	73.32	-142.26	-159.94	3,334.40	3,283.93	50.47	66.063
9,600.00	6,948.75	6,424.25	6,419.73	53.47	23.01	73.23	-142.19	-159.44	3,418.25	3,367.67	50.58	67.586
9,700.00	6,948.69	6,421.41	6,416.93	54.77	22.99	73.15	-142.11	-158.98	3,502.93	3,452.26	50.68	69.123
9,800.00	6,948.63	6,400.00	6,395.75	56.08	22.91	72.52	-141.54	-155.92	3,588.68	3,538.03	50.65	70.846
9,900.00	6,948.57	6,400.00	6,395.75	57.41	22.91	72.52	-141.54	-155.92	3,674.79	3,624.02	50.77	72.382
10,000.00	6,948.51	6,400.00	6,395.75	58.76	22.91	72.52	-141.54	-155.92	3,761.59	3,710.71	50.88	73.930
10,100.00	6,948.45	6,400.00	6,395.75	60.11	22.91	72.52	-141.54	-155.92	3,849.03	3,798.04	50.99	75.489
10,200.00	6,948.39	6,400.00	6,395.75	61.48	22.91	72.52	-141.54	-155.92	3,937.06	3,885.97	51.09	77.058
10,300.00	6,948.33	6,400.00	6,395.75	62.86	22.91	72.52	-141.54	-155.92	4,025.66	3,974.46	51.19	78.637
10,400.00	6,948.27	6,400.00	6,395.75	64.24	22.91	72.52	-141.54	-155.92	4,114.77	4,063.48	51.29	80.224
10,500.00	6,948.21	6,400.00	6,395.75	65.64	22.91	72.52	-141.54	-155.92	4,204.38	4,152.99	51.39	81.818
10,600.00	6,948.15	6,400.00	6,395.75	67.05	22.91	72.52	-141.54	-155.92	4,294.45	4,242.97	51.48	83.419
10,700.00	6,948.09	6,400.00	6,395.75	68.47	22.91	72.52	-141.54	-155.92	4,384.94	4,333.37	51.57	85.027
10,800.00	6,948.03	6,400.00	6,395.75	69.89	22.91	72.52	-141.54	-155.92	4,475.84	4,424.18	51.66	86.640
10,900.00	6,947.97	6,400.00	6,395.75	71.32	22.91	72.52	-141.54	-155.92	4,567.13	4,515.38	51.75	88.259
11,000.00	6,947.91	6,400.00	6,395.75	72.76	22.91	72.52	-141.54	-155.92	4,658.76	4,606.93	51.83	89.882
11,100.00	6,947.85	6,400.00	6,395.75	74.21	22.91	72.52	-141.54	-155.92	4,750.74	4,698.83	51.92	91.508
11,200.00	6,947.79	6,400.00	6,395.75	75.66	22.91	72.52	-141.54	-155.92	4,843.04	4,791.04	52.00	93.139
11,300.00	6,947.73	6,400.00	6,395.75	77.12	22.91	72.52	-141.54	-155.92	4,935.63	4,883.55	52.08	94.772
11,400.00	6,947.66	6,400.00	6,395.75	78.58	22.91	72.52	-141.54	-155.92	5,028.51	4,976.35	52.16	96.409
11,500.00	6,947.60	6,400.00	6,395.75	80.05	22.91	72.52	-141.54	-155.92	5,121.66	5,069.42	52.24	98.047
11,600.00	6,947.54	6,400.00	6,395.75	81.52	22.91	72.52	-141.54	-155.92	5,215.06	5,162.74	52.31	99.688
11,700.00	6,947.48	6,400.00	6,395.75	83.00	22.91	72.52	-141.54	-155.92	5,308.70	5,256.31	52.39	101.330
11,800.00	6,947.42	6,400.00	6,395.75	84.48	22.91	72.52	-141.54	-155.92	5,402.57	5,350.10	52.47	102.973
11,900.00	6,947.36	6,400.00	6,395.75	85.97	22.91	72.52	-141.54	-155.92	5,496.65	5,444.11	52.54	104.617
12,000.00	6,947.30	6,400.00	6,395.75	87.46	22.91	72.52	-141.54	-155.92	5,590.94	5,538.33	52.61	106.262
12,100.00	6,947.24	6,400.00	6,395.75	88.96	22.91	72.52	-141.54	-155.92	5,685.43	5,632.74	52.69	107.907
12,200.00	6,947.18	6,400.00	6,395.75	90.46	22.91	72.52	-141.54	-155.92	5,780.10	5,727.34	52.76	109.553
12,300.00	6,947.12	6,400.00	6,395.75	91.96	22.91	72.52	-141.54	-155.92	5,874.95	5,822.11	52.83	111.198
12,400.00	6,947.06	6,400.00	6,395.75	93.47	22.91	72.52	-141.54	-155.92	5,969.96	5,917.06	52.91	112.843
12,500.00	6,947.00	6,377.34	6,373.23	94.97	22.83	71.85	-140.93	-153.47	6,064.71	6,011.83	52.88	114.696
12,600.00	6,946.94	6,376.46	6,372.35	96.49	22.83	71.82	-140.90	-153.39	6,160.00	6,107.06	52.94	116.348
12,700.00	6,946.88	6,375.60	6,371.50	98.00	22.83	71.79	-140.88	-153.31	6,255.45	6,202.43	53.01	117.999
12,800.00	6,946.82	6,374.77	6,370.67	99.52	22.82	71.77	-140.86	-153.24	6,351.03	6,297.94	53.08	119.649
12,900.00	6,946.76	6,373.97	6,369.87	101.04	22.82	71.75	-140.84	-153.17	6,446.74	6,393.59	53.15	121.297
13,000.00	6,946.70	6,373.18	6,369.09	102.56	22.82	71.72	-140.81	-153.11	6,542.58	6,489.36	53.22	122.944
13,100.00	6,946.64	6,350.00	6,345.97	104.09	22.73	71.04	-140.18	-151.58	6,638.96	6,585.77	53.19	124.819
13,200.00	6,946.58	6,350.00	6,345.97	105.61	22.73	71.04	-140.18	-151.58	6,735.01	6,681.75	53.26	126.455
13,300.00	6,946.52	6,350.00	6,345.97	107.14	22.73	71.04	-140.18	-151.58	6,831.17	6,777.84	53.33	128.088
13,400.00	6,946.46	6,350.00	6,345.97	108.67	22.73	71.04	-140.18	-151.58	6,927.45	6,874.04	53.40	129.720
13,500.00	6,946.40	6,350.00	6,345.97	110.21	22.73	71.04	-140.18	-151.58	7,023.82	6,970.35	53.47	131.349
13,600.00	6,946.34	6,350.00	6,345.97	111.74	22.73	71.04	-140.18	-151.58	7,120.30	7,066.76	53.55	132.976
13,700.00	6,946.28	6,350.00	6,345.97	113.28	22.73	71.04	-140.18	-151.58	7,216.87	7,163.26	53.62	134.600
13,800.00	6,946.22	6,350.00	6,345.97	114.82	22.73	71.04	-140.18	-151.58	7,313.54	7,259.85	53.69	136.222
13,900.00	6,946.16	6,350.00	6,345.97	116.36	22.73	71.04	-140.18	-151.58	7,410.29	7,356.53	53.76	137.840
14,000.00	6,946.10	6,350.00	6,345.97	117.90	22.73	71.04	-140.18	-151.58	7,507.13	7,453.30	53.83	139.456
14,100.00	6,946.04	6,350.00	6,345.97	119.45	22.73	71.04	-140.18	-151.58	7,604.05	7,550.15	53.90	141.069

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #714H - OH - Prelim 1												Offset Site Error: 0.00 usft					
Survey Program:		0-MWD+HRGM+MS		Reference		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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning				
14,200.00	6,945.98	6,350.00	6,345.97	120.99	22.73	71.04	-140.18	-151.58	7,701.05	7,647.08	53.97	142.679					
14,300.00	6,945.92	6,350.00	6,345.97	122.54	22.73	71.04	-140.18	-151.58	7,798.13	7,744.08	54.05	144.285					
14,400.00	6,945.86	6,350.00	6,345.97	124.09	22.73	71.04	-140.18	-151.58	7,895.27	7,841.16	54.12	145.888					
14,500.00	6,945.80	6,350.00	6,345.97	125.64	22.73	71.04	-140.18	-151.58	7,992.49	7,938.30	54.19	147.488					
14,600.00	6,945.74	6,350.00	6,345.97	127.19	22.73	71.04	-140.18	-151.58	8,089.78	8,035.52	54.26	149.084					
14,700.00	6,945.68	6,350.00	6,345.97	128.74	22.73	71.04	-140.18	-151.58	8,187.13	8,132.80	54.34	150.677					
14,800.00	6,945.62	6,350.00	6,345.97	130.30	22.73	71.04	-140.18	-151.58	8,284.55	8,230.14	54.41	152.265					
14,900.00	6,945.56	6,350.00	6,345.97	131.85	22.73	71.04	-140.18	-151.58	8,382.02	8,327.54	54.48	153.850					
15,000.00	6,945.50	6,350.00	6,345.97	133.41	22.73	71.04	-140.18	-151.58	8,479.56	8,425.00	54.55	155.432					
15,100.00	6,945.44	6,350.00	6,345.97	134.96	22.73	71.04	-140.18	-151.58	8,577.15	8,522.52	54.63	157.009					
15,200.00	6,945.38	6,350.00	6,345.97	136.52	22.73	71.04	-140.18	-151.58	8,674.79	8,620.09	54.70	158.582					
15,300.00	6,945.32	6,350.00	6,345.97	138.08	22.73	71.04	-140.18	-151.58	8,772.49	8,717.72	54.78	160.152					
15,400.00	6,945.26	6,350.00	6,345.97	139.64	22.73	71.04	-140.18	-151.58	8,870.24	8,815.39	54.85	161.717					
15,500.00	6,945.20	6,350.00	6,345.97	141.20	22.73	71.04	-140.18	-151.58	8,968.04	8,913.12	54.93	163.278					
15,600.00	6,945.14	6,350.00	6,345.97	142.76	22.73	71.04	-140.18	-151.58	9,065.89	9,010.89	55.00	164.834					
15,700.00	6,945.08	6,350.00	6,345.97	144.33	22.73	71.04	-140.18	-151.58	9,163.78	9,108.71	55.08	166.387					
15,800.00	6,945.02	6,350.00	6,345.97	145.89	22.73	71.04	-140.18	-151.58	9,261.72	9,206.57	55.15	167.935					
15,900.00	6,944.96	6,350.00	6,345.97	147.46	22.73	71.04	-140.18	-151.58	9,359.71	9,304.48	55.23	169.478					
16,000.00	6,944.90	6,350.00	6,345.97	149.02	22.73	71.04	-140.18	-151.58	9,457.73	9,402.43	55.30	171.018					
16,100.00	6,944.84	6,350.00	6,345.97	150.59	22.73	71.04	-140.18	-151.58	9,555.80	9,500.42	55.38	172.552					
16,200.00	6,944.77	6,350.00	6,345.97	152.15	22.73	71.04	-140.18	-151.58	9,653.90	9,598.45	55.46	174.082					
16,300.00	6,944.71	6,350.00	6,345.97	153.72	22.73	71.04	-140.18	-151.58	9,752.05	9,696.52	55.53	175.608					
16,400.00	6,944.65	6,350.00	6,345.97	155.29	22.73	71.04	-140.18	-151.58	9,850.23	9,794.62	55.61	177.129					
16,500.00	6,944.59	6,350.00	6,345.97	156.86	22.73	71.04	-140.18	-151.58	9,948.45	9,892.76	55.69	178.645					
16,600.00	6,944.53	6,350.00	6,345.97	158.43	22.73	71.04	-140.18	-151.58	10,046.70	9,990.93	55.77	180.156					
16,700.00	6,944.47	6,350.00	6,345.97	160.00	22.73	71.04	-140.18	-151.58	10,144.99	10,089.14	55.85	181.663					
16,800.00	6,944.41	6,350.00	6,345.97	161.57	22.73	71.04	-140.18	-151.58	10,243.31	10,187.38	55.92	183.164					
16,900.00	6,944.35	6,350.00	6,345.97	163.14	22.73	71.04	-140.18	-151.58	10,341.66	10,285.66	56.00	184.661					
17,000.00	6,944.29	6,350.00	6,345.97	164.71	22.73	71.04	-140.18	-151.58	10,440.04	10,383.96	56.08	186.154					
17,100.00	6,944.23	6,350.00	6,345.97	166.29	22.73	71.04	-140.18	-151.58	10,538.46	10,482.30	56.16	187.641					
17,200.00	6,944.17	6,350.00	6,345.97	167.86	22.73	71.04	-140.18	-151.58	10,636.90	10,580.66	56.24	189.123					
17,300.00	6,944.11	6,350.00	6,345.97	169.43	22.73	71.04	-140.18	-151.58	10,735.38	10,679.05	56.32	190.600					
17,400.00	6,944.05	6,350.00	6,345.97	171.01	22.73	71.04	-140.18	-151.58	10,833.88	10,777.47	56.41	192.073					
17,500.00	6,943.99	6,350.00	6,345.97	172.58	22.73	71.04	-140.18	-151.58	10,932.40	10,875.92	56.49	193.540					
17,600.00	6,943.93	6,350.00	6,345.97	174.16	22.73	71.04	-140.18	-151.58	11,030.96	10,974.39	56.57	195.002					
17,700.00	6,943.87	6,350.00	6,345.97	175.73	22.73	71.04	-140.18	-151.58	11,129.54	11,072.89	56.65	196.459					
17,800.00	6,943.81	6,350.00	6,345.97	177.31	22.73	71.04	-140.18	-151.58	11,228.14	11,171.41	56.73	197.911					
17,900.00	6,943.75	6,350.00	6,345.97	178.89	22.73	71.04	-140.18	-151.58	11,326.77	11,269.96	56.82	199.358					
18,000.00	6,943.69	6,350.00	6,345.97	180.46	22.73	71.04	-140.18	-151.58	11,425.43	11,368.53	56.90	200.800					
18,100.00	6,943.63	6,350.00	6,345.97	182.04	22.73	71.04	-140.18	-151.58	11,524.10	11,467.12	56.98	202.237					
18,200.00	6,943.57	6,350.00	6,345.97	183.62	22.73	71.04	-140.18	-151.58	11,622.80	11,565.74	57.07	203.669					
18,300.00	6,943.51	6,350.00	6,345.97	185.20	22.73	71.04	-140.18	-151.58	11,721.52	11,664.37	57.15	205.095					
18,400.00	6,943.45	6,350.00	6,345.97	186.78	22.73	71.04	-140.18	-151.58	11,820.27	11,763.03	57.24	206.516					
18,500.00	6,943.39	6,350.00	6,345.97	188.36	22.73	71.04	-140.18	-151.58	11,919.03	11,861.71	57.32	207.932					
18,600.00	6,943.33	6,350.00	6,345.97	189.94	22.73	71.04	-140.18	-151.58	12,017.81	11,960.41	57.41	209.343					
18,700.00	6,943.27	6,350.00	6,345.97	191.52	22.73	71.04	-140.18	-151.58	12,116.62	12,059.13	57.49	210.748					
18,800.00	6,943.21	6,350.00	6,345.97	193.10	22.73	71.04	-140.18	-151.58	12,215.44	12,157.86	57.58	212.148					
18,900.00	6,943.15	6,350.00	6,345.97	194.68	22.73	71.04	-140.18	-151.58	12,314.29	12,256.62	57.67	213.543					
19,000.00	6,943.09	6,350.00	6,345.97	196.26	22.73	71.04	-140.18	-151.58	12,413.15	12,355.39	57.75	214.933					
19,100.00	6,943.03	6,350.00	6,345.97	197.84	22.73	71.04	-140.18	-151.58	12,512.03	12,454.18	57.84	216.318					
19,200.00	6,942.97	6,350.00	6,345.97	199.42	22.73	71.04	-140.18	-151.58	12,610.92	12,552.99	57.93	217.697					
19,300.00	6,942.91	6,350.00	6,345.97	201.01	22.73	71.04	-140.18	-151.58	12,709.84	12,651.82	58.02	219.071					

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #714H - OH - Prelim 1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												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
19,400.00	6,942.85	6,350.00	6,345.97	202.59	22.73	71.04	-140.18	-151.58	12,808.77	12,750.66		58.11	220.439
19,500.00	6,942.79	6,350.00	6,345.97	204.17	22.73	71.04	-140.18	-151.58	12,907.72	12,849.52		58.19	221.802
19,600.00	6,942.73	6,350.00	6,345.97	205.75	22.73	71.04	-140.18	-151.58	13,006.68	12,948.40		58.28	223.160
19,700.00	6,942.67	6,350.00	6,345.97	207.34	22.73	71.04	-140.18	-151.58	13,105.66	13,047.28		58.37	224.513
19,800.00	6,942.61	6,350.00	6,345.97	208.92	22.73	71.04	-140.18	-151.58	13,204.65	13,146.19		58.46	225.860
19,900.00	6,942.55	6,350.00	6,345.97	210.51	22.73	71.04	-140.18	-151.58	13,303.66	13,245.11		58.55	227.202
20,000.00	6,942.49	6,350.00	6,345.97	212.09	22.73	71.04	-140.18	-151.58	13,402.69	13,344.04		58.65	228.539
20,100.00	6,942.43	6,350.00	6,345.97	213.68	22.73	71.04	-140.18	-151.58	13,501.73	13,442.99		58.74	229.870
20,200.00	6,942.37	6,350.00	6,345.97	215.26	22.73	71.04	-140.18	-151.58	13,600.78	13,541.95		58.83	231.197
20,300.00	6,942.31	6,350.00	6,345.97	216.85	22.73	71.04	-140.18	-151.58	13,699.85	13,640.93		58.92	232.517
20,400.00	6,942.25	6,350.00	6,345.97	218.43	22.73	71.04	-140.18	-151.58	13,798.93	13,739.91		59.01	233.833
20,500.00	6,942.19	6,350.00	6,345.97	220.02	22.73	71.04	-140.18	-151.58	13,898.02	13,838.92		59.10	235.143
20,600.00	6,942.13	6,350.00	6,345.97	221.60	22.73	71.04	-140.18	-151.58	13,997.13	13,937.93		59.20	236.447
20,700.00	6,942.07	6,350.00	6,345.97	223.19	22.73	71.04	-140.18	-151.58	14,096.24	14,036.95		59.29	237.747
20,808.89	6,942.00	6,350.00	6,345.97	224.92	22.73	71.04	-140.18	-151.58	14,204.18	14,144.79		59.39	239.156

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design:		Rosa Pad 26 - 5 Well - Rosa Unit #722H - OH - Prelim #1											Offset Site Error:		0.00 usft	
Survey Program:		0-MWD+HRGM+MS								Rule Assigned:				Offset Well Error:		0.00 usft
Measured Depth	Reference	Measured Depth	Offset	Reference	Semi Major Axis	Highside	Offset Wellbore Centre		Distance		Minimum	Separation	Warning			
Depth (usft)	Depth (usft)	Depth (usft)	Depth (usft)	(usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor				
0.00	0.00	0.00	0.00	0.00	0.00	164.75	-19.29	5.26	20.00							
100.00	100.00	100.00	100.00	0.25	0.25	164.75	-19.29	5.26	20.00	19.50	0.50	39.849				
200.00	200.00	200.00	200.00	0.61	0.61	164.75	-19.29	5.26	20.00	18.78	1.22	16.409				
300.00	300.00	300.00	300.00	0.97	0.97	164.75	-19.29	5.26	20.00	18.06	1.94	10.331				
400.00	400.00	400.00	400.00	1.33	1.33	164.75	-19.29	5.26	20.00	17.35	2.65	7.539				
500.00	500.00	500.00	500.00	1.68	1.68	164.75	-19.29	5.26	20.00	16.63	3.37	5.935	CC, ES			
600.00	599.98	600.21	600.21	2.04	2.04	163.67	-18.30	5.45	20.76	16.68	4.09	5.080				
700.00	699.84	700.13	700.11	2.41	2.40	165.83	-17.10	5.67	24.71	19.90	4.81	5.141				
800.00	799.45	799.84	799.82	2.77	2.76	168.74	-15.90	5.90	32.08	26.56	5.53	5.806				
900.00	898.70	899.23	899.20	3.13	3.12	171.31	-14.71	6.12	42.95	36.70	6.25	6.875				
1,000.00	997.47	998.17	998.14	3.50	3.47	173.26	-13.52	6.35	57.30	50.33	6.97	8.224				
1,100.00	1,095.62	1,096.55	1,096.51	3.89	3.82	174.68	-12.34	6.57	75.12	67.43	7.69	9.771				
1,200.00	1,193.06	1,194.25	1,194.20	4.30	4.17	175.70	-11.17	6.79	96.38	87.97	8.41	11.463				
1,245.21	1,236.83	1,238.16	1,238.11	4.48	4.33	176.07	-10.64	6.89	107.12	98.38	8.74	12.261				
1,300.00	1,289.78	1,291.27	1,291.22	4.72	4.52	176.46	-10.00	7.01	120.55	111.42	9.13	13.207				
1,400.00	1,386.42	1,388.21	1,388.15	5.15	4.87	176.98	-8.84	7.23	145.08	135.23	9.84	14.740				
1,500.00	1,483.05	1,485.15	1,485.08	5.59	5.22	177.35	-7.68	7.45	169.61	159.05	10.56	16.062				
1,600.00	1,579.69	1,582.09	1,582.01	6.04	5.56	177.62	-6.51	7.67	194.15	182.87	11.28	17.211				
1,700.00	1,676.32	1,679.03	1,678.94	6.49	5.91	177.84	-5.35	7.89	218.69	206.69	12.00	18.220				
1,800.00	1,772.96	1,775.97	1,775.87	6.94	6.26	178.01	-4.18	8.11	243.24	230.51	12.73	19.111				
1,900.00	1,869.60	1,872.91	1,872.80	7.40	6.61	178.15	-3.02	8.33	267.79	254.33	13.45	19.904				
2,000.00	1,966.23	1,969.84	1,969.74	7.86	6.95	178.26	-1.86	8.55	292.33	278.15	14.18	20.613				
2,100.00	2,062.87	2,066.78	2,066.67	8.33	7.30	178.36	-0.69	8.77	316.88	301.97	14.91	21.252				
2,200.00	2,159.50	2,163.72	2,163.60	8.79	7.65	178.45	0.47	8.99	341.43	325.79	15.64	21.831				
2,300.00	2,256.14	2,260.66	2,260.53	9.26	8.00	178.52	1.64	9.20	365.98	349.61	16.37	22.356				
2,400.00	2,352.77	2,357.60	2,357.46	9.73	8.34	178.58	2.80	9.42	390.54	373.43	17.10	22.836				
2,500.00	2,449.41	2,454.54	2,454.39	10.20	8.69	178.64	3.96	9.64	415.09	397.25	17.83	23.275				
2,600.00	2,546.05	2,551.47	2,551.32	10.67	9.04	178.69	5.13	9.86	439.64	421.07	18.57	23.679				
2,700.00	2,642.68	2,648.41	2,648.25	11.14	9.39	178.73	6.29	10.08	464.19	444.89	19.30	24.052				
2,800.00	2,739.32	2,745.35	2,745.19	11.61	9.73	178.77	7.45	10.30	488.74	468.71	20.03	24.397				
2,900.00	2,835.95	2,842.29	2,842.12	12.08	10.08	178.81	8.62	10.52	513.30	492.53	20.77	24.717				
3,000.00	2,932.59	2,939.23	2,939.05	12.55	10.43	178.84	9.78	10.74	537.85	516.35	21.50	25.014				
3,100.00	3,029.22	3,036.17	3,035.98	13.03	10.78	178.87	10.95	10.96	562.40	540.17	22.24	25.292				
3,200.00	3,125.86	3,133.11	3,132.91	13.50	11.12	178.90	12.11	11.18	586.96	563.98	22.97	25.552				
3,300.00	3,222.50	3,230.04	3,229.84	13.97	11.47	178.93	13.27	11.40	611.51	587.80	23.71	25.795				
3,400.00	3,319.13	3,326.98	3,326.77	14.45	11.82	178.95	14.44	11.62	636.06	611.62	24.44	26.023				
3,500.00	3,415.77	3,423.92	3,423.70	14.92	12.17	178.97	15.60	11.84	660.62	635.44	25.18	26.238				
3,600.00	3,512.40	3,520.86	3,520.64	15.40	12.51	178.99	16.77	12.06	685.17	659.26	25.91	26.440				
3,700.00	3,609.04	3,617.80	3,617.57	15.88	12.86	179.01	17.93	12.27	709.72	683.07	26.65	26.631				
3,800.00	3,705.67	3,714.74	3,714.50	16.35	13.21	179.03	19.09	12.49	734.28	706.89	27.39	26.811				
3,900.00	3,802.31	3,811.68	3,811.43	16.83	13.56	179.04	20.26	12.71	758.83	730.71	28.12	26.982				
4,000.00	3,898.95	3,908.61	3,908.36	17.30	13.90	179.06	21.42	12.93	783.38	754.52	28.86	27.144				
4,100.00	3,995.58	4,005.55	4,005.29	17.78	14.25	179.07	22.59	13.15	807.94	778.34	29.60	27.298				
4,200.00	4,092.22	4,102.49	4,102.22	18.26	14.60	179.09	23.75	13.37	832.49	802.16	30.33	27.444				
4,300.00	4,188.85	4,199.43	4,199.15	18.73	14.95	179.10	24.91	13.59	857.05	825.97	31.07	27.583				
4,400.00	4,285.49	4,296.37	4,296.09	19.21	15.29	179.11	26.08	13.81	881.60	849.79	31.81	27.715				
4,500.00	4,382.12	4,393.31	4,393.02	19.69	15.64	179.12	27.24	14.03	906.15	873.61	32.55	27.842				
4,600.00	4,478.76	4,490.24	4,489.95	20.17	15.99	179.13	28.41	14.25	930.71	897.42	33.28	27.962				
4,700.00	4,575.40	4,587.18	4,586.88	20.64	16.34	179.14	29.57	14.47	955.26	921.24	34.02	28.078				
4,800.00	4,672.03	4,684.12	4,683.81	21.12	16.69	179.15	30.73	14.69	979.82	945.06	34.76	28.188				
4,900.00	4,768.67	4,781.06	4,780.74	21.60	17.03	179.16	31.90	14.91	1,004.37	968.87	35.50	28.294				
5,000.00	4,865.30	4,878.00	4,877.67	22.08	17.38	179.17	33.06	15.13	1,028.92	992.69	36.24	28.395				

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #722H - OH - Prelim #1													Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+HRGM+MS		Offset		Semi Major Axis		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)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
5,100.00	4,961.94	4,974.94	4,974.61	22.55	17.73	179.18	34.22	15.35	1,053.48	1,016.50	36.97	28.492			
5,200.00	5,058.57	5,071.88	5,071.54	23.03	18.08	179.19	35.39	15.56	1,078.03	1,040.32	37.71	28.585			
5,300.00	5,155.21	5,168.81	5,168.47	23.51	18.42	179.20	36.55	15.78	1,102.59	1,064.13	38.45	28.675			
5,400.00	5,251.85	5,265.75	5,265.40	23.99	18.77	179.20	37.72	16.00	1,127.14	1,087.95	39.19	28.761			
5,500.00	5,348.48	5,362.69	5,362.33	24.47	19.12	179.21	38.88	16.22	1,151.69	1,111.76	39.93	28.844			
5,600.00	5,445.12	5,459.63	5,459.26	24.94	19.47	179.22	40.04	16.44	1,176.25	1,135.58	40.67	28.923			
5,700.00	5,541.75	5,556.57	5,556.19	25.42	19.81	179.22	41.21	16.66	1,200.80	1,159.40	41.41	29.000			
5,800.00	5,638.39	5,653.51	5,653.12	25.90	20.16	179.23	42.37	16.88	1,225.36	1,183.21	42.15	29.074			
5,900.00	5,735.02	5,750.45	5,750.06	26.38	20.51	179.24	43.54	17.10	1,249.91	1,207.03	42.89	29.146			
6,000.00	5,831.66	5,847.38	5,846.99	26.86	20.86	179.24	44.70	17.32	1,274.47	1,230.84	43.62	29.215			
6,100.00	5,928.30	5,944.32	5,943.92	27.34	21.20	179.25	45.86	17.54	1,299.02	1,254.66	44.36	29.281			
6,200.00	6,024.93	6,041.26	6,040.85	27.82	21.55	179.25	47.03	17.76	1,323.57	1,278.47	45.10	29.346			
6,300.00	6,121.57	6,138.20	6,137.78	28.29	21.90	179.26	48.19	17.98	1,348.13	1,302.29	45.84	29.408			
6,400.00	6,218.20	6,235.14	6,234.71	28.77	22.25	179.26	49.36	18.20	1,372.68	1,326.10	46.58	29.468			
6,500.00	6,314.84	6,331.23	6,330.80	29.25	22.59	179.26	50.50	18.62	1,397.24	1,349.93	47.32	29.530			
6,521.58	6,335.69	6,350.00	6,349.55	29.36	22.66	179.23	50.70	19.41	1,402.56	1,355.10	47.46	29.553			
6,550.00	6,363.15	6,377.15	6,376.60	29.49	22.75	169.01	50.96	21.54	1,409.58	1,361.92	47.66	29.574			
6,600.00	6,411.28	6,422.88	6,421.90	29.73	22.91	152.56	51.31	27.72	1,421.94	1,373.94	48.01	29.619			
6,650.00	6,458.93	6,468.49	6,466.53	29.96	23.07	139.22	51.54	37.11	1,434.24	1,385.89	48.35	29.664			
6,700.00	6,505.83	6,514.02	6,510.29	30.19	23.23	128.97	51.66	49.64	1,446.40	1,397.71	48.69	29.706			
6,750.00	6,551.67	6,559.52	6,553.02	30.42	23.38	121.14	51.67	65.26	1,458.34	1,409.31	49.03	29.745			
6,800.00	6,596.17	6,605.03	6,594.53	30.64	23.54	115.06	51.56	83.88	1,469.98	1,420.62	49.36	29.778			
6,850.00	6,639.06	6,650.00	6,634.14	30.85	23.70	110.25	51.35	105.16	1,481.27	1,431.58	49.70	29.806			
6,900.00	6,680.07	6,696.22	6,673.19	31.05	23.87	106.36	51.01	129.87	1,492.13	1,442.09	50.04	29.819			
6,950.00	6,718.96	6,741.98	6,709.97	31.24	24.03	103.17	50.57	157.07	1,502.49	1,452.11	50.38	29.822			
7,000.00	6,755.47	6,787.89	6,744.82	31.43	24.20	100.51	50.02	186.93	1,512.29	1,461.56	50.73	29.811			
7,050.00	6,789.40	6,833.97	6,777.54	31.61	24.37	98.27	49.35	219.36	1,521.47	1,470.38	51.09	29.782			
7,100.00	6,820.52	6,880.25	6,807.96	31.79	24.56	96.40	48.59	254.21	1,529.98	1,478.52	51.46	29.733			
7,150.00	6,848.64	6,926.75	6,835.89	31.97	24.75	94.82	47.71	291.36	1,537.76	1,485.92	51.84	29.664			
7,200.00	6,873.60	6,973.48	6,861.16	32.14	24.95	93.51	46.74	330.65	1,544.78	1,492.54	52.24	29.571			
7,250.00	6,895.24	7,020.45	6,883.58	32.31	25.15	92.43	45.66	371.90	1,550.98	1,498.32	52.66	29.453			
7,300.00	6,913.42	7,067.67	6,902.99	32.49	25.38	91.56	44.49	414.92	1,556.33	1,503.23	53.10	29.309			
7,350.00	6,928.03	7,115.14	6,919.24	32.67	25.61	90.89	43.24	459.49	1,560.79	1,507.23	53.56	29.140			
7,400.00	6,938.98	7,162.86	6,932.18	32.86	25.85	90.40	41.90	505.40	1,564.35	1,510.31	54.05	28.945			
7,450.00	6,946.22	7,210.83	6,941.68	33.06	26.11	90.10	40.48	552.38	1,566.98	1,512.43	54.55	28.725			
7,500.00	6,949.68	7,259.03	6,947.64	33.26	26.37	89.97	38.99	600.17	1,568.67	1,513.59	55.08	28.482			
7,521.05	6,950.00	7,279.39	6,949.07	33.35	26.49	89.97	38.35	620.47	1,569.09	1,513.79	55.30	28.373			
7,600.00	6,949.95	7,357.25	6,949.96	33.72	26.95	90.00	35.82	698.27	1,570.40	1,514.20	56.20	27.942			
7,700.00	6,949.89	7,457.23	6,949.87	34.24	27.61	90.00	32.56	798.21	1,572.08	1,514.60	57.48	27.350			
7,800.00	6,949.83	7,557.22	6,949.78	34.84	28.34	90.00	29.30	898.14	1,573.75	1,514.85	58.90	26.717			
7,900.00	6,949.77	7,657.21	6,949.69	35.50	29.14	90.00	26.04	998.07	1,575.43	1,514.97	60.46	26.056			
8,000.00	6,949.71	7,757.19	6,949.60	36.23	30.00	90.00	22.78	1,098.00	1,577.11	1,514.96	62.15	25.376			
8,100.00	6,949.65	7,857.18	6,949.51	37.02	30.93	89.99	19.52	1,197.94	1,578.78	1,514.83	63.95	24.687			
8,200.00	6,949.59	7,957.16	6,949.42	37.85	31.90	89.99	16.26	1,297.87	1,580.46	1,514.60	65.86	23.996			
8,300.00	6,949.53	8,057.15	6,949.33	38.74	32.93	89.99	13.00	1,397.80	1,582.14	1,514.27	67.87	23.311			
8,400.00	6,949.47	8,157.14	6,949.24	39.68	34.00	89.99	9.74	1,497.74	1,583.81	1,513.85	69.97	22.637			
8,500.00	6,949.41	8,257.12	6,949.15	40.66	35.11	89.99	6.48	1,597.67	1,585.49	1,513.34	72.14	21.977			
8,600.00	6,949.35	8,357.11	6,949.06	41.67	36.26	89.99	3.22	1,697.60	1,587.17	1,512.77	74.40	21.334			
8,700.00	6,949.29	8,457.09	6,948.97	42.73	37.44	89.99	-0.04	1,797.53	1,588.84	1,512.12	76.72	20.710			
8,800.00	6,949.23	8,557.08	6,948.88	43.82	38.65	89.99	-3.29	1,897.47	1,590.52	1,511.42	79.10	20.108			
8,900.00	6,949.17	8,657.07	6,948.79	44.94	39.89	89.99	-6.55	1,997.40	1,592.19	1,510.66	81.54	19.527			
9,000.00	6,949.11	8,757.05	6,948.70	46.09	41.16	89.98	-9.81	2,097.33	1,593.87	1,509.84	84.03	18.968			

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #722H - OH - Prelim #1													Offset Site Error:	0.00 usft
Survey Program:		0-MWD+HRGM+MS				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	
9,100.00	6,949.05	8,857.04	6,948.61	47.26	42.45	89.98	-13.07	2,197.27	1,595.55	1,508.98	86.57	18.432		
9,200.00	6,948.99	8,957.02	6,948.52	48.46	43.76	89.98	-16.33	2,297.20	1,597.22	1,508.08	89.15	17.917		
9,300.00	6,948.93	9,057.01	6,948.43	49.68	45.08	89.98	-19.59	2,397.13	1,598.90	1,507.13	91.76	17.424		
9,400.00	6,948.87	9,157.00	6,948.34	50.93	46.43	89.98	-22.85	2,497.06	1,600.58	1,506.16	94.42	16.952		
9,500.00	6,948.81	9,256.98	6,948.25	52.19	47.79	89.98	-26.11	2,597.00	1,602.25	1,505.14	97.11	16.499		
9,600.00	6,948.75	9,356.97	6,948.16	53.47	49.17	89.98	-29.37	2,696.93	1,603.93	1,504.10	99.83	16.067		
9,700.00	6,948.69	9,456.95	6,948.07	54.77	50.56	89.98	-32.63	2,796.86	1,605.61	1,503.03	102.58	15.653		
9,800.00	6,948.63	9,556.94	6,947.98	56.08	51.96	89.98	-35.89	2,896.79	1,607.28	1,501.93	105.35	15.257		
9,900.00	6,948.57	9,656.93	6,947.89	57.41	53.37	89.98	-39.15	2,996.73	1,608.96	1,500.81	108.15	14.877		
10,000.00	6,948.51	9,756.91	6,947.80	58.76	54.79	89.97	-42.41	3,096.66	1,610.63	1,499.67	110.97	14.515		
10,100.00	6,948.45	9,856.90	6,947.71	60.11	56.23	89.97	-45.67	3,196.59	1,612.31	1,498.50	113.81	14.167		
10,200.00	6,948.39	9,956.88	6,947.62	61.48	57.67	89.97	-48.93	3,296.53	1,613.99	1,497.32	116.66	13.834		
10,300.00	6,948.33	10,056.87	6,947.53	62.86	59.12	89.97	-52.19	3,396.46	1,615.66	1,496.12	119.54	13.516		
10,400.00	6,948.27	10,156.86	6,947.44	64.24	60.58	89.97	-55.45	3,496.39	1,617.34	1,494.91	122.43	13.210		
10,500.00	6,948.21	10,256.84	6,947.35	65.64	62.04	89.97	-58.71	3,596.32	1,619.02	1,493.67	125.34	12.917		
10,600.00	6,948.15	10,356.83	6,947.26	67.05	63.51	89.97	-61.97	3,696.26	1,620.69	1,492.43	128.26	12.636		
10,700.00	6,948.09	10,456.81	6,947.17	68.47	64.99	89.97	-65.23	3,796.19	1,622.37	1,491.17	131.20	12.366		
10,800.00	6,948.03	10,556.80	6,947.08	69.89	66.48	89.97	-68.49	3,896.12	1,624.05	1,489.90	134.15	12.106		
10,900.00	6,947.97	10,656.79	6,946.99	71.32	67.97	89.96	-71.75	3,996.05	1,625.72	1,488.62	137.11	11.857		
11,000.00	6,947.91	10,756.77	6,946.90	72.76	69.46	89.96	-75.01	4,095.99	1,627.40	1,487.32	140.08	11.618		
11,100.00	6,947.85	10,856.76	6,946.81	74.21	70.96	89.96	-78.27	4,195.92	1,629.07	1,486.02	143.06	11.388		
11,200.00	6,947.79	10,956.74	6,946.72	75.66	72.46	89.96	-81.53	4,295.85	1,630.75	1,484.71	146.05	11.166		
11,300.00	6,947.73	11,056.73	6,946.63	77.12	73.97	89.96	-84.79	4,395.79	1,632.43	1,483.38	149.04	10.953		
11,400.00	6,947.66	11,156.71	6,946.54	78.58	75.48	89.96	-88.05	4,495.72	1,634.10	1,482.05	152.05	10.747		
11,500.00	6,947.60	11,256.70	6,946.45	80.05	77.00	89.96	-91.31	4,595.65	1,635.78	1,480.71	155.07	10.549		
11,600.00	6,947.54	11,356.69	6,946.36	81.52	78.52	89.96	-94.57	4,695.58	1,637.46	1,479.37	158.09	10.358		
11,700.00	6,947.48	11,456.67	6,946.27	83.00	80.04	89.96	-97.83	4,795.52	1,639.13	1,478.01	161.12	10.173		
11,800.00	6,947.42	11,556.66	6,946.18	84.48	81.56	89.96	-101.08	4,895.45	1,640.81	1,476.65	164.16	9.995		
11,900.00	6,947.36	11,656.64	6,946.09	85.97	83.09	89.95	-104.34	4,995.38	1,642.49	1,475.29	167.20	9.824		
12,000.00	6,947.30	11,756.63	6,946.00	87.46	84.62	89.95	-107.60	5,095.32	1,644.16	1,473.92	170.25	9.658		
12,100.00	6,947.24	11,856.62	6,945.91	88.96	86.16	89.95	-110.86	5,195.25	1,645.84	1,472.54	173.30	9.497		
12,200.00	6,947.18	11,956.60	6,945.82	90.46	87.69	89.95	-114.12	5,295.18	1,647.51	1,471.15	176.36	9.342		
12,300.00	6,947.12	12,056.59	6,945.73	91.96	89.23	89.95	-117.38	5,395.11	1,649.19	1,469.77	179.43	9.191		
12,400.00	6,947.06	12,156.57	6,945.64	93.47	90.77	89.95	-120.64	5,495.05	1,650.87	1,468.37	182.50	9.046		
12,500.00	6,947.00	12,256.56	6,945.54	94.97	92.32	89.95	-123.90	5,594.98	1,652.54	1,466.97	185.57	8.905		
12,600.00	6,946.94	12,356.55	6,945.45	96.49	93.86	89.95	-127.16	5,694.91	1,654.22	1,465.57	188.65	8.769		
12,700.00	6,946.88	12,456.53	6,945.36	98.00	95.41	89.95	-130.42	5,794.84	1,655.90	1,464.17	191.73	8.637		
12,800.00	6,946.82	12,556.52	6,945.27	99.52	96.96	89.95	-133.68	5,894.78	1,657.57	1,462.76	194.82	8.508		
12,900.00	6,946.76	12,656.50	6,945.18	101.04	98.51	89.94	-136.94	5,994.71	1,659.25	1,461.34	197.91	8.384		
13,000.00	6,946.70	12,756.49	6,945.09	102.56	100.06	89.94	-140.20	6,094.64	1,660.93	1,459.92	201.00	8.263		
13,100.00	6,946.64	12,856.48	6,945.00	104.09	101.61	89.94	-143.46	6,194.58	1,662.60	1,458.50	204.10	8.146		
13,200.00	6,946.58	12,956.46	6,944.91	105.61	103.17	89.94	-146.72	6,294.51	1,664.28	1,457.08	207.20	8.032		
13,300.00	6,946.52	13,056.45	6,944.82	107.14	104.73	89.94	-149.98	6,394.44	1,665.96	1,455.65	210.30	7.922		
13,400.00	6,946.46	13,156.43	6,944.73	108.67	106.28	89.94	-153.24	6,494.37	1,667.63	1,454.22	213.41	7.814		
13,500.00	6,946.40	13,256.42	6,944.64	110.21	107.84	89.94	-156.50	6,594.31	1,669.31	1,452.79	216.52	7.710		
13,600.00	6,946.34	13,356.41	6,944.55	111.74	109.40	89.94	-159.76	6,694.24	1,670.98	1,451.35	219.63	7.608		
13,700.00	6,946.28	13,456.39	6,944.46	113.28	110.97	89.94	-163.02	6,794.17	1,672.66	1,449.91	222.75	7.509		
13,800.00	6,946.22	13,556.38	6,944.37	114.82	112.53	89.94	-166.28	6,894.10	1,674.34	1,448.47	225.87	7.413		
13,900.00	6,946.16	13,656.36	6,944.28	116.36	114.09	89.94	-169.54	6,994.04	1,676.01	1,447.03	228.99	7.319		
14,000.00	6,946.10	13,756.35	6,944.19	117.90	115.66	89.93	-172.80	7,093.97	1,677.69	1,445.58	232.11	7.228		
14,100.00	6,946.04	13,856.34	6,944.10	119.45	117.22	89.93	-176.06	7,193.90	1,679.37	1,444.13	235.23	7.139		
14,200.00	6,945.98	13,956.32	6,944.01	120.99	118.79	89.93	-179.32	7,293.84	1,681.04	1,442.68	238.36	7.052		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #722H - OH - Prelim #1												Offset Site Error:	0.00 usft	
Survey Program:		0-MWD+HRGM+MS				Rule Assigned:							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)	Minimum Separation (usft)			
14,300.00	6,945.92	14,056.31	6,943.92	122.54	120.36	89.93	-182.58	7,393.77	1,682.72	1,441.23	241.49	6.968		
14,400.00	6,945.86	14,156.29	6,943.83	124.09	121.93	89.93	-185.84	7,493.70	1,684.40	1,439.77	244.62	6.886		
14,500.00	6,945.80	14,256.28	6,943.74	125.64	123.50	89.93	-189.10	7,593.63	1,686.07	1,438.32	247.75	6.805		
14,600.00	6,945.74	14,356.27	6,943.65	127.19	125.07	89.93	-192.36	7,693.57	1,687.75	1,436.86	250.89	6.727		
14,700.00	6,945.68	14,456.25	6,943.56	128.74	126.64	89.93	-195.62	7,793.50	1,689.42	1,435.40	254.03	6.651		
14,800.00	6,945.62	14,556.24	6,943.47	130.30	128.21	89.93	-198.87	7,893.43	1,691.10	1,433.94	257.16	6.576		
14,900.00	6,945.56	14,656.22	6,943.38	131.85	129.79	89.93	-202.13	7,993.37	1,692.78	1,432.47	260.30	6.503		
15,000.00	6,945.50	14,756.21	6,943.29	133.41	131.36	89.92	-205.39	8,093.30	1,694.45	1,431.01	263.44	6.432		
15,100.00	6,945.44	14,856.19	6,943.20	134.96	132.94	89.92	-208.65	8,193.23	1,696.13	1,429.54	266.59	6.362		
15,200.00	6,945.38	14,956.18	6,943.11	136.52	134.51	89.92	-211.91	8,293.16	1,697.81	1,428.07	269.73	6.294		
15,300.00	6,945.32	15,056.17	6,943.02	138.08	136.09	89.92	-215.17	8,393.10	1,699.48	1,426.61	272.88	6.228		
15,400.00	6,945.26	15,156.15	6,942.93	139.64	137.66	89.92	-218.43	8,493.03	1,701.16	1,425.13	276.03	6.163		
15,500.00	6,945.20	15,256.14	6,942.84	141.20	139.24	89.92	-221.69	8,592.96	1,702.84	1,423.66	279.17	6.100		
15,600.00	6,945.14	15,356.12	6,942.75	142.76	140.82	89.92	-224.95	8,692.89	1,704.51	1,422.19	282.32	6.037		
15,700.00	6,945.08	15,456.11	6,942.66	144.33	142.40	89.92	-228.21	8,792.83	1,706.19	1,420.71	285.47	5.977		
15,800.00	6,945.02	15,556.10	6,942.57	145.89	143.98	89.92	-231.47	8,892.76	1,707.87	1,419.24	288.63	5.917		
15,900.00	6,944.96	15,656.08	6,942.48	147.46	145.56	89.92	-234.73	8,992.69	1,709.54	1,417.76	291.78	5.859		
16,000.00	6,944.90	15,756.07	6,942.39	149.02	147.14	89.92	-237.99	9,092.63	1,711.22	1,416.28	294.93	5.802		
16,100.00	6,944.84	15,856.05	6,942.30	150.59	148.72	89.91	-241.25	9,192.56	1,712.89	1,414.80	298.09	5.746		
16,200.00	6,944.77	15,956.04	6,942.21	152.15	150.30	89.91	-244.51	9,292.49	1,714.57	1,413.32	301.25	5.692		
16,300.00	6,944.71	16,056.03	6,942.12	153.72	151.88	89.91	-247.77	9,392.42	1,716.25	1,411.84	304.40	5.638		
16,400.00	6,944.65	16,156.01	6,942.03	155.29	153.46	89.91	-251.03	9,492.36	1,717.92	1,410.36	307.56	5.586		
16,500.00	6,944.59	16,256.00	6,941.94	156.86	155.04	89.91	-254.29	9,592.29	1,719.60	1,408.88	310.72	5.534		
16,600.00	6,944.53	16,355.98	6,941.85	158.43	156.63	89.91	-257.55	9,692.22	1,721.28	1,407.39	313.88	5.484		
16,700.00	6,944.47	16,455.97	6,941.76	160.00	158.21	89.91	-260.81	9,792.15	1,722.95	1,405.91	317.05	5.434		
16,800.00	6,944.41	16,555.96	6,941.67	161.57	159.79	89.91	-264.07	9,892.09	1,724.63	1,404.42	320.21	5.386		
16,900.00	6,944.35	16,655.94	6,941.58	163.14	161.38	89.91	-267.33	9,992.02	1,726.31	1,402.94	323.37	5.338		
17,000.00	6,944.29	16,755.93	6,941.49	164.71	162.96	89.91	-270.59	10,091.95	1,727.98	1,401.45	326.53	5.292		
17,100.00	6,944.23	16,855.91	6,941.40	166.29	164.55	89.91	-273.85	10,191.89	1,729.66	1,399.96	329.70	5.246		
17,200.00	6,944.17	16,955.90	6,941.31	167.86	166.13	89.90	-277.11	10,291.82	1,731.34	1,398.47	332.87	5.201		
17,300.00	6,944.11	17,055.89	6,941.22	169.43	167.72	89.90	-280.37	10,391.75	1,733.01	1,396.98	336.03	5.157		
17,400.00	6,944.05	17,155.87	6,941.13	171.01	169.30	89.90	-283.63	10,491.68	1,734.69	1,395.49	339.20	5.114		
17,500.00	6,943.99	17,255.86	6,941.04	172.58	170.89	89.90	-286.89	10,591.62	1,736.36	1,394.00	342.37	5.072		
17,600.00	6,943.93	17,355.84	6,940.95	174.16	172.47	89.90	-290.15	10,691.55	1,738.04	1,392.51	345.54	5.030		
17,700.00	6,943.87	17,455.83	6,940.86	175.73	174.06	89.90	-293.40	10,791.48	1,739.72	1,391.01	348.70	4.989		
17,800.00	6,943.81	17,555.82	6,940.77	177.31	175.65	89.90	-296.66	10,891.41	1,741.39	1,389.52	351.87	4.949		
17,900.00	6,943.75	17,655.80	6,940.68	178.89	177.24	89.90	-299.92	10,991.35	1,743.07	1,388.03	355.04	4.909		
18,000.00	6,943.69	17,755.79	6,940.59	180.46	178.82	89.90	-303.18	11,091.28	1,744.75	1,386.53	358.22	4.871		
18,100.00	6,943.63	17,855.77	6,940.50	182.04	180.41	89.90	-306.44	11,191.21	1,746.42	1,385.04	361.39	4.833		
18,200.00	6,943.57	17,955.76	6,940.41	183.62	182.00	89.90	-309.70	11,291.15	1,748.10	1,383.54	364.56	4.795		
18,300.00	6,943.51	18,055.75	6,940.32	185.20	183.59	89.89	-312.96	11,391.08	1,749.78	1,382.04	367.73	4.758		
18,400.00	6,943.45	18,155.73	6,940.23	186.78	185.18	89.89	-316.22	11,491.01	1,751.45	1,380.55	370.91	4.722		
18,500.00	6,943.39	18,255.72	6,940.14	188.36	186.77	89.89	-319.48	11,590.94	1,753.13	1,379.05	374.08	4.687		
18,600.00	6,943.33	18,355.70	6,940.05	189.94	188.35	89.89	-322.74	11,690.88	1,754.80	1,377.55	377.25	4.652		
18,700.00	6,943.27	18,455.69	6,939.96	191.52	189.94	89.89	-326.00	11,790.81	1,756.48	1,376.05	380.43	4.617		
18,800.00	6,943.21	18,555.67	6,939.87	193.10	191.53	89.89	-329.26	11,890.74	1,758.16	1,374.55	383.61	4.583		
18,900.00	6,943.15	18,655.66	6,939.78	194.68	193.12	89.89	-332.52	11,990.68	1,759.83	1,373.05	386.78	4.550		
19,000.00	6,943.09	18,755.65	6,939.69	196.26	194.71	89.89	-335.78	12,090.61	1,761.51	1,371.55	389.96	4.517		
19,100.00	6,943.03	18,855.63	6,939.60	197.84	196.30	89.89	-339.04	12,190.54	1,763.19	1,370.05	393.14	4.485		
19,200.00	6,942.97	18,955.62	6,939.51	199.42	197.89	89.89	-342.30	12,290.47	1,764.86	1,368.55	396.31	4.453		
19,300.00	6,942.91	19,055.60	6,939.42	201.01	199.49	89.89	-345.56	12,390.41	1,766.54	1,367.05	399.49	4.422		
19,400.00	6,942.85	19,155.59	6,939.33	202.59	201.08	89.89	-348.82	12,490.34	1,768.22	1,365.55	402.67	4.391		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #722H - OH - Prelim #1													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS													Offset Well Error:	0.00 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		
19,500.00	6,942.79	19,255.58	6,939.24	204.17	202.67	89.88	-352.08	12,590.27	1,769.89	1,364.04	405.85	4.361		
19,600.00	6,942.73	19,355.56	6,939.15	205.75	204.26	89.88	-355.34	12,690.20	1,771.57	1,362.54	409.03	4.331		
19,700.00	6,942.67	19,455.55	6,939.06	207.34	205.85	89.88	-358.60	12,790.14	1,773.25	1,361.04	412.21	4.302		
19,800.00	6,942.61	19,555.53	6,938.97	208.92	207.44	89.88	-361.86	12,890.07	1,774.92	1,359.54	415.39	4.273		
19,900.00	6,942.55	19,655.52	6,938.88	210.51	209.03	89.88	-365.12	12,990.00	1,776.60	1,358.03	418.57	4.244		
20,000.00	6,942.49	19,755.51	6,938.78	212.09	210.63	89.88	-368.38	13,089.94	1,778.27	1,356.53	421.75	4.216		
20,100.00	6,942.43	19,855.49	6,938.69	213.68	212.22	89.88	-371.64	13,189.87	1,779.95	1,355.02	424.93	4.189		
20,200.00	6,942.37	19,955.48	6,938.60	215.26	213.81	89.88	-374.90	13,289.80	1,781.63	1,353.52	428.11	4.162		
20,300.00	6,942.31	20,055.46	6,938.51	216.85	215.40	89.88	-378.16	13,389.73	1,783.30	1,352.01	431.29	4.135		
20,400.00	6,942.25	20,155.45	6,938.42	218.43	217.00	89.88	-381.42	13,489.67	1,784.98	1,350.51	434.47	4.108		
20,500.00	6,942.19	20,255.44	6,938.33	220.02	218.59	89.88	-384.68	13,589.60	1,786.66	1,349.00	437.66	4.082		
20,600.00	6,942.13	20,355.42	6,938.24	221.60	220.18	89.88	-387.94	13,689.53	1,788.33	1,347.49	440.84	4.057		
20,700.00	6,942.07	20,455.41	6,938.15	223.19	221.77	89.87	-391.19	13,789.46	1,790.01	1,345.99	444.02	4.031		
20,808.89	6,942.00	20,564.28	6,938.06	224.92	223.51	89.87	-394.74	13,898.28	1,791.84	1,344.34	447.49	4.004 SF		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #724H - OH - Prelim #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	0.00 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	0.00	0.00	164.75	-38.59	10.52	40.00				
100.00	100.00	100.00	100.00	0.25	0.25	164.75	-38.59	10.52	40.00	39.50	0.50	79.699	
200.00	200.00	200.00	200.00	0.61	0.61	164.75	-38.59	10.52	40.00	38.78	1.22	32.817	
300.00	300.00	300.00	300.00	0.97	0.97	164.75	-38.59	10.52	40.00	38.06	1.94	20.663	
400.00	400.00	400.00	400.00	1.33	1.33	164.75	-38.59	10.52	40.00	37.35	2.65	15.078	
500.00	500.00	500.00	500.00	1.68	1.68	164.75	-38.59	10.52	40.00	36.63	3.37	11.870	CC, ES
600.00	599.98	598.55	598.53	2.04	2.02	164.71	-40.28	10.55	43.35	39.28	4.07	10.659	
700.00	699.84	696.39	696.24	2.41	2.35	167.36	-45.32	10.62	53.45	48.70	4.76	11.240	
800.00	799.45	792.84	792.33	2.77	2.68	170.06	-53.54	10.75	70.37	64.93	5.44	12.927	
900.00	898.70	887.27	886.09	3.13	3.01	172.19	-64.72	10.92	94.02	87.90	6.12	15.354	
1,000.00	997.47	979.07	976.84	3.50	3.35	173.72	-78.55	11.13	124.21	117.42	6.79	18.297	
1,100.00	1,095.62	1,067.73	1,064.02	3.89	3.69	174.79	-94.65	11.38	160.70	153.26	7.44	21.612	
1,200.00	1,193.06	1,152.81	1,147.18	4.30	4.03	175.55	-112.64	11.65	203.21	195.15	8.06	25.209	
1,245.21	1,236.83	1,190.78	1,184.11	4.48	4.19	175.82	-121.44	11.79	224.30	215.95	8.35	26.872	
1,300.00	1,289.78	1,238.93	1,230.91	4.72	4.39	176.15	-132.76	11.96	250.42	241.71	8.70	28.779	
1,400.00	1,386.42	1,326.81	1,316.33	5.15	4.76	176.60	-153.43	12.27	298.10	288.74	9.36	31.850	
1,500.00	1,483.05	1,414.69	1,401.74	5.59	5.15	176.93	-174.09	12.59	345.78	335.76	10.02	34.507	
1,600.00	1,579.69	1,502.57	1,487.16	6.04	5.53	177.17	-194.75	12.90	393.48	382.79	10.69	36.817	
1,700.00	1,676.32	1,590.45	1,572.58	6.49	5.92	177.37	-215.42	13.22	441.18	429.82	11.36	38.840	
1,800.00	1,772.96	1,678.34	1,657.99	6.94	6.32	177.52	-236.08	13.53	488.89	476.85	12.03	40.623	
1,900.00	1,869.60	1,766.22	1,743.41	7.40	6.72	177.65	-256.75	13.85	536.59	523.88	12.71	42.207	
2,000.00	1,966.23	1,854.10	1,828.83	7.86	7.12	177.76	-277.41	14.16	584.30	570.90	13.40	43.620	
2,100.00	2,062.87	1,941.98	1,914.24	8.33	7.52	177.85	-298.07	14.48	632.01	617.93	14.08	44.889	
2,200.00	2,159.50	2,029.86	1,999.66	8.79	7.92	177.93	-318.74	14.80	679.72	664.95	14.77	46.034	
2,300.00	2,256.14	2,117.74	2,085.08	9.26	8.33	178.00	-339.40	15.11	727.43	711.98	15.45	47.072	
2,400.00	2,352.77	2,205.62	2,170.49	9.73	8.73	178.06	-360.06	15.43	775.14	759.00	16.14	48.016	
2,500.00	2,449.41	2,293.50	2,255.91	10.20	9.14	178.11	-380.73	15.74	822.85	806.02	16.83	48.879	
2,600.00	2,546.05	2,381.39	2,341.33	10.67	9.55	178.16	-401.39	16.06	870.57	853.04	17.53	49.669	
2,700.00	2,642.68	2,469.27	2,426.74	11.14	9.96	178.20	-422.06	16.37	918.28	900.06	18.22	50.397	
2,800.00	2,739.32	2,557.15	2,512.16	11.61	10.37	178.24	-442.72	16.69	965.99	947.08	18.92	51.068	
2,900.00	2,835.95	2,645.03	2,597.58	12.08	10.78	178.27	-463.38	17.00	1,013.71	994.09	19.61	51.690	
3,000.00	2,932.59	2,732.91	2,682.99	12.55	11.19	178.30	-484.05	17.32	1,061.42	1,041.11	20.31	52.266	
3,100.00	3,029.22	2,820.79	2,768.41	13.03	11.60	178.33	-504.71	17.63	1,109.13	1,088.13	21.01	52.802	
3,200.00	3,125.86	2,908.67	2,853.83	13.50	12.01	178.36	-525.38	17.95	1,156.85	1,135.14	21.70	53.302	
3,300.00	3,222.50	2,996.56	2,939.24	13.97	12.42	178.38	-546.04	18.26	1,204.56	1,182.16	22.40	53.769	
3,400.00	3,319.13	3,084.44	3,024.66	14.45	12.83	178.40	-566.70	18.58	1,252.28	1,229.18	23.10	54.206	
3,500.00	3,415.77	3,172.32	3,110.08	14.92	13.25	178.42	-587.37	18.89	1,299.99	1,276.19	23.80	54.616	
3,600.00	3,512.40	3,260.20	3,195.49	15.40	13.66	178.44	-608.03	19.21	1,347.71	1,323.20	24.50	55.002	
3,700.00	3,609.04	3,348.08	3,280.91	15.88	14.07	178.46	-628.70	19.52	1,395.42	1,370.22	25.20	55.365	
3,800.00	3,705.67	3,435.96	3,366.33	16.35	14.49	178.48	-649.36	19.84	1,443.14	1,417.23	25.91	55.707	
3,900.00	3,802.31	3,523.84	3,451.75	16.83	14.90	178.49	-670.02	20.15	1,490.85	1,464.25	26.61	56.030	
4,000.00	3,898.95	3,611.72	3,537.16	17.30	15.32	178.51	-690.69	20.47	1,538.57	1,511.26	27.31	56.335	
4,100.00	3,995.58	3,699.61	3,622.58	17.78	15.73	178.52	-711.35	20.78	1,586.28	1,558.27	28.01	56.624	
4,200.00	4,092.22	3,787.49	3,708.00	18.26	16.15	178.53	-732.02	21.10	1,634.00	1,605.28	28.72	56.899	
4,300.00	4,188.85	3,875.37	3,793.41	18.73	16.56	178.55	-752.68	21.41	1,681.72	1,652.29	29.42	57.159	
4,400.00	4,285.49	3,963.25	3,878.83	19.21	16.98	178.56	-773.34	21.73	1,729.43	1,699.30	30.13	57.406	
4,500.00	4,382.12	4,051.13	3,964.25	19.69	17.39	178.57	-794.01	22.05	1,777.15	1,746.32	30.83	57.641	
4,600.00	4,478.76	4,139.01	4,049.66	20.17	17.81	178.58	-814.67	22.36	1,824.86	1,793.33	31.54	57.865	
4,700.00	4,575.40	4,226.89	4,135.08	20.64	18.22	178.59	-835.34	22.68	1,872.58	1,840.34	32.24	58.079	
4,800.00	4,672.03	4,314.77	4,220.50	21.12	18.64	178.60	-856.00	22.99	1,920.29	1,887.35	32.95	58.283	
4,900.00	4,768.67	4,402.66	4,305.91	21.60	19.05	178.61	-876.66	23.31	1,968.01	1,934.36	33.65	58.477	
5,000.00	4,865.30	4,490.54	4,391.33	22.08	19.47	178.62	-897.33	23.62	2,015.73	1,981.37	34.36	58.663	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #724H - OH - Prelim #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	0.00 usft
Reference												Rule Assigned:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
				(usft)	(usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	4,961.94	4,578.42	4,476.75	22.55	19.88	178.62	-917.99	23.94	2,063.44	2,028.37	35.07	58.841	
5,200.00	5,058.57	4,666.30	4,562.16	23.03	20.30	178.63	-938.65	24.25	2,111.16	2,075.38	35.78	59.012	
5,300.00	5,155.21	4,754.18	4,647.58	23.51	20.72	178.64	-959.32	24.57	2,158.87	2,122.39	36.48	59.175	
5,400.00	5,251.85	4,842.06	4,733.00	23.99	21.13	178.65	-979.98	24.88	2,206.59	2,169.40	37.19	59.331	
5,500.00	5,348.48	4,929.94	4,818.41	24.47	21.55	178.65	-1,000.65	25.20	2,254.31	2,216.41	37.90	59.481	
5,600.00	5,445.12	5,017.83	4,903.83	24.94	21.96	178.66	-1,021.31	25.51	2,302.02	2,263.41	38.61	59.625	
5,700.00	5,541.75	5,105.71	4,989.25	25.42	22.38	178.67	-1,041.97	25.83	2,349.74	2,310.42	39.32	59.764	
5,800.00	5,638.39	5,193.59	5,074.66	25.90	22.80	178.67	-1,062.64	26.14	2,397.45	2,357.43	40.03	59.897	
5,900.00	5,735.02	5,281.47	5,160.08	26.38	23.21	178.68	-1,083.30	26.46	2,445.17	2,404.43	40.74	60.024	
6,000.00	5,831.66	5,369.35	5,245.50	26.86	23.63	178.68	-1,103.97	26.77	2,492.89	2,451.44	41.45	60.147	
6,100.00	5,928.30	5,457.23	5,330.91	27.34	24.05	178.69	-1,124.63	27.09	2,540.60	2,498.45	42.16	60.266	
6,200.00	6,024.93	5,545.11	5,416.33	27.82	24.46	178.69	-1,145.29	27.40	2,588.32	2,545.45	42.87	60.380	
6,300.00	6,121.57	5,632.99	5,501.75	28.29	24.88	178.70	-1,165.96	27.72	2,636.04	2,592.46	43.58	60.489	
6,400.00	6,218.20	5,720.88	5,587.16	28.77	25.29	178.70	-1,186.62	28.03	2,683.75	2,639.46	44.29	60.595	
6,500.00	6,314.84	5,808.76	5,672.58	29.25	25.71	178.71	-1,207.29	28.35	2,731.47	2,686.47	45.00	60.697	
6,521.58	6,335.69	5,827.72	5,691.02	29.36	25.80	178.71	-1,211.75	28.42	2,741.77	2,696.61	45.16	60.719	
6,550.00	6,363.15	5,852.69	5,715.29	29.49	25.92	167.83	-1,217.62	28.51	2,755.31	2,709.95	45.36	60.747	
6,600.00	6,411.28	5,896.49	5,757.86	29.73	26.13	150.30	-1,227.92	28.66	2,779.02	2,733.31	45.71	60.794	
6,650.00	6,458.93	5,939.89	5,800.04	29.96	26.33	135.97	-1,238.12	28.82	2,802.46	2,756.40	46.06	60.840	
6,700.00	6,505.83	5,982.62	5,841.57	30.19	26.54	124.84	-1,248.17	28.97	2,825.53	2,779.12	46.41	60.884	
6,750.00	6,551.67	6,024.42	5,882.20	30.42	26.73	116.22	-1,258.00	29.12	2,848.12	2,801.38	46.75	60.928	
6,800.00	6,596.17	6,065.03	5,921.67	30.64	26.93	109.46	-1,267.55	29.27	2,870.16	2,823.09	47.07	60.970	
6,850.00	6,639.06	6,104.21	5,959.74	30.85	27.11	104.03	-1,276.76	29.41	2,891.58	2,844.19	47.39	61.013	
6,900.00	6,680.07	6,141.70	5,996.18	31.05	27.29	99.60	-1,285.57	29.54	2,912.32	2,864.62	47.70	61.055	
6,950.00	6,718.96	6,177.27	6,030.76	31.24	27.46	95.90	-1,293.94	29.67	2,932.35	2,884.35	47.99	61.097	
7,000.00	6,755.47	6,210.72	6,063.27	31.43	27.62	92.78	-1,301.80	29.79	2,951.62	2,903.35	48.28	61.140	
7,050.00	6,789.40	6,241.83	6,093.51	31.61	27.77	90.11	-1,309.12	29.90	2,970.12	2,921.57	48.55	61.182	
7,100.00	6,820.52	6,270.41	6,121.29	31.79	27.90	87.80	-1,315.84	30.00	2,987.81	2,939.01	48.80	61.223	
7,150.00	6,848.64	6,296.28	6,146.43	31.97	28.02	85.78	-1,321.92	30.10	3,004.68	2,955.63	49.04	61.265	
7,200.00	6,873.60	6,319.29	6,168.80	32.14	28.13	84.00	-1,327.33	30.18	3,020.70	2,971.43	49.27	61.305	
7,250.00	6,895.24	6,339.29	6,188.24	32.31	28.23	82.43	-1,332.03	30.25	3,035.88	2,986.39	49.49	61.344	
7,300.00	6,913.42	6,356.16	6,204.63	32.49	28.31	81.03	-1,336.00	30.31	3,050.17	3,000.48	49.69	61.382	
7,350.00	6,928.03	6,369.79	6,217.89	32.67	28.37	79.79	-1,339.21	30.36	3,063.56	3,013.68	49.88	61.419	
7,400.00	6,938.98	6,380.11	6,227.91	32.86	28.42	78.67	-1,341.63	30.40	3,076.02	3,025.97	50.05	61.455	
7,450.00	6,946.22	6,387.05	6,234.65	33.06	28.45	77.68	-1,343.26	30.42	3,087.53	3,037.32	50.21	61.490	
7,500.00	6,949.68	6,390.56	6,238.07	33.26	28.47	76.81	-1,344.09	30.44	3,098.04	3,047.68	50.35	61.524	
7,521.05	6,950.00	6,391.00	6,238.50	33.35	28.47	76.48	-1,344.19	30.44	3,102.15	3,051.74	50.41	61.539	
7,600.00	6,949.95	6,391.54	6,239.02	33.72	28.48	76.49	-1,344.32	30.44	3,118.20	3,067.58	50.63	61.592	
7,700.00	6,949.89	6,392.21	6,239.67	34.24	28.48	76.50	-1,344.48	30.44	3,141.27	3,090.33	50.94	61.665	
7,800.00	6,949.83	7,616.02	6,944.90	34.84	33.69	89.91	-1,552.72	793.95	3,158.78	3,099.00	59.78	52.843	
7,900.00	6,949.77	7,715.96	6,944.82	35.50	34.26	89.91	-1,557.64	893.78	3,162.12	3,100.87	61.24	51.632	
8,000.00	6,949.71	7,815.91	6,944.75	36.23	34.90	89.91	-1,562.56	993.60	3,165.45	3,102.62	62.84	50.374	
8,100.00	6,949.65	7,915.85	6,944.67	37.02	35.61	89.91	-1,567.48	1,093.42	3,168.79	3,104.24	64.55	49.087	
8,200.00	6,949.59	8,015.79	6,944.60	37.85	36.38	89.91	-1,572.40	1,193.24	3,172.13	3,105.75	66.38	47.787	
8,300.00	6,949.53	8,115.74	6,944.52	38.74	37.20	89.91	-1,577.32	1,293.07	3,175.47	3,107.16	68.31	46.487	
8,400.00	6,949.47	8,215.68	6,944.45	39.68	38.08	89.91	-1,582.24	1,392.89	3,178.81	3,108.48	70.33	45.198	
8,500.00	6,949.41	8,315.63	6,944.37	40.66	39.01	89.91	-1,587.16	1,492.71	3,182.15	3,109.72	72.44	43.930	
8,600.00	6,949.35	8,415.57	6,944.30	41.67	39.99	89.91	-1,592.08	1,592.54	3,185.49	3,110.87	74.62	42.688	
8,700.00	6,949.29	8,515.52	6,944.22	42.73	41.00	89.91	-1,597.00	1,692.36	3,188.83	3,111.95	76.88	41.479	
8,800.00	6,949.23	8,615.46	6,944.15	43.82	42.06	89.91	-1,601.92	1,792.18	3,192.17	3,112.97	79.20	40.305	
8,900.00	6,949.17	8,715.40	6,944.07	44.94	43.15	89.91	-1,606.84	1,892.01	3,195.51	3,113.93	81.58	39.169	
9,000.00	6,949.11	8,815.35	6,944.00	46.09	44.27	89.91	-1,611.76	1,991.83	3,198.85	3,114.83	84.02	38.073	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #724H - OH - Prelim #1											Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS											Offset Well Error:	0.00 usft
Rule Assigned:												
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre		Distance Between Centres (usft)		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Ellipses (usft)			Warning
9,100.00	6,949.05	8,915.29	6,943.92	47.26	45.43	89.91	-1,616.68	2,091.65	3,202.19	3,115.68	86.51	37.017
9,200.00	6,948.99	9,015.24	6,943.85	48.46	46.61	89.91	-1,621.60	2,191.48	3,205.53	3,116.49	89.04	36.001
9,300.00	6,948.93	9,115.18	6,943.77	49.68	47.81	89.91	-1,626.52	2,291.30	3,208.87	3,117.25	91.61	35.026
9,400.00	6,948.87	9,215.12	6,943.70	50.93	49.05	89.91	-1,631.44	2,391.12	3,212.21	3,117.98	94.23	34.090
9,500.00	6,948.81	9,315.07	6,943.62	52.19	50.30	89.91	-1,636.36	2,490.94	3,215.55	3,118.67	96.88	33.192
9,600.00	6,948.75	9,415.01	6,943.55	53.47	51.57	89.91	-1,641.28	2,590.77	3,218.89	3,119.33	99.56	32.331
9,700.00	6,948.69	9,514.96	6,943.47	54.77	52.86	89.91	-1,646.20	2,690.59	3,222.23	3,119.96	102.27	31.506
9,800.00	6,948.63	9,614.90	6,943.40	56.08	54.17	89.91	-1,651.12	2,790.41	3,225.57	3,120.56	105.01	30.716
9,900.00	6,948.57	9,714.85	6,943.32	57.41	55.49	89.91	-1,656.04	2,890.24	3,228.91	3,121.13	107.78	29.959
10,000.00	6,948.51	9,814.79	6,943.25	58.76	56.83	89.91	-1,660.96	2,990.06	3,232.25	3,121.68	110.57	29.233
10,100.00	6,948.45	9,914.73	6,943.17	60.11	58.18	89.91	-1,665.88	3,089.88	3,235.59	3,122.21	113.38	28.538
10,200.00	6,948.39	10,014.68	6,943.10	61.48	59.55	89.91	-1,670.80	3,189.71	3,238.93	3,122.72	116.21	27.871
10,300.00	6,948.33	10,114.62	6,943.02	62.86	60.92	89.91	-1,675.72	3,289.53	3,242.27	3,123.20	119.06	27.232
10,400.00	6,948.27	10,214.57	6,942.95	64.24	62.31	89.90	-1,680.64	3,389.35	3,245.61	3,123.68	121.93	26.619
10,500.00	6,948.21	10,314.51	6,942.87	65.64	63.71	89.90	-1,685.55	3,489.17	3,248.94	3,124.13	124.81	26.030
10,600.00	6,948.15	10,414.46	6,942.80	67.05	65.12	89.90	-1,690.47	3,589.00	3,252.28	3,124.57	127.71	25.465
10,700.00	6,948.09	10,514.40	6,942.72	68.47	66.53	89.90	-1,695.39	3,688.82	3,255.62	3,125.00	130.63	24.923
10,800.00	6,948.03	10,614.34	6,942.65	69.89	67.96	89.90	-1,700.31	3,788.64	3,258.96	3,125.41	133.56	24.402
10,900.00	6,947.97	10,714.29	6,942.57	71.32	69.39	89.90	-1,705.23	3,888.47	3,262.30	3,125.81	136.50	23.900
11,000.00	6,947.91	10,814.23	6,942.50	72.76	70.83	89.90	-1,710.15	3,988.29	3,265.64	3,126.20	139.45	23.418
11,100.00	6,947.85	10,914.18	6,942.42	74.21	72.28	89.90	-1,715.07	4,088.11	3,268.98	3,126.57	142.41	22.955
11,200.00	6,947.79	11,014.12	6,942.35	75.66	73.73	89.90	-1,719.99	4,187.94	3,272.32	3,126.94	145.38	22.508
11,300.00	6,947.73	11,114.07	6,942.27	77.12	75.19	89.90	-1,724.91	4,287.76	3,275.66	3,127.30	148.37	22.078
11,400.00	6,947.66	11,214.01	6,942.20	78.58	76.65	89.90	-1,729.83	4,387.58	3,279.00	3,127.64	151.36	21.664
11,500.00	6,947.60	11,313.95	6,942.12	80.05	78.13	89.90	-1,734.75	4,487.41	3,282.34	3,127.98	154.36	21.264
11,600.00	6,947.54	11,413.90	6,942.05	81.52	79.60	89.90	-1,739.67	4,587.23	3,285.68	3,128.31	157.37	20.879
11,700.00	6,947.48	11,513.84	6,941.97	83.00	81.08	89.90	-1,744.59	4,687.05	3,289.02	3,128.64	160.38	20.507
11,800.00	6,947.42	11,613.79	6,941.90	84.48	82.57	89.90	-1,749.51	4,786.87	3,292.36	3,128.95	163.41	20.148
11,900.00	6,947.36	11,713.73	6,941.82	85.97	84.06	89.90	-1,754.43	4,886.70	3,295.70	3,129.26	166.44	19.802
12,000.00	6,947.30	11,813.67	6,941.74	87.46	85.55	89.90	-1,759.35	4,986.52	3,299.04	3,129.57	169.47	19.467
12,100.00	6,947.24	11,913.62	6,941.67	88.96	87.05	89.90	-1,764.27	5,086.34	3,302.38	3,129.86	172.51	19.143
12,200.00	6,947.18	12,013.56	6,941.59	90.46	88.55	89.90	-1,769.19	5,186.17	3,305.72	3,130.15	175.56	18.829
12,300.00	6,947.12	12,113.51	6,941.52	91.96	90.06	89.90	-1,774.11	5,285.99	3,309.06	3,130.44	178.62	18.526
12,400.00	6,947.06	12,213.45	6,941.44	93.47	91.57	89.90	-1,779.03	5,385.81	3,312.40	3,130.72	181.68	18.232
12,500.00	6,947.00	12,313.40	6,941.37	94.97	93.08	89.90	-1,783.95	5,485.64	3,315.74	3,131.00	184.74	17.948
12,600.00	6,946.94	12,413.34	6,941.29	96.49	94.59	89.90	-1,788.87	5,585.46	3,319.08	3,131.27	187.81	17.673
12,700.00	6,946.88	12,513.28	6,941.22	98.00	96.11	89.90	-1,793.79	5,685.28	3,322.42	3,131.53	190.88	17.406
12,800.00	6,946.82	12,613.23	6,941.14	99.52	97.63	89.90	-1,798.71	5,785.10	3,325.76	3,131.80	193.96	17.147
12,900.00	6,946.76	12,713.17	6,941.07	101.04	99.15	89.90	-1,803.63	5,884.93	3,329.09	3,132.05	197.04	16.895
13,000.00	6,946.70	12,813.12	6,940.99	102.56	100.68	89.90	-1,808.55	5,984.75	3,332.43	3,132.31	200.13	16.652
13,100.00	6,946.64	12,913.06	6,940.92	104.09	102.21	89.90	-1,813.47	6,084.57	3,335.77	3,132.56	203.22	16.415
13,200.00	6,946.58	13,013.01	6,940.84	105.61	103.74	89.90	-1,818.39	6,184.40	3,339.11	3,132.80	206.31	16.185
13,300.00	6,946.52	13,112.95	6,940.77	107.14	105.27	89.90	-1,823.31	6,284.22	3,342.45	3,133.05	209.40	15.962
13,400.00	6,946.46	13,212.89	6,940.69	108.67	106.81	89.90	-1,828.23	6,384.04	3,345.79	3,133.29	212.50	15.745
13,500.00	6,946.40	13,312.84	6,940.62	110.21	108.34	89.90	-1,833.15	6,483.87	3,349.13	3,133.53	215.61	15.534
13,600.00	6,946.34	13,412.78	6,940.54	111.74	109.88	89.90	-1,838.07	6,583.69	3,352.47	3,133.76	218.71	15.328
13,700.00	6,946.28	13,512.73	6,940.47	113.28	111.42	89.90	-1,842.99	6,683.51	3,355.81	3,133.99	221.82	15.129
13,800.00	6,946.22	13,612.67	6,940.39	114.82	112.96	89.90	-1,847.91	6,783.33	3,359.15	3,134.22	224.93	14.934
13,900.00	6,946.16	13,712.61	6,940.32	116.36	114.51	89.90	-1,852.83	6,883.16	3,362.49	3,134.45	228.04	14.745
14,000.00	6,946.10	13,812.56	6,940.24	117.90	116.05	89.90	-1,857.74	6,982.98	3,365.83	3,134.67	231.16	14.561
14,100.00	6,946.04	13,912.50	6,940.17	119.45	117.60	89.90	-1,862.66	7,082.80	3,369.17	3,134.89	234.28	14.381
14,200.00	6,945.98	14,012.45	6,940.09	120.99	119.15	89.90	-1,867.58	7,182.63	3,372.51	3,135.11	237.40	14.206

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #724H - OH - Prelim #1													Offset Site Error:	0.00 usft
Survey Program:		0-MWD+HRGM+MS					Rule Assigned:			Offset Well Error:		0.00 usft		
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance				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	Warning	
14,300.00	6,945.92	14,112.39	6,940.02	122.54	120.70	89.90	-1,872.50	7,282.45	3,375.85	3,135.33	240.52	14.035		
14,400.00	6,945.86	14,212.34	6,939.94	124.09	122.25	89.90	-1,877.42	7,382.27	3,379.19	3,135.54	243.65	13.869		
14,500.00	6,945.80	14,312.28	6,939.87	125.64	123.80	89.90	-1,882.34	7,482.10	3,382.53	3,135.75	246.78	13.707		
14,600.00	6,945.74	14,412.22	6,939.79	127.19	125.36	89.90	-1,887.26	7,581.92	3,385.87	3,135.96	249.90	13.549		
14,700.00	6,945.68	14,512.17	6,939.72	128.74	126.91	89.90	-1,892.18	7,681.74	3,389.21	3,136.17	253.04	13.394		
14,800.00	6,945.62	14,612.11	6,939.64	130.30	128.47	89.90	-1,897.10	7,781.57	3,392.55	3,136.38	256.17	13.243		
14,900.00	6,945.56	14,712.06	6,939.57	131.85	130.02	89.90	-1,902.02	7,881.39	3,395.89	3,136.58	259.30	13.096		
15,000.00	6,945.50	14,812.00	6,939.49	133.41	131.58	89.90	-1,906.94	7,981.21	3,399.23	3,136.79	262.44	12.952		
15,100.00	6,945.44	14,911.95	6,939.42	134.96	133.14	89.90	-1,911.86	8,081.03	3,402.57	3,136.99	265.58	12.812		
15,200.00	6,945.38	15,011.89	6,939.34	136.52	134.70	89.90	-1,916.78	8,180.86	3,405.91	3,137.19	268.72	12.675		
15,300.00	6,945.32	15,111.83	6,939.27	138.08	136.27	89.90	-1,921.70	8,280.68	3,409.24	3,137.39	271.86	12.541		
15,400.00	6,945.26	15,211.78	6,939.19	139.64	137.83	89.90	-1,926.62	8,380.50	3,412.58	3,137.58	275.00	12.409		
15,500.00	6,945.20	15,311.72	6,939.12	141.20	139.39	89.90	-1,931.54	8,480.33	3,415.92	3,137.78	278.15	12.281		
15,600.00	6,945.14	15,411.67	6,939.04	142.76	140.96	89.90	-1,936.46	8,580.15	3,419.26	3,137.97	281.29	12.156		
15,700.00	6,945.08	15,511.61	6,938.97	144.33	142.52	89.90	-1,941.38	8,679.97	3,422.60	3,138.17	284.44	12.033		
15,800.00	6,945.02	15,611.56	6,938.89	145.89	144.09	89.90	-1,946.30	8,779.80	3,425.94	3,138.36	287.59	11.913		
15,900.00	6,944.96	15,711.50	6,938.82	147.46	145.65	89.90	-1,951.22	8,879.62	3,429.28	3,138.55	290.73	11.795		
16,000.00	6,944.90	15,811.44	6,938.74	149.02	147.22	89.90	-1,956.14	8,979.44	3,432.62	3,138.74	293.89	11.680		
16,100.00	6,944.84	15,911.39	6,938.67	150.59	148.79	89.90	-1,961.06	9,079.26	3,435.96	3,138.92	297.04	11.567		
16,200.00	6,944.77	16,011.33	6,938.59	152.15	150.36	89.90	-1,965.98	9,179.09	3,439.30	3,139.11	300.19	11.457		
16,300.00	6,944.71	16,111.28	6,938.52	153.72	151.93	89.90	-1,970.90	9,278.91	3,442.64	3,139.30	303.34	11.349		
16,400.00	6,944.65	16,211.22	6,938.44	155.29	153.50	89.90	-1,975.82	9,378.73	3,445.98	3,139.48	306.50	11.243		
16,500.00	6,944.59	16,311.16	6,938.37	156.86	155.07	89.90	-1,980.74	9,478.56	3,449.32	3,139.66	309.65	11.139		
16,600.00	6,944.53	16,411.11	6,938.29	158.43	156.64	89.90	-1,985.66	9,578.38	3,452.66	3,139.85	312.81	11.037		
16,700.00	6,944.47	16,511.05	6,938.22	160.00	158.22	89.90	-1,990.58	9,678.20	3,456.00	3,140.03	315.97	10.938		
16,800.00	6,944.41	16,611.00	6,938.14	161.57	159.79	89.89	-1,995.50	9,778.03	3,459.34	3,140.21	319.13	10.840		
16,900.00	6,944.35	16,710.94	6,938.07	163.14	161.36	89.89	-2,000.42	9,877.85	3,462.68	3,140.39	322.29	10.744		
17,000.00	6,944.29	16,810.89	6,937.99	164.71	162.94	89.89	-2,005.34	9,977.67	3,466.02	3,140.57	325.45	10.650		
17,100.00	6,944.23	16,910.83	6,937.91	166.29	164.51	89.89	-2,010.26	10,077.50	3,469.36	3,140.75	328.61	10.558		
17,200.00	6,944.17	17,010.77	6,937.84	167.86	166.09	89.89	-2,015.18	10,177.32	3,472.70	3,140.92	331.77	10.467		
17,300.00	6,944.11	17,110.72	6,937.76	169.43	167.67	89.89	-2,020.10	10,277.14	3,476.04	3,141.10	334.94	10.378		
17,400.00	6,944.05	17,210.66	6,937.69	171.01	169.24	89.89	-2,025.02	10,376.96	3,479.38	3,141.28	338.10	10.291		
17,500.00	6,943.99	17,310.61	6,937.61	172.58	170.82	89.89	-2,029.93	10,476.79	3,482.72	3,141.45	341.27	10.205		
17,600.00	6,943.93	17,410.55	6,937.54	174.16	172.40	89.89	-2,034.85	10,576.61	3,486.06	3,141.62	344.43	10.121		
17,700.00	6,943.87	17,510.50	6,937.46	175.73	173.97	89.89	-2,039.77	10,676.43	3,489.40	3,141.80	347.60	10.039		
17,800.00	6,943.81	17,610.44	6,937.39	177.31	175.55	89.89	-2,044.69	10,776.26	3,492.73	3,141.97	350.76	9.957		
17,900.00	6,943.75	17,710.38	6,937.31	178.89	177.13	89.89	-2,049.61	10,876.08	3,496.07	3,142.14	353.93	9.878		
18,000.00	6,943.69	17,810.33	6,937.24	180.46	178.71	89.89	-2,054.53	10,975.90	3,499.41	3,142.31	357.10	9.800		
18,100.00	6,943.63	17,910.27	6,937.16	182.04	180.29	89.89	-2,059.45	11,075.73	3,502.75	3,142.48	360.27	9.723		
18,200.00	6,943.57	18,010.22	6,937.09	183.62	181.87	89.89	-2,064.37	11,175.55	3,506.09	3,142.65	363.44	9.647		
18,300.00	6,943.51	18,110.16	6,937.01	185.20	183.45	89.89	-2,069.29	11,275.37	3,509.43	3,142.82	366.61	9.573		
18,400.00	6,943.45	18,210.10	6,936.94	186.78	185.03	89.89	-2,074.21	11,375.19	3,512.77	3,142.99	369.78	9.500		
18,500.00	6,943.39	18,310.05	6,936.86	188.36	186.61	89.89	-2,079.13	11,475.02	3,516.11	3,143.16	372.95	9.428		
18,600.00	6,943.33	18,409.99	6,936.79	189.94	188.20	89.89	-2,084.05	11,574.84	3,519.45	3,143.33	376.12	9.357		
18,700.00	6,943.27	18,509.94	6,936.71	191.52	189.78	89.89	-2,088.97	11,674.66	3,522.79	3,143.49	379.30	9.288		
18,800.00	6,943.21	18,609.88	6,936.64	193.10	191.36	89.89	-2,093.89	11,774.49	3,526.13	3,143.66	382.47	9.219		
18,900.00	6,943.15	18,709.83	6,936.56	194.68	192.94	89.89	-2,098.81	11,874.31	3,529.47	3,143.83	385.64	9.152		
19,000.00	6,943.09	18,809.77	6,936.49	196.26	194.53	89.89	-2,103.73	11,974.13	3,532.81	3,143.99	388.82	9.086		
19,100.00	6,943.03	18,909.71	6,936.41	197.84	196.11	89.89	-2,108.65	12,073.96	3,536.15	3,144.16	391.99	9.021		
19,200.00	6,942.97	19,009.66	6,936.34	199.42	197.70	89.89	-2,113.57	12,173.78	3,539.49	3,144.32	395.17	8.957		
19,300.00	6,942.91	19,109.60	6,936.26	201.01	199.28	89.89	-2,118.49	12,273.60	3,542.83	3,144.49	398.34	8.894		
19,400.00	6,942.85	19,209.55	6,936.19	202.59	200.86	89.89	-2,123.41	12,373.42	3,546.17	3,144.65	401.52	8.832		

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Offset Design: Rosa Pad 26 - 5 Well - Rosa Unit #724H - OH - Prelim #1												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+HRGM+MS												Offset Well Error:	0.00 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	
19,500.00	6,942.79	19,309.49	6,936.11	204.17	202.45	89.89	-2,128.33	12,473.25	3,549.51	3,144.81	404.70	8.771	
19,600.00	6,942.73	19,409.44	6,936.04	205.75	204.03	89.89	-2,133.25	12,573.07	3,552.85	3,144.97	407.87	8.711	
19,700.00	6,942.67	19,509.38	6,935.96	207.34	205.62	89.89	-2,138.17	12,672.89	3,556.19	3,145.14	411.05	8.651	
19,800.00	6,942.61	19,609.32	6,935.89	208.92	207.20	89.89	-2,143.09	12,772.72	3,559.53	3,145.30	414.23	8.593	
19,900.00	6,942.55	19,709.27	6,935.81	210.51	208.79	89.89	-2,148.01	12,872.54	3,562.87	3,145.46	417.41	8.536	
20,000.00	6,942.49	19,809.21	6,935.74	212.09	210.38	89.89	-2,152.93	12,972.36	3,566.21	3,145.62	420.58	8.479	
20,100.00	6,942.43	19,909.16	6,935.66	213.68	211.96	89.89	-2,157.85	13,072.19	3,569.55	3,145.78	423.76	8.423	
20,200.00	6,942.37	20,009.10	6,935.59	215.26	213.55	89.89	-2,162.77	13,172.01	3,572.88	3,145.94	426.94	8.369	
20,300.00	6,942.31	20,109.05	6,935.51	216.85	215.14	89.89	-2,167.69	13,271.83	3,576.22	3,146.10	430.12	8.314	
20,400.00	6,942.25	20,208.99	6,935.44	218.43	216.72	89.89	-2,172.61	13,371.66	3,579.56	3,146.26	433.30	8.261	
20,500.00	6,942.19	20,308.93	6,935.36	220.02	218.31	89.89	-2,177.53	13,471.48	3,582.90	3,146.42	436.48	8.209	
20,600.00	6,942.13	20,408.88	6,935.29	221.60	219.90	89.89	-2,182.45	13,571.30	3,586.24	3,146.58	439.67	8.157	
20,700.00	6,942.07	20,508.82	6,935.21	223.19	221.49	89.89	-2,187.37	13,671.12	3,589.58	3,146.74	442.85	8.106	
20,808.89	6,942.00	20,617.65	6,935.13	224.92	223.22	89.89	-2,192.72	13,779.82	3,593.22	3,146.91	446.31	8.051 SF	

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 6300+30 @ 6330.00usft (H&P 530)

Offset Depths are relative to Offset Datum

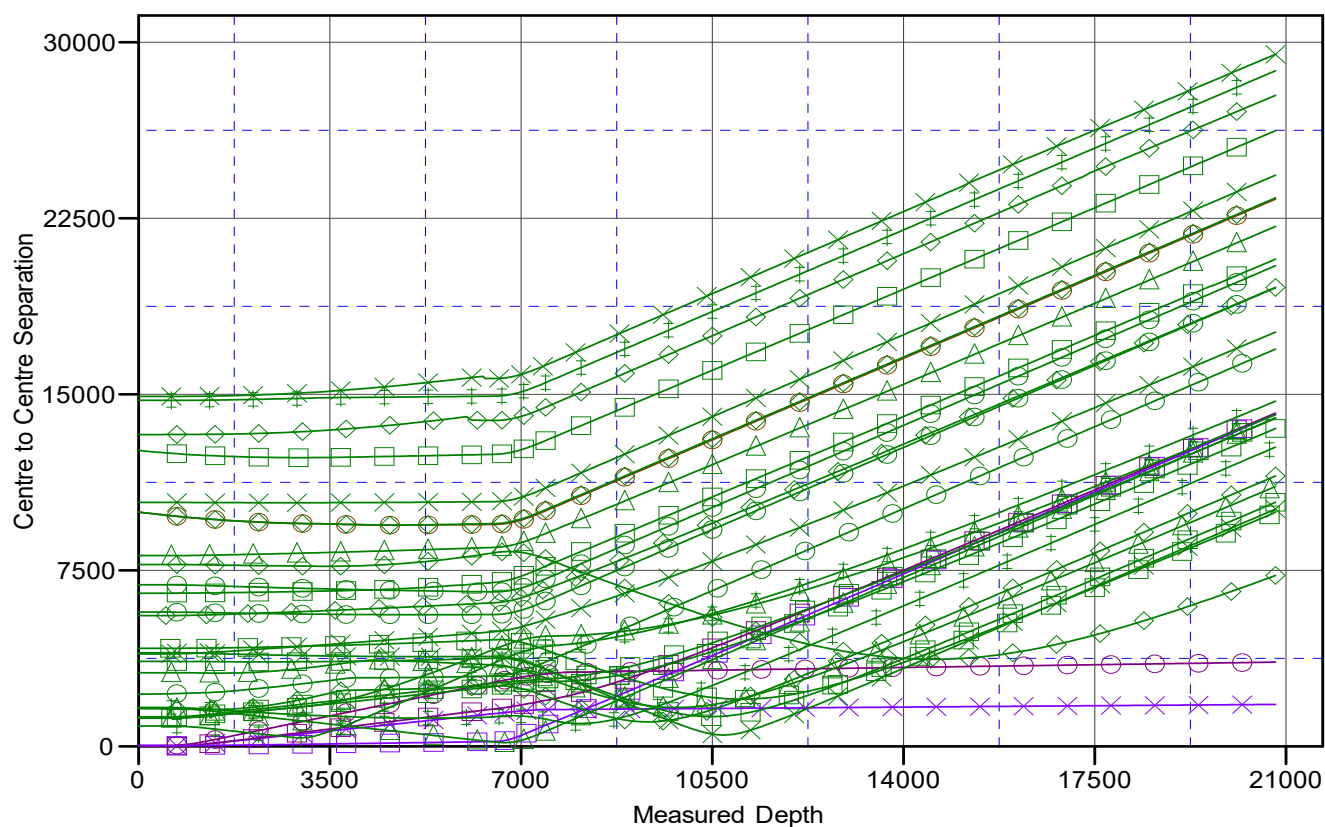
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit #720H - Slot B04

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

Grid Convergence at Surface is: 0.26°

Ladder Plot



LEGEND

(X) Rosa Unit #722H, OH, Prelim #1 V0	(O) RU 119, OH, OH-INC V0	(O) RU 031B, OH, OH-INC V0
(X) Rosa Unit #724H, OH, Prelim #1 V0	(O) RU 012D, OH, OH-SVY V0	(O) RU 125, OH, OH-INC V0
(X) Rosa Unit #714H, OH, Prelim 1 V0	(O) RU 022B, OH, OH-SVY V0	(O) RU 251, OH, OH-TD V0
(X) Rosa Unit #712H, OH, Prelim #1 V0	(O) RU 125E, OH, OH-INC V0	(O) RU 005C, OH, OH-SVY+INC V0
(O) RU 068, OH, OH-INC V0	(O) RU 181D, OH, OH-SVY V0	(O) RU 067, OH, OH-INC V0
(O) RU 030B, OH, OH-INC V0	(O) RU 207, OH, OH-INC V0	(O) RU 065, OH, OH-INC V0
(O) RU 153C, OH, OH-SVY V0	(O) RU 031, OH, OH-TD V0	(O) RU 066M, OH, OH-SVY V0
(O) RU 153B, OH, OH-INC V0	(O) RU 016D, OH, OH-SVY V0	(O) RU 066, OH, OH-INC V0
(O) RU 374, OH, OH-INC V0	(O) RU 207A, OH, OH-INC V0	(O) RU 020D, ST01, ST01-SVY V0
(O) RU 046A, OH, OH-SVY V0	(O) RU 031A, OH, OH-INC V0	(O) RU 020D, OH, OH-SVY V0

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 #720H - Slot B04
Project:	Rio Arriba, NM (NAD83)	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Reference Site:	Rosa Pad 26 - 5 Well	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	EDM 5000 Multi User Db
Reference Design:	Prelim #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to 6300+30 @ 6330.00usft (H&P 530)

Offset Depths are relative to Offset Datum

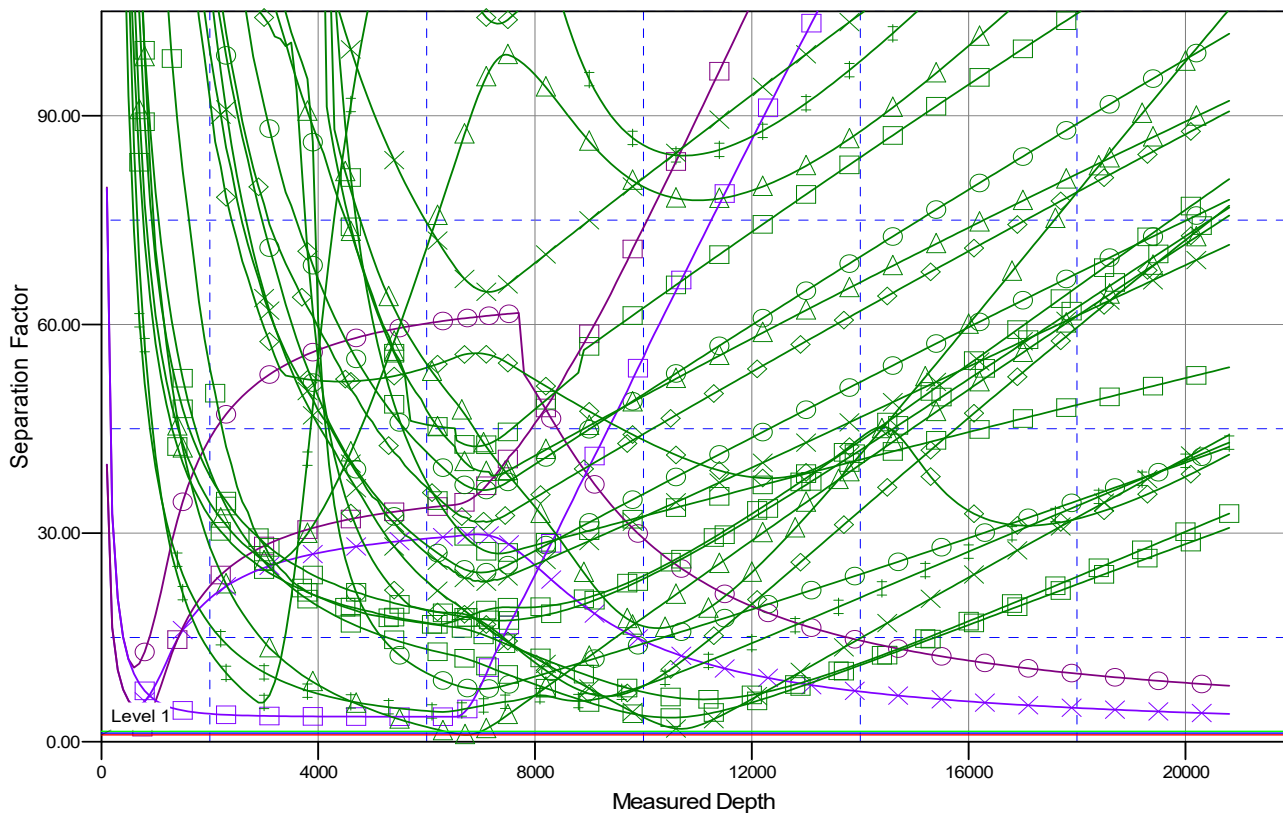
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit #720H - Slot B04

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

Grid Convergence at Surface is: 0.26°

Separation Factor Plot



LEGEND

Rosa Unit #722H, OH, Prelim #1 V0	(C) RU 119, OH, OH-INC V0	(C) RU 031B, OH, OH-INC V0
Rosa Unit #724H, OH, Prelim #1 V0	(C) RU 012D, OH, OH-SVY V0	(C) RU 125, OH, OH-INC V0
Rosa Unit #714H, OH, Prelim 1 V0	(C) RU 022B, OH, OH-SVY V0	(C) RU 251, OH, OH-TD V0
Rosa Unit #712H, OH, Prelim #1 V0	(C) RU 125E, OH, OH-INC V0	(C) RU 005C, OH, OH-SVY+INC V0
(C) RU 068, OH, OH-INC V0	(C) RU 181D, OH, OH-SVY V0	(C) RU 067, OH, OH-INC V0
(C) RU 030B, OH, OH-INC V0	(C) RU 207, OH, OH-INC V0	(C) RU 065, OH, OH-INC V0
(C) RU 153C, OH, OH-SVY V0	(C) RU 031, OH, OH-TD V0	(C) RU 066M, OH, OH-SVY V0
(C) RU 153B, OH, OH-INC V0	(C) RU 016D, OH, OH-SVY V0	(C) RU 066, OH, OH-INC V0
(C) RU 374, OH, OH-INC V0	(C) RU 207A, OH, OH-INC V0	(C) RU 020D, ST01, ST01-SVY V0
(C) RU 065A, OH, OH-SVY V0	(C) RU 031A, OH, OH-INC V0	(C) RU 020D, OH, OH-SVY 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 Pad 26 - 5 Well

Rosa Unit #720H - Slot B04

OH

Plan: Prelim #1

Standard Planning Report

30 August, 2024

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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 Pad 26 - 5 Well				
Site Position:		Northing:	2,147,556.27 usft	Latitude:	36.900914
From:	Lat/Long	Easting:	2,851,875.56 usft	Longitude:	-107.392877
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "		

Well	Rosa Unit #720H - Slot B04					
Well Position	+N/-S	0.00 usft	Northing:	2,147,498.46 usft	Latitude:	36.900755
	+E/-W	0.00 usft	Easting:	2,851,891.32 usft	Longitude:	-107.392824
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	6,300.00 usft
Grid Convergence:		0.26 °				

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/11/2023	8.55	63.46	49,574.70465998

Design	Prelim #1			
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	90.91

Plan Survey Tool Program			Date	8/30/2024	
Depth From (usft)	Depth To (usft)	Survey (Wellbore)		Tool Name	Remarks
1	0.00	20,808.63	Prelim #1 (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	
1,245.21	14.90	1.22	1,236.83	96.36	2.06	2.00	2.00	0.00	1.22	
6,521.58	14.90	1.22	6,335.69	1,453.15	31.03	0.00	0.00	0.00	0.00	
7,521.05	90.03	90.91	6,950.00	1,606.64	670.53	9.00	7.52	8.97	89.69	RU 720H POE-5
20,808.89	90.03	90.91	6,942.00	1,396.13	13,956.70	0.00	0.00	0.00	0.00	RU 720H PBHL-5

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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	1.22	599.98	1.74	0.04	0.01	2.00	2.00	0.00
700.00	4.00	1.22	699.84	6.98	0.15	0.04	2.00	2.00	0.00
800.00	6.00	1.22	799.45	15.69	0.34	0.09	2.00	2.00	0.00
900.00	8.00	1.22	898.70	27.87	0.60	0.15	2.00	2.00	0.00
1,000.00	10.00	1.22	997.47	43.51	0.93	0.24	2.00	2.00	0.00
1,100.00	12.00	1.22	1,095.62	62.59	1.34	0.34	2.00	2.00	0.00
1,200.00	14.00	1.22	1,193.06	85.08	1.82	0.47	2.00	2.00	0.00
1,245.21	14.90	1.22	1,236.83	96.36	2.06	0.53	2.00	2.00	0.00
Start 5276.37 hold at 1245.21 MD									
1,300.00	14.90	1.22	1,289.78	110.45	2.36	0.60	0.00	0.00	0.00
1,400.00	14.90	1.22	1,386.42	136.16	2.91	0.74	0.00	0.00	0.00
1,500.00	14.90	1.22	1,483.05	161.88	3.46	0.89	0.00	0.00	0.00
1,600.00	14.90	1.22	1,579.69	187.59	4.01	1.03	0.00	0.00	0.00
1,700.00	14.90	1.22	1,676.32	213.30	4.55	1.17	0.00	0.00	0.00
1,800.00	14.90	1.22	1,772.96	239.02	5.10	1.31	0.00	0.00	0.00
1,900.00	14.90	1.22	1,869.60	264.73	5.65	1.45	0.00	0.00	0.00
2,000.00	14.90	1.22	1,966.23	290.45	6.20	1.59	0.00	0.00	0.00
2,100.00	14.90	1.22	2,062.87	316.16	6.75	1.73	0.00	0.00	0.00
2,200.00	14.90	1.22	2,159.50	341.88	7.30	1.87	0.00	0.00	0.00
2,300.00	14.90	1.22	2,256.14	367.59	7.85	2.01	0.00	0.00	0.00
2,400.00	14.90	1.22	2,352.77	393.31	8.40	2.15	0.00	0.00	0.00
2,483.02	14.90	1.22	2,433.00	414.65	8.85	2.27	0.00	0.00	0.00
Ojo Alamo									
2,500.00	14.90	1.22	2,449.41	419.02	8.95	2.29	0.00	0.00	0.00
2,596.85	14.90	1.22	2,543.00	443.92	9.48	2.43	0.00	0.00	0.00
Kirtland									
2,600.00	14.90	1.22	2,546.05	444.73	9.50	2.43	0.00	0.00	0.00
2,700.00	14.90	1.22	2,642.68	470.45	10.05	2.57	0.00	0.00	0.00
2,800.00	14.90	1.22	2,739.32	496.16	10.59	2.71	0.00	0.00	0.00
2,900.00	14.90	1.22	2,835.95	521.88	11.14	2.85	0.00	0.00	0.00
2,942.48	14.90	1.22	2,877.00	532.80	11.38	2.91	0.00	0.00	0.00
Fruitland									
3,000.00	14.90	1.22	2,932.59	547.59	11.69	2.99	0.00	0.00	0.00
3,100.00	14.90	1.22	3,029.22	573.31	12.24	3.14	0.00	0.00	0.00
3,102.87	14.90	1.22	3,032.00	574.05	12.26	3.14	0.00	0.00	0.00
T/Coals									
3,200.00	14.90	1.22	3,125.86	599.02	12.79	3.28	0.00	0.00	0.00
3,258.09	14.90	1.22	3,182.00	613.96	13.11	3.36	0.00	0.00	0.00
T/Coals									
3,300.00	14.90	1.22	3,222.50	624.74	13.34	3.42	0.00	0.00	0.00
3,400.00	14.90	1.22	3,319.13	650.45	13.89	3.56	0.00	0.00	0.00
3,437.12	14.90	1.22	3,355.00	660.00	14.09	3.61	0.00	0.00	0.00
Pictured Cliffs									
3,500.00	14.90	1.22	3,415.77	676.16	14.44	3.70	0.00	0.00	0.00
3,545.77	14.90	1.22	3,460.00	687.94	14.69	3.76	0.00	0.00	0.00
Lewis									

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)
3,600.00	14.90	1.22	3,512.40	701.88	14.99	3.84	0.00	0.00	0.00
3,700.00	14.90	1.22	3,609.04	727.59	15.54	3.98	0.00	0.00	0.00
3,800.00	14.90	1.22	3,705.67	753.31	16.09	4.12	0.00	0.00	0.00
3,900.00	14.90	1.22	3,802.31	779.02	16.63	4.26	0.00	0.00	0.00
4,000.00	14.90	1.22	3,898.95	804.74	17.18	4.40	0.00	0.00	0.00
4,100.00	14.90	1.22	3,995.58	830.45	17.73	4.54	0.00	0.00	0.00
4,200.00	14.90	1.22	4,092.22	856.17	18.28	4.68	0.00	0.00	0.00
4,300.00	14.90	1.22	4,188.85	881.88	18.83	4.82	0.00	0.00	0.00
4,400.00	14.90	1.22	4,285.49	907.60	19.38	4.96	0.00	0.00	0.00
4,500.00	14.90	1.22	4,382.12	933.31	19.93	5.10	0.00	0.00	0.00
4,600.00	14.90	1.22	4,478.76	959.02	20.48	5.24	0.00	0.00	0.00
4,700.00	14.90	1.22	4,575.40	984.74	21.03	5.39	0.00	0.00	0.00
4,708.90	14.90	1.22	4,584.00	987.03	21.08	5.40	0.00	0.00	0.00
Chacra									
4,800.00	14.90	1.22	4,672.03	1,010.45	21.58	5.53	0.00	0.00	0.00
4,900.00	14.90	1.22	4,768.67	1,036.17	22.13	5.67	0.00	0.00	0.00
5,000.00	14.90	1.22	4,865.30	1,061.88	22.67	5.81	0.00	0.00	0.00
5,100.00	14.90	1.22	4,961.94	1,087.60	23.22	5.95	0.00	0.00	0.00
5,200.00	14.90	1.22	5,058.57	1,113.31	23.77	6.09	0.00	0.00	0.00
5,200.44	14.90	1.22	5,059.00	1,113.42	23.78	6.09	0.00	0.00	0.00
U/Cliff House									
5,300.00	14.90	1.22	5,155.21	1,139.03	24.32	6.23	0.00	0.00	0.00
5,400.00	14.90	1.22	5,251.85	1,164.74	24.87	6.37	0.00	0.00	0.00
5,500.00	14.90	1.22	5,348.48	1,190.45	25.42	6.51	0.00	0.00	0.00
5,513.99	14.90	1.22	5,362.00	1,194.05	25.50	6.53	0.00	0.00	0.00
Cliff House									
5,555.38	14.90	1.22	5,402.00	1,204.70	25.72	6.59	0.00	0.00	0.00
Menefee									
5,600.00	14.90	1.22	5,445.12	1,216.17	25.97	6.65	0.00	0.00	0.00
5,700.00	14.90	1.22	5,541.75	1,241.88	26.52	6.79	0.00	0.00	0.00
5,792.35	14.90	1.22	5,631.00	1,265.63	27.03	6.92	0.00	0.00	0.00
Point Lookout									
5,800.00	14.90	1.22	5,638.39	1,267.60	27.07	6.93	0.00	0.00	0.00
5,900.00	14.90	1.22	5,735.02	1,293.31	27.62	7.07	0.00	0.00	0.00
6,000.00	14.90	1.22	5,831.66	1,319.03	28.17	7.21	0.00	0.00	0.00
6,100.00	14.90	1.22	5,928.30	1,344.74	28.71	7.35	0.00	0.00	0.00
6,200.00	14.90	1.22	6,024.93	1,370.46	29.26	7.49	0.00	0.00	0.00
6,300.00	14.90	1.22	6,121.57	1,396.17	29.81	7.64	0.00	0.00	0.00
6,348.05	14.90	1.22	6,168.00	1,408.53	30.08	7.70	0.00	0.00	0.00
Mancos									
6,400.00	14.90	1.22	6,218.20	1,421.88	30.36	7.78	0.00	0.00	0.00
6,500.00	14.90	1.22	6,314.84	1,447.60	30.91	7.92	0.00	0.00	0.00
6,521.58	14.90	1.22	6,335.69	1,453.15	31.03	7.95	0.00	0.00	0.00
Start DLS 9.00 TFO 89.69									
6,550.00	15.13	11.07	6,363.15	1,460.44	31.82	8.62	9.00	0.80	34.64
6,600.00	16.49	26.87	6,411.28	1,473.19	36.28	12.88	9.00	2.72	31.61
6,650.00	18.83	39.59	6,458.93	1,485.74	44.64	21.03	9.00	4.68	25.45
6,700.00	21.83	49.27	6,505.83	1,498.03	56.83	33.03	9.00	6.01	19.36
6,750.00	25.27	56.57	6,551.67	1,509.98	72.79	48.80	9.00	6.87	14.61
6,800.00	28.98	62.17	6,596.17	1,521.52	92.42	68.24	9.00	7.42	11.20
6,850.00	32.87	66.58	6,639.06	1,532.57	115.59	91.24	9.00	7.79	8.80
6,900.00	36.89	70.13	6,680.07	1,543.07	142.17	117.64	9.00	8.03	7.10
6,950.00	40.99	73.06	6,718.96	1,552.96	171.99	147.30	9.00	8.21	5.88

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)	
7,000.00	45.16	75.55	6,755.47	1,562.16	204.86	180.02	9.00	8.34	4.97	
7,028.29	47.54	76.80	6,775.00	1,567.05	224.73	199.82	9.00	8.41	4.42	
Black Top										
7,050.00	49.38	77.70	6,789.40	1,570.63	240.58	215.61	9.00	8.45	4.13	
7,100.00	53.62	79.59	6,820.52	1,578.31	278.94	253.84	9.00	8.50	3.78	
7,150.00	57.90	81.29	6,848.64	1,585.16	319.69	294.47	9.00	8.55	3.39	
7,200.00	62.20	82.83	6,873.60	1,591.13	362.59	337.27	9.00	8.59	3.09	
7,250.00	66.51	84.26	6,895.24	1,596.19	407.36	381.96	9.00	8.63	2.85	
7,300.00	70.84	85.59	6,913.42	1,600.30	453.75	428.27	9.00	8.65	2.67	
7,350.00	75.17	86.86	6,928.03	1,603.44	501.45	475.92	9.00	8.67	2.53	
7,400.00	79.51	88.07	6,938.98	1,605.59	550.17	524.60	9.00	8.68	2.43	
7,450.00	83.86	89.26	6,946.22	1,606.74	599.62	574.03	9.00	8.69	2.37	
7,500.00	88.20	90.42	6,949.68	1,606.88	649.49	623.88	9.00	8.70	2.33	
7,521.05	90.03	90.91	6,950.00	1,606.64	670.53	644.93	9.00	8.70	2.32	
Start 13287.84 hold at 7521.05 MD										
7,600.00	90.03	90.91	6,949.95	1,605.39	749.47	723.88	0.00	0.00	0.00	
7,700.00	90.03	90.91	6,949.89	1,603.80	849.46	823.88	0.00	0.00	0.00	
7,800.00	90.03	90.91	6,949.83	1,602.22	949.45	923.88	0.00	0.00	0.00	
7,900.00	90.03	90.91	6,949.77	1,600.64	1,049.43	1,023.88	0.00	0.00	0.00	
8,000.00	90.03	90.91	6,949.71	1,599.05	1,149.42	1,123.88	0.00	0.00	0.00	
8,100.00	90.03	90.91	6,949.65	1,597.47	1,249.41	1,223.88	0.00	0.00	0.00	
8,200.00	90.03	90.91	6,949.59	1,595.88	1,349.40	1,323.88	0.00	0.00	0.00	
8,300.00	90.03	90.91	6,949.53	1,594.30	1,449.38	1,423.88	0.00	0.00	0.00	
8,400.00	90.03	90.91	6,949.47	1,592.71	1,549.37	1,523.88	0.00	0.00	0.00	
8,500.00	90.03	90.91	6,949.41	1,591.13	1,649.36	1,623.88	0.00	0.00	0.00	
8,600.00	90.03	90.91	6,949.35	1,589.55	1,749.35	1,723.88	0.00	0.00	0.00	
8,700.00	90.03	90.91	6,949.29	1,587.96	1,849.33	1,823.88	0.00	0.00	0.00	
8,800.00	90.03	90.91	6,949.23	1,586.38	1,949.32	1,923.88	0.00	0.00	0.00	
8,900.00	90.03	90.91	6,949.17	1,584.79	2,049.31	2,023.88	0.00	0.00	0.00	
9,000.00	90.03	90.91	6,949.11	1,583.21	2,149.29	2,123.88	0.00	0.00	0.00	
9,100.00	90.03	90.91	6,949.05	1,581.63	2,249.28	2,223.88	0.00	0.00	0.00	
9,200.00	90.03	90.91	6,948.99	1,580.04	2,349.27	2,323.88	0.00	0.00	0.00	
9,300.00	90.03	90.91	6,948.93	1,578.46	2,449.26	2,423.88	0.00	0.00	0.00	
9,400.00	90.03	90.91	6,948.87	1,576.87	2,549.24	2,523.88	0.00	0.00	0.00	
9,500.00	90.03	90.91	6,948.81	1,575.29	2,649.23	2,623.88	0.00	0.00	0.00	
9,600.00	90.03	90.91	6,948.75	1,573.70	2,749.22	2,723.88	0.00	0.00	0.00	
9,700.00	90.03	90.91	6,948.69	1,572.12	2,849.21	2,823.88	0.00	0.00	0.00	
9,800.00	90.03	90.91	6,948.63	1,570.54	2,949.19	2,923.88	0.00	0.00	0.00	
9,900.00	90.03	90.91	6,948.57	1,568.95	3,049.18	3,023.88	0.00	0.00	0.00	
10,000.00	90.03	90.91	6,948.51	1,567.37	3,149.17	3,123.88	0.00	0.00	0.00	
10,100.00	90.03	90.91	6,948.45	1,565.78	3,249.16	3,223.88	0.00	0.00	0.00	
10,200.00	90.03	90.91	6,948.39	1,564.20	3,349.14	3,323.88	0.00	0.00	0.00	
10,300.00	90.03	90.91	6,948.33	1,562.61	3,449.13	3,423.88	0.00	0.00	0.00	
10,400.00	90.03	90.91	6,948.27	1,561.03	3,549.12	3,523.88	0.00	0.00	0.00	
10,500.00	90.03	90.91	6,948.21	1,559.45	3,649.11	3,623.88	0.00	0.00	0.00	
10,600.00	90.03	90.91	6,948.15	1,557.86	3,749.09	3,723.88	0.00	0.00	0.00	
10,700.00	90.03	90.91	6,948.09	1,556.28	3,849.08	3,823.88	0.00	0.00	0.00	
10,800.00	90.03	90.91	6,948.03	1,554.69	3,949.07	3,923.88	0.00	0.00	0.00	
10,900.00	90.03	90.91	6,947.97	1,553.11	4,049.06	4,023.88	0.00	0.00	0.00	
11,000.00	90.03	90.91	6,947.91	1,551.53	4,149.04	4,123.88	0.00	0.00	0.00	
11,100.00	90.03	90.91	6,947.85	1,549.94	4,249.03	4,223.88	0.00	0.00	0.00	
11,200.00	90.03	90.91	6,947.79	1,548.36	4,349.02	4,323.88	0.00	0.00	0.00	
11,300.00	90.03	90.91	6,947.73	1,546.77	4,449.01	4,423.88	0.00	0.00	0.00	
11,400.00	90.03	90.91	6,947.66	1,545.19	4,548.99	4,523.88	0.00	0.00	0.00	

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)	
11,500.00	90.03	90.91	6,947.60	1,543.60	4,648.98	4,623.88	0.00	0.00	0.00	
11,600.00	90.03	90.91	6,947.54	1,542.02	4,748.97	4,723.88	0.00	0.00	0.00	
11,700.00	90.03	90.91	6,947.48	1,540.44	4,848.96	4,823.88	0.00	0.00	0.00	
11,800.00	90.03	90.91	6,947.42	1,538.85	4,948.94	4,923.88	0.00	0.00	0.00	
11,900.00	90.03	90.91	6,947.36	1,537.27	5,048.93	5,023.88	0.00	0.00	0.00	
12,000.00	90.03	90.91	6,947.30	1,535.68	5,148.92	5,123.88	0.00	0.00	0.00	
12,100.00	90.03	90.91	6,947.24	1,534.10	5,248.91	5,223.88	0.00	0.00	0.00	
12,200.00	90.03	90.91	6,947.18	1,532.52	5,348.89	5,323.88	0.00	0.00	0.00	
12,300.00	90.03	90.91	6,947.12	1,530.93	5,448.88	5,423.88	0.00	0.00	0.00	
12,400.00	90.03	90.91	6,947.06	1,529.35	5,548.87	5,523.88	0.00	0.00	0.00	
12,500.00	90.03	90.91	6,947.00	1,527.76	5,648.86	5,623.88	0.00	0.00	0.00	
12,600.00	90.03	90.91	6,946.94	1,526.18	5,748.84	5,723.88	0.00	0.00	0.00	
12,700.00	90.03	90.91	6,946.88	1,524.59	5,848.83	5,823.88	0.00	0.00	0.00	
12,800.00	90.03	90.91	6,946.82	1,523.01	5,948.82	5,923.88	0.00	0.00	0.00	
12,900.00	90.03	90.91	6,946.76	1,521.43	6,048.80	6,023.88	0.00	0.00	0.00	
13,000.00	90.03	90.91	6,946.70	1,519.84	6,148.79	6,123.88	0.00	0.00	0.00	
13,100.00	90.03	90.91	6,946.64	1,518.26	6,248.78	6,223.88	0.00	0.00	0.00	
13,200.00	90.03	90.91	6,946.58	1,516.67	6,348.77	6,323.88	0.00	0.00	0.00	
13,300.00	90.03	90.91	6,946.52	1,515.09	6,448.75	6,423.88	0.00	0.00	0.00	
13,400.00	90.03	90.91	6,946.46	1,513.50	6,548.74	6,523.88	0.00	0.00	0.00	
13,500.00	90.03	90.91	6,946.40	1,511.92	6,648.73	6,623.88	0.00	0.00	0.00	
13,600.00	90.03	90.91	6,946.34	1,510.34	6,748.72	6,723.88	0.00	0.00	0.00	
13,700.00	90.03	90.91	6,946.28	1,508.75	6,848.70	6,823.88	0.00	0.00	0.00	
13,800.00	90.03	90.91	6,946.22	1,507.17	6,948.69	6,923.88	0.00	0.00	0.00	
13,900.00	90.03	90.91	6,946.16	1,505.58	7,048.68	7,023.88	0.00	0.00	0.00	
14,000.00	90.03	90.91	6,946.10	1,504.00	7,148.67	7,123.88	0.00	0.00	0.00	
14,100.00	90.03	90.91	6,946.04	1,502.42	7,248.65	7,223.88	0.00	0.00	0.00	
14,200.00	90.03	90.91	6,945.98	1,500.83	7,348.64	7,323.88	0.00	0.00	0.00	
14,300.00	90.03	90.91	6,945.92	1,499.25	7,448.63	7,423.88	0.00	0.00	0.00	
14,400.00	90.03	90.91	6,945.86	1,497.66	7,548.62	7,523.88	0.00	0.00	0.00	
14,500.00	90.03	90.91	6,945.80	1,496.08	7,648.60	7,623.88	0.00	0.00	0.00	
14,600.00	90.03	90.91	6,945.74	1,494.49	7,748.59	7,723.88	0.00	0.00	0.00	
14,700.00	90.03	90.91	6,945.68	1,492.91	7,848.58	7,823.88	0.00	0.00	0.00	
14,800.00	90.03	90.91	6,945.62	1,491.33	7,948.57	7,923.88	0.00	0.00	0.00	
14,900.00	90.03	90.91	6,945.56	1,489.74	8,048.55	8,023.88	0.00	0.00	0.00	
15,000.00	90.03	90.91	6,945.50	1,488.16	8,148.54	8,123.88	0.00	0.00	0.00	
15,100.00	90.03	90.91	6,945.44	1,486.57	8,248.53	8,223.88	0.00	0.00	0.00	
15,200.00	90.03	90.91	6,945.38	1,484.99	8,348.52	8,323.88	0.00	0.00	0.00	
15,300.00	90.03	90.91	6,945.32	1,483.41	8,448.50	8,423.88	0.00	0.00	0.00	
15,400.00	90.03	90.91	6,945.26	1,481.82	8,548.49	8,523.88	0.00	0.00	0.00	
15,500.00	90.03	90.91	6,945.20	1,480.24	8,648.48	8,623.88	0.00	0.00	0.00	
15,600.00	90.03	90.91	6,945.14	1,478.65	8,748.47	8,723.88	0.00	0.00	0.00	
15,700.00	90.03	90.91	6,945.08	1,477.07	8,848.45	8,823.88	0.00	0.00	0.00	
15,800.00	90.03	90.91	6,945.02	1,475.48	8,948.44	8,923.88	0.00	0.00	0.00	
15,900.00	90.03	90.91	6,944.96	1,473.90	9,048.43	9,023.88	0.00	0.00	0.00	
16,000.00	90.03	90.91	6,944.90	1,472.32	9,148.42	9,123.88	0.00	0.00	0.00	
16,100.00	90.03	90.91	6,944.84	1,470.73	9,248.40	9,223.88	0.00	0.00	0.00	
16,200.00	90.03	90.91	6,944.77	1,469.15	9,348.39	9,323.88	0.00	0.00	0.00	
16,300.00	90.03	90.91	6,944.71	1,467.56	9,448.38	9,423.88	0.00	0.00	0.00	
16,400.00	90.03	90.91	6,944.65	1,465.98	9,548.37	9,523.88	0.00	0.00	0.00	
16,500.00	90.03	90.91	6,944.59	1,464.39	9,648.35	9,623.88	0.00	0.00	0.00	
16,600.00	90.03	90.91	6,944.53	1,462.81	9,748.34	9,723.88	0.00	0.00	0.00	
16,700.00	90.03	90.91	6,944.47	1,461.23	9,848.33	9,823.88	0.00	0.00	0.00	
16,800.00	90.03	90.91	6,944.41	1,459.64	9,948.31	9,923.88	0.00	0.00	0.00	

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

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)
16,900.00	90.03	90.91	6,944.35	1,458.06	10,048.30	10,023.88	0.00	0.00	0.00
17,000.00	90.03	90.91	6,944.29	1,456.47	10,148.29	10,123.88	0.00	0.00	0.00
17,100.00	90.03	90.91	6,944.23	1,454.89	10,248.28	10,223.88	0.00	0.00	0.00
17,200.00	90.03	90.91	6,944.17	1,453.31	10,348.26	10,323.88	0.00	0.00	0.00
17,300.00	90.03	90.91	6,944.11	1,451.72	10,448.25	10,423.88	0.00	0.00	0.00
17,400.00	90.03	90.91	6,944.05	1,450.14	10,548.24	10,523.88	0.00	0.00	0.00
17,500.00	90.03	90.91	6,943.99	1,448.55	10,648.23	10,623.88	0.00	0.00	0.00
17,600.00	90.03	90.91	6,943.93	1,446.97	10,748.21	10,723.88	0.00	0.00	0.00
17,700.00	90.03	90.91	6,943.87	1,445.38	10,848.20	10,823.88	0.00	0.00	0.00
17,800.00	90.03	90.91	6,943.81	1,443.80	10,948.19	10,923.88	0.00	0.00	0.00
17,900.00	90.03	90.91	6,943.75	1,442.22	11,048.18	11,023.88	0.00	0.00	0.00
18,000.00	90.03	90.91	6,943.69	1,440.63	11,148.16	11,123.88	0.00	0.00	0.00
18,100.00	90.03	90.91	6,943.63	1,439.05	11,248.15	11,223.88	0.00	0.00	0.00
18,200.00	90.03	90.91	6,943.57	1,437.46	11,348.14	11,323.88	0.00	0.00	0.00
18,300.00	90.03	90.91	6,943.51	1,435.88	11,448.13	11,423.88	0.00	0.00	0.00
18,400.00	90.03	90.91	6,943.45	1,434.30	11,548.11	11,523.88	0.00	0.00	0.00
18,500.00	90.03	90.91	6,943.39	1,432.71	11,648.10	11,623.88	0.00	0.00	0.00
18,600.00	90.03	90.91	6,943.33	1,431.13	11,748.09	11,723.88	0.00	0.00	0.00
18,700.00	90.03	90.91	6,943.27	1,429.54	11,848.08	11,823.88	0.00	0.00	0.00
18,800.00	90.03	90.91	6,943.21	1,427.96	11,948.06	11,923.88	0.00	0.00	0.00
18,900.00	90.03	90.91	6,943.15	1,426.37	12,048.05	12,023.88	0.00	0.00	0.00
19,000.00	90.03	90.91	6,943.09	1,424.79	12,148.04	12,123.88	0.00	0.00	0.00
19,100.00	90.03	90.91	6,943.03	1,423.21	12,248.03	12,223.88	0.00	0.00	0.00
19,200.00	90.03	90.91	6,942.97	1,421.62	12,348.01	12,323.88	0.00	0.00	0.00
19,300.00	90.03	90.91	6,942.91	1,420.04	12,448.00	12,423.88	0.00	0.00	0.00
19,400.00	90.03	90.91	6,942.85	1,418.45	12,547.99	12,523.88	0.00	0.00	0.00
19,500.00	90.03	90.91	6,942.79	1,416.87	12,647.98	12,623.88	0.00	0.00	0.00
19,600.00	90.03	90.91	6,942.73	1,415.29	12,747.96	12,723.88	0.00	0.00	0.00
19,700.00	90.03	90.91	6,942.67	1,413.70	12,847.95	12,823.88	0.00	0.00	0.00
19,800.00	90.03	90.91	6,942.61	1,412.12	12,947.94	12,923.88	0.00	0.00	0.00
19,900.00	90.03	90.91	6,942.55	1,410.53	13,047.93	13,023.88	0.00	0.00	0.00
20,000.00	90.03	90.91	6,942.49	1,408.95	13,147.91	13,123.88	0.00	0.00	0.00
20,100.00	90.03	90.91	6,942.43	1,407.36	13,247.90	13,223.88	0.00	0.00	0.00
20,200.00	90.03	90.91	6,942.37	1,405.78	13,347.89	13,323.88	0.00	0.00	0.00
20,300.00	90.03	90.91	6,942.31	1,404.20	13,447.88	13,423.88	0.00	0.00	0.00
20,400.00	90.03	90.91	6,942.25	1,402.61	13,547.86	13,523.88	0.00	0.00	0.00
20,500.00	90.03	90.91	6,942.19	1,401.03	13,647.85	13,623.88	0.00	0.00	0.00
20,600.00	90.03	90.91	6,942.13	1,399.44	13,747.84	13,723.88	0.00	0.00	0.00
20,700.00	90.03	90.91	6,942.07	1,397.86	13,847.82	13,823.88	0.00	0.00	0.00
20,808.63	90.03	90.91	6,942.00	1,396.14	13,956.44	13,932.51	0.00	0.00	0.00
TD at 20808.89									
20,808.89	90.03	90.91	6,942.00	1,396.13	13,956.70	13,932.76	0.00	0.00	0.00

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #720H - Slot B04
Company:	Logos Operating LLC	TVD Reference:	6300+30 @ 6330.00usft (H&P 530)
Project:	Rio Arriba, NM (NAD83)	MD Reference:	6300+30 @ 6330.00usft (H&P 530)
Site:	Rosa Pad 26 - 5 Well	North Reference:	True
Well:	Rosa Unit #720H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

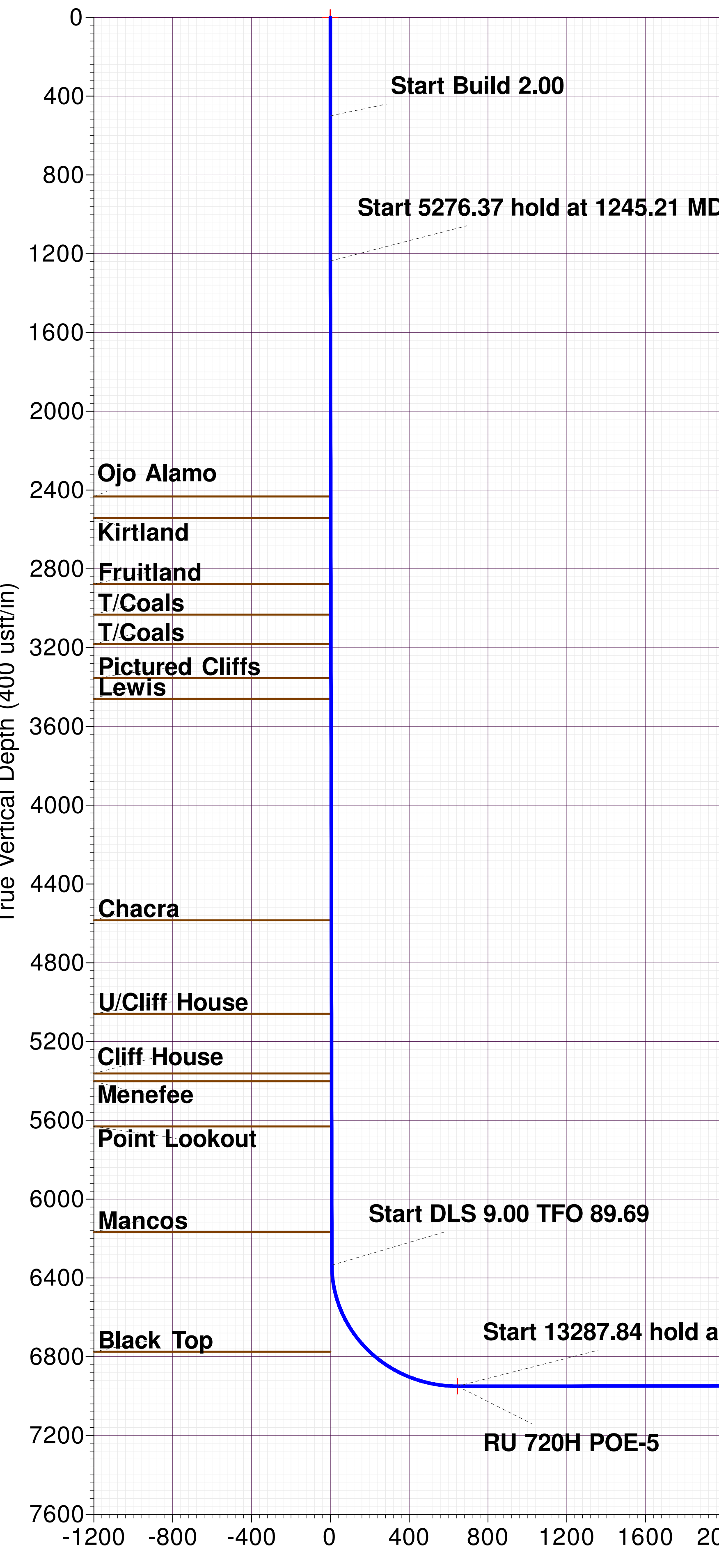
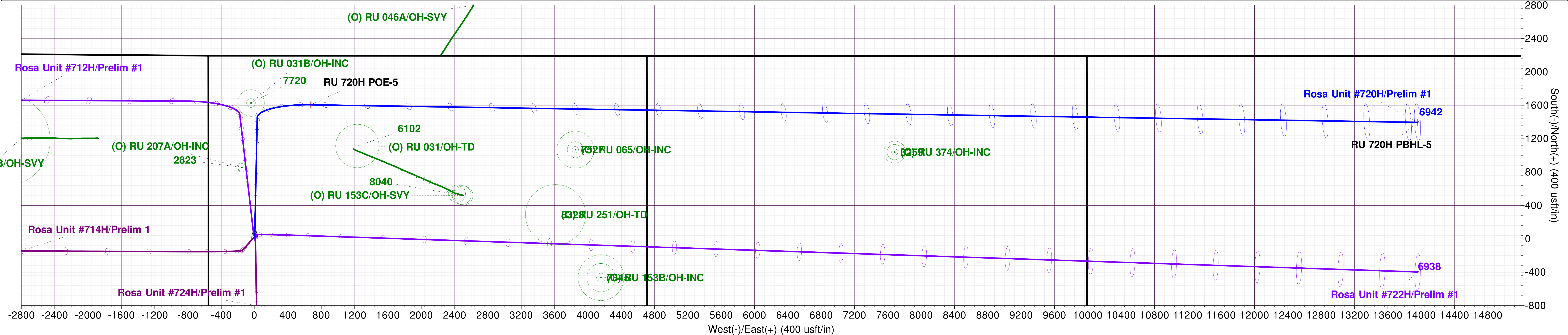
Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
RU 720H SHL-5	0.00	0.00	0.00	0.00	0.00	2,147,498.46	2,851,891.32	36.900755	-107.392824
- plan hits target center									
- Point									
RU 720H PBHL-5	0.00	0.00	6,942.00	1,396.13	13,956.70	2,148,959.01	2,865,841.43	36.904580	-107.345089
- plan hits target center									
- Point									
RU 720H POE-5	0.00	0.00	6,950.00	1,606.64	670.53	2,149,108.18	2,852,554.43	36.905168	-107.390531
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth					
(usft)	(usft)	Name	Lithology	Dip	Dip Direction	
				(°)	(°)	
2,483.02	2,433.00	Ojo Alamo				
2,596.85	2,543.00	Kirtland				
2,942.48	2,877.00	Fruitland				
3,102.87	3,032.00	T/Coals				
3,258.09	3,182.00	T/Coals				
3,437.12	3,355.00	Pictured Cliffs				
3,545.77	3,460.00	Lewis				
4,708.90	4,584.00	Chacra				
5,200.44	5,059.00	U/Cliff House				
5,513.99	5,362.00	Cliff House				
5,555.38	5,402.00	Menefee				
5,792.35	5,631.00	Point Lookout				
6,348.05	6,168.00	Mancos				
7,028.29	6,775.00	Black Top				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S	+E/-W	Comment
		(usft)	(usft)	
500.00	500.00	0.00	0.00	Start Build 2.00
1,245.21	1,236.83	96.36	2.06	Start 5276.37 hold at 1245.21 MD
6,521.58	6,335.69	1,453.15	31.03	Start DLS 9.00 TFO 89.69
7,521.05	6,950.00	1,606.64	670.53	Start 13287.84 hold at 7521.05 MD
20,808.63	6,942.00	1,396.14	13,956.44	TD at 20808.89



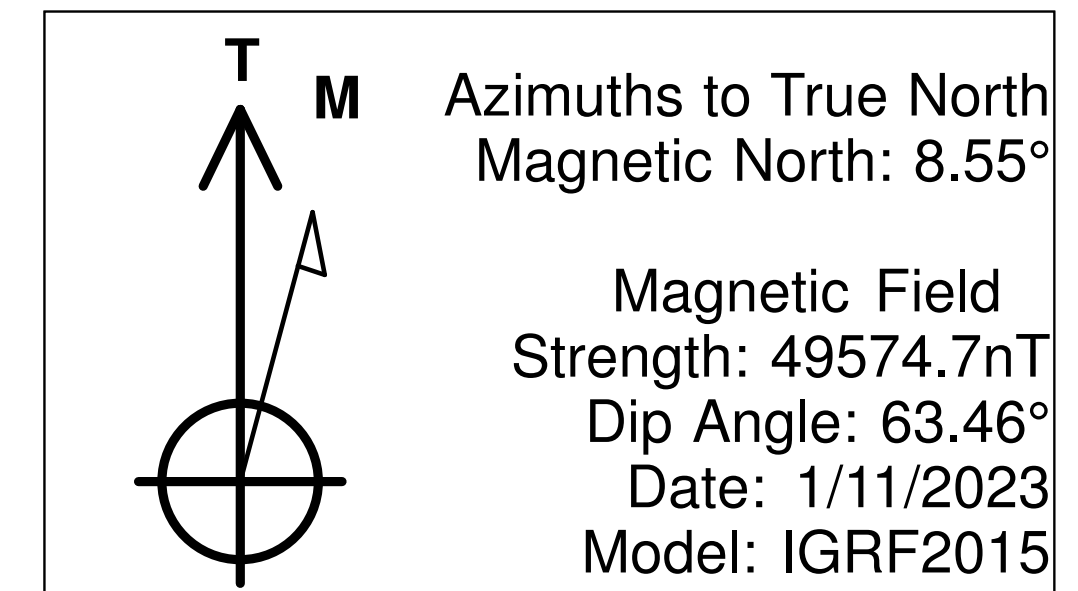
County: Rio Arriba, NM (NAD83)
Site: Rosa Pad 26 - 5 Well
Well: Rosa Unit #720H
Depth Reference: 6300+30 @ 6330.00usft (H&P 530)
Rig: H&P 530
Plan: Prelim #1
Job #: Prelim



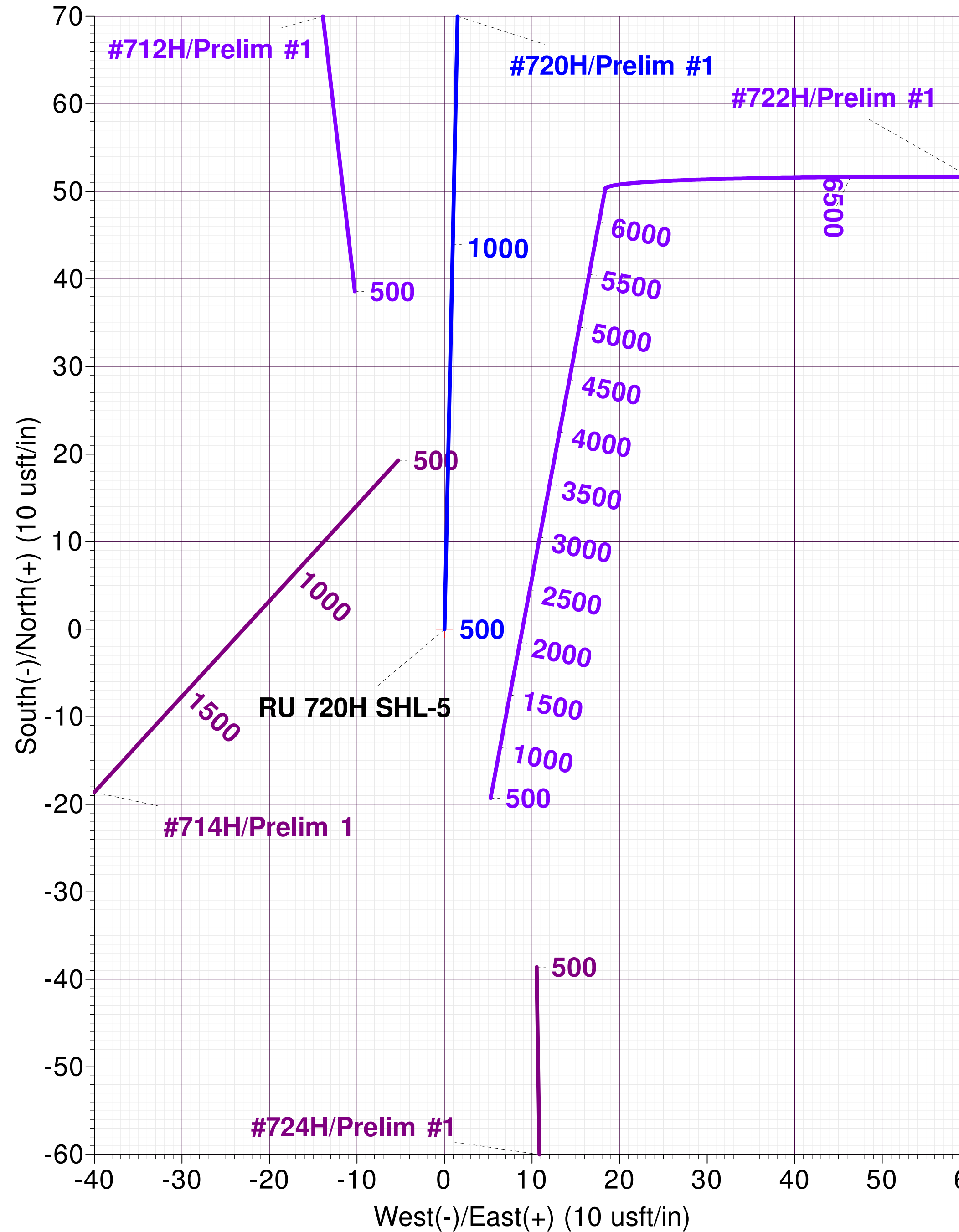
SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00	
3	1245.21	14.90	1.22	1236.83	96.36	2.06	2.00	1.22	0.53	Start 5276.37 hold at 1245.21 MD	
4	6521.58	14.90	1.22	6335.69	1453.15	31.03	0.00	0.00	7.95	Start DLS 9.00 TFO 89.69	
5	7521.05	90.03	90.91	6950.00	1606.64	670.53	9.00	89.69	644.93	Start 13287.84 hold at 7521.05 MD	
6	20808.89	90.03	90.91	6942.00	1396.13	13956.70	0.00	0.00	13932.76	TD at 20808.89	

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude		
RU 720H SHL-5	0.00	0.00	0.00	2147498.46	2851891.32	36.900755	-107.392824		
RU 720H PBHL-5	6942.00	1396.13	13956.70	2148959.01	2865841.42	36.904580	-107.345089		
RU 720H POE-5	6950.00	1606.64	670.53	2149108.18	2852554.43	36.905168	-107.390531		

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2433.00	2483.02	Ojo Alamo
2543.00	2596.85	Kirtland
2877.00	2942.48	Fruitland
3032.00	3102.87	T/Coals
3182.00	3258.09	T/Coals
3355.00	3437.12	Pictured Cliffs
3460.00	3545.77	Lewis
4584.00	4708.90	Chacra
5059.00	5200.44	U/Cliff House
5362.00	5513.99	Cliff House
5402.00	5555.38	Menefee
5631.00	5792.35	Point Lookout
6168.00	6348.05	Mancos
6775.00	7028.29	Black Top



TOTAL CORRECTION: 8.55°





LOGOS Operating, LLC Operations Plan

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

Date:	September 23, 2024	Pool:	Basin Mancos
Well Name:	Rosa Unit 720H	GL Elevation:	6,300'
Surface Location:	Sec 17, T31N, R5W 2195' FNL, 555' FWL (36.900755° N, -107.392824° W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 15, T31N, R5W 795' FNL, 1305' FEL (36.904580° N, -107.345089° W – NAD83)	Measured Depth:	20,809' (KB)
Lease Serial CA Serial	# NMSF078764 # 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	2483'	2433'	*POINT LOOKOUT	5792'	5631'
KIRTLAND	2597'	2543'	*MANCOS	6348'	6168'
*FRUITLAND	2943'	2877'	KICKOFF POINT	6522'	6336'
*PICTURED CLIFFS	3437'	3355'	LANDING POINT	7521'	6950'
LEWIS	3546'	3460'	TD	20809'	6942'
CHACRA	4709'	4584'			
*CLIFF HOUSE	5514'	5362'			
MENEFEE	5555'	5402'			

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

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



- B. BOP TESTING:** The BOPE will be tested to **250 psi (Low) for 5 minutes** and **3000 psi (High) for 10 minutes**. Pressure test surface casing to **600 psi for 30 minutes** and intermediate casing to **1500 psi for 30 minutes**. Utilize a BOPE Testing Unit with a recording chart and appropriate test plug for testing. The drum brakes will be inspected and tested each tour. BOP equipment will be tested every 30 days, after any repairs are made to the BOP equipment, and after the BOP equipment is subjected to pressure. Annular preventers will be functionally operated at least once per week. Pipe and blind rams shall be activated each trip or but not more than once a day. The New Mexico Oil & Gas Conservation Commission and the BLM will be notified 24 hours in advance of testing of BOPE. **All tests and inspections will be recorded and logged with time and results.** A full BOP test will be conducted when initially installed for the first well on the pad or if seals subject to test pressure are broken, following related repairs and at a minimum of 30 day intervals. A BOPE Shell Test only will be conducted for subsequent wells on the pad when seals subject to pressure have not been broken or repaired and fall within the 30 day interval of first full test.
- C. GeoHazards:** There are no Geohazards
- D. Maximum Anticipated Pressure:** 6,950' TVD x 0.43 = 2,989 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
CONDUCTOR	26" or 24"	320' or greater (GL)	20"	94 LBS	J-55 or equiv	LTC/BTC
SURFACE	17.5"	3,487'	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,423'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,809'	5.5"	20 LBS	P-110 or equiv	LTC/BTC

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

B. FLOAT EQUIPMENT:

- 1. CONDUCTOR CASING:** 20" cement nose guide shoe. Place float collar 1 joint above shoe. Run (1) standard centralizer on each of the bottom (3) joints of casing.
- 2. SURFACE CASING:** 13-3/8" cement nose guide shoe with float. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,000ft., 1,500 ft., 1,000 ft., and 500ft.
 - Casing will be kept fluid filled during drilling
- 3. INTERMEDIATE CASING:** 9-5/8" cement float shoe. Place float collar one joint above the shoe. Install (1) centralizer on each of the bottom (3) joints and one standard centralizer every (3) joints to 2,500 ft. Run (1) centralizer at 2,500 ft., 2,300ft., 2,000ft., 1,500 ft., and 1,000 ft. Optional use of DV Tools (2) will be strategically placed above loss circulation zones anticipated in the Mesaverde and Fruitland Coal. Optional use of cancelation plugs for DV tools may be used if losses while cementing are not encountered. Optional use of an ICP may be used in conjunction with DV Tools.
- 4. PRODUCTION CASING:** Run 5-1/2" casing with cement nose guide Float Shoe, 5-1/2" full or pup joints as necessary, Landing Collar, 5-1/2" full or pup joints as necessary, at least (1) one Toe Sleeve (Sliding Sleeve) positioned inside the applicable production area. Centralizer program will be determined by wellbore conditions. Production casing to be pressure tested



during completion operations with frac stack installed.

C. CEMENTING:

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

1. CONDUCTOR: Casing shall be set at ~ 320'(GL) and cemented to surface. TOC at Surface.

Conductor - 20"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Type G	-	320	0.9599	1.3	449	80	1.10	408	15.8
Type III		320	0.9599	1.3	449	80	1.39	323	14.6

24" hole

Set Depth (GL) 320

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

Surface - 13-3/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	2,887	600	0.6947	1.3	575	102	1.10	523	15.8
Stage 1 Lead - OH	320	2,567	0.6947	1.3	2,318	413	1.90	1220	12.4
Stage 2 Lead - Cased	-	320	1.019	1	326	58	1.90	172	12.4
					3,220	573		1915	

Set Depth 3487

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

Intermediate - 9-5/8"	Top	Footage	Cement (ft3/ft) Annular Capacity	Excess (30%)	Total (ft3)	Total (bbl)	Slurry Yield (ft3/sk)	Sacks Cement	Density (PPG)
Stage 1 Tail	5,923	500	0.3132	1.3	220	39	1.10	200	15.8
Stage 1 Lead	4,784	1,139	0.3132	1.3	464	83	1.90	244	12.4
					684	122		444	
Stage 2 Tail	4,184	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,387	797	0.3132	1.3	325	58	1.90	171	12.4
Stage 2 Lead - Cased	3,287	100	0.3627	1	36	6	1.90	19	12.4
Stage 2 Totals					605	108		344	
Int 2 Totals					1,289	230		789	
Contingency									
Stage 3 Tail	3,487	75	0.3132	1.3	31	5	1.58	19	13.2
Stage 3 Tail - Cased	2,987	500	0.3490	1	175	31	1.58	110	13.2
Stage 3 Lead - Cased	-	2,987	0.3490	1	1,042	186	1.90	549	12.4
Contingency Stage 3 Totals					1,248	222		678	

Set Depth 6423



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

4. **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 Lead	6,323	100	0.2531	1	25	5	1.98	13	13.2
Open Hole Lead	6,423	14,386	0.2291	1.15	3,795	676	1.98	1,917	13.2
					3,821	681		1,930	

Set depth 20809

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

Cement calculations are used for volume estimation. Well conditions will dictate final cement job design. Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected. All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

IV. **COMPLETION**

A. **CBL**

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

B. **PRESSURE TEST**

- C. Pressure test 5-1/2" casing to 0.22 psi/ft * 6,950' TVD = 1529 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**

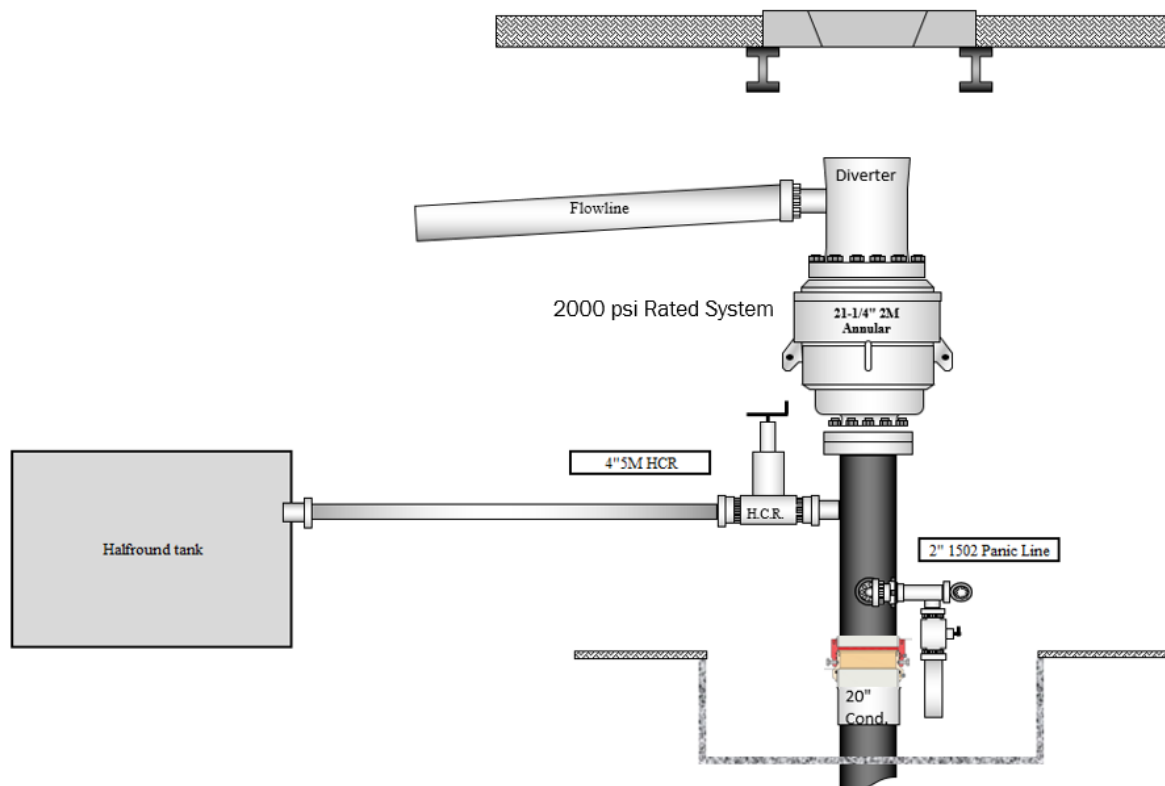
2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*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.



BOP Equipment

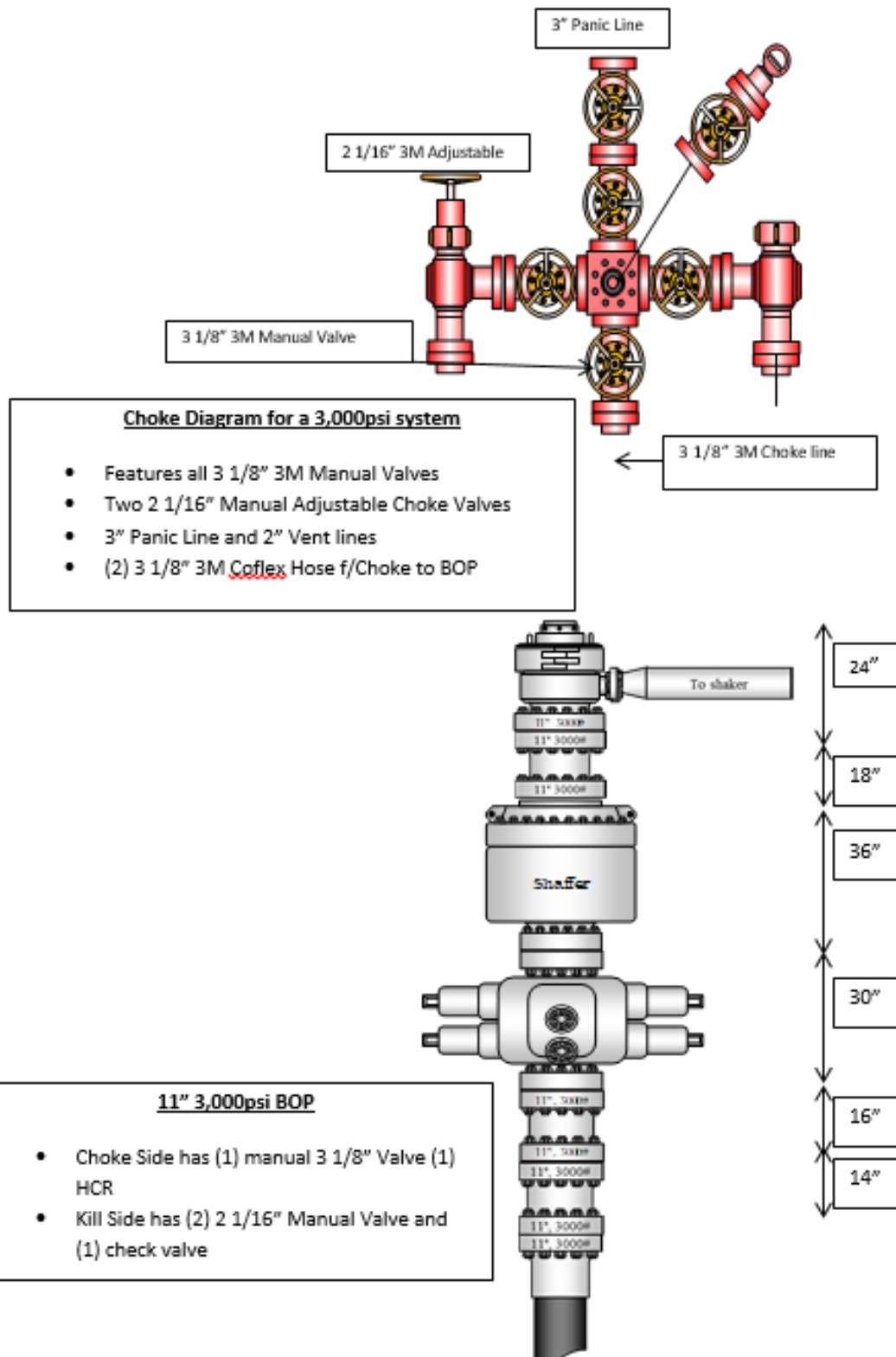
Surface Hole Diverter:





BOP:

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 387906

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 387906
	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.	10/27/2024