

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 17 / SWNW / 36.900875 / -107.392864	County or Parish/State: RIO ARRIBA / NM
Well Number: 712H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078764	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number: 3003931476	Operator: LOGOS OPERATING LLC	

Notice of Intent

Sundry ID: 2814096

Type of Submission: Notice of Intent	Type of Action: APD Change
Date Sundry Submitted: 09/27/2024	Time Sundry Submitted: 07:22
Date proposed operation will begin: 09/27/2024	

Procedure Description: LOGOS Operating request a change in plans for the following: Change to 4-string design. Original SHL: Sec 17, T31N, R5W 2151 FNL, 543 FWL to Sec 17, T31N, R5W 2156' FNL, 544' FWL Original BHL: Sec 14, T31N, R6W 1476 FNL, 1311 FEL to Sec 14, T31N, R6W 519' FNL, 7' FWL Original TD @ 16,702' (MD) 6,925' (TVD) to new TD @ 20,855' (MD) 6,915' (TVD) Geology tops have been updated per changes. Original KOP @ 6,435' (MD) 6,400' (TVD) to new KOP @ 6,544' (MD) 6,357' (TVD) Original Landing point @ 7,317' (MD) 6,950' (TVD) to new Landing point @ 7,526' (MD) 6,953' (TVD) Add Conductor: 20" casing, set @ 320' or greater of casing. Casing shall be set at ~ 320'(GL) Original surface depth 320' to 3,490' Original intermediate depth 6,277' to 6,426' Original production depth 16,702' to 20,855' All cementing bbls and sacks have been updated per casing depth changes Attached: New C102, Operation and Directional Drill plans.

NOI Attachments

Procedure Description

- Rosa_Unit_712H_Operations_Plan_4_string_Prelim_WP1._9.23.2024_RH_20240927072213.pdf
- Logos___Rosa_Unit_712H_5_Wall_Prelim_1_20240927072010.pdf
- Logos___Rosa_Unit_712H_5_AC_Report_Prelim_1_20240927072010.pdf
- 712H_ROSA_UNIT_CIP_1_20240926_signed_20240927072010.PDF
- Logos___Rosa_Unit_712H_5_Plan_Data_Prelim_1_20240927072010.pdf

Well Name: ROSA UNIT	Well Location: T31N / R5W / SEC 17 / SWNW / 36.900875 / -107.392864	County or Parish/State: RIO ARRIBA / NM
Well Number: 712H	Type of Well: CONVENTIONAL GAS WELL	Allottee or Tribe Name:
Lease Number: NMSF078764	Unit or CA Name: ROSA UNIT	Unit or CA Number: NMNM78407E
US Well Number: 3003931476	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 27, 2024 07:22 AM

Name: LOGOS OPERATING LLC

Title: REGULATORY SPECIALIST

Street Address: 2010 AFTON PLACE

City: FARMINGTONState: 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 30-039-31476	Pool Code 97232	Pool Name BASIN MANCOS
Property Code 320608	Property Name ROSA UNIT	Well Number 712H
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 2156' NORTH	Feet from E/W Line 544' WEST	Latitude 36.900861 °N	Longitude -107.392859 °W	County RIO ARRIBA
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Bottom Hole Location

UL D	Section 14	Township 31N	Range 6W	Lot	Feet from N/S Line 519' NORTH	Feet from E/W Line 7' WEST	Latitude 36.905480 °N	Longitude -107.441204 °W	County RIO ARRIBA
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Penetrated Spacing Unit:

Dedicated Acres 823.43	N/2 - Section 13, T31N, R6W N/2 - Section 14, T31N, R6W N/2 - Section 18, 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 706' NORTH	Feet from E/W Line 377' WEST	Latitude 36.904845 °N	Longitude -107.393434 °W	County RIO ARRIBA
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First Take Point (FTP)

UL A	Section 18	Township 31N	Range 5W	Lot	Feet from N/S Line 545' NORTH	Feet from E/W Line 260' EAST	Latitude 36.905289 °N	Longitude -107.395613 °W	County RIO ARRIBA
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Last Take Point (LTP)

UL D	Section 14	Township 31N	Range 6W	Lot	Feet from N/S Line 519' NORTH	Feet from E/W Line 7' WEST	Latitude 36.905480 °N	Longitude -107.441204 °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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BOTTOM HOLE LOCATION (E)
 519' FNL 7' FWL
 SECTION 14, T31N, R6W
 LAT 36.905474°N
 LONG -107.440600°W
 DATUM: NAD1927

LAT 36.905480°N
 LONG -107.441204°W
 DATUM: NAD1983

LAST TAKE POINT (D)
 519' FNL 7' FWL
 SECTION 14, T31N, R6W
 LAT 36.905474°N
 LONG -107.440600°W
 DATUM: NAD1927

LAT 36.905480°N
 LONG -107.441204°W
 DATUM: NAD1983

FIRST TAKE POINT (C)
 545' FNL 260' FWL
 SECTION 18, T31N, R5W
 LAT 36.905283°N
 LONG -107.395011°W
 DATUM: NAD1927

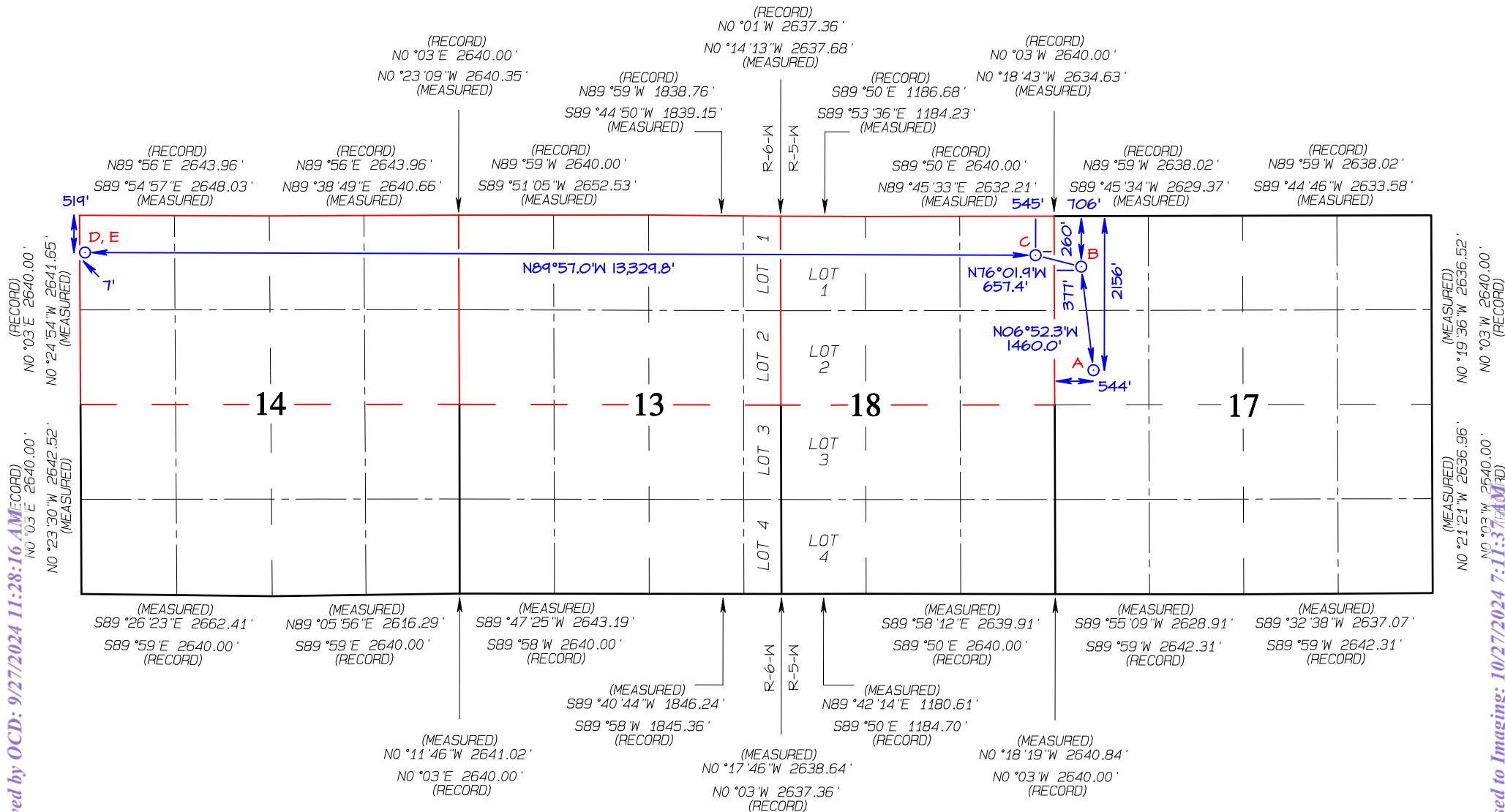
LAT 36.905289°N
 LONG -107.395613°W
 DATUM: NAD1983

KICK OFF POINT (B)
 706' FNL 377' FWL
 SECTION 17, T31N, R5W
 LAT 36.904839°N
 LONG -107.392831°W
 DATUM: NAD1927

LAT 36.904845°N
 LONG -107.393434°W
 DATUM: NAD1983

SURFACE LOCATION (A)
 2156' FNL 544' FWL
 SECTION 17, T31N, R5W
 LAT 36.900855°N
 LONG -107.392257°W
 DATUM: NAD1927

LAT 36.900861°N
 LONG -107.392859°W
 DATUM: NAD1983





Logos Operating LLC

Rio Arriba, NM (NAD83)

Rosa Pad 26 - 5 Well

Rosa Unit #712H

OH

Prelim #1

Anticollision Report

30 August, 2024

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:	ISCWSA
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	20,855.45	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	20,531.38	7,100.18	902.43	571.39	2.726	CC, ES
(O) RU 009C - OH - OH-SVY+INC	20,600.00	7,100.53	905.04	572.29	2.720	SF
(O) RU 012D - OH - OH-SVY	20,855.45	6,967.38	2,084.53	1,838.92	8.487	CC, ES, SF
(O) RU 016D - OH - OH-SVY	18,863.53	7,240.96	2,723.47	2,085.46	4.269	CC
(O) RU 016D - OH - OH-SVY	18,900.00	7,240.79	2,723.72	2,085.40	4.267	ES, SF
(O) RU 020D - OH - OH-SVY	16,090.91	7,145.42	1,496.93	1,320.69	8.494	CC
(O) RU 020D - OH - OH-SVY	16,100.00	7,145.42	1,496.95	1,320.68	8.492	ES, SF
(O) RU 020D - ST01 - ST01-SVY	16,040.55	7,147.18	1,528.10	1,342.62	8.239	CC, ES, SF
(O) RU 022B - OH - OH-SVY	9,686.66	7,243.90	476.46	-2.48	0.995	Level 3, CC, ES, SF
(O) RU 030B - OH - OH-INC	13,222.29	7,094.16	564.10	298.14	2.121	CC, ES
(O) RU 030B - OH - OH-INC	13,300.00	7,093.94	569.42	300.94	2.121	SF
(O) RU 031 - OH - OH-TD	4,460.10	4,214.41	1,357.74	1,154.33	6.675	CC
(O) RU 031 - OH - OH-TD	5,400.00	5,122.64	1,379.12	1,131.71	5.574	ES
(O) RU 031 - OH - OH-TD	6,300.00	5,973.00	1,438.09	1,149.67	4.986	SF
(O) RU 031A - OH - OH-INC	534.47	515.48	1,249.88	1,239.02	115.149	CC
(O) RU 031A - OH - OH-INC	600.00	579.17	1,251.31	1,238.97	101.381	ES
(O) RU 031A - OH - OH-INC	6,200.00	6,006.25	2,557.04	2,410.85	17.491	SF
(O) RU 031B - OH - OH-INC	6,648.94	6,443.96	184.22	18.01	1.108	Level 3, CC
(O) RU 031B - OH - OH-INC	6,650.00	6,444.96	184.22	17.98	1.108	Level 3, ES, SF
(O) RU 046A - OH - OH-SVY	1,310.26	682.00	3,120.15	3,109.36	289.172	CC
(O) RU 046A - OH - OH-SVY	1,400.00	732.30	3,120.65	3,109.31	275.207	ES
(O) RU 046A - OH - OH-SVY	7,000.00	6,814.72	3,751.70	3,674.70	48.722	SF
(O) RU 065 - OH - OH-INC	3,156.57	3,051.34	3,951.87	3,888.06	61.930	CC
(O) RU 065 - OH - OH-INC	6,400.00	6,184.79	4,040.54	3,854.09	21.671	ES
(O) RU 065 - OH - OH-INC	7,000.00	6,721.29	4,228.45	4,013.22	19.647	SF
(O) RU 066 - OH - OH-INC	14,750.25	6,954.20	2,806.11	2,473.06	8.425	CC
(O) RU 066 - OH - OH-INC	14,800.00	6,954.06	2,806.56	2,473.04	8.415	ES
(O) RU 066 - OH - OH-INC	14,900.00	6,953.78	2,810.11	2,475.79	8.406	SF
(O) RU 066M - OH - OH-SVY	13,809.10	7,412.47	713.71	289.96	1.684	CC
(O) RU 066M - OH - OH-SVY	13,900.00	7,411.96	719.48	285.67	1.659	ES, SF
(O) RU 067 - OH - OH-INC	17,077.96	6,961.31	1,008.31	705.51	3.330	CC, ES, SF
(O) RU 068 - OH - OH-INC	500.00	481.01	1,300.20	1,292.58	170.513	CC
(O) RU 068 - OH - OH-INC	600.00	580.99	1,301.94	1,292.06	131.686	ES
(O) RU 068 - OH - OH-INC	6,950.00	6,689.32	2,875.94	2,718.12	18.223	SF
(O) RU 119 - OH - OH-INC	10,037.69	6,957.50	3,749.28	3,490.34	14.479	CC
(O) RU 119 - OH - OH-INC	10,100.00	6,957.33	3,749.80	3,490.24	14.447	ES
(O) RU 119 - OH - OH-INC	10,500.00	6,956.19	3,777.68	3,514.42	14.350	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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 125 - OH - OH-INC	12,295.47	7,096.96	434.68	129.09	1.422	Level 3, CC, ES, SF
(O) RU 125E - OH - OH-INC	12,098.30	6,957.18	3,045.91	2,780.74	11.487	CC
(O) RU 125E - OH - OH-INC	12,100.00	6,957.17	3,045.91	2,780.72	11.486	ES
(O) RU 125E - OH - OH-INC	12,400.00	6,956.56	3,060.82	2,793.07	11.432	SF
(O) RU 153B - OH - OH-INC	261.44	254.39	4,197.23	4,193.18	1,036.436	CC
(O) RU 153B - OH - OH-INC	1,000.00	990.83	4,207.61	4,177.98	142.023	ES
(O) RU 153B - OH - OH-INC	6,700.00	6,509.69	4,792.86	4,513.28	17.143	SF
(O) RU 153C - OH - OH-SVY	1,182.10	880.87	1,573.20	1,564.83	188.099	CC
(O) RU 153C - OH - OH-SVY	1,200.00	889.95	1,573.23	1,564.79	186.369	ES
(O) RU 153C - OH - OH-SVY	6,550.00	6,557.77	2,789.15	2,650.26	20.083	SF
(O) RU 181D - OH - OH-SVY	20,855.45	7,213.35	1,670.61	1,545.47	13.350	CC, ES, SF
(O) RU 207 - OH - OH-INC	504.97	475.98	1,238.31	1,229.42	139.320	CC
(O) RU 207 - OH - OH-INC	600.00	567.32	1,240.06	1,229.04	112.474	ES
(O) RU 207 - OH - OH-INC	3,200.00	3,038.00	1,809.91	1,741.49	26.452	SF
(O) RU 207A - OH - OH-INC	2,966.18	2,809.00	304.05	239.44	4.706	CC, ES, SF
(O) RU 251 - OH - OH-TD	500.00	472.00	3,630.39	3,608.11	162.945	CC
(O) RU 251 - OH - OH-TD	2,800.00	2,711.24	3,686.83	3,556.96	28.389	ES
(O) RU 251 - OH - OH-TD	6,850.00	6,611.32	4,075.25	3,756.85	12.799	SF
(O) RU 374 - OH - OH-INC	1,307.20	1,637.67	7,756.07	7,703.14	146.522	CC
(O) RU 374 - OH - OH-INC	3,400.00	3,574.00	7,775.27	7,629.47	53.325	ES
(O) RU 374 - OH - OH-INC	4,300.00	3,574.00	7,849.91	7,700.89	52.676	SF
Rosa Pad 26 - 5 Well						
Rosa Unit #714H - OH - Prelim 1	500.00	500.00	19.92	16.55	5.913	CC, ES
Rosa Unit #714H - OH - Prelim 1	20,855.45	20,674.13	1,816.16	1,363.14	4.009	SF
Rosa Unit #720H - OH - Prelim #1	500.00	500.00	39.92	36.55	11.848	CC
Rosa Unit #720H - OH - Prelim #1	1,000.00	1,006.68	41.05	34.10	5.906	ES
Rosa Unit #720H - OH - Prelim #1	6,500.00	6,506.39	210.07	151.84	3.608	SF
Rosa Unit #722H - OH - Prelim #1	500.00	500.00	59.92	56.55	17.783	CC, ES
Rosa Unit #722H - OH - Prelim #1	800.00	800.27	72.34	66.82	13.088	SF
Rosa Unit #724H - OH - Prelim #1	500.00	500.00	79.92	76.55	23.718	CC, ES
Rosa Unit #724H - OH - Prelim #1	700.00	693.82	93.42	88.67	19.678	SF

Offset Design: Rosa Pad 26 - (O) RU 009C - OH - OH-SVY+INC														Offset Site Error: 0.00 usft	
Survey Program: Reference		300-MWD OWSG Rev5, 8115-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)	Semi Major Axis Offset (usft)	Highside Toolface (°)	+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	-78.80	2,578.46	-13,016.37	13,269.42						
100.00	100.00	100.82	100.82	0.25	1.06	-78.79	2,578.83	-13,016.51	13,269.63	13,268.32	1.31	N/A			
200.00	200.00	165.44	165.44	0.61	1.74	-78.79	2,579.44	-13,016.75	13,270.17	13,267.83	2.34	5,669.646			
300.00	300.00	230.06	230.05	0.97	2.42	-78.79	2,580.36	-13,017.11	13,270.99	13,267.62	3.38	3,932.084			
400.00	400.00	300.03	300.00	1.33	3.16	-78.78	2,581.68	-13,017.62	13,272.07	13,267.61	4.47	2,972.086			
500.00	500.00	364.00	363.95	1.68	3.33	-78.78	2,583.20	-13,018.22	13,273.42	13,268.44	4.98	2,665.075			
600.00	599.98	421.00	420.93	2.04	3.39	-72.14	2,584.49	-13,018.93	13,274.53	13,269.15	5.38	2,466.394			
700.00	699.84	452.00	451.93	2.41	3.43	-72.14	2,584.91	-13,019.42	13,274.89	13,269.12	5.77	2,301.850			
800.00	799.45	482.00	481.92	2.77	3.46	-72.15	2,585.17	-13,020.10	13,274.72	13,268.56	6.16	2,155.868			
900.00	898.70	512.00	511.90	3.13	3.50	-72.18	2,585.30	-13,021.07	13,274.11	13,267.55	6.56	2,024.232			
1,000.00	997.47	525.47	525.36	3.50	3.51	-72.21	2,585.32	-13,021.58	13,272.99	13,266.04	6.95	1,910.429			
1,100.00	1,095.62	542.00	541.88	3.89	3.53	-72.26	2,585.32	-13,022.29	13,271.42	13,264.06	7.35	1,804.835			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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)					
1,200.00	1,193.06	559.33	559.18	4.30	3.55	-72.31	2,585.30	-13,023.15	13,269.41	13,261.63	7.78	1,705.884			
1,245.75	1,237.35	572.00	571.83	4.49	3.57	-72.34	2,585.26	-13,023.87	13,268.36	13,260.37	7.99	1,661.512			
1,300.00	1,289.78	572.00	571.83	4.72	3.57	-72.34	2,585.26	-13,023.87	13,267.14	13,258.93	8.21	1,615.509			
1,400.00	1,386.41	602.00	601.77	5.15	3.61	-72.38	2,585.08	-13,025.82	13,265.43	13,256.74	8.69	1,526.759			
1,500.00	1,483.04	602.00	601.77	5.59	3.61	-72.38	2,585.08	-13,025.82	13,264.30	13,255.18	9.12	1,454.193			
1,600.00	1,579.67	633.00	632.68	6.04	3.66	-72.41	2,584.83	-13,028.19	13,263.83	13,254.22	9.61	1,379.593			
1,629.40	1,608.08	633.00	632.68	6.17	3.66	-72.41	2,584.83	-13,028.19	13,263.80	13,254.06	9.74	1,361.164			
1,700.00	1,676.30	633.00	632.68	6.49	3.66	-72.41	2,584.83	-13,028.19	13,263.99	13,253.93	10.06	1,318.900			
1,800.00	1,772.93	663.00	662.57	6.95	3.70	-72.45	2,584.57	-13,030.78	13,264.73	13,254.17	10.56	1,256.482			
1,900.00	1,869.56	678.68	678.17	7.41	3.73	-72.47	2,584.42	-13,032.25	13,266.11	13,255.08	11.04	1,202.018			
2,000.00	1,966.19	693.00	692.42	7.87	3.76	-72.48	2,584.27	-13,033.69	13,268.14	13,256.63	11.52	1,152.210			
2,100.00	2,062.83	722.00	721.26	8.33	3.81	-72.52	2,584.07	-13,036.76	13,270.78	13,258.75	12.03	1,103.444			
2,200.00	2,159.46	722.00	721.26	8.80	3.81	-72.52	2,584.07	-13,036.76	13,274.06	13,261.58	12.48	1,063.650			
2,300.00	2,256.09	753.00	752.05	9.27	3.88	-72.55	2,584.07	-13,040.38	13,277.98	13,264.98	13.01	1,020.921			
2,400.00	2,352.72	753.00	752.05	9.73	3.88	-72.55	2,584.07	-13,040.38	13,282.54	13,269.08	13.46	986.800			
2,500.00	2,449.35	783.00	781.79	10.20	3.96	-72.59	2,584.32	-13,044.24	13,287.77	13,273.78	13.99	949.779			
2,600.00	2,545.98	783.00	781.79	10.67	3.96	-72.59	2,584.32	-13,044.24	13,293.61	13,279.16	14.45	920.290			
2,700.00	2,642.61	814.00	812.49	11.15	4.04	-72.62	2,584.77	-13,048.55	13,300.09	13,285.11	14.98	887.749			
2,800.00	2,739.24	814.00	812.49	11.62	4.04	-72.62	2,584.77	-13,048.55	13,307.20	13,291.76	15.44	862.085			
2,900.00	2,835.87	844.00	842.14	12.09	4.12	-72.66	2,585.13	-13,053.12	13,314.97	13,299.00	15.98	833.430			
3,000.00	2,932.50	844.00	842.14	12.56	4.12	-72.66	2,585.13	-13,053.12	13,323.36	13,306.93	16.43	810.946			
3,100.00	3,029.13	875.00	872.71	13.04	4.21	-72.69	2,585.26	-13,058.26	13,332.42	13,315.44	16.98	785.323			
3,200.00	3,125.77	875.00	872.71	13.51	4.21	-72.69	2,585.26	-13,058.26	13,342.08	13,324.65	17.43	765.516			
3,300.00	3,222.40	875.00	872.71	13.99	4.21	-72.69	2,585.26	-13,058.26	13,352.47	13,334.59	17.88	746.794			
3,400.00	3,319.03	905.00	902.18	14.46	4.31	-72.73	2,585.16	-13,063.87	13,363.56	13,345.12	18.44	724.770			
3,500.00	3,415.66	905.00	902.18	14.94	4.31	-72.73	2,585.16	-13,063.87	13,375.22	13,356.33	18.89	708.164			
3,600.00	3,512.29	905.00	902.18	15.42	4.31	-72.73	2,585.16	-13,063.87	13,387.62	13,368.28	19.33	692.414			
3,700.00	3,608.92	936.00	932.51	15.89	4.41	-72.77	2,584.75	-13,070.25	13,400.65	13,380.76	19.90	673.533			
3,800.00	3,705.55	936.00	932.51	16.37	4.41	-72.77	2,584.75	-13,070.25	13,414.30	13,393.96	20.34	659.467			
3,900.00	3,802.18	967.00	962.76	16.84	4.51	-72.81	2,584.00	-13,076.98	13,428.52	13,407.63	20.89	642.739			
4,000.00	3,898.81	980.67	976.08	17.32	4.55	-72.83	2,583.65	-13,080.05	13,443.38	13,421.99	21.38	628.670			
4,100.00	3,995.44	997.00	991.97	17.80	4.60	-72.85	2,583.29	-13,083.79	13,458.83	13,436.95	21.88	615.064			
4,200.00	4,092.07	1,027.00	1,021.11	18.28	4.70	-72.89	2,582.70	-13,090.88	13,474.92	13,452.49	22.43	600.723			
4,300.00	4,188.71	1,027.00	1,021.11	18.75	4.70	-72.89	2,582.70	-13,090.88	13,491.57	13,468.70	22.87	589.943			
4,400.00	4,285.34	1,027.00	1,021.11	19.23	4.70	-72.89	2,582.70	-13,090.88	13,508.93	13,485.62	23.31	579.646			
4,500.00	4,381.97	1,058.00	1,051.11	19.71	4.82	-72.93	2,581.89	-13,098.67	13,526.85	13,502.98	23.87	566.767			
4,600.00	4,478.60	1,058.00	1,051.11	20.19	4.82	-72.93	2,581.89	-13,098.67	13,545.43	13,521.13	24.30	557.435			
4,700.00	4,575.23	1,089.00	1,080.96	20.67	4.93	-72.97	2,580.81	-13,106.95	13,564.67	13,539.81	24.86	545.568			
4,800.00	4,671.86	1,089.00	1,080.96	21.14	4.93	-72.97	2,580.81	-13,106.95	13,584.46	13,559.16	25.29	537.089			
4,900.00	4,768.49	1,089.00	1,080.96	21.62	4.93	-72.97	2,580.81	-13,106.95	13,604.95	13,579.23	25.72	528.964			
5,000.00	4,865.12	1,119.00	1,109.73	22.10	5.05	-73.01	2,579.73	-13,115.40	13,626.01	13,599.73	26.28	518.575			
5,100.00	4,961.75	1,119.00	1,109.73	22.58	5.05	-73.01	2,579.73	-13,115.40	13,647.70	13,621.00	26.70	511.162			
5,200.00	5,058.38	1,119.00	1,109.73	23.06	5.05	-73.01	2,579.73	-13,115.40	13,670.09	13,642.97	27.12	504.047			
5,300.00	5,155.01	1,150.00	1,139.30	23.54	5.17	-73.05	2,578.75	-13,124.64	13,693.01	13,665.32	27.68	494.639			
5,400.00	5,251.64	1,168.62	1,157.02	24.01	5.24	-73.08	2,578.18	-13,130.35	13,716.55	13,688.36	28.18	486.684			
5,500.00	5,348.28	1,213.00	1,199.20	24.49	5.41	-73.14	2,576.60	-13,144.06	13,740.51	13,711.71	28.80	477.112			
5,600.00	5,444.91	1,245.00	1,229.56	24.97	5.53	-73.19	2,575.27	-13,154.06	13,764.89	13,735.53	29.36	468.819			
5,700.00	5,541.54	1,245.00	1,229.56	25.45	5.53	-73.19	2,575.27	-13,154.06	13,789.88	13,760.10	29.77	463.167			
5,800.00	5,638.17	1,277.00	1,259.84	25.93	5.66	-73.23	2,574.06	-13,164.35	13,815.37	13,785.04	30.34	455.389			
5,900.00	5,734.80	1,277.00	1,259.84	26.41	5.66	-73.23	2,574.06	-13,164.35	13,841.50	13,810.76	30.75	450.194			
6,000.00	5,831.43	1,294.37	1,276.21	26.89	5.73	-73.26	2,573.51	-13,170.13	13,868.22	13,836.98	31.24	443.925			
6,100.00	5,928.06	6,098.44	5,971.74	27.37	81.02	-78.53	2,586.54	-13,801.43	13,703.55	13,595.65	107.90	127.001			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
6,200.00	6,024.69	6,186.75	6,060.04	27.85	83.55	-78.62	2,586.53	-13,801.54	13,698.41	13,587.50	110.91	123.513
6,300.00	6,121.32	6,275.07	6,148.35	28.33	86.08	-78.72	2,586.50	-13,801.70	13,693.37	13,579.46	113.91	120.209
6,400.00	6,217.95	6,363.39	6,236.65	28.81	88.61	-78.81	2,586.47	-13,801.92	13,688.44	13,571.52	116.92	117.076
6,500.00	6,314.58	6,451.71	6,324.96	29.29	91.15	-78.91	2,586.42	-13,802.19	13,683.61	13,563.68	119.93	114.100
6,543.64	6,356.75	6,490.25	6,363.50	29.49	92.25	-78.95	2,586.40	-13,802.33	13,681.53	13,560.30	121.24	112.849
6,550.00	6,362.90	6,495.87	6,369.12	29.53	92.41	-76.83	2,586.40	-13,802.35	13,681.20	13,559.77	121.43	112.668
6,600.00	6,411.07	6,539.90	6,413.15	29.77	93.68	-61.38	2,586.37	-13,802.52	13,676.41	13,553.48	122.93	111.255
6,650.00	6,458.79	6,583.54	6,456.78	30.01	94.93	-49.00	2,586.34	-13,802.70	13,667.76	13,543.34	124.41	109.858
6,700.00	6,505.76	6,626.52	6,499.75	30.26	96.16	-39.69	2,586.31	-13,802.89	13,655.31	13,529.43	125.87	108.484
6,750.00	6,551.69	6,668.57	6,541.79	30.50	97.37	-32.80	2,586.28	-13,803.09	13,639.13	13,511.83	127.30	107.140
6,800.00	6,596.30	6,709.44	6,582.66	30.74	98.54	-27.62	2,586.25	-13,803.30	13,619.32	13,490.64	128.69	105.834
6,850.00	6,639.32	6,748.88	6,622.09	30.98	99.67	-23.64	2,586.21	-13,803.51	13,596.01	13,465.99	130.02	104.569
6,900.00	6,680.47	6,786.64	6,659.85	31.21	100.75	-20.50	2,586.18	-13,803.72	13,569.32	13,438.03	131.29	103.352
6,950.00	6,719.51	6,822.51	6,695.70	31.44	101.78	-17.93	2,586.14	-13,803.93	13,539.43	13,406.93	132.50	102.186
7,000.00	6,756.20	6,856.24	6,729.44	31.67	102.75	-15.77	2,586.11	-13,804.14	13,506.51	13,372.88	133.63	101.076
7,050.00	6,790.30	6,887.65	6,760.84	31.90	103.65	-13.88	2,586.08	-13,804.33	13,470.77	13,336.09	134.68	100.024
7,100.00	6,821.62	6,916.53	6,789.72	32.13	104.48	-12.15	2,586.05	-13,804.52	13,432.41	13,296.78	135.63	99.034
7,150.00	6,849.95	6,942.71	6,815.89	32.35	105.23	-10.47	2,586.02	-13,804.70	13,391.69	13,255.19	136.50	98.109
7,200.00	6,875.12	6,966.03	6,839.20	32.58	105.90	-8.73	2,585.99	-13,804.86	13,348.83	13,211.57	137.26	97.251
7,250.00	6,896.97	6,986.33	6,859.50	32.81	106.48	-6.75	2,585.97	-13,805.00	13,304.11	13,166.19	137.92	96.462
7,300.00	6,915.38	7,003.50	6,876.66	33.05	106.97	-4.26	2,585.95	-13,805.13	13,257.80	13,119.33	138.47	95.744
7,350.00	6,930.22	7,017.42	6,890.58	33.29	107.37	-0.71	2,585.94	-13,805.23	13,210.18	13,071.27	138.91	95.099
7,400.00	6,941.41	7,028.00	6,901.17	33.53	107.68	5.25	2,585.92	-13,805.31	13,161.54	13,022.31	139.24	94.527
7,450.00	6,948.88	7,035.19	6,908.35	33.79	107.88	17.92	2,585.91	-13,805.36	13,112.19	12,972.75	139.45	94.030
7,500.00	6,952.57	7,038.92	6,912.08	34.05	107.99	53.59	2,585.91	-13,805.39	13,062.43	12,922.89	139.54	93.608
7,525.63	6,953.00	7,039.49	6,912.65	34.19	108.00	86.24	2,585.91	-13,805.39	13,036.86	12,897.31	139.55	93.421
7,600.00	6,952.79	7,039.81	6,912.97	34.61	108.01	86.26	2,585.91	-13,805.40	12,962.67	12,823.15	139.52	92.910
7,700.00	6,952.50	7,040.23	6,913.40	35.23	108.03	86.29	2,585.91	-13,805.40	12,862.92	12,723.44	139.48	92.221
7,800.00	6,952.22	7,040.66	6,913.82	35.91	108.04	86.32	2,585.91	-13,805.40	12,763.17	12,623.73	139.44	91.532
7,900.00	6,951.93	7,041.09	6,914.25	36.65	108.05	86.34	2,585.91	-13,805.41	12,663.42	12,524.02	139.40	90.842
8,000.00	6,951.65	7,041.52	6,914.68	37.45	108.06	86.37	2,585.91	-13,805.41	12,563.68	12,424.32	139.36	90.152
8,100.00	6,951.36	7,041.95	6,915.11	38.29	108.08	86.40	2,585.91	-13,805.41	12,463.94	12,324.62	139.32	89.461
8,200.00	6,951.08	7,042.38	6,915.54	39.19	108.09	86.43	2,585.91	-13,805.42	12,364.21	12,224.92	139.28	88.770
8,300.00	6,950.79	7,042.82	6,915.98	40.13	108.10	86.45	2,585.90	-13,805.42	12,264.48	12,125.23	139.24	88.079
8,400.00	6,950.51	7,043.25	6,916.41	41.11	108.11	86.48	2,585.90	-13,805.42	12,164.75	12,025.54	139.21	87.387
8,500.00	6,950.22	7,043.68	6,916.84	42.12	108.13	86.51	2,585.90	-13,805.43	12,065.03	11,925.86	139.17	86.694
8,600.00	6,949.94	7,044.11	6,917.27	43.18	108.14	86.53	2,585.90	-13,805.43	11,965.31	11,826.18	139.13	86.001
8,700.00	6,949.65	7,044.55	6,917.71	44.26	108.15	86.56	2,585.90	-13,805.43	11,865.60	11,726.51	139.09	85.308
8,800.00	6,949.37	7,044.98	6,918.14	45.38	108.16	86.59	2,585.90	-13,805.44	11,765.89	11,626.84	139.05	84.614
8,900.00	6,949.08	7,045.42	6,918.58	46.53	108.18	86.62	2,585.90	-13,805.44	11,666.19	11,527.18	139.02	83.919
9,000.00	6,948.80	7,045.85	6,919.01	47.70	108.19	86.64	2,585.90	-13,805.44	11,566.50	11,427.52	138.98	83.224
9,100.00	6,948.51	7,046.29	6,919.45	48.89	108.20	86.67	2,585.90	-13,805.45	11,466.80	11,327.86	138.94	82.529
9,200.00	6,948.23	7,046.73	6,919.88	50.11	108.21	86.70	2,585.90	-13,805.45	11,367.12	11,228.21	138.91	81.833
9,300.00	6,947.94	7,047.16	6,920.32	51.35	108.23	86.73	2,585.90	-13,805.45	11,267.44	11,128.57	138.87	81.137
9,400.00	6,947.66	7,047.60	6,920.76	52.61	108.24	86.76	2,585.90	-13,805.46	11,167.76	11,028.93	138.83	80.440
9,500.00	6,947.37	7,048.04	6,921.20	53.89	108.25	86.78	2,585.90	-13,805.46	11,068.09	10,929.30	138.80	79.743
9,600.00	6,947.09	7,048.48	6,921.64	55.18	108.26	86.81	2,585.90	-13,805.46	10,968.43	10,829.67	138.76	79.045
9,700.00	6,946.80	7,048.92	6,922.08	56.49	108.28	86.84	2,585.90	-13,805.47	10,868.77	10,730.05	138.73	78.347
9,800.00	6,946.52	7,049.36	6,922.52	57.81	108.29	86.87	2,585.90	-13,805.47	10,769.12	10,630.43	138.69	77.648
9,900.00	6,946.23	7,049.80	6,922.96	59.15	108.30	86.89	2,585.90	-13,805.47	10,669.48	10,530.82	138.66	76.949
10,000.00	6,945.95	7,050.24	6,923.40	60.50	108.31	86.92	2,585.90	-13,805.48	10,569.84	10,431.22	138.62	76.249
10,100.00	6,945.66	7,050.68	6,923.84	61.87	108.33	86.95	2,585.90	-13,805.48	10,470.21	10,331.62	138.59	75.549

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
10,200.00	6,945.38	7,051.12	6,924.28	63.24	108.34	86.98	2,585.89	-13,805.48	10,370.59	10,232.04	138.55	74.848
10,300.00	6,945.09	7,051.57	6,924.72	64.63	108.35	87.01	2,585.89	-13,805.49	10,270.97	10,132.45	138.52	74.147
10,400.00	6,944.81	7,052.01	6,925.17	66.02	108.36	87.03	2,585.89	-13,805.49	10,171.37	10,032.88	138.49	73.446
10,500.00	6,944.52	7,052.45	6,925.61	67.42	108.38	87.06	2,585.89	-13,805.49	10,071.76	9,933.31	138.46	72.743
10,600.00	6,944.24	7,052.90	6,926.06	68.84	108.39	87.09	2,585.89	-13,805.50	9,972.17	9,833.75	138.42	72.041
10,700.00	6,943.95	7,053.34	6,926.50	70.26	108.40	87.12	2,585.89	-13,805.50	9,872.59	9,734.19	138.39	71.337
10,800.00	6,943.67	7,053.79	6,926.95	71.68	108.42	87.15	2,585.89	-13,805.50	9,773.01	9,634.65	138.36	70.633
10,900.00	6,943.38	7,054.24	6,927.39	73.12	108.43	87.18	2,585.89	-13,805.51	9,673.44	9,535.11	138.33	69.929
11,000.00	6,943.10	7,054.68	6,927.84	74.56	108.44	87.20	2,585.89	-13,805.51	9,573.89	9,435.58	138.30	69.224
11,100.00	6,942.81	7,055.13	6,928.29	76.01	108.45	87.23	2,585.89	-13,805.51	9,474.34	9,336.06	138.27	68.519
11,200.00	6,942.53	7,055.58	6,928.74	77.46	108.47	87.26	2,585.89	-13,805.52	9,374.80	9,236.55	138.25	67.812
11,300.00	6,942.24	7,056.03	6,929.19	78.92	108.48	87.29	2,585.89	-13,805.52	9,275.27	9,137.05	138.22	67.106
11,400.00	6,941.96	7,056.48	6,929.64	80.39	108.49	87.32	2,585.89	-13,805.52	9,175.75	9,037.56	138.19	66.398
11,500.00	6,941.67	7,056.93	6,930.09	81.86	108.51	87.35	2,585.89	-13,805.53	9,076.24	8,938.07	138.17	65.690
11,600.00	6,941.39	7,057.38	6,930.54	83.33	108.52	87.37	2,585.89	-13,805.53	8,976.74	8,838.60	138.14	64.982
11,700.00	6,941.10	7,057.83	6,930.99	84.81	108.53	87.40	2,585.89	-13,805.53	8,877.26	8,739.14	138.12	64.272
11,800.00	6,940.81	7,058.28	6,931.44	86.30	108.54	87.43	2,585.89	-13,805.54	8,777.78	8,639.68	138.10	63.562
11,900.00	6,940.53	7,058.73	6,931.89	87.79	108.56	87.46	2,585.89	-13,805.54	8,678.32	8,540.24	138.08	62.851
12,000.00	6,940.24	7,059.19	6,932.34	89.28	108.57	87.49	2,585.89	-13,805.54	8,578.87	8,440.81	138.06	62.140
12,100.00	6,939.96	7,059.64	6,932.80	90.77	108.58	87.52	2,585.89	-13,805.55	8,479.43	8,341.39	138.04	61.427
12,200.00	6,939.67	7,060.09	6,933.25	92.27	108.60	87.55	2,585.88	-13,805.55	8,380.01	8,241.98	138.02	60.714
12,300.00	6,939.39	7,060.55	6,933.71	93.78	108.61	87.58	2,585.88	-13,805.55	8,280.60	8,142.59	138.01	60.000
12,400.00	6,939.10	7,061.01	6,934.16	95.28	108.62	87.60	2,585.88	-13,805.56	8,181.20	8,043.20	138.00	59.286
12,500.00	6,938.82	7,061.46	6,934.62	96.79	108.64	87.63	2,585.88	-13,805.56	8,081.82	7,943.83	137.99	58.570
12,600.00	6,938.53	7,061.92	6,935.07	98.30	108.65	87.66	2,585.88	-13,805.56	7,982.45	7,844.48	137.98	57.853
12,700.00	6,938.25	7,062.38	6,935.53	99.82	108.66	87.69	2,585.88	-13,805.57	7,883.10	7,745.13	137.97	57.136
12,800.00	6,937.96	7,062.83	6,935.99	101.34	108.67	87.72	2,585.88	-13,805.57	7,783.77	7,645.80	137.97	56.417
12,900.00	6,937.68	7,063.29	6,936.45	102.86	108.69	87.75	2,585.88	-13,805.58	7,684.45	7,546.49	137.97	55.698
13,000.00	6,937.39	7,063.75	6,936.91	104.38	108.70	87.78	2,585.88	-13,805.58	7,585.16	7,447.19	137.97	54.977
13,100.00	6,937.11	7,064.21	6,937.37	105.91	108.71	87.81	2,585.88	-13,805.58	7,485.88	7,347.90	137.98	54.255
13,200.00	6,936.82	7,064.67	6,937.83	107.43	108.73	87.84	2,585.88	-13,805.59	7,386.62	7,248.63	137.99	53.532
13,300.00	6,936.54	7,065.13	6,938.29	108.96	108.74	87.87	2,585.88	-13,805.59	7,287.38	7,149.38	138.00	52.808
13,400.00	6,936.25	7,065.59	6,938.75	110.49	108.75	87.89	2,585.88	-13,805.59	7,188.16	7,050.14	138.02	52.082
13,500.00	6,935.97	7,066.06	6,939.21	112.03	108.77	87.92	2,585.88	-13,805.60	7,088.96	6,950.93	138.04	51.355
13,600.00	6,935.68	7,066.52	6,939.67	113.56	108.78	87.95	2,585.88	-13,805.60	6,989.79	6,851.73	138.06	50.627
13,700.00	6,935.40	7,066.98	6,940.14	115.10	108.79	87.98	2,585.88	-13,805.60	6,890.64	6,752.54	138.10	49.897
13,800.00	6,935.11	7,067.45	6,940.60	116.64	108.81	88.01	2,585.87	-13,805.61	6,791.52	6,653.38	138.13	49.166
13,900.00	6,934.83	7,067.91	6,941.07	118.18	108.82	88.04	2,585.87	-13,805.61	6,692.42	6,554.24	138.18	48.433
14,000.00	6,934.54	7,068.38	6,941.53	119.72	108.83	88.07	2,585.87	-13,805.61	6,593.34	6,455.12	138.23	47.699
14,100.00	6,934.26	7,068.84	6,942.00	121.26	108.85	88.10	2,585.87	-13,805.62	6,494.30	6,356.01	138.29	46.962
14,200.00	6,933.97	7,069.31	6,942.46	122.81	108.86	88.13	2,585.87	-13,805.62	6,395.29	6,256.93	138.35	46.224
14,300.00	6,933.69	7,069.78	6,942.93	124.36	108.87	88.16	2,585.87	-13,805.62	6,296.31	6,157.88	138.43	45.484
14,400.00	6,933.40	7,070.24	6,943.40	125.90	108.89	88.19	2,585.87	-13,805.63	6,197.36	6,058.84	138.51	44.742
14,500.00	6,933.12	7,070.71	6,943.87	127.45	108.90	88.22	2,585.87	-13,805.63	6,098.44	5,959.83	138.61	43.998
14,600.00	6,932.83	7,071.18	6,944.34	129.00	108.91	88.25	2,585.87	-13,805.64	5,999.56	5,860.85	138.71	43.252
14,700.00	6,932.55	7,071.65	6,944.81	130.56	108.93	88.28	2,585.87	-13,805.64	5,900.72	5,761.89	138.83	42.504
14,800.00	6,932.26	7,072.12	6,945.28	132.11	108.94	88.31	2,585.87	-13,805.64	5,801.92	5,662.96	138.96	41.753
14,900.00	6,931.98	7,072.59	6,945.75	133.66	108.95	88.34	2,585.87	-13,805.65	5,703.16	5,564.05	139.10	41.000
15,000.00	6,931.69	7,073.06	6,946.22	135.22	108.97	88.37	2,585.87	-13,805.65	5,604.44	5,465.18	139.26	40.245
15,100.00	6,931.41	7,073.54	6,946.69	136.77	108.98	88.40	2,585.87	-13,805.65	5,505.77	5,366.33	139.43	39.486
15,200.00	6,931.12	7,074.01	6,947.16	138.33	109.00	88.43	2,585.87	-13,805.66	5,407.15	5,267.52	139.63	38.726
15,300.00	6,930.84	7,074.48	6,947.64	139.89	109.01	88.46	2,585.87	-13,805.66	5,308.58	5,168.74	139.84	37.962

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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						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	
15,400.00	6,930.55	7,074.96	6,948.11	141.45	109.02	88.49	2,585.87	-13,805.67	5,210.06	5,069.99	140.07	37.196		
15,500.00	6,930.27	7,075.43	6,948.58	143.01	109.04	88.52	2,585.87	-13,805.67	5,111.60	4,971.28	140.33	36.427		
15,600.00	6,929.98	7,075.91	6,949.06	144.57	109.05	88.55	2,585.86	-13,805.67	5,013.21	4,872.60	140.61	35.654		
15,700.00	6,929.70	7,076.38	6,949.54	146.13	109.06	88.58	2,585.86	-13,805.68	4,914.87	4,773.96	140.91	34.879		
15,800.00	6,929.41	7,076.86	6,950.01	147.70	109.08	88.61	2,585.86	-13,805.68	4,816.61	4,675.36	141.25	34.101		
15,900.00	6,929.13	7,077.34	6,950.49	149.26	109.09	88.64	2,585.86	-13,805.68	4,718.42	4,576.81	141.61	33.319		
16,000.00	6,928.84	7,077.81	6,950.97	150.82	109.10	88.67	2,585.86	-13,805.69	4,620.31	4,478.30	142.01	32.535		
16,100.00	6,928.56	7,078.29	6,951.45	152.39	109.12	88.70	2,585.86	-13,805.69	4,522.28	4,379.83	142.45	31.747		
16,200.00	6,928.27	7,078.77	6,951.93	153.96	109.13	88.73	2,585.86	-13,805.69	4,424.33	4,281.41	142.92	30.957		
16,300.00	6,927.99	7,079.25	6,952.41	155.52	109.15	88.76	2,585.86	-13,805.70	4,326.49	4,183.05	143.44	30.163		
16,400.00	6,927.70	7,079.73	6,952.89	157.09	109.16	88.79	2,585.86	-13,805.70	4,228.74	4,084.74	144.00	29.366		
16,500.00	6,927.42	7,080.22	6,953.37	158.66	109.17	88.82	2,585.86	-13,805.71	4,131.10	3,986.48	144.62	28.566		
16,600.00	6,927.13	7,080.70	6,953.85	160.23	109.19	88.85	2,585.86	-13,805.71	4,033.57	3,888.29	145.28	27.764		
16,700.00	6,926.85	7,081.18	6,954.33	161.80	109.20	88.88	2,585.86	-13,805.71	3,936.17	3,790.16	146.01	26.958		
16,800.00	6,926.56	7,081.66	6,954.82	163.37	109.21	88.91	2,585.86	-13,805.72	3,838.91	3,692.11	146.80	26.151		
16,900.00	6,926.28	7,082.15	6,955.30	164.94	109.23	88.94	2,585.86	-13,805.72	3,741.78	3,594.12	147.66	25.341		
17,000.00	6,925.99	7,082.63	6,955.78	166.51	109.24	88.98	2,585.86	-13,805.72	3,644.82	3,496.22	148.59	24.529		
17,100.00	6,925.71	7,083.12	6,956.27	168.08	109.26	89.01	2,585.86	-13,805.73	3,548.02	3,398.41	149.61	23.716		
17,200.00	6,925.42	7,083.60	6,956.76	169.65	109.27	89.04	2,585.85	-13,805.73	3,451.40	3,300.69	150.71	22.901		
17,300.00	6,925.14	7,084.09	6,957.24	171.23	109.28	89.07	2,585.85	-13,805.74	3,354.98	3,203.08	151.91	22.086		
17,400.00	6,924.85	7,084.58	6,957.73	172.80	109.30	89.10	2,585.85	-13,805.74	3,258.78	3,105.57	153.21	21.270		
17,500.00	6,924.57	7,085.07	6,958.22	174.37	109.31	89.13	2,585.85	-13,805.74	3,162.81	3,008.19	154.62	20.455		
17,600.00	6,924.28	7,085.55	6,958.71	175.95	109.33	89.16	2,585.85	-13,805.75	3,067.10	2,910.94	156.16	19.641		
17,700.00	6,924.00	7,086.04	6,959.20	177.52	109.34	89.19	2,585.85	-13,805.75	2,971.68	2,813.85	157.83	18.828		
17,800.00	6,923.71	7,086.53	6,959.68	179.10	109.35	89.22	2,585.85	-13,805.76	2,876.56	2,716.91	159.65	18.018		
17,900.00	6,923.43	7,087.02	6,960.18	180.68	109.37	89.25	2,585.85	-13,805.76	2,781.79	2,620.16	161.63	17.211		
18,000.00	6,923.14	7,087.52	6,960.67	182.25	109.38	89.29	2,585.85	-13,805.76	2,687.39	2,523.62	163.78	16.409		
18,100.00	6,922.86	7,088.01	6,961.16	183.83	109.40	89.32	2,585.85	-13,805.77	2,593.42	2,427.30	166.12	15.612		
18,200.00	6,922.57	7,088.50	6,961.65	185.41	109.41	89.35	2,585.85	-13,805.77	2,499.91	2,331.24	168.68	14.821		
18,300.00	6,922.29	7,088.99	6,962.14	186.98	109.43	89.38	2,585.85	-13,805.77	2,406.93	2,235.46	171.46	14.038		
18,400.00	6,922.00	7,089.49	6,962.64	188.56	109.44	89.41	2,585.85	-13,805.78	2,314.53	2,140.02	174.50	13.263		
18,500.00	6,921.71	7,089.98	6,963.13	190.14	109.45	89.44	2,585.85	-13,805.78	2,222.78	2,044.96	177.83	12.500		
18,600.00	6,921.43	7,090.48	6,963.63	191.72	109.47	89.47	2,585.85	-13,805.79	2,131.78	1,950.32	181.46	11.748		
18,700.00	6,921.14	7,090.97	6,964.12	193.30	109.48	89.50	2,585.85	-13,805.79	2,041.63	1,856.19	185.44	11.010		
18,800.00	6,920.86	7,091.47	6,964.62	194.88	109.50	89.54	2,585.84	-13,805.79	1,952.43	1,762.63	189.79	10.287		
18,900.00	6,920.57	7,091.97	6,965.12	196.46	109.51	89.57	2,585.84	-13,805.80	1,864.32	1,669.76	194.57	9.582		
19,000.00	6,920.29	7,092.47	6,965.62	198.04	109.52	89.60	2,585.84	-13,805.80	1,777.48	1,577.67	199.81	8.896		
19,100.00	6,920.00	7,092.97	6,966.12	199.62	109.54	89.63	2,585.84	-13,805.81	1,692.09	1,486.53	205.56	8.232		
19,200.00	6,919.72	7,093.47	6,966.62	201.20	109.55	89.66	2,585.84	-13,805.81	1,608.38	1,396.51	211.87	7.591		
19,300.00	6,919.43	7,093.97	6,967.12	202.78	109.57	89.69	2,585.84	-13,805.81	1,526.64	1,307.85	218.79	6.977		
19,400.00	6,919.15	7,094.47	6,967.62	204.36	109.58	89.73	2,585.84	-13,805.82	1,447.19	1,220.82	226.37	6.393		
19,500.00	6,918.86	7,094.97	6,968.12	205.95	109.60	89.76	2,585.84	-13,805.82	1,370.44	1,135.79	234.64	5.840		
19,600.00	6,918.58	7,095.47	6,968.62	207.53	109.61	89.79	2,585.84	-13,805.83	1,296.85	1,053.22	243.63	5.323		
19,700.00	6,918.29	7,095.97	6,969.12	209.11	109.63	89.82	2,585.84	-13,805.83	1,227.01	973.69	253.32	4.844		
19,800.00	6,918.01	7,096.48	6,969.63	210.69	109.64	89.85	2,585.84	-13,805.83	1,161.59	897.94	263.65	4.406		
19,900.00	6,917.72	7,096.98	6,970.13	212.28	109.65	89.89	2,585.84	-13,805.84	1,101.37	826.88	274.49	4.012		
20,000.00	6,917.44	7,097.49	6,970.64	213.86	109.67	89.92	2,585.84	-13,805.84	1,047.25	761.63	285.62	3.667		
20,100.00	6,917.15	7,097.99	6,971.14	215.45	109.68	89.95	2,585.84	-13,805.85	1,000.23	703.55	296.69	3.371		
20,200.00	6,916.87	7,098.50	6,971.65	217.03	109.70	89.98	2,585.84	-13,805.85	961.35	654.13	307.22	3.129		
20,300.00	6,916.58	7,099.01	6,972.16	218.61	109.71	90.01	2,585.84	-13,805.85	931.62	614.97	316.65	2.942		
20,400.00	6,916.30	7,099.52	6,972.66	220.20	109.73	90.05	2,585.83	-13,805.86	911.95	587.58	324.37	2.811		
20,500.00	6,916.01	7,100.02	6,973.17	221.78	109.74	90.08	2,585.83	-13,805.86	902.98	573.13	329.85	2.738		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	
20,531.38	6,915.92	7,100.18	6,973.33	222.28	109.75	90.09	2,585.83	-13,805.86	902.43	571.39	331.05	2.726	CC, ES	
20,600.00	6,915.73	7,100.53	6,973.68	223.37	109.76	90.11	2,585.83	-13,805.87	905.04	572.29	332.75	2.720	SF	
20,700.00	6,915.44	7,101.04	6,974.19	224.95	109.77	90.14	2,585.83	-13,805.87	918.05	585.05	333.00	2.757		
20,800.00	6,915.16	7,101.56	6,974.70	226.54	109.79	90.18	2,585.83	-13,805.87	941.57	610.74	330.82	2.846		
20,855.45	6,915.00	7,101.84	6,974.99	227.42	109.79	90.19	2,585.83	-13,805.88	958.86	630.15	328.71	2.917		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	-88.85	296.76	-14,733.32	14,736.34					
100.00	100.00	94.93	94.93	0.25	0.17	-88.85	296.61	-14,733.24	14,736.25	14,735.83	0.42	N/A		
200.00	200.00	232.50	232.50	0.61	0.42	-88.85	295.86	-14,732.84	14,735.95	14,734.92	1.03	N/A		
300.00	300.00	370.06	370.04	0.97	0.66	-88.85	294.48	-14,732.10	14,735.39	14,733.76	1.63	9,023.484		
400.00	400.00	478.00	477.92	1.33	1.08	-88.87	290.91	-14,731.37	14,734.65	14,732.25	2.40	6,140.629		
500.00	500.00	524.40	524.22	1.68	1.25	-88.88	287.90	-14,731.14	14,734.05	14,731.12	2.93	5,032.036		
600.00	599.98	557.66	557.38	2.04	1.37	-82.29	285.35	-14,731.15	14,733.69	14,730.28	3.41	4,322.416		
700.00	699.84	594.66	594.24	2.41	1.51	-82.32	282.16	-14,731.32	14,733.27	14,729.37	3.90	3,773.194		
800.00	799.45	626.00	625.43	2.77	1.62	-82.35	279.05	-14,731.60	14,732.84	14,728.46	4.38	3,361.755		
900.00	898.70	657.00	656.23	3.13	1.74	-82.38	275.61	-14,731.98	14,732.38	14,727.51	4.87	3,027.367		
1,000.00	997.47	705.07	703.87	3.50	1.93	-82.45	269.23	-14,732.82	14,731.89	14,726.46	5.43	2,713.646		
1,100.00	1,095.62	751.00	749.21	3.89	2.11	-82.52	261.95	-14,733.80	14,731.33	14,725.32	6.00	2,455.056		
1,200.00	1,193.06	783.00	780.64	4.30	2.25	-82.58	256.03	-14,734.63	14,730.77	14,724.23	6.54	2,253.596		
1,245.75	1,237.35	804.73	801.93	4.49	2.34	-82.62	251.68	-14,735.27	14,730.53	14,723.71	6.82	2,160.135		
1,300.00	1,289.78	830.48	827.08	4.72	2.45	-82.67	246.27	-14,736.02	14,730.26	14,723.10	7.16	2,057.251		
1,400.00	1,386.41	919.56	913.72	5.15	2.85	-82.83	225.74	-14,738.80	14,730.01	14,722.02	7.99	1,842.760		
1,471.08	1,455.10	963.46	956.28	5.47	3.05	-82.91	215.05	-14,740.15	14,729.92	14,721.41	8.51	1,730.795		
1,500.00	1,483.04	976.82	969.21	5.59	3.12	-82.94	211.73	-14,740.58	14,729.93	14,721.23	8.70	1,692.967		
1,600.00	1,579.67	1,143.90	1,131.02	6.04	3.92	-83.25	170.42	-14,745.63	14,729.95	14,720.00	9.95	1,480.803		
1,644.95	1,623.11	1,162.00	1,148.56	6.24	4.01	-83.29	165.96	-14,746.13	14,729.90	14,719.66	10.24	1,438.851		
1,700.00	1,676.30	1,162.00	1,148.56	6.49	4.01	-83.29	165.96	-14,746.13	14,730.00	14,719.52	10.48	1,404.874		
1,800.00	1,772.93	1,224.00	1,208.63	6.95	4.31	-83.40	150.76	-14,748.18	14,730.55	14,719.31	11.24	1,310.478		
1,900.00	1,869.56	1,224.00	1,208.63	7.41	4.31	-83.40	150.76	-14,748.18	14,731.58	14,719.88	11.70	1,259.447		
2,000.00	1,966.19	1,364.45	1,345.22	7.87	4.98	-83.66	118.56	-14,753.60	14,732.94	14,720.11	12.83	1,148.402		
2,100.00	2,062.83	1,456.65	1,435.13	8.33	5.42	-83.83	98.40	-14,757.00	14,734.24	14,720.51	13.73	1,073.342		
2,200.00	2,159.46	1,539.00	1,515.33	8.80	5.81	-83.98	79.94	-14,760.00	14,735.66	14,721.08	14.58	1,010.345		
2,300.00	2,256.09	1,791.00	1,760.45	9.27	7.04	-84.44	22.07	-14,768.13	14,737.10	14,720.83	16.27	905.676		
2,400.00	2,352.72	1,822.81	1,791.34	9.73	7.20	-84.50	14.51	-14,768.94	14,737.98	14,721.09	16.89	872.333		
2,500.00	2,449.35	1,854.00	1,821.59	10.20	7.35	-84.55	6.96	-14,769.94	14,739.44	14,721.92	17.52	841.508		
2,600.00	2,545.98	1,878.08	1,844.91	10.67	7.47	-84.60	1.03	-14,770.80	14,741.40	14,723.29	18.10	814.283		
2,700.00	2,642.61	1,923.25	1,888.58	11.15	7.70	-84.69	-10.37	-14,772.52	14,743.81	14,725.01	18.80	784.306		
2,800.00	2,739.24	2,293.00	2,247.71	11.62	9.52	-85.37	-97.49	-14,783.85	14,745.71	14,724.61	21.09	699.130		
2,900.00	2,835.87	2,318.83	2,272.87	12.09	9.65	-85.42	-103.31	-14,784.44	14,747.04	14,725.35	21.69	680.012		
3,000.00	2,932.50	2,355.00	2,308.09	12.56	9.82	-85.48	-111.50	-14,785.50	14,748.94	14,726.61	22.33	660.451		
3,100.00	3,029.13	2,393.47	2,345.53	13.04	10.01	-85.55	-120.21	-14,786.76	14,751.30	14,728.31	22.99	641.696		
3,200.00	3,125.77	2,496.95	2,446.28	13.51	10.51	-85.74	-143.62	-14,790.03	14,753.80	14,729.84	23.96	615.734		
3,300.00	3,222.40	2,551.31	2,499.23	13.99	10.78	-85.84	-155.82	-14,791.83	14,756.57	14,731.88	24.70	597.550		
3,400.00	3,319.03	2,827.93	2,769.09	14.46	12.10	-86.33	-216.08	-14,799.33	14,758.75	14,732.26	26.49	557.094		
3,500.00	3,415.66	3,215.89	3,151.36	14.94	13.78	-86.96	-281.04	-14,804.42	14,759.16	14,730.52	28.65	515.238		
3,600.00	3,512.29	3,277.30	3,212.33	15.42	14.02	-87.04	-288.37	-14,804.99	14,759.55	14,730.19	29.36	502.720		
3,700.00	3,608.92	3,693.71	3,627.97	15.89	15.35	-87.53	-306.30	-14,806.64	14,758.84	14,727.68	31.16	473.686		
3,800.00	3,705.55	3,795.05	3,729.31	16.37	15.66	-87.63	-306.18	-14,806.29	14,757.35	14,725.40	31.95	461.906		
3,900.00	3,802.18	3,896.40	3,830.65	16.84	15.97	-87.73	-306.05	-14,805.91	14,755.87	14,723.13	32.74	450.692		
4,000.00	3,898.81	3,997.74	3,932.00	17.32	16.29	-87.83	-305.91	-14,805.49	14,754.40	14,720.87	33.53	440.005		
4,100.00	3,995.44	4,099.10	4,033.35	17.80	16.60	-87.93	-305.76	-14,805.04	14,752.95	14,718.62	34.32	429.808		
4,200.00	4,092.07	4,200.45	4,134.70	18.28	16.91	-88.03	-305.60	-14,804.56	14,751.51	14,716.39	35.12	420.069		
4,300.00	4,188.71	4,301.81	4,236.06	18.75	17.23	-88.13	-305.43	-14,804.05	14,750.08	14,714.17	35.91	410.759		
4,400.00	4,285.34	4,403.17	4,337.42	19.23	17.54	-88.23	-305.25	-14,803.51	14,748.67	14,711.97	36.70	401.848		
4,500.00	4,381.97	4,504.54	4,438.78	19.71	17.85	-88.33	-305.06	-14,802.94	14,747.27	14,709.78	37.49	393.314		
4,600.00	4,478.60	4,605.90	4,540.15	20.19	18.17	-88.43	-304.85	-14,802.33	14,745.89	14,707.60	38.29	385.131		
4,700.00	4,575.23	4,707.27	4,641.52	20.67	18.48	-88.53	-304.64	-14,801.70	14,744.52	14,705.44	39.08	377.279		
4,800.00	4,671.86	4,808.65	4,742.89	21.14	18.80	-88.64	-304.42	-14,801.03	14,743.16	14,703.29	39.87	369.739		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
Reference	Offset	Semi Major Axis		Offset Wellbore Centre		Distance		Separation		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	
4,900.00	4,768.49	4,910.03	4,844.27	21.62	19.11	-88.74	-304.18	-14,800.33	14,741.82	14,701.15	40.67	362.493	
5,000.00	4,865.12	5,011.41	4,945.64	22.10	19.42	-88.84	-303.94	-14,799.60	14,740.49	14,699.03	41.46	355.522	
5,100.00	4,961.75	5,112.79	5,047.02	22.58	19.74	-88.94	-303.68	-14,798.84	14,739.17	14,696.92	42.26	348.814	
5,200.00	5,058.38	5,214.18	5,148.41	23.06	20.05	-89.04	-303.42	-14,798.04	14,737.87	14,694.82	43.05	342.352	
5,300.00	5,155.01	5,315.57	5,249.79	23.54	20.37	-89.14	-303.14	-14,797.21	14,736.58	14,692.73	43.84	336.123	
5,400.00	5,251.64	5,416.96	5,351.18	24.01	20.68	-89.24	-302.85	-14,796.36	14,735.30	14,690.66	44.64	330.116	
5,500.00	5,348.28	5,518.36	5,452.58	24.49	21.00	-89.34	-302.56	-14,795.47	14,734.04	14,688.61	45.43	324.319	
5,600.00	5,444.91	5,619.76	5,553.97	24.97	21.31	-89.44	-302.25	-14,794.55	14,732.79	14,686.56	46.22	318.720	
5,700.00	5,541.54	5,721.16	5,655.37	25.45	21.62	-89.54	-301.93	-14,793.59	14,731.55	14,684.53	47.02	313.310	
5,800.00	5,638.17	5,822.56	5,756.77	25.93	21.94	-89.64	-301.60	-14,792.61	14,730.33	14,682.51	47.81	308.080	
5,900.00	5,734.80	5,923.97	5,858.17	26.41	22.25	-89.74	-301.26	-14,791.59	14,729.12	14,680.51	48.61	303.021	
6,000.00	5,831.43	6,025.38	5,959.57	26.89	22.57	-89.84	-300.91	-14,790.55	14,727.92	14,678.52	49.40	298.125	
6,100.00	5,928.06	6,126.80	6,060.98	27.37	22.88	-89.94	-300.55	-14,789.47	14,726.73	14,676.54	50.20	293.383	
6,200.00	6,024.69	6,228.22	6,162.39	27.85	23.20	-90.05	-300.18	-14,788.36	14,725.56	14,674.57	50.99	288.789	
6,300.00	6,121.32	6,329.64	6,263.81	28.33	23.51	-90.15	-299.79	-14,787.21	14,724.40	14,672.62	51.79	284.336	
6,400.00	6,217.95	6,431.06	6,365.22	28.81	23.83	-90.25	-299.40	-14,786.04	14,723.26	14,670.68	52.58	280.017	
6,500.00	6,314.58	6,532.48	6,466.64	29.29	24.14	-90.35	-299.00	-14,784.83	14,722.13	14,668.75	53.37	275.828	
6,543.64	6,356.75	6,576.75	6,510.90	29.49	24.28	-90.39	-298.82	-14,784.30	14,721.64	14,667.92	53.72	274.039	
6,550.00	6,362.90	6,583.20	6,517.35	29.53	24.30	-88.27	-298.79	-14,784.22	14,721.53	14,667.76	53.77	273.779	
6,600.00	6,411.07	6,633.73	6,567.87	29.77	24.46	-72.90	-298.58	-14,783.60	14,718.54	14,664.37	54.17	271.710	
6,650.00	6,458.79	6,683.73	6,617.87	30.01	24.61	-60.66	-298.38	-14,782.98	14,711.67	14,657.10	54.57	269.597	
6,700.00	6,505.76	6,732.89	6,667.03	30.26	24.76	-51.58	-298.17	-14,782.36	14,700.97	14,646.00	54.97	267.460	
6,750.00	6,551.69	6,780.92	6,715.05	30.50	24.91	-45.00	-297.96	-14,781.75	14,686.51	14,631.16	55.36	265.314	
6,800.00	6,596.30	6,827.50	6,761.63	30.74	25.06	-40.24	-297.76	-14,781.15	14,668.39	14,612.65	55.74	263.172	
6,850.00	6,639.32	6,872.36	6,806.48	30.98	25.20	-36.78	-297.57	-14,780.56	14,646.70	14,590.60	56.11	261.047	
6,900.00	6,680.47	6,915.20	6,849.33	31.21	25.33	-34.29	-297.38	-14,780.00	14,621.60	14,565.13	56.47	258.948	
6,950.00	6,719.51	6,955.78	6,889.90	31.44	25.45	-32.54	-297.20	-14,779.46	14,593.23	14,536.42	56.81	256.888	
7,000.00	6,756.20	6,993.84	6,927.95	31.67	25.57	-31.40	-297.03	-14,778.95	14,561.76	14,504.63	57.13	254.873	
7,050.00	6,790.30	7,029.13	6,963.24	31.90	25.68	-30.78	-296.87	-14,778.48	14,527.40	14,469.96	57.44	252.915	
7,100.00	6,821.62	7,061.46	6,995.56	32.13	25.78	-30.66	-296.72	-14,778.04	14,490.35	14,432.63	57.73	251.019	
7,150.00	6,849.95	7,090.60	7,024.71	32.35	25.87	-31.06	-296.59	-14,777.64	14,450.85	14,392.86	57.99	249.193	
7,200.00	6,875.12	7,116.40	7,050.50	32.58	25.95	-32.05	-296.47	-14,777.28	14,409.13	14,350.90	58.23	247.444	
7,250.00	6,896.97	7,138.68	7,072.78	32.81	26.02	-33.80	-296.37	-14,776.97	14,365.46	14,307.01	58.45	245.777	
7,300.00	6,915.38	7,157.32	7,091.41	33.05	26.08	-36.61	-296.28	-14,776.71	14,320.09	14,261.45	58.64	244.196	
7,350.00	6,930.22	7,172.19	7,106.28	33.29	26.13	-41.05	-296.21	-14,776.50	14,273.32	14,214.51	58.81	242.706	
7,400.00	6,941.41	7,183.21	7,117.30	33.53	26.16	-48.28	-296.16	-14,776.35	14,225.42	14,166.47	58.95	241.309	
7,450.00	6,948.88	7,190.31	7,124.41	33.79	26.18	-60.65	-296.12	-14,776.25	14,176.70	14,117.63	59.07	240.008	
7,500.00	6,952.57	7,193.46	7,127.55	34.05	26.19	-82.04	-296.11	-14,776.20	14,127.45	14,068.29	59.16	238.804	
7,525.63	6,953.00	7,193.53	7,127.62	34.19	26.19	-97.05	-296.11	-14,776.20	14,102.09	14,042.89	59.20	238.224	
7,600.00	6,952.79	7,192.21	7,126.30	34.61	26.19	-97.01	-296.12	-14,776.22	14,028.48	13,969.18	59.30	236.583	
7,700.00	6,952.50	7,190.44	7,124.54	35.23	26.18	-96.96	-296.12	-14,776.25	13,929.51	13,870.07	59.43	234.373	
7,800.00	6,952.22	7,188.68	7,122.77	35.91	26.18	-96.91	-296.13	-14,776.27	13,830.55	13,770.97	59.57	232.158	
7,900.00	6,951.93	7,186.91	7,121.01	36.65	26.17	-96.86	-296.14	-14,776.30	13,731.61	13,671.89	59.72	229.940	
8,000.00	6,951.65	7,185.15	7,119.24	37.45	26.17	-96.81	-296.15	-14,776.32	13,632.68	13,572.81	59.87	227.718	
8,100.00	6,951.36	7,183.39	7,117.48	38.29	26.16	-96.76	-296.16	-14,776.35	13,533.77	13,473.75	60.02	225.493	
8,200.00	6,951.08	7,181.62	7,115.72	39.19	26.16	-96.71	-296.16	-14,776.37	13,434.87	13,374.70	60.17	223.264	
8,300.00	6,950.79	7,179.86	7,113.96	40.13	26.15	-96.66	-296.17	-14,776.40	13,335.99	13,275.66	60.34	221.032	
8,400.00	6,950.51	7,178.10	7,112.20	41.11	26.14	-96.61	-296.18	-14,776.42	13,237.13	13,176.63	60.50	218.797	
8,500.00	6,950.22	7,176.34	7,110.44	42.12	26.14	-96.56	-296.19	-14,776.44	13,138.29	13,077.62	60.67	216.559	
8,600.00	6,949.94	7,174.59	7,108.68	43.18	26.13	-96.51	-296.20	-14,776.47	13,039.46	12,978.62	60.84	214.319	
8,700.00	6,949.65	7,172.83	7,106.92	44.26	26.13	-96.46	-296.21	-14,776.49	12,940.65	12,879.63	61.02	212.076	
8,800.00	6,949.37	7,171.07	7,105.17	45.38	26.12	-96.41	-296.21	-14,776.52	12,841.85	12,780.65	61.20	209.831	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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		
8,900.00	6,949.08	7,169.32	7,103.41	46.53	26.12	-96.36	-296.22	-14,776.54	12,743.08	12,681.69	61.39	207.585		
9,000.00	6,948.80	7,167.57	7,101.66	47.70	26.11	-96.31	-296.23	-14,776.57	12,644.33	12,582.75	61.58	205.337		
9,100.00	6,948.51	7,165.82	7,099.91	48.89	26.11	-96.26	-296.24	-14,776.59	12,545.59	12,483.82	61.77	203.087		
9,200.00	6,948.23	7,164.06	7,098.16	50.11	26.10	-96.21	-296.25	-14,776.62	12,446.88	12,384.90	61.98	200.836		
9,300.00	6,947.94	7,162.31	7,096.41	51.35	26.10	-96.16	-296.26	-14,776.64	12,348.18	12,286.00	62.18	198.585		
9,400.00	6,947.66	7,160.57	7,094.66	52.61	26.09	-96.11	-296.26	-14,776.67	12,249.51	12,187.12	62.39	196.332		
9,500.00	6,947.37	7,158.82	7,092.91	53.89	26.08	-96.06	-296.27	-14,776.69	12,150.86	12,088.25	62.61	194.079		
9,600.00	6,947.09	7,157.07	7,091.17	55.18	26.08	-96.01	-296.28	-14,776.71	12,052.23	11,989.40	62.83	191.826		
9,700.00	6,946.80	7,155.33	7,089.42	56.49	26.07	-95.96	-296.29	-14,776.74	11,953.62	11,890.56	63.06	189.573		
9,800.00	6,946.52	7,153.58	7,087.68	57.81	26.07	-95.91	-296.30	-14,776.76	11,855.03	11,791.74	63.29	187.320		
9,900.00	6,946.23	7,151.84	7,085.94	59.15	26.06	-95.86	-296.30	-14,776.79	11,756.47	11,692.95	63.53	185.067		
10,000.00	6,945.95	7,150.10	7,084.19	60.50	26.06	-95.81	-296.31	-14,776.81	11,657.93	11,594.17	63.77	182.815		
10,100.00	6,945.66	7,148.36	7,082.45	61.87	26.05	-95.76	-296.32	-14,776.84	11,559.42	11,495.40	64.02	180.564		
10,200.00	6,945.38	7,146.62	7,080.71	63.24	26.05	-95.71	-296.33	-14,776.86	11,460.94	11,396.66	64.27	178.314		
10,300.00	6,945.09	7,144.88	7,078.98	64.63	26.04	-95.66	-296.34	-14,776.88	11,362.48	11,297.94	64.54	176.066		
10,400.00	6,944.81	7,143.14	7,077.24	66.02	26.04	-95.61	-296.34	-14,776.91	11,264.04	11,199.24	64.80	173.819		
10,500.00	6,944.52	7,141.41	7,075.50	67.42	26.03	-95.56	-296.35	-14,776.93	11,165.64	11,100.56	65.08	171.575		
10,600.00	6,944.24	7,139.67	7,073.77	68.84	26.03	-95.51	-296.36	-14,776.96	11,067.26	11,001.90	65.36	169.332		
10,700.00	6,943.95	7,137.94	7,072.03	70.26	26.02	-95.46	-296.37	-14,776.98	10,968.91	10,903.26	65.65	167.092		
10,800.00	6,943.67	7,136.20	7,070.30	71.68	26.01	-95.41	-296.38	-14,777.01	10,870.59	10,804.65	65.94	164.855		
10,900.00	6,943.38	7,134.47	7,068.57	73.12	26.01	-95.36	-296.39	-14,777.03	10,772.30	10,706.06	66.24	162.620		
11,000.00	6,943.10	7,132.74	7,066.84	74.56	26.00	-95.31	-296.39	-14,777.05	10,674.05	10,607.50	66.55	160.389		
11,100.00	6,942.81	7,131.01	7,065.11	76.01	26.00	-95.26	-296.40	-14,777.08	10,575.82	10,508.96	66.87	158.162		
11,200.00	6,942.53	7,129.28	7,063.38	77.46	25.99	-95.21	-296.41	-14,777.10	10,477.63	10,410.44	67.19	155.938		
11,300.00	6,942.24	7,127.55	7,061.65	78.92	25.99	-95.17	-296.42	-14,777.13	10,379.48	10,311.95	67.52	153.718		
11,400.00	6,941.96	7,125.83	7,059.93	80.39	25.98	-95.12	-296.43	-14,777.15	10,281.36	10,213.49	67.86	151.502		
11,500.00	6,941.67	7,124.10	7,058.20	81.86	25.98	-95.07	-296.43	-14,777.17	10,183.27	10,115.06	68.21	149.291		
11,600.00	6,941.39	7,122.38	7,056.48	83.33	25.97	-95.02	-296.44	-14,777.20	10,085.22	10,016.66	68.57	147.084		
11,700.00	6,941.10	7,120.65	7,054.75	84.81	25.97	-94.97	-296.45	-14,777.22	9,987.21	9,918.28	68.93	144.883		
11,800.00	6,940.81	7,118.93	7,053.03	86.30	25.96	-94.92	-296.46	-14,777.24	9,889.25	9,819.94	69.31	142.687		
11,900.00	6,940.53	7,117.21	7,051.31	87.79	25.96	-94.87	-296.47	-14,777.27	9,791.32	9,721.63	69.69	140.497		
12,000.00	6,940.24	7,115.49	7,049.59	89.28	25.95	-94.82	-296.47	-14,777.29	9,693.43	9,623.35	70.08	138.313		
12,100.00	6,939.96	7,113.77	7,047.87	90.77	25.94	-94.77	-296.48	-14,777.32	9,595.59	9,525.10	70.49	136.135		
12,200.00	6,939.67	7,112.05	7,046.16	92.27	25.94	-94.72	-296.49	-14,777.34	9,497.79	9,426.89	70.90	133.963		
12,300.00	6,939.39	7,110.34	7,044.44	93.78	25.93	-94.67	-296.50	-14,777.36	9,400.04	9,328.71	71.32	131.798		
12,400.00	6,939.10	7,108.62	7,042.72	95.28	25.93	-94.62	-296.51	-14,777.39	9,302.33	9,230.57	71.75	129.640		
12,500.00	6,938.82	7,106.91	7,041.01	96.79	25.92	-94.57	-296.51	-14,777.41	9,204.67	9,132.47	72.20	127.490		
12,600.00	6,938.53	7,105.19	7,039.30	98.30	25.92	-94.52	-296.52	-14,777.43	9,107.07	9,034.41	72.65	125.347		
12,700.00	6,938.25	7,103.48	7,037.58	99.82	25.91	-94.48	-296.53	-14,777.46	9,009.51	8,936.39	73.12	123.212		
12,800.00	6,937.96	7,101.77	7,035.87	101.34	25.91	-94.43	-296.54	-14,777.48	8,912.01	8,838.41	73.60	121.085		
12,900.00	6,937.68	7,100.06	7,034.16	102.86	25.90	-94.38	-296.54	-14,777.51	8,814.57	8,740.48	74.09	118.967		
13,000.00	6,937.39	7,098.35	7,032.45	104.38	25.90	-94.33	-296.55	-14,777.53	8,717.18	8,642.59	74.60	116.858		
13,100.00	6,937.11	7,096.64	7,030.75	105.91	25.89	-94.28	-296.56	-14,777.55	8,619.86	8,544.74	75.11	114.757		
13,200.00	6,936.82	7,094.94	7,029.04	107.43	25.89	-94.23	-296.57	-14,777.58	8,522.59	8,446.95	75.64	112.667		
13,300.00	6,936.54	7,093.23	7,027.33	108.96	25.88	-94.18	-296.58	-14,777.60	8,425.39	8,349.20	76.19	110.585		
13,400.00	6,936.25	7,091.53	7,025.63	110.49	25.88	-94.13	-296.58	-14,777.62	8,328.25	8,251.51	76.75	108.514		
13,500.00	6,935.97	7,089.82	7,023.93	112.03	25.87	-94.08	-296.59	-14,777.65	8,231.19	8,153.87	77.32	106.454		
13,600.00	6,935.68	7,088.12	7,022.22	113.56	25.87	-94.03	-296.60	-14,777.67	8,134.19	8,056.28	77.91	104.404		
13,700.00	6,935.40	7,086.42	7,020.52	115.10	25.86	-93.99	-296.61	-14,777.69	8,037.27	7,958.75	78.52	102.364		
13,800.00	6,935.11	7,084.72	7,018.82	116.64	25.85	-93.94	-296.62	-14,777.72	7,940.42	7,861.28	79.14	100.337		
13,900.00	6,934.83	7,083.02	7,017.12	118.18	25.85	-93.89	-296.62	-14,777.74	7,843.65	7,763.87	79.78	98.320		
14,000.00	6,934.54	7,081.32	7,015.42	119.72	25.84	-93.84	-296.63	-14,777.76	7,746.96	7,666.53	80.43	96.316		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,100.00	6,934.26	7,079.62	7,013.73	121.26	25.84	-93.79	-296.64	-14,777.79	7,650.36	7,569.25	81.11	94.324		
14,200.00	6,933.97	7,077.93	7,012.03	122.81	25.83	-93.74	-296.65	-14,777.81	7,553.85	7,472.05	81.80	92.345		
14,300.00	6,933.69	7,076.23	7,010.34	124.36	25.83	-93.69	-296.65	-14,777.83	7,457.42	7,374.91	82.51	90.379		
14,400.00	6,933.40	7,074.54	7,008.64	125.90	25.82	-93.64	-296.66	-14,777.86	7,361.10	7,277.85	83.25	88.426		
14,500.00	6,933.12	7,072.84	7,006.95	127.45	25.82	-93.60	-296.67	-14,777.88	7,264.87	7,180.87	84.00	86.486		
14,600.00	6,932.83	7,071.15	7,005.26	129.00	25.81	-93.55	-296.68	-14,777.90	7,168.74	7,083.97	84.78	84.561		
14,700.00	6,932.55	7,069.46	7,003.57	130.56	25.81	-93.50	-296.69	-14,777.93	7,072.72	6,987.15	85.57	82.649		
14,800.00	6,932.26	7,067.77	7,001.88	132.11	25.80	-93.45	-296.69	-14,777.95	6,976.82	6,890.42	86.40	80.753		
14,900.00	6,931.98	7,066.08	7,000.19	133.66	25.80	-93.40	-296.70	-14,777.97	6,881.02	6,793.78	87.24	78.871		
15,000.00	6,931.69	7,064.40	6,998.50	135.22	25.79	-93.35	-296.71	-14,778.00	6,785.35	6,697.24	88.12	77.005		
15,100.00	6,931.41	7,062.71	6,996.81	136.77	25.79	-93.30	-296.72	-14,778.02	6,689.81	6,600.80	89.01	75.155		
15,200.00	6,931.12	7,061.02	6,995.13	138.33	25.78	-93.26	-296.72	-14,778.04	6,594.40	6,504.46	89.94	73.321		
15,300.00	6,930.84	7,059.34	6,993.44	139.89	25.78	-93.21	-296.73	-14,778.06	6,499.12	6,408.23	90.89	71.503		
15,400.00	6,930.55	7,057.66	6,991.76	141.45	25.77	-93.16	-296.74	-14,778.09	6,403.99	6,312.11	91.88	69.702		
15,500.00	6,930.27	7,055.97	6,990.08	143.01	25.77	-93.11	-296.75	-14,778.11	6,309.01	6,216.12	92.89	67.918		
15,600.00	6,929.98	7,054.29	6,988.40	144.57	25.76	-93.06	-296.75	-14,778.13	6,214.19	6,120.25	93.94	66.152		
15,700.00	6,929.70	7,052.61	6,986.72	146.13	25.76	-93.01	-296.76	-14,778.16	6,119.53	6,024.51	95.02	64.404		
15,800.00	6,929.41	7,050.93	6,985.04	147.70	25.75	-92.97	-296.77	-14,778.18	6,025.04	5,928.91	96.13	62.674		
15,900.00	6,929.13	7,049.25	6,983.36	149.26	25.74	-92.92	-296.78	-14,778.20	5,930.73	5,833.45	97.28	60.962		
16,000.00	6,928.84	7,047.58	6,981.68	150.82	25.74	-92.87	-296.79	-14,778.22	5,836.61	5,738.14	98.47	59.270		
16,100.00	6,928.56	7,045.90	6,980.01	152.39	25.73	-92.82	-296.79	-14,778.25	5,742.69	5,642.99	99.70	57.598		
16,200.00	6,928.27	7,044.23	6,978.33	153.96	25.73	-92.77	-296.80	-14,778.27	5,648.98	5,548.01	100.97	55.945		
16,300.00	6,927.99	7,042.55	6,976.66	155.52	25.72	-92.72	-296.81	-14,778.29	5,555.49	5,453.20	102.29	54.313		
16,400.00	6,927.70	7,040.88	6,974.99	157.09	25.72	-92.68	-296.82	-14,778.32	5,462.23	5,358.58	103.64	52.701		
16,500.00	6,927.42	7,039.21	6,973.31	158.66	25.71	-92.63	-296.82	-14,778.34	5,369.20	5,264.15	105.05	51.111		
16,600.00	6,927.13	7,037.54	6,971.64	160.23	25.71	-92.58	-296.83	-14,778.36	5,276.44	5,169.93	106.50	49.542		
16,700.00	6,926.85	7,035.87	6,969.97	161.80	25.70	-92.53	-296.84	-14,778.38	5,183.94	5,075.93	108.01	47.995		
16,800.00	6,926.56	7,034.20	6,968.31	163.37	25.70	-92.48	-296.85	-14,778.41	5,091.73	4,982.16	109.57	46.470		
16,900.00	6,926.28	7,032.53	6,966.64	164.94	25.69	-92.44	-296.85	-14,778.43	4,999.81	4,888.63	111.19	44.968		
17,000.00	6,925.99	7,030.86	6,964.97	166.51	25.69	-92.39	-296.86	-14,778.45	4,908.21	4,795.35	112.86	43.489		
17,100.00	6,925.71	7,029.20	6,963.31	168.08	25.68	-92.34	-296.87	-14,778.47	4,816.94	4,702.35	114.60	42.034		
17,200.00	6,925.42	7,027.53	6,961.64	169.65	25.68	-92.29	-296.88	-14,778.50	4,726.03	4,609.63	116.40	40.603		
17,300.00	6,925.14	7,025.87	6,959.98	171.23	25.67	-92.24	-296.88	-14,778.52	4,635.49	4,517.23	118.26	39.196		
17,400.00	6,924.85	7,024.21	6,958.32	172.80	25.67	-92.20	-296.89	-14,778.54	4,545.35	4,425.14	120.20	37.815		
17,500.00	6,924.57	7,022.54	6,956.65	174.37	25.66	-92.15	-296.90	-14,778.56	4,455.62	4,333.41	122.21	36.458		
17,600.00	6,924.28	7,020.88	6,954.99	175.95	25.66	-92.10	-296.91	-14,778.59	4,366.34	4,242.04	124.30	35.127		
17,700.00	6,924.00	7,019.22	6,953.33	177.52	25.65	-92.05	-296.91	-14,778.61	4,277.54	4,151.07	126.47	33.823		
17,800.00	6,923.71	7,017.57	6,951.68	179.10	25.65	-92.00	-296.92	-14,778.63	4,189.24	4,060.51	128.72	32.545		
17,900.00	6,923.43	7,015.91	6,950.02	180.68	25.64	-91.96	-296.93	-14,778.65	4,101.47	3,970.41	131.06	31.294		
18,000.00	6,923.14	7,014.25	6,948.36	182.25	25.64	-91.91	-296.94	-14,778.68	4,014.28	3,880.78	133.50	30.070		
18,100.00	6,922.86	7,012.60	6,946.71	183.83	25.63	-91.86	-296.94	-14,778.70	3,927.70	3,791.67	136.03	28.874		
18,200.00	6,922.57	7,010.94	6,945.05	185.41	25.63	-91.81	-296.95	-14,778.72	3,841.77	3,703.11	138.66	27.707		
18,300.00	6,922.29	7,009.29	6,943.40	186.98	25.62	-91.77	-296.96	-14,778.74	3,756.53	3,615.14	141.39	26.569		
18,400.00	6,922.00	7,007.64	6,941.75	188.56	25.62	-91.72	-296.97	-14,778.77	3,672.04	3,527.81	144.23	25.459		
18,500.00	6,921.71	7,005.98	6,940.10	190.14	25.61	-91.67	-296.97	-14,778.79	3,588.34	3,441.16	147.19	24.380		
18,600.00	6,921.43	7,004.33	6,938.45	191.72	25.61	-91.62	-296.98	-14,778.81	3,505.50	3,355.25	150.26	23.330		
18,700.00	6,921.14	7,002.69	6,936.80	193.30	25.60	-91.58	-296.99	-14,778.83	3,423.58	3,270.13	153.45	22.311		
18,800.00	6,920.86	7,001.04	6,935.15	194.88	25.60	-91.53	-297.00	-14,778.86	3,342.64	3,185.87	156.77	21.322		
18,900.00	6,920.57	6,999.39	6,933.50	196.46	25.59	-91.48	-297.00	-14,778.88	3,262.75	3,102.54	160.21	20.366		
19,000.00	6,920.29	6,997.74	6,931.86	198.04	25.58	-91.43	-297.01	-14,778.90	3,184.00	3,020.22	163.78	19.440		
19,100.00	6,920.00	6,996.10	6,930.21	199.62	25.58	-91.39	-297.02	-14,778.92	3,106.47	2,938.98	167.49	18.547		
19,200.00	6,919.72	6,994.45	6,928.57	201.20	25.57	-91.34	-297.03	-14,778.94	3,030.26	2,858.93	171.33	17.687		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	Semi Major Axis 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
19,300.00	6,919.43	6,992.81	6,926.92	202.78	25.57	-91.29	-297.03	-14,778.97	2,955.46	2,780.16	175.30	16.859	
19,400.00	6,919.15	6,991.17	6,925.28	204.36	25.56	-91.24	-297.04	-14,778.99	2,882.20	2,702.79	179.41	16.065	
19,500.00	6,918.86	6,989.53	6,923.64	205.95	25.56	-91.20	-297.05	-14,779.01	2,810.58	2,626.93	183.64	15.305	
19,600.00	6,918.58	6,987.89	6,922.00	207.53	25.55	-91.15	-297.06	-14,779.03	2,740.73	2,552.73	188.00	14.578	
19,700.00	6,918.29	6,986.25	6,920.36	209.11	25.55	-91.10	-297.06	-14,779.05	2,672.81	2,480.33	192.48	13.886	
19,800.00	6,918.01	6,984.61	6,918.72	210.69	25.54	-91.05	-297.07	-14,779.08	2,606.95	2,409.89	197.06	13.229	
19,900.00	6,917.72	6,982.97	6,917.09	212.28	25.54	-91.01	-297.08	-14,779.10	2,543.31	2,341.58	201.73	12.607	
20,000.00	6,917.44	6,981.34	6,915.45	213.86	25.53	-90.96	-297.09	-14,779.12	2,482.08	2,275.59	206.48	12.021	
20,100.00	6,917.15	6,979.70	6,913.82	215.45	25.53	-90.91	-297.09	-14,779.14	2,423.42	2,212.13	211.29	11.470	
20,200.00	6,916.87	6,978.07	6,912.18	217.03	25.52	-90.87	-297.10	-14,779.16	2,367.53	2,151.42	216.11	10.955	
20,300.00	6,916.58	6,976.44	6,910.55	218.61	25.52	-90.82	-297.11	-14,779.19	2,314.62	2,093.68	220.93	10.477	
20,400.00	6,916.30	6,974.80	6,908.92	220.20	25.51	-90.77	-297.11	-14,779.21	2,264.88	2,039.17	225.71	10.034	
20,500.00	6,916.01	6,973.17	6,907.29	221.78	25.51	-90.72	-297.12	-14,779.23	2,218.54	1,988.14	230.40	9.629	
20,600.00	6,915.73	6,971.54	6,905.66	223.37	25.50	-90.68	-297.13	-14,779.25	2,175.81	1,940.86	234.95	9.261	
20,700.00	6,915.44	6,969.91	6,904.03	224.95	25.50	-90.63	-297.14	-14,779.27	2,136.91	1,897.59	239.32	8.929	
20,800.00	6,915.16	6,968.29	6,902.40	226.54	25.49	-90.58	-297.14	-14,779.30	2,102.05	1,858.60	243.44	8.635	
20,855.45	6,915.00	6,967.38	6,901.50	227.42	25.49	-90.56	-297.15	-14,779.31	2,084.53	1,838.92	245.61	8.487 CC, ES, 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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
0.00	0.00	2,830.00	2,604.62	0.00	17.62	-95.83	-1,254.02	-12,271.52	12,602.27			
100.00	100.00	3,021.00	2,785.43	0.25	18.62	-95.61	-1,202.66	-12,238.23	12,581.67	12,563.36	18.32	686.872
200.00	200.00	3,052.00	2,814.99	0.61	18.78	-95.58	-1,195.20	-12,232.65	12,560.83	12,542.14	18.69	672.089
300.00	300.00	3,052.00	2,814.99	0.97	18.78	-95.58	-1,195.20	-12,232.65	12,540.59	12,521.61	18.98	660.750
400.00	400.00	3,083.00	2,844.59	1.33	18.93	-95.55	-1,187.63	-12,227.38	12,520.93	12,501.48	19.45	643.626
500.00	500.00	3,115.00	2,875.23	1.68	19.07	-95.51	-1,179.99	-12,222.20	12,501.93	12,481.99	19.94	626.914
600.00	599.98	3,137.39	2,896.75	2.04	19.17	-89.26	-1,174.91	-12,218.67	12,483.45	12,463.06	20.39	612.358
700.00	699.84	3,179.00	2,936.92	2.41	19.35	-89.60	-1,166.29	-12,212.12	12,465.39	12,444.47	20.92	595.889
800.00	799.45	3,179.00	2,936.92	2.77	19.35	-89.95	-1,166.29	-12,212.12	12,447.93	12,426.67	21.26	585.424
900.00	898.70	3,211.00	2,967.96	3.13	19.48	-90.29	-1,160.05	-12,207.43	12,431.12	12,409.36	21.76	571.404
1,000.00	997.47	3,211.00	2,967.96	3.50	19.48	-90.61	-1,160.05	-12,207.43	12,414.98	12,392.87	22.12	561.383
1,100.00	1,095.62	3,211.00	2,967.96	3.89	19.48	-90.92	-1,160.05	-12,207.43	12,399.67	12,377.19	22.49	551.415
1,200.00	1,193.06	3,241.00	2,997.14	4.30	19.59	-91.22	-1,154.19	-12,203.67	12,385.08	12,362.07	23.00	538.404
1,245.75	1,237.35	3,241.00	2,997.14	4.49	19.59	-91.35	-1,154.19	-12,203.67	12,378.64	12,355.45	23.19	533.882
1,300.00	1,289.78	3,241.00	2,997.14	4.72	19.59	-91.35	-1,154.19	-12,203.67	12,371.22	12,347.82	23.41	528.525
1,400.00	1,386.41	3,257.16	3,012.88	5.15	19.65	-91.36	-1,151.04	-12,201.88	12,358.11	12,334.22	23.89	517.304
1,500.00	1,483.04	3,272.00	3,027.37	5.59	19.71	-91.37	-1,148.19	-12,200.33	12,345.66	12,321.28	24.37	506.510
1,600.00	1,579.67	3,316.49	3,070.96	6.04	19.85	-91.39	-1,140.52	-12,195.83	12,333.79	12,308.82	24.98	493.817
1,700.00	1,676.30	3,398.00	3,151.44	6.49	20.07	-91.45	-1,131.00	-12,187.20	12,322.17	12,296.47	25.70	479.450
1,800.00	1,772.93	3,429.00	3,182.12	6.95	20.14	-91.47	-1,127.97	-12,184.01	12,310.99	12,284.75	26.24	469.159
1,900.00	1,869.56	3,461.00	3,213.81	7.41	20.22	-91.50	-1,124.85	-12,180.86	12,300.33	12,273.55	26.79	459.216
2,000.00	1,966.19	3,493.00	3,245.52	7.87	20.29	-91.52	-1,121.67	-12,177.88	12,290.22	12,262.88	27.33	449.668
2,100.00	2,062.83	3,493.00	3,245.52	8.33	20.29	-91.52	-1,121.67	-12,177.88	12,280.76	12,252.99	27.78	442.135
2,200.00	2,159.46	3,524.00	3,276.27	8.80	20.35	-91.55	-1,118.74	-12,175.32	12,271.93	12,243.61	28.32	433.353
2,300.00	2,256.09	3,524.00	3,276.27	9.27	20.35	-91.55	-1,118.74	-12,175.32	12,263.85	12,235.08	28.76	426.352
2,400.00	2,352.72	3,556.00	3,308.08	9.73	20.41	-91.58	-1,116.05	-12,173.13	12,256.45	12,227.14	29.31	418.225
2,500.00	2,449.35	3,556.00	3,308.08	10.20	20.41	-91.58	-1,116.05	-12,173.13	12,249.73	12,219.98	29.75	411.722
2,600.00	2,545.98	3,587.00	3,338.95	10.67	20.46	-91.61	-1,113.74	-12,171.40	12,243.72	12,213.43	30.28	404.295
2,700.00	2,642.61	3,587.00	3,338.95	11.15	20.46	-91.61	-1,113.74	-12,171.40	12,238.38	12,207.65	30.73	398.252
2,800.00	2,739.24	3,619.00	3,370.85	11.62	20.50	-91.64	-1,111.68	-12,170.00	12,233.74	12,202.48	31.26	391.394
2,900.00	2,835.87	3,619.00	3,370.85	12.09	20.50	-91.64	-1,111.68	-12,170.00	12,229.77	12,198.07	31.70	385.775
3,000.00	2,932.50	3,651.00	3,402.79	12.56	20.54	-91.67	-1,110.03	-12,168.94	12,226.47	12,194.25	32.22	379.469
3,100.00	3,029.13	3,729.13	3,480.84	13.04	20.61	-91.75	-1,107.30	-12,166.68	12,223.75	12,190.92	32.83	372.290
3,200.00	3,125.77	3,760.67	3,512.35	13.51	20.63	-91.79	-1,106.49	-12,165.74	12,221.21	12,187.86	33.35	366.481
3,300.00	3,222.40	3,778.00	3,529.67	13.99	20.65	-91.81	-1,106.14	-12,165.31	12,219.30	12,185.48	33.83	361.220
3,400.00	3,319.03	3,810.00	3,561.67	14.46	20.66	-91.84	-1,105.60	-12,164.80	12,218.10	12,183.77	34.33	355.906
3,500.00	3,415.66	3,810.00	3,561.67	14.94	20.66	-91.84	-1,105.60	-12,164.80	12,217.52	12,182.75	34.77	351.380
3,534.00	3,448.51	3,829.82	3,581.48	15.10	20.67	-91.87	-1,105.30	-12,164.63	12,217.47	12,182.52	34.95	349.585
3,600.00	3,512.29	3,857.37	3,609.03	15.42	20.68	-91.90	-1,104.87	-12,164.50	12,217.55	12,182.27	35.27	346.363
3,700.00	3,608.92	3,934.00	3,685.64	15.89	21.19	-91.98	-1,103.64	-12,164.34	12,217.97	12,181.66	36.31	336.462
3,800.00	3,705.55	4,031.11	3,782.74	16.37	33.29	-92.09	-1,102.07	-12,164.16	12,218.48	12,169.18	49.30	247.819
3,900.00	3,802.18	4,128.22	3,879.85	16.84	45.59	-92.20	-1,100.50	-12,163.98	12,219.03	12,156.80	62.23	196.350
4,000.00	3,898.81	4,225.34	3,976.95	17.32	57.95	-92.31	-1,098.93	-12,163.80	12,219.64	12,144.50	75.14	162.634
4,100.00	3,995.44	4,322.46	4,074.05	17.80	70.33	-92.42	-1,097.35	-12,163.62	12,220.29	12,132.26	88.03	138.820
4,200.00	4,092.07	4,419.57	4,171.16	18.28	82.72	-92.53	-1,095.77	-12,163.44	12,220.98	12,120.06	100.92	121.097
4,300.00	4,188.71	4,516.69	4,268.26	18.75	95.11	-92.64	-1,094.19	-12,163.26	12,221.72	12,107.92	113.80	107.393
4,400.00	4,285.34	4,613.81	4,365.37	19.23	107.51	-92.75	-1,092.61	-12,163.08	12,222.52	12,095.83	126.69	96.478
4,500.00	4,381.97	4,710.93	4,462.48	19.71	119.91	-92.86	-1,091.02	-12,162.90	12,223.35	12,083.78	139.57	87.579
4,600.00	4,478.60	4,808.06	4,559.59	20.19	132.31	-92.97	-1,089.43	-12,162.72	12,224.24	12,071.79	152.45	80.185
4,700.00	4,575.23	4,905.18	4,656.70	20.67	144.70	-93.08	-1,087.84	-12,162.54	12,225.17	12,059.84	165.33	73.943
4,800.00	4,671.86	5,002.31	4,753.81	21.14	157.10	-93.19	-1,086.25	-12,162.35	12,226.15	12,047.94	178.21	68.605
4,900.00	4,768.49	5,099.44	4,850.93	21.62	169.50	-93.30	-1,084.65	-12,162.17	12,227.17	12,036.08	191.09	63.986

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
5,000.00	4,865.12	5,196.56	4,948.04	22.10	181.90	-93.41	-1,083.05	-12,161.99	12,228.25	12,024.28	203.97	59.951
5,100.00	4,961.75	5,293.69	5,045.16	22.58	194.30	-93.52	-1,081.45	-12,161.81	12,229.37	12,012.52	216.85	56.395
5,200.00	5,058.38	5,390.82	5,142.28	23.06	206.70	-93.63	-1,079.85	-12,161.62	12,230.53	12,000.80	229.73	53.239
5,300.00	5,155.01	5,487.96	5,239.39	23.54	219.10	-93.74	-1,078.24	-12,161.44	12,231.75	11,989.14	242.61	50.417
5,400.00	5,251.64	5,585.09	5,336.51	24.01	231.50	-93.85	-1,076.63	-12,161.25	12,233.01	11,977.52	255.49	47.881
5,500.00	5,348.28	5,682.22	5,433.64	24.49	243.90	-93.96	-1,075.02	-12,161.07	12,234.31	11,965.94	268.37	45.588
5,600.00	5,444.91	5,779.36	5,530.76	24.97	256.31	-94.07	-1,073.40	-12,160.89	12,235.67	11,954.42	281.25	43.505
5,700.00	5,541.54	5,876.50	5,627.88	25.45	268.71	-94.18	-1,071.78	-12,160.70	12,237.07	11,942.94	294.13	41.604
5,800.00	5,638.17	5,973.64	5,725.01	25.93	281.11	-94.29	-1,070.16	-12,160.52	12,238.52	11,931.51	307.01	39.864
5,900.00	5,734.80	6,070.78	5,822.13	26.41	293.51	-94.40	-1,068.54	-12,160.33	12,240.01	11,920.12	319.89	38.263
6,000.00	5,831.43	6,167.92	5,919.26	26.89	305.91	-94.51	-1,066.91	-12,160.14	12,241.55	11,908.78	332.77	36.787
6,100.00	5,928.06	6,265.06	6,016.39	27.37	318.31	-94.62	-1,065.28	-12,159.96	12,243.14	11,897.49	345.65	35.420
6,200.00	6,024.69	6,362.20	6,113.52	27.85	330.72	-94.73	-1,063.65	-12,159.77	12,244.77	11,886.24	358.53	34.152
6,300.00	6,121.32	6,459.35	6,210.65	28.33	343.12	-94.84	-1,062.02	-12,159.59	12,246.45	11,875.04	371.42	32.972
6,400.00	6,217.95	6,556.50	6,307.78	28.81	355.52	-94.95	-1,060.38	-12,159.40	12,248.18	11,863.88	384.30	31.872
6,500.00	6,314.58	6,653.64	6,404.92	29.29	367.92	-95.06	-1,058.74	-12,159.21	12,249.95	11,852.77	397.18	30.842
6,543.64	6,356.75	6,696.04	6,447.30	29.49	373.33	-95.11	-1,058.03	-12,159.13	12,250.74	11,847.94	402.80	30.414
6,550.00	6,362.90	6,702.22	6,453.48	29.53	374.12	-92.99	-1,057.92	-12,159.12	12,250.83	11,847.21	403.62	30.352
6,600.00	6,411.07	6,750.64	6,501.90	29.77	380.31	-77.62	-1,057.10	-12,159.02	12,249.33	11,839.29	410.05	29.873
6,650.00	6,458.79	6,798.60	6,549.85	30.01	386.43	-65.40	-1,056.29	-12,158.93	12,244.02	11,827.61	416.42	29.403
6,700.00	6,505.76	6,845.80	6,597.05	30.26	392.46	-56.38	-1,055.49	-12,158.84	12,234.93	11,812.24	422.69	28.945
6,750.00	6,551.69	6,891.96	6,643.20	30.50	398.35	-49.89	-1,054.71	-12,158.75	12,222.11	11,793.28	428.83	28.501
6,800.00	6,596.30	6,936.78	6,688.01	30.74	404.07	-45.24	-1,053.95	-12,158.66	12,205.65	11,770.84	434.80	28.072
6,850.00	6,639.32	6,979.99	6,731.21	30.98	409.59	-41.94	-1,053.22	-12,158.58	12,185.64	11,745.08	440.56	27.659
6,900.00	6,680.47	7,021.32	6,772.54	31.21	414.86	-39.65	-1,052.51	-12,158.50	12,162.22	11,716.14	446.08	27.265
6,950.00	6,719.51	7,060.52	6,811.73	31.44	419.87	-38.14	-1,051.85	-12,158.42	12,135.53	11,684.22	451.32	26.889
7,000.00	6,756.20	7,097.35	6,848.55	31.67	424.57	-37.29	-1,051.22	-12,158.35	12,105.74	11,649.49	456.25	26.533
7,050.00	6,790.30	7,131.57	6,882.78	31.90	428.94	-37.02	-1,050.64	-12,158.29	12,073.02	11,612.19	460.84	26.198
7,100.00	6,821.62	7,162.99	6,914.19	32.13	432.95	-37.33	-1,050.10	-12,158.22	12,037.59	11,572.53	465.06	25.884
7,150.00	6,849.95	7,191.40	6,942.59	32.35	436.58	-38.24	-1,049.62	-12,158.17	11,999.65	11,530.76	468.89	25.592
7,200.00	6,875.12	7,216.63	6,967.82	32.58	439.80	-39.83	-1,049.19	-12,158.12	11,959.45	11,487.14	472.30	25.322
7,250.00	6,896.97	7,238.52	6,989.71	32.81	442.59	-42.27	-1,048.82	-12,158.08	11,917.22	11,441.94	475.28	25.074
7,300.00	6,915.38	7,256.94	7,008.13	33.05	444.95	-45.82	-1,048.50	-12,158.04	11,873.23	11,395.43	477.80	24.850
7,350.00	6,930.22	7,271.78	7,022.96	33.29	446.84	-50.91	-1,048.25	-12,158.01	11,827.75	11,347.90	479.86	24.648
7,400.00	6,941.41	7,282.94	7,034.12	33.53	448.27	-58.21	-1,048.06	-12,157.99	11,781.06	11,299.63	481.43	24.471
7,450.00	6,948.88	7,290.36	7,041.54	33.79	449.21	-68.66	-1,047.93	-12,157.98	11,733.44	11,250.92	482.52	24.317
7,500.00	6,952.57	7,293.98	7,045.16	34.05	449.68	-83.15	-1,047.87	-12,157.97	11,685.18	11,202.07	483.11	24.188
7,525.63	6,953.00	7,294.36	7,045.54	34.19	449.72	-92.10	-1,047.86	-12,157.97	11,660.29	11,177.07	483.22	24.131
7,600.00	6,952.79	7,294.01	7,045.19	34.61	449.68	-92.09	-1,047.87	-12,157.97	11,587.99	11,104.64	483.35	23.975
7,700.00	6,952.50	7,293.54	7,044.72	35.23	449.62	-92.08	-1,047.88	-12,157.97	11,490.82	11,007.29	483.53	23.765
7,800.00	6,952.22	7,293.07	7,044.25	35.91	449.56	-92.07	-1,047.89	-12,157.97	11,393.69	10,909.98	483.71	23.555
7,900.00	6,951.93	7,292.60	7,043.78	36.65	449.50	-92.06	-1,047.89	-12,157.97	11,296.62	10,812.71	483.91	23.345
8,000.00	6,951.65	7,292.13	7,043.31	37.45	449.44	-92.05	-1,047.90	-12,157.97	11,199.59	10,715.48	484.11	23.134
8,100.00	6,951.36	7,291.66	7,042.84	38.29	449.38	-92.04	-1,047.91	-12,157.97	11,102.62	10,618.30	484.32	22.924
8,200.00	6,951.08	7,291.18	7,042.37	39.19	449.32	-92.03	-1,047.92	-12,157.97	11,005.71	10,521.16	484.54	22.714
8,300.00	6,950.79	7,290.71	7,041.89	40.13	449.26	-92.02	-1,047.93	-12,157.98	10,908.85	10,424.08	484.77	22.503
8,400.00	6,950.51	7,290.24	7,041.42	41.11	449.20	-92.01	-1,047.93	-12,157.98	10,812.04	10,327.04	485.01	22.293
8,500.00	6,950.22	7,289.77	7,040.95	42.12	449.14	-92.00	-1,047.94	-12,157.98	10,715.30	10,230.05	485.25	22.082
8,600.00	6,949.94	7,289.30	7,040.48	43.18	449.08	-91.99	-1,047.95	-12,157.98	10,618.61	10,133.11	485.51	21.871
8,700.00	6,949.65	7,288.83	7,040.01	44.26	449.02	-91.98	-1,047.96	-12,157.98	10,521.99	10,036.22	485.77	21.660
8,800.00	6,949.37	7,288.36	7,039.54	45.38	448.96	-91.97	-1,047.97	-12,157.98	10,425.43	9,939.39	486.04	21.450
8,900.00	6,949.08	7,287.89	7,039.07	46.53	448.90	-91.96	-1,047.97	-12,157.98	10,328.94	9,842.61	486.33	21.239

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,948.80	7,287.42	7,038.60	47.70	448.84	-91.95	-1,047.98	-12,157.98	10,232.51	9,745.89	486.62	21.028
9,100.00	6,948.51	7,286.94	7,038.13	48.89	448.78	-91.94	-1,047.99	-12,157.98	10,136.15	9,649.23	486.92	20.817
9,200.00	6,948.23	7,286.47	7,037.65	50.11	448.72	-91.94	-1,048.00	-12,157.98	10,039.87	9,552.63	487.23	20.606
9,300.00	6,947.94	7,286.00	7,037.18	51.35	448.66	-91.93	-1,048.01	-12,157.99	9,943.66	9,456.10	487.56	20.395
9,400.00	6,947.66	7,285.53	7,036.71	52.61	448.60	-91.92	-1,048.01	-12,157.99	9,847.52	9,359.63	487.89	20.184
9,500.00	6,947.37	7,285.06	7,036.24	53.89	448.54	-91.91	-1,048.02	-12,157.99	9,751.46	9,263.22	488.24	19.973
9,600.00	6,947.09	7,284.59	7,035.77	55.18	448.48	-91.90	-1,048.03	-12,157.99	9,655.48	9,166.88	488.60	19.762
9,700.00	6,946.80	7,284.12	7,035.30	56.49	448.42	-91.89	-1,048.04	-12,157.99	9,559.58	9,070.62	488.97	19.551
9,800.00	6,946.52	7,283.65	7,034.83	57.81	448.36	-91.88	-1,048.05	-12,157.99	9,463.77	8,974.42	489.35	19.339
9,900.00	6,946.23	7,283.18	7,034.36	59.15	448.30	-91.87	-1,048.05	-12,157.99	9,368.05	8,878.30	489.75	19.128
10,000.00	6,945.95	7,282.71	7,033.89	60.50	448.24	-91.86	-1,048.06	-12,157.99	9,272.41	8,782.26	490.15	18.917
10,100.00	6,945.66	7,282.23	7,033.42	61.87	448.18	-91.85	-1,048.07	-12,157.99	9,176.87	8,686.30	490.57	18.706
10,200.00	6,945.38	7,281.76	7,032.94	63.24	448.12	-91.84	-1,048.08	-12,157.99	9,081.43	8,590.42	491.01	18.496
10,300.00	6,945.09	7,281.29	7,032.47	64.63	448.06	-91.83	-1,048.09	-12,157.99	8,986.08	8,494.63	491.45	18.285
10,400.00	6,944.81	7,280.82	7,032.00	66.02	448.00	-91.82	-1,048.09	-12,158.00	8,890.84	8,398.92	491.92	18.074
10,500.00	6,944.52	7,280.35	7,031.53	67.42	447.94	-91.81	-1,048.10	-12,158.00	8,795.70	8,303.31	492.39	17.863
10,600.00	6,944.24	7,279.88	7,031.06	68.84	447.88	-91.80	-1,048.11	-12,158.00	8,700.67	8,207.78	492.88	17.653
10,700.00	6,943.95	7,279.41	7,030.59	70.26	447.82	-91.79	-1,048.12	-12,158.00	8,605.75	8,112.36	493.39	17.442
10,800.00	6,943.67	7,278.94	7,030.12	71.68	447.76	-91.78	-1,048.13	-12,158.00	8,510.95	8,017.04	493.92	17.232
10,900.00	6,943.38	7,278.47	7,029.65	73.12	447.70	-91.77	-1,048.13	-12,158.00	8,416.27	7,921.82	494.45	17.021
11,000.00	6,943.10	7,277.99	7,029.18	74.56	447.64	-91.76	-1,048.14	-12,158.00	8,321.72	7,826.71	495.01	16.811
11,100.00	6,942.81	7,277.52	7,028.71	76.01	447.57	-91.75	-1,048.15	-12,158.00	8,227.29	7,731.71	495.58	16.601
11,200.00	6,942.53	7,277.05	7,028.23	77.46	447.51	-91.74	-1,048.16	-12,158.00	8,133.00	7,636.82	496.18	16.391
11,300.00	6,942.24	7,276.58	7,027.76	78.92	447.45	-91.73	-1,048.17	-12,158.00	8,038.84	7,542.06	496.79	16.182
11,400.00	6,941.96	7,276.11	7,027.29	80.39	447.39	-91.72	-1,048.18	-12,158.00	7,944.83	7,447.41	497.41	15.972
11,500.00	6,941.67	7,275.64	7,026.82	81.86	447.33	-91.71	-1,048.18	-12,158.00	7,850.96	7,352.90	498.06	15.763
11,600.00	6,941.39	7,275.17	7,026.35	83.33	447.27	-91.70	-1,048.19	-12,158.00	7,757.25	7,258.52	498.73	15.554
11,700.00	6,941.10	7,274.70	7,025.88	84.81	447.21	-91.69	-1,048.20	-12,158.00	7,663.70	7,164.28	499.42	15.345
11,800.00	6,940.81	7,274.23	7,025.41	86.30	447.15	-91.68	-1,048.21	-12,158.00	7,570.31	7,070.18	500.13	15.137
11,900.00	6,940.53	7,273.76	7,024.94	87.79	447.09	-91.67	-1,048.22	-12,158.00	7,477.09	6,976.23	500.86	14.928
12,000.00	6,940.24	7,273.28	7,024.47	89.28	447.03	-91.66	-1,048.22	-12,158.00	7,384.05	6,882.44	501.62	14.721
12,100.00	6,939.96	7,272.81	7,024.00	90.77	446.97	-91.65	-1,048.23	-12,158.00	7,291.20	6,788.80	502.39	14.513
12,200.00	6,939.67	7,272.34	7,023.53	92.27	446.91	-91.64	-1,048.24	-12,158.00	7,198.53	6,695.34	503.20	14.306
12,300.00	6,939.39	7,271.87	7,023.05	93.78	446.85	-91.63	-1,048.25	-12,158.00	7,106.07	6,602.05	504.02	14.099
12,400.00	6,939.10	7,271.40	7,022.58	95.28	446.79	-91.62	-1,048.26	-12,158.00	7,013.81	6,508.94	504.88	13.892
12,500.00	6,938.82	7,270.93	7,022.11	96.79	446.73	-91.61	-1,048.26	-12,158.00	6,921.77	6,416.01	505.75	13.686
12,600.00	6,938.53	7,270.46	7,021.64	98.30	446.67	-91.60	-1,048.27	-12,158.02	6,829.95	6,323.29	506.66	13.480
12,700.00	6,938.25	7,269.99	7,021.17	99.82	446.61	-91.59	-1,048.28	-12,158.02	6,738.36	6,230.76	507.60	13.275
12,800.00	6,937.96	7,269.52	7,020.70	101.34	446.55	-91.58	-1,048.29	-12,158.02	6,647.02	6,138.46	508.56	13.070
12,900.00	6,937.68	7,269.05	7,020.23	102.86	446.49	-91.57	-1,048.30	-12,158.02	6,555.92	6,046.37	509.56	12.866
13,000.00	6,937.39	7,268.57	7,019.76	104.38	446.43	-91.56	-1,048.30	-12,158.02	6,465.10	5,954.52	510.58	12.662
13,100.00	6,937.11	7,268.10	7,019.29	105.91	446.37	-91.55	-1,048.31	-12,158.02	6,374.54	5,862.90	511.64	12.459
13,200.00	6,936.82	7,267.63	7,018.82	107.43	446.31	-91.54	-1,048.32	-12,158.02	6,284.27	5,771.54	512.73	12.256
13,300.00	6,936.54	7,267.16	7,018.35	108.96	446.25	-91.53	-1,048.33	-12,158.02	6,194.31	5,680.45	513.86	12.055
13,400.00	6,936.25	7,266.69	7,017.87	110.49	446.19	-91.52	-1,048.34	-12,158.02	6,104.65	5,589.63	515.02	11.853
13,500.00	6,935.97	7,266.22	7,017.40	112.03	446.13	-91.51	-1,048.34	-12,158.02	6,015.32	5,499.10	516.22	11.653
13,600.00	6,935.68	7,265.75	7,016.93	113.56	446.07	-91.50	-1,048.35	-12,158.02	5,926.33	5,408.88	517.45	11.453
13,700.00	6,935.40	7,265.28	7,016.46	115.10	446.01	-91.49	-1,048.36	-12,158.03	5,837.70	5,318.97	518.73	11.254
13,800.00	6,935.11	7,264.81	7,015.99	116.64	445.95	-91.48	-1,048.37	-12,158.03	5,749.44	5,229.39	520.05	11.056
13,900.00	6,934.83	7,264.34	7,015.52	118.18	445.89	-91.47	-1,048.38	-12,158.03	5,661.57	5,140.16	521.41	10.858
14,000.00	6,934.54	7,263.86	7,015.05	119.72	445.83	-91.46	-1,048.38	-12,158.03	5,574.11	5,051.30	522.81	10.662
14,100.00	6,934.26	7,263.39	7,014.58	121.26	445.77	-91.45	-1,048.39	-12,158.03	5,487.07	4,962.82	524.26	10.466

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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						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	6,933.97	7,262.92	7,014.11	122.81	445.71	-91.44	-1,048.40	-12,158.03	5,400.49	4,874.74	525.75	10.272		
14,300.00	6,933.69	7,262.45	7,013.64	124.36	445.65	-91.43	-1,048.41	-12,158.03	5,314.38	4,787.09	527.29	10.079		
14,400.00	6,933.40	7,261.98	7,013.17	125.90	445.59	-91.42	-1,048.42	-12,158.03	5,228.76	4,699.88	528.88	9.886		
14,500.00	6,933.12	7,261.51	7,012.69	127.45	445.53	-91.41	-1,048.42	-12,158.03	5,143.66	4,613.13	530.53	9.695		
14,600.00	6,932.83	7,261.04	7,012.22	129.00	445.47	-91.40	-1,048.43	-12,158.03	5,059.11	4,526.89	532.22	9.506		
14,700.00	6,932.55	7,260.57	7,011.75	130.56	445.41	-91.39	-1,048.44	-12,158.03	4,975.12	4,441.16	533.97	9.317		
14,800.00	6,932.26	7,260.10	7,011.28	132.11	445.35	-91.38	-1,048.45	-12,158.04	4,891.75	4,355.97	535.77	9.130		
14,900.00	6,931.98	7,259.63	7,010.81	133.66	445.29	-91.37	-1,048.46	-12,158.04	4,809.00	4,271.36	537.64	8.945		
15,000.00	6,931.69	7,259.16	7,010.34	135.22	445.23	-91.36	-1,048.46	-12,158.04	4,726.92	4,187.37	539.56	8.761		
15,100.00	6,931.41	7,258.68	7,009.87	136.77	445.17	-91.35	-1,048.47	-12,158.04	4,645.55	4,104.01	541.54	8.578		
15,200.00	6,931.12	7,258.21	7,009.40	138.33	445.11	-91.34	-1,048.48	-12,158.04	4,564.91	4,021.33	543.58	8.398		
15,300.00	6,930.84	7,257.74	7,008.93	139.89	445.05	-91.33	-1,048.49	-12,158.04	4,485.06	3,939.37	545.69	8.219		
15,400.00	6,930.55	7,257.27	7,008.46	141.45	444.99	-91.32	-1,048.50	-12,158.04	4,406.02	3,858.17	547.86	8.042		
15,500.00	6,930.27	7,256.80	7,007.99	143.01	444.93	-91.31	-1,048.50	-12,158.04	4,327.86	3,777.76	550.09	7.867		
15,600.00	6,929.98	7,256.33	7,007.52	144.57	444.87	-91.30	-1,048.51	-12,158.04	4,250.61	3,698.21	552.40	7.695		
15,700.00	6,929.70	7,255.86	7,007.04	146.13	444.81	-91.29	-1,048.52	-12,158.04	4,174.32	3,619.56	554.77	7.524		
15,800.00	6,929.41	7,255.39	7,006.57	147.70	444.75	-91.28	-1,048.53	-12,158.04	4,099.06	3,541.86	557.20	7.356		
15,900.00	6,929.13	7,254.92	7,006.10	149.26	444.69	-91.27	-1,048.54	-12,158.05	4,024.87	3,465.16	559.71	7.191		
16,000.00	6,928.84	7,254.45	7,005.63	150.82	444.63	-91.26	-1,048.54	-12,158.05	3,951.82	3,389.54	562.28	7.028		
16,100.00	6,928.56	7,253.98	7,005.16	152.39	444.57	-91.25	-1,048.55	-12,158.05	3,879.97	3,315.05	564.92	6.868		
16,200.00	6,928.27	7,253.50	7,004.69	153.96	444.51	-91.24	-1,048.56	-12,158.05	3,809.40	3,241.77	567.63	6.711		
16,300.00	6,927.99	7,253.03	7,004.22	155.52	444.45	-91.23	-1,048.57	-12,158.05	3,740.16	3,169.76	570.40	6.557		
16,400.00	6,927.70	7,252.56	7,003.75	157.09	444.39	-91.22	-1,048.58	-12,158.05	3,672.35	3,099.11	573.24	6.406		
16,500.00	6,927.42	7,252.09	7,003.28	158.66	444.33	-91.21	-1,048.58	-12,158.05	3,606.03	3,029.89	576.13	6.259		
16,600.00	6,927.13	7,251.62	7,002.81	160.23	444.27	-91.20	-1,048.59	-12,158.05	3,541.29	2,962.20	579.09	6.115		
16,700.00	6,926.85	7,251.15	7,002.34	161.80	444.21	-91.19	-1,048.60	-12,158.05	3,478.22	2,896.13	582.09	5.975		
16,800.00	6,926.56	7,250.68	7,001.87	163.37	444.15	-91.18	-1,048.61	-12,158.05	3,416.92	2,831.78	585.14	5.839		
16,900.00	6,926.28	7,250.21	7,001.39	164.94	444.09	-91.17	-1,048.62	-12,158.05	3,357.48	2,769.24	588.23	5.708		
17,000.00	6,925.99	7,249.74	7,000.92	166.51	444.03	-91.16	-1,048.62	-12,158.06	3,299.99	2,708.64	591.36	5.580		
17,100.00	6,925.71	7,249.27	7,000.45	168.08	443.97	-91.15	-1,048.63	-12,158.06	3,244.57	2,650.07	594.50	5.458		
17,200.00	6,925.42	7,248.80	6,999.98	169.65	443.91	-91.14	-1,048.64	-12,158.06	3,191.33	2,593.66	597.66	5.340		
17,300.00	6,925.14	7,248.32	6,999.51	171.23	443.85	-91.13	-1,048.65	-12,158.06	3,140.36	2,539.54	600.82	5.227		
17,400.00	6,924.85	7,247.85	6,999.04	172.80	443.79	-91.12	-1,048.66	-12,158.06	3,091.79	2,487.82	603.97	5.119		
17,500.00	6,924.57	7,247.38	6,998.57	174.37	443.73	-91.11	-1,048.67	-12,158.06	3,045.73	2,438.63	607.10	5.017		
17,600.00	6,924.28	7,246.91	6,998.10	175.95	443.67	-91.10	-1,048.67	-12,158.06	3,002.29	2,392.11	610.18	4.920		
17,700.00	6,924.00	7,246.44	6,997.63	177.52	443.61	-91.09	-1,048.68	-12,158.06	2,961.60	2,348.39	613.21	4.830		
17,800.00	6,923.71	7,245.97	6,997.16	179.10	443.55	-91.08	-1,048.69	-12,158.06	2,923.76	2,307.60	616.16	4.745		
17,900.00	6,923.43	7,245.50	6,996.69	180.68	443.49	-91.07	-1,048.70	-12,158.06	2,888.89	2,269.87	619.02	4.667		
18,000.00	6,923.14	7,245.03	6,996.22	182.25	443.43	-91.06	-1,048.71	-12,158.06	2,857.09	2,235.33	621.76	4.595		
18,100.00	6,922.86	7,244.56	6,995.74	183.83	443.37	-91.05	-1,048.71	-12,158.07	2,828.47	2,204.10	624.37	4.530		
18,200.00	6,922.57	7,244.09	6,995.27	185.41	443.31	-91.04	-1,048.72	-12,158.07	2,803.13	2,176.31	626.83	4.472		
18,300.00	6,922.29	7,243.62	6,994.80	186.98	443.25	-91.03	-1,048.73	-12,158.07	2,781.16	2,152.05	629.11	4.421		
18,400.00	6,922.00	7,243.15	6,994.33	188.56	443.19	-91.02	-1,048.74	-12,158.07	2,762.64	2,131.43	631.21	4.377		
18,500.00	6,921.71	7,242.67	6,993.86	190.14	443.13	-91.01	-1,048.75	-12,158.07	2,747.63	2,114.53	633.09	4.340		
18,600.00	6,921.43	7,242.20	6,993.39	191.72	443.07	-91.00	-1,048.75	-12,158.07	2,736.19	2,101.43	634.76	4.311		
18,700.00	6,921.14	7,241.73	6,992.92	193.30	443.01	-90.99	-1,048.76	-12,158.07	2,728.38	2,092.18	636.19	4.289		
18,800.00	6,920.86	7,241.26	6,992.45	194.88	442.94	-90.98	-1,048.77	-12,158.07	2,724.21	2,086.83	637.38	4.274		
18,863.53	6,920.68	7,240.96	6,992.15	195.88	442.91	-90.98	-1,048.77	-12,158.07	2,723.47	2,085.46	638.01	4.269 CC		
18,900.00	6,920.57	7,240.79	6,991.98	196.46	442.88	-90.97	-1,048.78	-12,158.07	2,723.72	2,085.40	638.32	4.267 ES, SF		
19,000.00	6,920.29	7,240.32	6,991.51	198.04	442.82	-90.96	-1,048.79	-12,158.07	2,726.89	2,087.89	639.00	4.267		
19,100.00	6,920.00	7,239.85	6,991.04	199.62	442.76	-90.95	-1,048.79	-12,158.07	2,733.72	2,094.30	639.42	4.275		
19,200.00	6,919.72	7,239.38	6,990.57	201.20	442.70	-90.94	-1,048.80	-12,158.08	2,744.18	2,104.59	639.59	4.291		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:		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	6,919.43	7,238.91	6,990.10	202.78	442.64	-90.93	-1,048.81	-12,158.08	2,758.23	2,118.72	639.51	4.313	
19,400.00	6,919.15	7,238.44	6,989.63	204.36	442.58	-90.92	-1,048.82	-12,158.08	2,775.81	2,136.62	639.18	4.343	
19,500.00	6,918.86	7,237.97	6,989.15	205.95	442.52	-90.91	-1,048.83	-12,158.08	2,796.85	2,158.23	638.63	4.379	
19,600.00	6,918.58	7,237.50	6,988.68	207.53	442.46	-90.90	-1,048.83	-12,158.08	2,821.29	2,183.44	637.85	4.423	
19,700.00	6,918.29	7,237.02	6,988.21	209.11	442.40	-90.89	-1,048.84	-12,158.08	2,849.03	2,212.17	636.87	4.474	
19,800.00	6,918.01	7,236.55	6,987.74	210.69	442.34	-90.88	-1,048.85	-12,158.08	2,879.98	2,244.29	635.69	4.530	
19,900.00	6,917.72	7,236.08	6,987.27	212.28	442.28	-90.88	-1,048.86	-12,158.08	2,914.03	2,279.68	634.34	4.594	
20,000.00	6,917.44	7,235.61	6,986.80	213.86	442.22	-90.87	-1,048.87	-12,158.08	2,951.08	2,318.23	632.84	4.663	
20,100.00	6,917.15	7,235.14	6,986.33	215.45	442.16	-90.86	-1,048.87	-12,158.08	2,991.01	2,359.81	631.20	4.739	
20,200.00	6,916.87	7,234.67	6,985.86	217.03	442.10	-90.85	-1,048.88	-12,158.09	3,033.71	2,404.28	629.43	4.820	
20,300.00	6,916.58	7,234.20	6,985.39	218.61	442.04	-90.84	-1,048.89	-12,158.09	3,079.08	2,451.52	627.56	4.906	
20,400.00	6,916.30	7,233.73	6,984.92	220.20	441.98	-90.83	-1,048.90	-12,158.09	3,126.98	2,501.38	625.60	4.998	
20,500.00	6,916.01	7,233.26	6,984.45	221.78	441.92	-90.82	-1,048.91	-12,158.09	3,177.31	2,553.74	623.56	5.095	
20,600.00	6,915.73	7,232.79	6,983.98	223.37	441.86	-90.81	-1,048.91	-12,158.09	3,229.95	2,608.48	621.47	5.197	
20,700.00	6,915.44	7,232.32	6,983.51	224.95	441.80	-90.80	-1,048.92	-12,158.09	3,284.79	2,665.47	619.33	5.304	
20,800.00	6,915.16	7,231.85	6,983.04	226.54	441.74	-90.79	-1,048.93	-12,158.09	3,341.73	2,724.58	617.15	5.415	
20,855.45	6,915.00	7,231.59	6,982.77	227.42	441.71	-90.78	-1,048.93	-12,158.09	3,374.16	2,758.24	615.93	5.478	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	2,960.83	2,784.66	0.00	19.06	-88.24	294.40	-9,585.15	9,975.26				
100.00	100.00	3,000.00	2,822.02	0.25	19.26	-88.27	288.75	-9,574.81	9,948.09	9,930.93	17.16	579.858	
200.00	200.00	3,072.78	2,891.50	0.61	19.62	-88.33	278.23	-9,555.90	9,921.37	9,903.66	17.71	560.263	
300.00	300.00	3,100.00	2,917.47	0.97	19.76	-88.36	274.17	-9,548.79	9,894.86	9,876.76	18.10	546.580	
400.00	400.00	3,100.00	2,917.47	1.33	19.76	-88.36	274.17	-9,548.79	9,869.27	9,850.87	18.40	536.513	
500.00	500.00	3,149.75	2,965.09	1.68	19.99	-88.40	267.07	-9,536.31	9,843.95	9,824.96	18.99	518.403	
600.00	599.98	3,200.00	3,013.57	2.04	20.22	-82.33	260.68	-9,524.72	9,819.73	9,800.13	19.60	501.106	
700.00	699.84	3,200.00	3,013.57	2.41	20.22	-82.83	260.68	-9,524.72	9,795.33	9,775.40	19.93	491.571	
800.00	799.45	3,200.00	3,013.57	2.77	20.22	-83.32	260.68	-9,524.72	9,771.46	9,751.20	20.26	482.220	
900.00	898.70	3,200.00	3,013.57	3.13	20.22	-83.79	260.68	-9,524.72	9,748.17	9,727.56	20.61	473.008	
1,000.00	997.47	3,200.00	3,013.57	3.50	20.22	-84.26	260.68	-9,524.72	9,725.49	9,704.52	20.97	463.880	
1,100.00	1,095.62	3,247.02	3,059.26	3.89	20.40	-84.80	255.37	-9,514.96	9,702.71	9,681.12	21.59	449.376	
1,200.00	1,193.06	3,300.00	3,111.09	4.30	20.60	-85.35	250.09	-9,505.36	9,681.30	9,659.03	22.27	434.788	
1,245.75	1,237.35	3,300.00	3,111.09	4.49	20.60	-85.55	250.09	-9,505.36	9,671.32	9,648.87	22.45	430.779	
1,300.00	1,289.78	3,300.00	3,111.09	4.72	20.60	-85.55	250.09	-9,505.36	9,659.71	9,637.04	22.67	426.043	
1,400.00	1,386.41	3,300.00	3,111.09	5.15	20.60	-85.55	250.09	-9,505.36	9,639.08	9,615.99	23.09	417.428	
1,500.00	1,483.04	3,300.00	3,111.09	5.59	20.60	-85.55	250.09	-9,505.36	9,619.45	9,595.93	23.52	409.020	
1,600.00	1,579.67	3,300.00	3,111.09	6.04	20.60	-85.55	250.09	-9,505.36	9,600.82	9,576.87	23.95	400.849	
1,700.00	1,676.30	3,350.60	3,160.85	6.49	20.75	-85.66	245.67	-9,497.33	9,582.63	9,558.01	24.62	389.272	
1,800.00	1,772.93	3,400.00	3,209.60	6.95	20.89	-85.76	241.88	-9,490.32	9,565.59	9,540.31	25.28	378.376	
1,900.00	1,869.56	3,400.00	3,209.60	7.41	20.89	-85.76	241.88	-9,490.32	9,549.03	9,523.30	25.73	371.188	
2,000.00	1,966.19	3,458.53	3,267.47	7.87	21.04	-85.87	237.87	-9,482.53	9,533.27	9,506.86	26.41	360.995	
2,100.00	2,062.83	3,500.00	3,308.50	8.33	21.15	-85.96	235.25	-9,477.05	9,517.88	9,490.85	27.02	352.196	
2,200.00	2,159.46	3,500.00	3,308.50	8.80	21.15	-85.96	235.25	-9,477.05	9,503.40	9,475.93	27.48	345.891	
2,300.00	2,256.09	3,552.93	3,360.93	9.27	21.27	-86.06	232.12	-9,470.57	9,489.31	9,461.17	28.14	337.209	
2,400.00	2,352.72	3,600.00	3,407.67	9.73	21.38	-86.15	229.51	-9,465.64	9,476.43	9,447.64	28.78	329.230	
2,500.00	2,449.35	3,600.00	3,407.67	10.20	21.38	-86.15	229.51	-9,465.64	9,464.07	9,434.83	29.24	323.709	
2,600.00	2,545.98	3,600.00	3,407.67	10.67	21.38	-86.15	229.51	-9,465.64	9,452.75	9,423.06	29.69	318.395	
2,700.00	2,642.61	3,650.42	3,457.83	11.15	21.47	-86.24	227.04	-9,461.11	9,442.02	9,411.69	30.33	311.329	
2,800.00	2,739.24	3,700.00	3,507.22	11.62	21.56	-86.33	225.13	-9,457.29	9,432.23	9,401.26	30.96	304.616	
2,900.00	2,835.87	3,700.00	3,507.22	12.09	21.56	-86.33	225.13	-9,457.29	9,423.05	9,391.63	31.42	299.949	
3,000.00	2,932.50	3,700.00	3,507.22	12.56	21.56	-86.33	225.13	-9,457.29	9,414.92	9,383.06	31.87	295.459	
3,100.00	3,029.13	3,762.64	3,569.71	13.04	21.64	-86.44	223.15	-9,453.37	9,407.14	9,374.62	32.52	289.265	
3,200.00	3,125.77	3,800.00	3,607.01	13.51	21.69	-86.51	222.07	-9,451.51	9,400.37	9,367.28	33.09	284.064	
3,300.00	3,222.40	3,800.00	3,607.01	13.99	21.69	-86.51	222.07	-9,451.51	9,394.40	9,360.86	33.54	280.104	
3,400.00	3,319.03	3,800.00	3,607.01	14.46	21.69	-86.51	222.07	-9,451.51	9,389.49	9,355.51	33.98	276.298	
3,500.00	3,415.66	4,600.00	4,402.76	14.94	23.38	-87.95	194.04	-9,401.76	9,384.21	9,347.48	36.73	255.518	
3,600.00	3,512.29	4,647.12	4,449.48	15.42	23.48	-88.04	190.30	-9,396.94	9,373.10	9,335.74	37.36	250.911	
3,700.00	3,608.92	4,700.00	4,501.99	15.89	23.60	-88.15	186.74	-9,391.81	9,362.55	9,324.54	38.01	246.340	
3,800.00	3,705.55	4,800.00	4,601.36	16.37	23.79	-88.35	181.18	-9,382.05	9,351.98	9,313.16	38.82	240.896	
3,900.00	3,802.18	4,800.00	4,601.36	16.84	23.79	-88.35	181.18	-9,382.05	9,342.26	9,302.98	39.28	237.833	
4,000.00	3,898.81	4,852.84	4,653.92	17.32	23.88	-88.45	178.75	-9,377.27	9,332.89	9,292.96	39.93	233.723	
4,100.00	3,995.44	4,900.00	4,700.94	17.80	23.96	-88.53	177.01	-9,373.97	9,324.83	9,284.27	40.56	229.900	
4,200.00	4,092.07	4,900.00	4,700.94	18.28	23.96	-88.53	177.01	-9,373.97	9,317.27	9,276.26	41.01	227.172	
4,300.00	4,188.71	4,900.00	4,700.94	18.75	23.96	-88.53	177.01	-9,373.97	9,310.79	9,269.32	41.46	224.546	
4,400.00	4,285.34	4,955.56	4,756.38	19.23	24.03	-88.63	175.30	-9,370.93	9,304.89	9,262.81	42.08	221.113	
4,500.00	4,381.97	5,000.00	4,800.77	19.71	24.09	-88.71	174.10	-9,368.96	9,299.83	9,257.16	42.66	217.976	
4,600.00	4,478.60	5,000.00	4,800.77	20.19	24.09	-88.71	174.10	-9,368.96	9,295.53	9,252.42	43.11	215.632	
4,700.00	4,575.23	5,046.00	4,846.73	20.67	24.13	-88.79	173.04	-9,367.43	9,291.91	9,248.25	43.66	212.813	
4,800.00	4,671.86	5,100.00	4,900.71	21.14	24.18	-88.88	172.03	-9,366.36	9,289.27	9,245.03	44.24	209.997	
4,900.00	4,768.49	5,108.25	4,908.95	21.62	24.19	-88.90	171.90	-9,366.26	9,287.16	9,242.47	44.69	207.817	
5,000.00	4,865.12	5,219.89	5,020.57	22.10	24.27	-89.09	170.26	-9,364.71	9,285.40	9,240.04	45.36	204.698	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	
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	4,961.75	5,300.00	5,100.66	22.58	24.34	-89.22	168.80	-9,363.70	9,283.86	9,237.91	45.96	202.004		
5,200.00	5,058.38	5,374.20	5,174.84	23.06	24.42	-89.35	167.25	-9,362.90	9,282.60	9,236.08	46.52	199.522		
5,300.00	5,155.01	5,400.00	5,200.63	23.54	24.45	-89.39	166.72	-9,362.62	9,281.74	9,234.73	47.00	197.476		
5,389.31	5,241.32	5,457.46	5,258.08	23.96	24.49	-89.49	165.79	-9,362.35	9,281.36	9,233.94	47.42	195.726		
5,400.00	5,251.64	5,461.29	5,261.91	24.01	24.50	-89.50	165.74	-9,362.36	9,281.36	9,233.89	47.47	195.528		
5,500.00	5,348.28	5,500.00	5,300.62	24.49	24.53	-89.56	165.40	-9,362.58	9,281.79	9,233.87	47.92	193.695		
5,600.00	5,444.91	5,566.04	5,366.66	24.97	24.56	-89.67	165.11	-9,363.29	9,282.77	9,234.47	48.30	192.188		
5,700.00	5,541.54	5,651.79	5,452.40	25.45	24.59	-89.80	164.90	-9,364.44	9,284.03	9,235.37	48.66	190.778		
5,800.00	5,638.17	5,780.47	5,581.07	25.93	24.67	-90.01	163.82	-9,365.80	9,285.17	9,236.13	49.04	189.334		
5,900.00	5,734.80	5,871.09	5,671.67	26.41	24.75	-90.16	162.73	-9,366.51	9,286.18	9,236.72	49.46	187.768		
6,000.00	5,831.43	5,981.04	5,781.62	26.89	24.79	-90.34	162.46	-9,367.59	9,287.34	9,237.50	49.84	186.347		
6,100.00	5,928.06	6,100.00	5,900.58	27.37	24.81	-90.53	162.50	-9,368.45	9,288.26	9,238.05	50.22	184.962		
6,200.00	6,024.69	6,200.00	6,000.58	27.85	24.84	-90.69	162.43	-9,369.04	9,289.16	9,238.56	50.61	183.557		
6,300.00	6,121.32	6,260.02	6,060.60	28.33	24.85	-90.78	162.41	-9,369.50	9,290.34	9,239.33	51.00	182.147		
6,400.00	6,217.95	6,324.53	6,125.10	28.81	24.86	-90.88	162.24	-9,370.34	9,292.06	9,240.66	51.40	180.787		
6,500.00	6,314.58	6,470.66	6,271.22	29.29	24.89	-91.11	162.53	-9,372.16	9,293.80	9,242.06	51.75	179.604		
6,543.64	6,356.75	6,517.85	6,318.40	29.49	24.90	-91.19	162.44	-9,372.53	9,294.39	9,242.48	51.91	179.045		
6,550.00	6,362.90	6,521.81	6,322.36	29.53	24.91	-89.07	162.43	-9,372.56	9,294.45	9,242.51	51.94	178.958		
6,600.00	6,411.07	6,552.87	6,353.42	29.77	24.92	-73.68	162.37	-9,372.84	9,292.78	9,240.64	52.14	178.231		
6,650.00	6,458.79	6,600.00	6,400.55	30.01	24.94	-61.46	162.28	-9,373.39	9,287.36	9,235.02	52.34	177.455		
6,700.00	6,505.76	6,640.43	6,440.98	30.26	24.96	-52.39	162.17	-9,373.86	9,278.13	9,225.59	52.54	176.580		
6,750.00	6,551.69	6,690.87	6,491.42	30.50	24.99	-45.85	161.87	-9,374.30	9,265.01	9,212.27	52.75	175.652		
6,800.00	6,596.30	6,700.00	6,500.54	30.74	24.99	-41.05	161.83	-9,374.39	9,248.35	9,195.39	52.96	174.622		
6,850.00	6,639.32	6,737.36	6,537.91	30.98	25.01	-37.61	161.59	-9,374.80	9,228.10	9,174.94	53.16	173.594		
6,900.00	6,680.47	6,752.65	6,553.19	31.21	25.02	-35.10	161.52	-9,375.04	9,204.58	9,151.22	53.36	172.492		
6,950.00	6,719.51	6,767.24	6,567.78	31.44	25.03	-33.32	161.46	-9,375.32	9,177.86	9,124.30	53.56	171.357		
7,000.00	6,756.20	7,019.60	6,820.12	31.67	25.06	-32.86	161.80	-9,377.79	9,147.73	9,093.93	53.80	170.040		
7,050.00	6,790.30	7,000.00	6,800.51	31.90	25.06	-32.17	161.85	-9,377.84	9,114.25	9,060.28	53.98	168.859		
7,100.00	6,821.62	7,038.01	6,838.52	32.13	25.08	-32.19	161.88	-9,377.86	9,078.00	9,023.81	54.20	167.501		
7,150.00	6,849.95	7,052.59	6,853.10	32.35	25.08	-32.65	161.94	-9,377.92	9,039.35	8,984.96	54.39	166.208		
7,200.00	6,875.12	7,065.64	6,866.15	32.58	25.09	-33.70	162.02	-9,377.99	8,998.46	8,943.90	54.56	164.919		
7,250.00	6,896.97	7,100.00	6,900.51	32.81	25.10	-35.63	162.33	-9,378.28	8,955.64	8,900.89	54.75	163.571		
7,300.00	6,915.38	7,100.00	6,900.51	33.05	25.10	-38.36	162.33	-9,378.28	8,910.97	8,856.07	54.89	162.331		
7,350.00	6,930.22	7,100.00	6,900.51	33.29	25.10	-42.52	162.33	-9,378.28	8,864.84	8,809.81	55.03	161.103		
7,400.00	6,941.41	7,107.13	6,907.64	33.53	25.11	-49.08	162.40	-9,378.36	8,817.51	8,762.33	55.17	159.815		
7,450.00	6,948.88	7,140.49	6,940.99	33.79	25.14	-60.23	162.34	-9,378.57	8,769.23	8,713.83	55.41	158.272		
7,500.00	6,952.57	7,156.02	6,956.52	34.05	25.16	-77.78	162.10	-9,378.60	8,720.32	8,664.76	55.56	156.946		
7,525.63	6,953.00	7,157.75	6,958.25	34.19	25.16	-89.68	162.07	-9,378.61	8,695.10	8,639.48	55.62	156.341		
7,600.00	6,952.79	7,157.01	6,957.52	34.61	25.16	-89.65	162.08	-9,378.61	8,621.85	8,566.10	55.75	154.661		
7,700.00	6,952.50	7,156.14	6,956.64	35.23	25.16	-89.62	162.10	-9,378.60	8,523.39	8,467.46	55.93	152.400		
7,800.00	6,952.22	7,155.37	6,955.87	35.91	25.16	-89.59	162.11	-9,378.60	8,424.96	8,368.84	56.12	150.135		
7,900.00	6,951.93	7,154.69	6,955.19	36.65	25.16	-89.56	162.13	-9,378.60	8,326.57	8,270.26	56.31	147.867		
8,000.00	6,951.65	7,154.08	6,954.58	37.45	25.16	-89.54	162.14	-9,378.60	8,228.22	8,171.71	56.51	145.597		
8,100.00	6,951.36	7,153.53	6,954.04	38.29	25.16	-89.52	162.15	-9,378.60	8,129.91	8,073.18	56.72	143.325		
8,200.00	6,951.08	7,153.04	6,953.54	39.19	25.15	-89.50	162.16	-9,378.60	8,031.64	7,974.70	56.94	141.051		
8,300.00	6,950.79	7,152.59	6,953.10	40.13	25.15	-89.48	162.17	-9,378.60	7,933.41	7,876.25	57.17	138.776		
8,400.00	6,950.51	7,152.19	6,952.69	41.11	25.15	-89.47	162.17	-9,378.60	7,835.23	7,777.83	57.40	136.501		
8,500.00	6,950.22	7,151.81	6,952.32	42.12	25.15	-89.45	162.18	-9,378.60	7,737.10	7,679.45	57.64	134.224		
8,600.00	6,949.94	7,151.47	6,951.98	43.18	25.15	-89.44	162.19	-9,378.60	7,639.01	7,581.12	57.89	131.947		
8,700.00	6,949.65	7,151.16	6,951.66	44.26	25.15	-89.43	162.19	-9,378.60	7,540.98	7,482.82	58.15	129.671		
8,800.00	6,949.37	7,150.87	6,951.37	45.38	25.15	-89.42	162.20	-9,378.60	7,442.99	7,384.57	58.42	127.395		
8,900.00	6,949.08	7,150.60	6,951.10	46.53	25.15	-89.41	162.20	-9,378.60	7,345.06	7,286.36	58.70	125.119		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:												
Measured Depth (usft)	Vertical Depth (usft)	Offset 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
9,000.00	6,948.80	7,150.34	6,950.85	47.70	25.15	-89.40	162.20	-9,378.60	7,247.19	7,188.20	58.99	122.845
9,100.00	6,948.51	7,150.11	6,950.61	48.89	25.15	-89.39	162.21	-9,378.60	7,149.38	7,090.08	59.30	120.573
9,200.00	6,948.23	7,149.89	6,950.40	50.11	25.15	-89.38	162.21	-9,378.60	7,051.62	6,992.02	59.61	118.302
9,300.00	6,947.94	7,149.69	6,950.19	51.35	25.15	-89.37	162.22	-9,378.60	6,953.94	6,894.01	59.93	116.034
9,400.00	6,947.66	7,149.49	6,950.00	52.61	25.15	-89.37	162.22	-9,378.60	6,856.31	6,796.05	60.27	113.768
9,500.00	6,947.37	7,149.31	6,949.82	53.89	25.15	-89.36	162.22	-9,378.60	6,758.76	6,698.15	60.61	111.506
9,600.00	6,947.09	7,149.14	6,949.65	55.18	25.15	-89.35	162.22	-9,378.60	6,661.28	6,600.31	60.97	109.248
9,700.00	6,946.80	7,148.98	6,949.49	56.49	25.15	-89.35	162.23	-9,378.60	6,563.88	6,502.53	61.35	106.993
9,800.00	6,946.52	7,148.83	6,949.34	57.81	25.15	-89.34	162.23	-9,378.60	6,466.55	6,404.82	61.74	104.743
9,900.00	6,946.23	7,148.69	6,949.19	59.15	25.15	-89.33	162.23	-9,378.59	6,369.31	6,307.17	62.14	102.498
10,000.00	6,945.95	7,148.55	6,949.06	60.50	25.15	-89.33	162.23	-9,378.59	6,272.16	6,209.60	62.56	100.258
10,100.00	6,945.66	7,148.42	6,948.93	61.87	25.15	-89.32	162.24	-9,378.59	6,175.09	6,112.10	63.00	98.024
10,200.00	6,945.38	7,148.30	6,948.80	63.24	25.15	-89.32	162.24	-9,378.59	6,078.12	6,014.68	63.45	95.797
10,300.00	6,945.09	7,148.18	6,948.69	64.63	25.15	-89.31	162.24	-9,378.59	5,981.26	5,917.34	63.92	93.576
10,400.00	6,944.81	7,148.07	6,948.57	66.02	25.15	-89.31	162.24	-9,378.59	5,884.49	5,820.08	64.41	91.364
10,500.00	6,944.52	7,147.96	6,948.47	67.42	25.15	-89.31	162.24	-9,378.59	5,787.84	5,722.92	64.92	89.159
10,600.00	6,944.24	7,147.86	6,948.37	68.84	25.15	-89.30	162.24	-9,378.59	5,691.30	5,625.85	65.45	86.963
10,700.00	6,943.95	7,147.77	6,948.27	70.26	25.15	-89.30	162.25	-9,378.59	5,594.88	5,528.88	66.00	84.776
10,800.00	6,943.67	7,147.67	6,948.18	71.68	25.15	-89.30	162.25	-9,378.59	5,498.59	5,432.02	66.57	82.600
10,900.00	6,943.38	7,147.58	6,948.09	73.12	25.15	-89.29	162.25	-9,378.59	5,402.44	5,335.27	67.17	80.434
11,000.00	6,943.10	7,147.50	6,948.00	74.56	25.15	-89.29	162.25	-9,378.59	5,306.42	5,238.64	67.79	78.279
11,100.00	6,942.81	7,147.42	6,947.92	76.01	25.15	-89.29	162.25	-9,378.59	5,210.56	5,142.12	68.44	76.136
11,200.00	6,942.53	7,147.34	6,947.84	77.46	25.15	-89.28	162.25	-9,378.59	5,114.86	5,045.74	69.11	74.006
11,300.00	6,942.24	7,147.26	6,947.77	78.92	25.15	-89.28	162.25	-9,378.59	5,019.32	4,949.50	69.82	71.889
11,400.00	6,941.96	7,147.19	6,947.69	80.39	25.15	-89.28	162.25	-9,378.59	4,923.96	4,853.41	70.56	69.787
11,500.00	6,941.67	7,147.12	6,947.62	81.86	25.15	-89.27	162.26	-9,378.59	4,828.79	4,757.47	71.33	67.700
11,600.00	6,941.39	7,147.05	6,947.56	83.33	25.15	-89.27	162.26	-9,378.59	4,733.82	4,661.69	72.13	65.628
11,700.00	6,941.10	7,146.99	6,947.49	84.81	25.15	-89.27	162.26	-9,378.59	4,639.06	4,566.09	72.97	63.574
11,800.00	6,940.81	7,146.92	6,947.43	86.30	25.15	-89.27	162.26	-9,378.59	4,544.52	4,470.67	73.85	61.537
11,900.00	6,940.53	7,146.86	6,947.37	87.79	25.15	-89.26	162.26	-9,378.59	4,450.23	4,375.46	74.77	59.519
12,000.00	6,940.24	7,146.80	6,947.31	89.28	25.15	-89.26	162.26	-9,378.59	4,356.18	4,280.45	75.73	57.521
12,100.00	6,939.96	7,146.75	6,947.25	90.77	25.15	-89.26	162.26	-9,378.59	4,262.41	4,185.67	76.74	55.543
12,200.00	6,939.67	7,146.69	6,947.20	92.27	25.15	-89.26	162.26	-9,378.59	4,168.93	4,091.13	77.80	53.586
12,300.00	6,939.39	7,146.64	6,947.15	93.78	25.15	-89.26	162.26	-9,378.59	4,075.76	3,996.85	78.91	51.653
12,400.00	6,939.10	7,146.59	6,947.09	95.28	25.15	-89.25	162.26	-9,378.59	3,982.91	3,902.84	80.07	49.743
12,500.00	6,938.82	7,146.54	6,947.04	96.79	25.15	-89.25	162.26	-9,378.59	3,890.43	3,809.14	81.29	47.858
12,600.00	6,938.53	7,146.49	6,947.00	98.30	25.15	-89.25	162.26	-9,378.59	3,798.32	3,715.75	82.57	46.000
12,700.00	6,938.25	7,146.45	6,946.95	99.82	25.15	-89.25	162.26	-9,378.59	3,706.62	3,622.70	83.92	44.168
12,800.00	6,937.96	7,146.40	6,946.90	101.34	25.15	-89.25	162.27	-9,378.59	3,615.37	3,530.03	85.34	42.366
12,900.00	6,937.68	7,146.36	6,946.86	102.86	25.15	-89.25	162.27	-9,378.59	3,524.58	3,437.76	86.83	40.593
13,000.00	6,937.39	7,146.31	6,946.82	104.38	25.15	-89.24	162.27	-9,378.59	3,434.31	3,345.92	88.40	38.851
13,100.00	6,937.11	7,146.27	6,946.78	105.91	25.15	-89.24	162.27	-9,378.59	3,344.60	3,254.55	90.05	37.142
13,200.00	6,936.82	7,146.23	6,946.74	107.43	25.15	-89.24	162.27	-9,378.59	3,255.48	3,163.69	91.79	35.466
13,300.00	6,936.54	7,146.19	6,946.70	108.96	25.15	-89.24	162.27	-9,378.59	3,167.01	3,073.39	93.63	33.826
13,400.00	6,936.25	7,146.16	6,946.66	110.49	25.15	-89.24	162.27	-9,378.59	3,079.25	2,983.69	95.56	32.223
13,500.00	6,935.97	7,146.12	6,946.62	112.03	25.15	-89.24	162.27	-9,378.59	2,992.26	2,894.66	97.60	30.658
13,600.00	6,935.68	7,146.08	6,946.59	113.56	25.15	-89.23	162.27	-9,378.59	2,906.10	2,806.35	99.75	29.133
13,700.00	6,935.40	7,146.05	6,946.55	115.10	25.15	-89.23	162.27	-9,378.59	2,820.86	2,718.83	102.02	27.649
13,800.00	6,935.11	7,146.01	6,946.52	116.64	25.15	-89.23	162.27	-9,378.59	2,736.61	2,632.20	104.42	26.208
13,900.00	6,934.83	7,145.98	6,946.48	118.18	25.15	-89.23	162.27	-9,378.59	2,653.46	2,546.52	106.94	24.812
14,000.00	6,934.54	7,145.95	6,946.45	119.72	25.15	-89.23	162.27	-9,378.59	2,571.52	2,461.91	109.61	23.461
14,100.00	6,934.26	7,145.92	6,946.42	121.26	25.15	-89.23	162.27	-9,378.59	2,490.89	2,378.47	112.41	22.159

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,933.97	7,145.89	6,946.39	122.81	25.15	-89.23	162.27	-9,378.59	2,411.71	2,296.34	115.36	20.905			
14,300.00	6,933.69	7,145.86	6,946.36	124.36	25.15	-89.23	162.27	-9,378.59	2,334.13	2,215.66	118.47	19.703			
14,400.00	6,933.40	7,145.83	6,946.33	125.90	25.15	-89.22	162.27	-9,378.59	2,258.31	2,136.59	121.72	18.553			
14,500.00	6,933.12	7,145.80	6,946.30	127.45	25.15	-89.22	162.27	-9,378.59	2,184.44	2,059.32	125.12	17.458			
14,600.00	6,932.83	7,145.77	6,946.27	129.00	25.15	-89.22	162.27	-9,378.59	2,112.72	1,984.05	128.68	16.419			
14,700.00	6,932.55	7,145.74	6,946.25	130.56	25.15	-89.22	162.27	-9,378.59	2,043.38	1,911.01	132.37	15.437			
14,800.00	6,932.26	7,145.72	6,946.22	132.11	25.15	-89.22	162.28	-9,378.59	1,976.67	1,840.49	136.19	14.514			
14,900.00	6,931.98	7,145.69	6,946.19	133.66	25.15	-89.22	162.28	-9,378.59	1,912.87	1,772.76	140.11	13.653			
15,000.00	6,931.69	7,145.66	6,946.17	135.22	25.15	-89.22	162.28	-9,378.59	1,852.26	1,708.15	144.11	12.853			
15,100.00	6,931.41	7,145.64	6,946.14	136.77	25.15	-89.22	162.28	-9,378.59	1,795.19	1,647.03	148.15	12.117			
15,200.00	6,931.12	7,145.62	6,946.12	138.33	25.15	-89.22	162.28	-9,378.59	1,741.98	1,589.79	152.19	11.446			
15,300.00	6,930.84	7,145.59	6,946.10	139.89	25.15	-89.22	162.28	-9,378.59	1,693.02	1,536.86	156.17	10.841			
15,400.00	6,930.55	7,145.57	6,946.07	141.45	25.15	-89.21	162.28	-9,378.59	1,648.68	1,488.67	160.01	10.304			
15,500.00	6,930.27	7,145.55	6,946.05	143.01	25.15	-89.21	162.28	-9,378.59	1,609.34	1,445.70	163.64	9.835			
15,600.00	6,929.98	7,145.52	6,946.03	144.57	25.15	-89.21	162.28	-9,378.59	1,575.37	1,408.40	166.97	9.435			
15,700.00	6,929.70	7,145.50	6,946.01	146.13	25.15	-89.21	162.28	-9,378.59	1,547.13	1,377.21	169.91	9.105			
15,800.00	6,929.41	7,145.48	6,945.99	147.70	25.15	-89.21	162.28	-9,378.59	1,524.93	1,352.54	172.39	8.846			
15,900.00	6,929.13	7,145.46	6,945.96	149.26	25.15	-89.21	162.28	-9,378.59	1,509.05	1,334.74	174.31	8.657			
16,000.00	6,928.84	7,145.44	6,945.94	150.82	25.15	-89.21	162.28	-9,378.59	1,499.68	1,324.07	175.62	8.539			
16,090.91	6,928.58	7,145.42	6,945.93	152.25	25.15	-89.21	162.28	-9,378.59	1,496.93	1,320.69	176.24	8.494 CC			
16,100.00	6,928.56	7,145.42	6,945.92	152.39	25.15	-89.21	162.28	-9,378.59	1,496.95	1,320.68	176.27	8.492 ES, SF			
16,200.00	6,928.27	7,145.40	6,945.90	153.96	25.15	-89.21	162.28	-9,378.59	1,500.90	1,324.64	176.26	8.515			
16,300.00	6,927.99	7,145.38	6,945.88	155.52	25.15	-89.21	162.28	-9,378.59	1,511.46	1,335.88	175.58	8.608			
16,400.00	6,927.70	7,145.36	6,945.87	157.09	25.15	-89.21	162.28	-9,378.59	1,528.50	1,354.22	174.29	8.770			
16,500.00	6,927.42	7,145.34	6,945.85	158.66	25.15	-89.21	162.28	-9,378.59	1,551.82	1,379.39	172.43	9.000			
16,600.00	6,927.13	7,145.32	6,945.83	160.23	25.15	-89.21	162.28	-9,378.59	1,581.13	1,411.04	170.09	9.296			
16,700.00	6,926.85	7,145.31	6,945.81	161.80	25.15	-89.20	162.28	-9,378.59	1,616.10	1,448.75	167.35	9.657			
16,800.00	6,926.56	7,145.29	6,945.79	163.37	25.15	-89.20	162.28	-9,378.59	1,656.38	1,492.10	164.28	10.082			
16,900.00	6,926.28	7,145.27	6,945.78	164.94	25.15	-89.20	162.28	-9,378.59	1,701.59	1,540.60	160.99	10.570			
17,000.00	6,925.99	7,145.26	6,945.76	166.51	25.15	-89.20	162.28	-9,378.59	1,751.35	1,593.82	157.54	11.117			
17,100.00	6,925.71	7,145.24	6,945.74	168.08	25.15	-89.20	162.28	-9,378.59	1,805.28	1,651.29	153.99	11.723			
17,200.00	6,925.42	7,145.22	6,945.73	169.65	25.15	-89.20	162.28	-9,378.59	1,863.03	1,712.61	150.42	12.385			
17,300.00	6,925.14	7,145.21	6,945.71	171.23	25.15	-89.20	162.28	-9,378.59	1,924.24	1,777.37	146.86	13.102			
17,400.00	6,924.85	7,145.19	6,945.70	172.80	25.15	-89.20	162.28	-9,378.59	1,988.59	1,845.24	143.36	13.872			
17,500.00	6,924.57	7,145.18	6,945.68	174.37	25.15	-89.20	162.28	-9,378.59	2,055.80	1,915.87	139.93	14.692			
17,600.00	6,924.28	7,145.16	6,945.67	175.95	25.15	-89.20	162.28	-9,378.59	2,125.59	1,988.99	136.61	15.560			
17,700.00	6,924.00	7,145.15	6,945.65	177.52	25.15	-89.20	162.28	-9,378.59	2,197.72	2,064.32	133.40	16.475			
17,800.00	6,923.71	7,145.13	6,945.64	179.10	25.15	-89.20	162.28	-9,378.59	2,271.95	2,141.64	130.32	17.434			
17,900.00	6,923.43	7,145.12	6,945.62	180.68	25.15	-89.20	162.28	-9,378.59	2,348.10	2,220.74	127.36	18.436			
18,000.00	6,923.14	7,145.10	6,945.61	182.25	25.15	-89.20	162.28	-9,378.59	2,425.99	2,301.44	124.55	19.479			
18,100.00	6,922.86	7,145.09	6,945.59	183.83	25.15	-89.20	162.28	-9,378.59	2,505.44	2,383.58	121.86	20.560			
18,200.00	6,922.57	7,145.07	6,945.58	185.41	25.15	-89.20	162.28	-9,378.59	2,586.32	2,467.01	119.31	21.678			
18,300.00	6,922.29	7,145.06	6,945.57	186.98	25.15	-89.20	162.28	-9,378.59	2,668.50	2,551.62	116.88	22.831			
18,400.00	6,922.00	7,145.05	6,945.55	188.56	25.15	-89.20	162.28	-9,378.59	2,751.85	2,637.28	114.57	24.018			
18,500.00	6,921.71	7,145.04	6,945.54	190.14	25.15	-89.19	162.28	-9,378.59	2,836.28	2,723.89	112.39	25.236			
18,600.00	6,921.43	7,145.02	6,945.53	191.72	25.15	-89.19	162.28	-9,378.59	2,921.70	2,811.38	110.32	26.484			
18,700.00	6,921.14	7,145.01	6,945.51	193.30	25.15	-89.19	162.28	-9,378.59	3,008.01	2,899.66	108.35	27.761			
18,800.00	6,920.86	7,145.00	6,945.50	194.88	25.15	-89.19	162.29	-9,378.59	3,095.15	2,988.66	106.49	29.065			
18,900.00	6,920.57	7,144.99	6,945.49	196.46	25.15	-89.19	162.29	-9,378.59	3,183.05	3,078.32	104.73	30.394			
19,000.00	6,920.29	7,144.97	6,945.48	198.04	25.15	-89.19	162.29	-9,378.59	3,271.64	3,168.58	103.06	31.746			
19,100.00	6,920.00	7,144.96	6,945.47	199.62	25.15	-89.19	162.29	-9,378.59	3,360.87	3,259.40	101.47	33.122			
19,200.00	6,919.72	7,144.95	6,945.45	201.20	25.15	-89.19	162.29	-9,378.59	3,450.69	3,350.72	99.97	34.518			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
19,300.00	6,919.43	7,144.94	6,945.44	202.78	25.15	-89.19	162.29	-9,378.59	3,541.05	3,442.51		98.54	35.935
19,400.00	6,919.15	7,144.93	6,945.43	204.36	25.15	-89.19	162.29	-9,378.59	3,631.92	3,534.74		97.19	37.370
19,500.00	6,918.86	7,144.92	6,945.42	205.95	25.15	-89.19	162.29	-9,378.59	3,723.26	3,627.36		95.90	38.823
19,600.00	6,918.58	7,144.90	6,945.41	207.53	25.15	-89.19	162.29	-9,378.59	3,815.04	3,720.35		94.69	40.292
19,700.00	6,918.29	7,144.89	6,945.40	209.11	25.15	-89.19	162.29	-9,378.59	3,907.21	3,813.69		93.53	41.776
19,800.00	6,918.01	7,144.88	6,945.39	210.69	25.15	-89.19	162.29	-9,378.59	3,999.77	3,907.34		92.43	43.274
19,900.00	6,917.72	7,144.87	6,945.38	212.28	25.15	-89.19	162.29	-9,378.59	4,092.67	4,001.29		91.38	44.786
20,000.00	6,917.44	7,144.86	6,945.37	213.86	25.15	-89.19	162.29	-9,378.59	4,185.90	4,095.51		90.39	46.309
20,100.00	6,917.15	7,144.85	6,945.36	215.45	25.15	-89.19	162.29	-9,378.59	4,279.44	4,189.99		89.44	47.844
20,200.00	6,916.87	7,144.84	6,945.35	217.03	25.15	-89.19	162.29	-9,378.59	4,373.26	4,284.72		88.55	49.390
20,300.00	6,916.58	7,144.83	6,945.34	218.61	25.15	-89.19	162.29	-9,378.59	4,467.35	4,379.66		87.69	50.945
20,400.00	6,916.30	7,144.82	6,945.33	220.20	25.15	-89.19	162.29	-9,378.59	4,561.69	4,474.82		86.88	52.508
20,500.00	6,916.01	7,144.81	6,945.32	221.78	25.15	-89.19	162.29	-9,378.59	4,656.27	4,570.17		86.10	54.080
20,600.00	6,915.73	7,144.80	6,945.31	223.37	25.15	-89.19	162.29	-9,378.59	4,751.07	4,665.71		85.36	55.659
20,700.00	6,915.44	7,144.79	6,945.30	224.95	25.15	-89.19	162.29	-9,378.59	4,846.08	4,761.42		84.66	57.244
20,800.00	6,915.16	7,144.79	6,945.29	226.54	25.15	-89.18	162.29	-9,378.59	4,941.29	4,857.30		83.99	58.835
20,855.45	6,915.00	7,144.78	6,945.28	227.42	25.15	-89.18	162.29	-9,378.59	4,994.16	4,910.53		83.63	59.719

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	2,960.83	2,784.66	0.00	19.06	-88.24	294.40	-9,585.15	9,975.26				
100.00	100.00	3,000.00	2,822.02	0.25	19.26	-88.27	288.75	-9,574.81	9,948.09	9,930.93	17.16	579.858	
200.00	200.00	3,072.78	2,891.50	0.61	19.62	-88.33	278.23	-9,555.90	9,921.37	9,903.66	17.71	560.263	
300.00	300.00	3,100.00	2,917.47	0.97	19.76	-88.36	274.17	-9,548.79	9,894.86	9,876.76	18.10	546.580	
400.00	400.00	3,100.00	2,917.47	1.33	19.76	-88.36	274.17	-9,548.79	9,869.27	9,850.87	18.40	536.513	
500.00	500.00	3,149.75	2,965.09	1.68	19.99	-88.40	267.07	-9,536.31	9,843.95	9,824.96	18.99	518.403	
600.00	599.98	3,200.00	3,013.57	2.04	20.22	-82.33	260.68	-9,524.72	9,819.73	9,800.13	19.60	501.106	
700.00	699.84	3,200.00	3,013.57	2.41	20.22	-82.83	260.68	-9,524.72	9,795.33	9,775.40	19.93	491.571	
800.00	799.45	3,200.00	3,013.57	2.77	20.22	-83.32	260.68	-9,524.72	9,771.46	9,751.20	20.26	482.220	
900.00	898.70	3,200.00	3,013.57	3.13	20.22	-83.79	260.68	-9,524.72	9,748.17	9,727.56	20.61	473.008	
1,000.00	997.47	3,200.00	3,013.57	3.50	20.22	-84.26	260.68	-9,524.72	9,725.49	9,704.52	20.97	463.880	
1,100.00	1,095.62	3,247.02	3,059.26	3.89	20.40	-84.80	255.37	-9,514.96	9,702.71	9,681.12	21.59	449.376	
1,200.00	1,193.06	3,300.00	3,111.09	4.30	20.60	-85.35	250.09	-9,505.36	9,681.30	9,659.03	22.27	434.788	
1,245.75	1,237.35	3,300.00	3,111.09	4.49	20.60	-85.55	250.09	-9,505.36	9,671.32	9,648.87	22.45	430.779	
1,300.00	1,289.78	3,300.00	3,111.09	4.72	20.60	-85.55	250.09	-9,505.36	9,659.71	9,637.04	22.67	426.043	
1,400.00	1,386.41	3,300.00	3,111.09	5.15	20.60	-85.55	250.09	-9,505.36	9,639.08	9,615.99	23.09	417.428	
1,500.00	1,483.04	3,300.00	3,111.09	5.59	20.60	-85.55	250.09	-9,505.36	9,619.45	9,595.93	23.52	409.020	
1,600.00	1,579.67	3,300.00	3,111.09	6.04	20.60	-85.55	250.09	-9,505.36	9,600.82	9,576.87	23.95	400.849	
1,700.00	1,676.30	3,350.60	3,160.85	6.49	20.75	-85.66	245.67	-9,497.33	9,582.63	9,558.01	24.62	389.272	
1,800.00	1,772.93	3,400.00	3,209.60	6.95	20.89	-85.76	241.88	-9,490.32	9,565.59	9,540.31	25.28	378.376	
1,900.00	1,869.56	3,400.00	3,209.60	7.41	20.89	-85.76	241.88	-9,490.32	9,549.03	9,523.30	25.73	371.188	
2,000.00	1,966.19	3,458.53	3,267.47	7.87	21.04	-85.87	237.87	-9,482.53	9,533.27	9,506.86	26.41	360.995	
2,100.00	2,062.83	3,500.00	3,308.50	8.33	21.15	-85.96	235.25	-9,477.05	9,517.88	9,490.85	27.02	352.196	
2,200.00	2,159.46	3,500.00	3,308.50	8.80	21.15	-85.96	235.25	-9,477.05	9,503.40	9,475.93	27.48	345.891	
2,300.00	2,256.09	3,552.93	3,360.93	9.27	21.27	-86.06	232.12	-9,470.57	9,489.31	9,461.17	28.14	337.209	
2,400.00	2,352.72	3,600.00	3,407.67	9.73	21.38	-86.15	229.51	-9,465.64	9,476.43	9,447.64	28.78	329.230	
2,500.00	2,449.35	3,600.00	3,407.67	10.20	21.38	-86.15	229.51	-9,465.64	9,464.07	9,434.83	29.24	323.709	
2,600.00	2,545.98	3,600.00	3,407.67	10.67	21.38	-86.15	229.51	-9,465.64	9,452.75	9,423.06	29.69	318.395	
2,700.00	2,642.61	3,650.42	3,457.83	11.15	21.47	-86.24	227.04	-9,461.11	9,442.02	9,411.69	30.33	311.329	
2,800.00	2,739.24	3,700.00	3,507.22	11.62	21.56	-86.33	225.13	-9,457.29	9,432.23	9,401.26	30.96	304.616	
2,900.00	2,835.87	3,700.00	3,507.22	12.09	21.56	-86.33	225.13	-9,457.29	9,423.05	9,391.63	31.42	299.949	
3,000.00	2,932.50	3,700.00	3,507.22	12.56	21.56	-86.33	225.13	-9,457.29	9,414.92	9,383.06	31.87	295.459	
3,100.00	3,029.13	3,762.64	3,569.71	13.04	21.64	-86.44	223.15	-9,453.37	9,407.14	9,374.62	32.52	289.265	
3,200.00	3,125.77	3,800.00	3,607.01	13.51	21.69	-86.51	222.07	-9,451.51	9,400.37	9,367.28	33.09	284.064	
3,300.00	3,222.40	3,800.00	3,607.01	13.99	21.69	-86.51	222.07	-9,451.51	9,394.40	9,360.86	33.54	280.104	
3,400.00	3,319.03	3,800.00	3,607.01	14.46	21.69	-86.51	222.07	-9,451.51	9,389.49	9,355.51	33.98	276.298	
3,500.00	3,415.66	3,856.97	3,663.93	14.94	21.74	-86.61	220.75	-9,449.57	9,384.87	9,350.30	34.57	271.482	
3,600.00	3,512.29	4,672.00	4,474.15	15.42	22.76	-88.08	190.91	-9,397.02	9,375.54	9,339.53	36.01	260.354	
3,700.00	3,608.92	4,734.02	4,535.76	15.89	22.84	-88.20	187.28	-9,390.89	9,364.74	9,328.21	36.54	256.322	
3,800.00	3,705.55	4,844.42	4,645.48	16.37	22.99	-88.41	181.59	-9,380.09	9,354.16	9,317.05	37.11	252.080	
3,900.00	3,802.18	4,862.00	4,662.97	16.84	23.01	-88.45	180.97	-9,378.43	9,343.89	9,306.30	37.59	248.569	
4,000.00	3,898.81	4,880.33	4,681.22	17.32	23.03	-88.48	180.36	-9,376.86	9,334.50	9,296.43	38.07	245.178	
4,100.00	3,995.44	4,894.00	4,694.84	17.80	23.04	-88.51	179.92	-9,375.77	9,325.99	9,287.44	38.55	241.932	
4,200.00	4,092.07	4,926.00	4,726.76	18.28	23.07	-88.56	178.98	-9,373.63	9,318.42	9,279.38	39.04	238.690	
4,300.00	4,188.71	4,926.00	4,726.76	18.75	23.07	-88.56	178.98	-9,373.63	9,311.66	9,272.16	39.50	235.748	
4,400.00	4,285.34	4,946.00	4,746.72	19.23	23.08	-88.60	178.39	-9,372.60	9,305.87	9,265.90	39.97	232.801	
4,500.00	4,381.97	4,987.52	4,788.19	19.71	23.12	-88.67	177.25	-9,370.79	9,300.89	9,260.41	40.47	229.804	
4,600.00	4,478.60	5,022.00	4,822.63	20.19	23.14	-88.73	176.57	-9,369.44	9,296.49	9,255.53	40.96	226.962	
4,700.00	4,575.23	5,041.05	4,841.67	20.67	23.15	-88.76	176.27	-9,368.86	9,292.93	9,251.50	41.43	224.307	
4,800.00	4,671.86	5,064.00	4,864.61	21.14	23.16	-88.80	175.89	-9,368.38	9,290.26	9,248.36	41.90	221.724	
4,900.00	4,768.49	5,145.31	4,945.90	21.62	23.62	-88.94	174.42	-9,367.08	9,288.22	9,245.33	42.90	216.527	
5,000.00	4,865.12	5,260.80	5,061.35	22.10	24.28	-89.14	172.08	-9,365.00	9,286.12	9,242.00	44.12	210.457	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 (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	4,961.75	5,376.08	5,176.57	22.58	24.94	-89.34	169.43	-9,362.66	9,283.90	9,238.55	45.35	204.720	
5,200.00	5,058.38	5,491.16	5,291.58	23.06	25.60	-89.54	166.49	-9,360.04	9,281.56	9,234.99	46.57	199.290	
5,300.00	5,155.01	5,588.11	5,388.48	23.54	26.36	-89.71	163.91	-9,357.75	9,279.24	9,231.37	47.87	193.825	
5,400.00	5,251.64	5,689.24	5,489.53	24.01	27.09	-89.89	161.13	-9,355.29	9,276.94	9,227.79	49.16	188.720	
5,500.00	5,348.28	5,790.31	5,590.53	24.49	27.82	-90.07	158.28	-9,352.77	9,274.68	9,224.24	50.44	183.877	
5,600.00	5,444.91	5,891.33	5,691.48	24.97	28.56	-90.25	155.36	-9,350.18	9,272.45	9,220.73	51.72	179.275	
5,700.00	5,541.54	5,978.00	5,778.09	25.45	29.45	-90.40	152.86	-9,347.96	9,270.32	9,217.17	53.15	174.402	
5,800.00	5,638.17	6,063.07	5,863.10	25.93	30.37	-90.55	150.55	-9,345.91	9,268.39	9,213.79	54.61	169.728	
5,900.00	5,734.80	6,148.23	5,948.21	26.41	31.28	-90.70	148.35	-9,343.96	9,266.66	9,210.60	56.06	165.294	
6,000.00	5,831.43	6,233.48	6,033.41	26.89	32.20	-90.85	146.29	-9,342.13	9,265.13	9,207.61	57.52	161.084	
6,100.00	5,928.06	6,318.81	6,118.70	27.37	33.12	-91.00	144.35	-9,340.41	9,263.79	9,204.82	58.97	157.082	
6,200.00	6,024.69	6,404.23	6,204.09	27.85	34.05	-91.15	142.54	-9,338.81	9,262.65	9,202.22	60.43	153.272	
6,300.00	6,121.32	6,494.49	6,294.32	28.33	34.60	-91.31	140.76	-9,337.22	9,261.69	9,200.19	61.50	150.593	
6,400.00	6,217.95	6,590.54	6,390.34	28.81	34.70	-91.47	138.87	-9,335.56	9,260.83	9,198.74	62.10	149.133	
6,500.00	6,314.58	6,677.22	6,476.98	29.29	34.78	-91.62	137.19	-9,334.07	9,260.07	9,197.41	62.67	147.764	
6,543.64	6,356.75	6,707.80	6,507.56	29.49	34.80	-91.67	136.66	-9,333.59	9,259.83	9,196.93	62.90	147.224	
6,550.00	6,362.90	6,712.26	6,512.02	29.53	34.80	-89.56	136.59	-9,333.53	9,259.77	9,196.84	62.93	147.145	
6,600.00	6,411.07	6,747.23	6,546.98	29.77	34.82	-74.19	136.05	-9,333.05	9,257.15	9,193.95	63.19	146.489	
6,650.00	6,458.79	6,785.52	6,585.26	30.01	34.85	-61.98	135.54	-9,332.59	9,250.75	9,187.27	63.47	145.744	
6,700.00	6,505.76	6,832.18	6,631.92	30.26	34.91	-52.95	134.93	-9,332.05	9,240.56	9,176.78	63.78	144.874	
6,750.00	6,551.69	6,877.77	6,677.50	30.50	34.97	-46.43	134.33	-9,331.53	9,226.63	9,162.54	64.09	143.961	
6,800.00	6,596.30	6,922.00	6,721.72	30.74	35.02	-41.74	133.75	-9,331.01	9,209.05	9,144.66	64.39	143.011	
6,850.00	6,639.32	6,964.59	6,764.31	30.98	35.07	-38.36	133.20	-9,330.52	9,187.93	9,123.24	64.69	142.030	
6,900.00	6,680.47	7,005.30	6,805.01	31.21	35.13	-35.97	132.67	-9,330.05	9,163.40	9,098.42	64.98	141.019	
6,950.00	6,719.51	7,043.85	6,843.56	31.44	35.19	-34.34	132.16	-9,329.60	9,135.61	9,070.33	65.27	139.965	
7,000.00	6,756.20	7,080.03	6,879.73	31.67	35.24	-33.33	131.69	-9,329.18	9,104.72	9,039.17	65.55	138.899	
7,050.00	6,790.30	7,113.60	6,913.29	31.90	35.30	-32.88	131.25	-9,328.80	9,070.94	9,005.13	65.81	137.826	
7,100.00	6,821.62	7,144.36	6,944.04	32.13	35.35	-32.96	130.85	-9,328.44	9,034.47	8,968.40	66.06	136.752	
7,150.00	6,849.95	7,172.11	6,971.80	32.35	35.39	-33.59	130.49	-9,328.12	8,995.52	8,929.22	66.30	135.681	
7,200.00	6,875.12	7,196.69	6,996.37	32.58	35.43	-34.87	130.17	-9,327.83	8,954.35	8,887.83	66.52	134.617	
7,250.00	6,896.97	7,217.95	7,017.63	32.81	35.46	-36.94	129.89	-9,327.59	8,911.19	8,844.47	66.72	133.567	
7,300.00	6,915.38	7,235.75	7,035.43	33.05	35.49	-40.12	129.66	-9,327.38	8,866.32	8,799.42	66.90	132.532	
7,350.00	6,930.22	7,249.99	7,049.66	33.29	35.51	-44.93	129.47	-9,327.22	8,820.01	8,752.95	67.06	131.518	
7,400.00	6,941.41	7,261.20	7,060.87	33.53	35.53	-52.34	129.32	-9,327.09	8,772.54	8,705.33	67.21	130.525	
7,450.00	6,948.88	7,270.77	7,070.44	33.79	35.55	-64.04	129.20	-9,326.97	8,724.19	8,656.85	67.34	129.545	
7,500.00	6,952.57	7,275.05	7,074.72	34.05	35.56	-82.14	129.14	-9,326.92	8,675.27	8,607.82	67.46	128.605	
7,525.63	6,953.00	7,275.21	7,074.87	34.19	35.56	-94.04	129.14	-9,326.92	8,650.07	8,582.57	67.51	128.139	
7,600.00	6,952.79	7,273.64	7,073.31	34.61	35.56	-93.99	129.16	-9,326.94	8,576.89	8,509.25	67.64	126.806	
7,700.00	6,952.50	7,271.57	7,071.23	35.23	35.55	-93.91	129.19	-9,326.96	8,478.52	8,410.70	67.82	125.011	
7,800.00	6,952.22	7,269.51	7,069.18	35.91	35.55	-93.83	129.21	-9,326.99	8,380.19	8,312.17	68.01	123.215	
7,900.00	6,951.93	7,267.48	7,067.15	36.65	35.54	-93.76	129.24	-9,327.01	8,281.89	8,213.68	68.21	121.416	
8,000.00	6,951.65	7,265.47	7,065.14	37.45	35.54	-93.68	129.27	-9,327.04	8,183.64	8,115.23	68.42	119.616	
8,100.00	6,951.36	7,263.48	7,063.15	38.29	35.54	-93.61	129.29	-9,327.06	8,085.43	8,016.80	68.63	117.814	
8,200.00	6,951.08	7,261.52	7,061.19	39.19	35.53	-93.53	129.32	-9,327.08	7,987.27	7,918.42	68.85	116.011	
8,300.00	6,950.79	7,259.58	7,059.25	40.13	35.53	-93.46	129.35	-9,327.10	7,889.15	7,820.07	69.08	114.206	
8,400.00	6,950.51	7,257.98	7,057.65	41.11	35.53	-93.40	129.37	-9,327.12	7,791.08	7,721.76	69.32	112.399	
8,500.00	6,950.22	7,256.53	7,056.20	42.12	35.52	-93.35	129.39	-9,327.14	7,693.06	7,623.49	69.56	110.590	
8,600.00	6,949.94	7,255.08	7,054.75	43.18	35.52	-93.29	129.40	-9,327.16	7,595.08	7,525.26	69.82	108.781	
8,700.00	6,949.65	7,253.63	7,053.30	44.26	35.52	-93.24	129.42	-9,327.17	7,497.17	7,427.08	70.09	106.972	
8,800.00	6,949.37	7,252.18	7,051.85	45.38	35.52	-93.19	129.44	-9,327.19	7,399.30	7,328.94	70.36	105.162	
8,900.00	6,949.08	7,250.73	7,050.40	46.53	35.51	-93.13	129.46	-9,327.21	7,301.50	7,230.85	70.65	103.353	
9,000.00	6,948.80	7,249.28	7,048.95	47.70	35.51	-93.08	129.48	-9,327.22	7,203.75	7,132.81	70.94	101.544	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	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	6,948.51	7,247.83	7,047.50	48.89	35.51	-93.02	129.50	-9,327.24	7,106.07	7,034.82	71.25	99.735		
9,200.00	6,948.23	7,246.38	7,046.05	50.11	35.51	-92.97	129.52	-9,327.26	7,008.45	6,936.89	71.57	97.928		
9,300.00	6,947.94	7,244.93	7,044.60	51.35	35.50	-92.92	129.54	-9,327.27	6,910.91	6,839.01	71.90	96.122		
9,400.00	6,947.66	7,243.48	7,043.15	52.61	35.50	-92.86	129.56	-9,327.29	6,813.43	6,741.19	72.24	94.317		
9,500.00	6,947.37	7,242.03	7,041.70	53.89	35.50	-92.81	129.57	-9,327.31	6,716.02	6,643.43	72.60	92.513		
9,600.00	6,947.09	7,240.58	7,040.25	55.18	35.50	-92.75	129.59	-9,327.32	6,618.69	6,545.73	72.96	90.712		
9,700.00	6,946.80	7,239.13	7,038.80	56.49	35.50	-92.70	129.61	-9,327.34	6,521.45	6,448.10	73.35	88.913		
9,800.00	6,946.52	7,237.68	7,037.35	57.81	35.49	-92.64	129.63	-9,327.36	6,424.28	6,350.54	73.74	87.116		
9,900.00	6,946.23	7,236.23	7,035.90	59.15	35.49	-92.59	129.65	-9,327.38	6,327.21	6,253.05	74.16	85.322		
10,000.00	6,945.95	7,234.78	7,034.45	60.50	35.49	-92.54	129.67	-9,327.39	6,230.23	6,155.64	74.59	83.531		
10,100.00	6,945.66	7,233.33	7,033.00	61.87	35.49	-92.48	129.69	-9,327.41	6,133.34	6,058.31	75.03	81.744		
10,200.00	6,945.38	7,231.88	7,031.55	63.24	35.48	-92.43	129.71	-9,327.43	6,036.56	5,961.06	75.49	79.961		
10,300.00	6,945.09	7,230.43	7,030.10	64.63	35.48	-92.37	129.73	-9,327.44	5,939.88	5,863.90	75.97	78.182		
10,400.00	6,944.81	7,228.98	7,028.65	66.02	35.48	-92.32	129.75	-9,327.46	5,843.31	5,766.83	76.48	76.408		
10,500.00	6,944.52	7,227.53	7,027.20	67.42	35.48	-92.26	129.76	-9,327.48	5,746.86	5,669.86	77.00	74.639		
10,600.00	6,944.24	7,226.08	7,025.75	68.84	35.47	-92.21	129.78	-9,327.49	5,650.53	5,572.99	77.54	72.875		
10,700.00	6,943.95	7,224.63	7,024.30	70.26	35.47	-92.16	129.80	-9,327.51	5,554.33	5,476.23	78.10	71.117		
10,800.00	6,943.67	7,223.18	7,022.85	71.68	35.47	-92.10	129.82	-9,327.53	5,458.27	5,379.58	78.69	69.365		
10,900.00	6,943.38	7,221.73	7,021.40	73.12	35.47	-92.05	129.84	-9,327.54	5,362.35	5,283.05	79.30	67.621		
11,000.00	6,943.10	7,220.28	7,019.95	74.56	35.47	-91.99	129.86	-9,327.56	5,266.59	5,186.65	79.94	65.883		
11,100.00	6,942.81	7,218.83	7,018.50	76.01	35.46	-91.94	129.88	-9,327.58	5,170.98	5,090.38	80.60	64.154		
11,200.00	6,942.53	7,217.38	7,017.05	77.46	35.46	-91.89	129.90	-9,327.59	5,075.54	4,994.25	81.30	62.433		
11,300.00	6,942.24	7,215.93	7,015.60	78.92	35.46	-91.83	129.92	-9,327.61	4,980.28	4,898.26	82.02	60.721		
11,400.00	6,941.96	7,214.48	7,014.15	80.39	35.46	-91.78	129.93	-9,327.63	4,885.21	4,802.44	82.77	59.018		
11,500.00	6,941.67	7,213.03	7,012.70	81.86	35.45	-91.72	129.95	-9,327.64	4,790.34	4,706.78	83.56	57.326		
11,600.00	6,941.39	7,211.58	7,011.25	83.33	35.45	-91.67	129.97	-9,327.66	4,695.69	4,611.30	84.39	55.645		
11,700.00	6,941.10	7,210.13	7,009.80	84.81	35.45	-91.61	129.99	-9,327.68	4,601.25	4,516.01	85.25	53.975		
11,800.00	6,940.81	7,208.68	7,008.35	86.30	35.45	-91.56	130.01	-9,327.69	4,507.06	4,420.91	86.15	52.317		
11,900.00	6,940.53	7,207.23	7,006.91	87.79	35.44	-91.51	130.03	-9,327.71	4,413.13	4,326.03	87.09	50.673		
12,000.00	6,940.24	7,205.78	7,005.46	89.28	35.44	-91.45	130.05	-9,327.73	4,319.46	4,231.38	88.08	49.042		
12,100.00	6,939.96	7,204.33	7,004.01	90.77	35.44	-91.40	130.07	-9,327.74	4,226.09	4,136.97	89.11	47.425		
12,200.00	6,939.67	7,202.88	7,002.56	92.27	35.44	-91.34	130.09	-9,327.76	4,133.02	4,042.83	90.19	45.824		
12,300.00	6,939.39	7,201.43	7,001.11	93.78	35.44	-91.29	130.10	-9,327.78	4,040.28	3,948.96	91.33	44.239		
12,400.00	6,939.10	7,199.98	6,999.66	95.28	35.43	-91.23	130.12	-9,327.80	3,947.90	3,855.38	92.52	42.671		
12,500.00	6,938.82	7,198.53	6,998.21	96.79	35.43	-91.18	130.14	-9,327.81	3,855.90	3,762.13	93.77	41.121		
12,600.00	6,938.53	7,197.08	6,996.76	98.30	35.43	-91.13	130.16	-9,327.83	3,764.31	3,669.23	95.08	39.590		
12,700.00	6,938.25	7,195.62	6,995.31	99.82	35.43	-91.07	130.18	-9,327.85	3,673.15	3,576.69	96.46	38.079		
12,800.00	6,937.96	7,194.17	6,993.86	101.34	35.42	-91.02	130.20	-9,327.86	3,582.47	3,484.56	97.91	36.590		
12,900.00	6,937.68	7,192.72	6,992.41	102.86	35.42	-90.96	130.22	-9,327.88	3,492.29	3,392.86	99.43	35.122		
13,000.00	6,937.39	7,191.27	6,990.96	104.38	35.42	-90.91	130.24	-9,327.90	3,402.66	3,301.63	101.04	33.678		
13,100.00	6,937.11	7,189.82	6,989.51	105.91	35.42	-90.85	130.26	-9,327.91	3,313.63	3,210.91	102.72	32.258		
13,200.00	6,936.82	7,188.37	6,988.06	107.43	35.41	-90.80	130.28	-9,327.93	3,225.24	3,120.74	104.50	30.863		
13,300.00	6,936.54	7,186.92	6,986.61	108.96	35.41	-90.75	130.29	-9,327.95	3,137.54	3,031.17	106.37	29.496		
13,400.00	6,936.25	7,185.47	6,985.16	110.49	35.41	-90.69	130.31	-9,327.96	3,050.60	2,942.26	108.34	28.157		
13,500.00	6,935.97	7,184.02	6,983.71	112.03	35.41	-90.64	130.33	-9,327.98	2,964.48	2,854.06	110.42	26.848		
13,600.00	6,935.68	7,182.57	6,982.26	113.56	35.41	-90.58	130.35	-9,328.00	2,879.26	2,766.66	112.61	25.569		
13,700.00	6,935.40	7,181.12	6,980.81	115.10	35.40	-90.53	130.37	-9,328.01	2,795.02	2,680.11	114.91	24.323		
13,800.00	6,935.11	7,179.67	6,979.36	116.64	35.40	-90.47	130.39	-9,328.03	2,711.85	2,594.51	117.34	23.111		
13,900.00	6,934.83	7,178.22	6,977.91	118.18	35.40	-90.42	130.41	-9,328.05	2,629.85	2,509.95	119.90	21.934		
14,000.00	6,934.54	7,176.77	6,976.46	119.72	35.40	-90.36	130.43	-9,328.06	2,549.13	2,426.55	122.59	20.795		
14,100.00	6,934.26	7,175.32	6,975.01	121.26	35.39	-90.31	130.45	-9,328.08	2,469.83	2,344.41	125.41	19.693		
14,200.00	6,933.97	7,173.87	6,973.56	122.81	35.39	-90.26	130.46	-9,328.10	2,392.08	2,263.69	128.38	18.632		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)				
14,300.00	6,933.69	7,172.42	6,972.11	124.36	35.39	-90.20	130.48	-9,328.11	2,316.03	2,184.53	131.49	17.613		
14,400.00	6,933.40	7,170.97	6,970.66	125.90	35.39	-90.15	130.50	-9,328.13	2,241.86	2,107.12	134.75	16.637		
14,500.00	6,933.12	7,169.52	6,969.21	127.45	35.38	-90.09	130.52	-9,328.15	2,169.77	2,031.63	138.14	15.707		
14,600.00	6,932.83	7,168.07	6,967.76	129.00	35.38	-90.04	130.54	-9,328.16	2,099.97	1,958.30	141.66	14.824		
14,700.00	6,932.55	7,166.62	6,966.31	130.56	35.38	-89.98	130.56	-9,328.18	2,032.68	1,887.37	145.31	13.989		
14,800.00	6,932.26	7,165.17	6,964.86	132.11	35.38	-89.93	130.58	-9,328.20	1,968.18	1,819.13	149.06	13.204		
14,900.00	6,931.98	7,163.72	6,963.41	133.66	35.38	-89.88	130.60	-9,328.21	1,906.75	1,753.86	152.89	12.472		
15,000.00	6,931.69	7,162.27	6,961.96	135.22	35.37	-89.82	130.62	-9,328.23	1,848.68	1,691.92	156.77	11.793		
15,100.00	6,931.41	7,160.82	6,960.51	136.77	35.37	-89.77	130.63	-9,328.25	1,794.31	1,633.66	160.65	11.169		
15,200.00	6,931.12	7,159.37	6,959.06	138.33	35.37	-89.71	130.65	-9,328.27	1,743.98	1,579.49	164.49	10.602		
15,300.00	6,930.84	7,157.92	6,957.61	139.89	35.37	-89.66	130.67	-9,328.28	1,698.06	1,529.83	168.23	10.093		
15,400.00	6,930.55	7,156.47	6,956.16	141.45	35.36	-89.60	130.69	-9,328.30	1,656.90	1,485.10	171.80	9.644		
15,500.00	6,930.27	7,155.02	6,954.71	143.01	35.36	-89.55	130.71	-9,328.32	1,620.88	1,445.75	175.12	9.256		
15,600.00	6,929.98	7,153.57	6,953.26	144.57	35.36	-89.49	130.73	-9,328.33	1,590.33	1,412.22	178.11	8.929		
15,700.00	6,929.70	7,152.12	6,951.81	146.13	35.36	-89.44	130.75	-9,328.35	1,565.58	1,384.89	180.69	8.664		
15,800.00	6,929.41	7,150.67	6,950.36	147.70	35.36	-89.39	130.77	-9,328.37	1,546.92	1,364.13	182.78	8.463		
15,900.00	6,929.13	7,149.22	6,948.91	149.26	35.35	-89.33	130.79	-9,328.38	1,534.55	1,350.23	184.33	8.325		
16,000.00	6,928.84	7,147.77	6,947.46	150.82	35.35	-89.28	130.81	-9,328.40	1,528.64	1,343.37	185.27	8.251		
16,040.55	6,928.73	7,147.18	6,946.87	151.46	35.35	-89.26	130.81	-9,328.41	1,528.10	1,342.62	185.48	8.239	CC, ES, SF	
16,100.00	6,928.56	7,146.32	6,946.01	152.39	35.35	-89.22	130.82	-9,328.42	1,529.26	1,343.66	185.60	8.240		
16,200.00	6,928.27	7,144.87	6,944.56	153.96	35.35	-89.17	130.84	-9,328.43	1,536.40	1,351.10	185.30	8.292		
16,300.00	6,927.99	7,143.42	6,943.11	155.52	35.34	-89.11	130.86	-9,328.45	1,549.97	1,365.57	184.40	8.406		
16,400.00	6,927.70	7,141.97	6,941.66	157.09	35.34	-89.06	130.88	-9,328.47	1,569.80	1,386.86	182.94	8.581		
16,500.00	6,927.42	7,140.52	6,940.21	158.66	35.34	-89.01	130.90	-9,328.48	1,595.66	1,414.69	180.98	8.817		
16,600.00	6,927.13	7,139.07	6,938.76	160.23	35.34	-88.95	130.92	-9,328.50	1,627.27	1,448.67	178.60	9.111		
16,700.00	6,926.85	7,137.62	6,937.31	161.80	35.33	-88.90	130.94	-9,328.52	1,664.29	1,488.43	175.87	9.463		
16,800.00	6,926.56	7,136.17	6,935.86	163.37	35.33	-88.84	130.96	-9,328.53	1,706.38	1,533.51	172.87	9.871		
16,900.00	6,926.28	7,134.72	6,934.41	164.94	35.33	-88.79	130.98	-9,328.55	1,753.17	1,583.49	169.68	10.332		
17,000.00	6,925.99	7,133.27	6,932.96	166.51	35.33	-88.73	130.99	-9,328.57	1,804.28	1,637.92	166.36	10.846		
17,100.00	6,925.71	7,131.82	6,931.51	168.08	35.33	-88.68	131.01	-9,328.58	1,859.38	1,696.40	162.98	11.409		
17,200.00	6,925.42	7,130.37	6,930.06	169.65	35.32	-88.63	131.03	-9,328.60	1,918.11	1,758.54	159.57	12.020		
17,300.00	6,925.14	7,128.92	6,928.61	171.23	35.32	-88.57	131.05	-9,328.62	1,980.14	1,823.96	156.19	12.678		
17,400.00	6,924.85	7,127.47	6,927.16	172.80	35.32	-88.52	131.07	-9,328.63	2,045.19	1,892.33	152.86	13.380		
17,500.00	6,924.57	7,126.02	6,925.71	174.37	35.32	-88.46	131.09	-9,328.65	2,112.97	1,963.36	149.61	14.123		
17,600.00	6,924.28	7,124.57	6,924.26	175.95	35.31	-88.41	131.11	-9,328.67	2,183.22	2,036.77	146.45	14.907		
17,700.00	6,924.00	7,123.12	6,922.81	177.52	35.31	-88.35	131.13	-9,328.69	2,255.72	2,112.31	143.41	15.730		
17,800.00	6,923.71	7,121.67	6,921.36	179.10	35.31	-88.30	131.15	-9,328.70	2,330.26	2,189.78	140.48	16.588		
17,900.00	6,923.43	7,120.22	6,919.91	180.68	35.31	-88.24	131.17	-9,328.72	2,406.64	2,268.97	137.67	17.481		
18,000.00	6,923.14	7,118.77	6,918.46	182.25	35.30	-88.19	131.18	-9,328.74	2,484.70	2,349.71	134.99	18.407		
18,100.00	6,922.86	7,117.32	6,917.01	183.83	35.30	-88.14	131.20	-9,328.75	2,564.28	2,431.85	132.43	19.364		
18,200.00	6,922.57	7,115.87	6,915.56	185.41	35.30	-88.08	131.22	-9,328.77	2,645.25	2,515.26	129.99	20.350		
18,300.00	6,922.29	7,114.42	6,914.11	186.98	35.30	-88.03	131.24	-9,328.79	2,727.48	2,599.81	127.67	21.364		
18,400.00	6,922.00	7,112.97	6,912.66	188.56	35.30	-87.97	131.26	-9,328.80	2,810.86	2,685.40	125.46	22.404		
18,500.00	6,921.71	7,111.51	6,911.21	190.14	35.29	-87.92	131.28	-9,328.82	2,895.29	2,771.92	123.37	23.469		
18,600.00	6,921.43	7,110.06	6,909.76	191.72	35.29	-87.86	131.30	-9,328.84	2,980.69	2,859.31	121.38	24.558		
18,700.00	6,921.14	7,108.61	6,908.31	193.30	35.29	-87.81	131.32	-9,328.85	3,066.96	2,947.48	119.49	25.668		
18,800.00	6,920.86	7,107.16	6,906.86	194.88	35.29	-87.76	131.34	-9,328.87	3,154.05	3,036.36	117.69	26.799		
18,900.00	6,920.57	7,105.71	6,905.41	196.46	35.28	-87.70	131.35	-9,328.89	3,241.88	3,125.89	115.99	27.950		
19,000.00	6,920.29	7,104.26	6,903.96	198.04	35.28	-87.65	131.37	-9,328.90	3,330.40	3,216.03	114.37	29.118		
19,100.00	6,920.00	7,102.81	6,902.51	199.62	35.28	-87.59	131.39	-9,328.92	3,419.55	3,306.71	112.84	30.304		
19,200.00	6,919.72	7,101.36	6,901.06	201.20	35.28	-87.54	131.41	-9,328.94	3,509.29	3,397.90	111.38	31.506		
19,300.00	6,919.43	7,099.91	6,899.61	202.78	35.28	-87.48	131.43	-9,328.95	3,599.56	3,489.56	110.00	32.723		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.15	7,098.46	6,898.16	204.36	35.27	-87.43	131.45	-9,328.97	3,690.34	3,581.65	108.69	33.954	
19,500.00	6,918.86	7,097.01	6,896.71	205.95	35.27	-87.38	131.47	-9,328.99	3,781.58	3,674.14	107.44	35.198	
19,600.00	6,918.58	7,095.56	6,895.26	207.53	35.27	-87.32	131.49	-9,329.00	3,873.25	3,767.00	106.25	36.454	
19,700.00	6,918.29	7,094.11	6,893.81	209.11	35.27	-87.27	131.51	-9,329.02	3,965.33	3,860.21	105.12	37.722	
19,800.00	6,918.01	7,092.66	6,892.36	210.69	35.26	-87.21	131.52	-9,329.04	4,057.78	3,953.73	104.05	39.000	
19,900.00	6,917.72	7,091.21	6,890.91	212.28	35.26	-87.16	131.54	-9,329.05	4,150.58	4,047.55	103.02	40.287	
20,000.00	6,917.44	7,089.76	6,889.46	213.86	35.26	-87.10	131.56	-9,329.07	4,243.70	4,141.65	102.05	41.584	
20,100.00	6,917.15	7,088.31	6,888.01	215.45	35.26	-87.05	131.58	-9,329.09	4,337.13	4,236.01	101.13	42.888	
20,200.00	6,916.87	7,086.86	6,886.56	217.03	35.25	-87.00	131.60	-9,329.10	4,430.85	4,330.61	100.24	44.201	
20,300.00	6,916.58	7,085.41	6,885.11	218.61	35.25	-86.94	131.62	-9,329.12	4,524.84	4,425.44	99.40	45.520	
20,400.00	6,916.30	7,083.96	6,883.66	220.20	35.25	-86.89	131.64	-9,329.14	4,619.08	4,520.48	98.60	46.846	
20,500.00	6,916.01	7,082.51	6,882.21	221.78	35.25	-86.83	131.66	-9,329.16	4,713.55	4,615.71	97.84	48.177	
20,600.00	6,915.73	7,081.06	6,880.76	223.37	35.25	-86.78	131.68	-9,329.17	4,808.25	4,711.14	97.11	49.514	
20,700.00	6,915.44	7,079.61	6,879.31	224.95	35.24	-86.72	131.70	-9,329.19	4,903.16	4,806.74	96.42	50.855	
20,800.00	6,915.16	7,078.16	6,877.86	226.54	35.24	-86.67	131.71	-9,329.21	4,998.27	4,902.51	95.75	52.200	
20,855.45	6,915.00	7,077.36	6,877.06	227.42	35.24	-86.64	131.72	-9,329.21	5,051.09	4,955.69	95.40	52.948	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	127.69	127.69	0.00	1.34	-58.07	1,165.97	-1,870.80	2,204.41					
100.00	100.00	222.28	222.28	0.25	2.33	-58.06	1,166.29	-1,871.10	2,204.86	2,202.28	2.58	853.970		
200.00	200.00	316.84	316.84	0.61	3.22	-58.06	1,166.78	-1,871.58	2,205.56	2,201.73	3.83	575.900		
300.00	300.00	411.11	411.10	0.97	3.63	-58.05	1,167.45	-1,872.22	2,206.51	2,201.92	4.60	480.005		
400.00	400.00	482.80	482.78	1.33	3.70	-58.04	1,168.31	-1,872.91	2,208.05	2,203.02	5.02	439.425		
500.00	500.00	530.00	529.95	1.68	3.77	-58.06	1,168.63	-1,874.59	2,211.52	2,206.07	5.45	406.006		
600.00	599.98	572.13	571.98	2.04	3.85	-51.42	1,168.75	-1,877.40	2,216.39	2,210.51	5.88	376.894		
700.00	699.84	621.00	620.57	2.41	3.97	-51.47	1,168.57	-1,882.64	2,221.85	2,215.51	6.34	350.495		
800.00	799.45	660.86	660.05	2.77	4.06	-51.53	1,168.29	-1,888.12	2,227.60	2,220.84	6.76	329.312		
900.00	898.70	712.00	710.48	3.13	4.19	-51.69	1,167.55	-1,896.54	2,233.48	2,226.26	7.22	309.289		
1,000.00	997.47	757.91	755.56	3.50	4.30	-51.87	1,166.99	-1,905.22	2,239.57	2,231.89	7.67	291.816		
1,100.00	1,095.62	802.00	798.69	3.89	4.42	-52.06	1,166.79	-1,914.37	2,245.88	2,237.75	8.14	276.027		
1,200.00	1,193.06	863.00	858.04	4.30	4.59	-52.41	1,166.65	-1,928.45	2,252.36	2,243.69	8.68	259.544		
1,245.75	1,237.35	880.18	874.68	4.49	4.65	-52.51	1,166.60	-1,932.73	2,255.38	2,246.48	8.90	253.496		
1,300.00	1,289.78	906.74	900.34	4.72	4.73	-52.73	1,166.58	-1,939.55	2,259.33	2,250.15	9.18	246.002		
1,400.00	1,386.41	954.00	945.84	5.15	4.88	-53.13	1,166.87	-1,952.34	2,268.48	2,258.77	9.72	233.413		
1,500.00	1,483.04	1,017.00	1,006.07	5.59	5.10	-53.68	1,166.99	-1,970.80	2,279.84	2,269.50	10.34	220.482		
1,600.00	1,579.67	1,059.06	1,046.00	6.04	5.25	-54.05	1,166.97	-1,984.00	2,293.36	2,282.48	10.88	210.739		
1,700.00	1,676.30	1,113.00	1,098.88	6.49	5.46	-54.54	1,167.00	-2,001.94	2,309.20	2,297.71	11.49	200.958		
1,800.00	1,772.93	1,163.15	1,143.81	6.95	5.65	-55.01	1,166.94	-2,019.61	2,327.22	2,315.13	12.09	192.510		
1,900.00	1,869.56	1,252.54	1,227.07	7.41	6.00	-55.84	1,166.36	-2,052.15	2,346.77	2,333.86	12.91	181.811		
2,000.00	1,966.19	1,383.16	1,349.20	7.87	6.53	-57.03	1,165.43	-2,098.42	2,366.04	2,352.06	13.98	169.221		
2,100.00	2,062.83	1,456.25	1,417.70	8.33	6.85	-57.69	1,164.58	-2,123.91	2,385.20	2,370.45	14.74	161.788		
2,200.00	2,159.46	1,565.09	1,519.50	8.80	7.34	-58.68	1,162.59	-2,162.38	2,405.11	2,389.37	15.73	152.873		
2,300.00	2,256.09	1,663.30	1,611.74	9.27	7.79	-59.53	1,161.73	-2,196.08	2,424.87	2,408.21	16.66	145.512		
2,400.00	2,352.72	1,728.82	1,673.23	9.73	8.11	-60.08	1,161.94	-2,218.71	2,445.69	2,428.29	17.40	140.548		
2,500.00	2,449.35	1,796.40	1,736.49	10.20	8.44	-60.63	1,162.61	-2,242.46	2,467.77	2,449.61	18.15	135.943		
2,600.00	2,545.98	1,877.59	1,812.27	10.67	8.85	-61.28	1,163.66	-2,271.58	2,491.01	2,472.01	19.00	131.118		
2,700.00	2,642.61	1,985.08	1,912.71	11.15	9.42	-62.13	1,164.64	-2,309.86	2,514.31	2,494.29	20.02	125.569		
2,800.00	2,739.24	2,089.75	2,010.66	11.62	9.99	-62.93	1,166.02	-2,346.73	2,537.80	2,516.77	21.03	120.662		
2,900.00	2,835.87	2,177.11	2,092.42	12.09	10.48	-63.57	1,168.03	-2,377.45	2,561.85	2,539.93	21.93	116.826		
3,000.00	2,932.50	2,270.18	2,179.55	12.56	11.01	-64.24	1,169.96	-2,410.09	2,586.14	2,563.27	22.87	113.104		
3,100.00	3,029.13	2,377.00	2,279.84	13.04	11.62	-65.02	1,171.24	-2,446.84	2,609.90	2,586.01	23.90	109.214		
3,200.00	3,125.77	2,465.85	2,363.23	13.51	12.14	-65.67	1,171.42	-2,477.52	2,634.02	2,609.21	24.81	106.168		
3,300.00	3,222.40	2,567.27	2,458.28	13.99	12.74	-66.41	1,171.18	-2,512.86	2,658.72	2,632.91	25.81	103.000		
3,400.00	3,319.03	2,642.15	2,528.45	14.46	13.19	-66.96	1,170.83	-2,539.00	2,683.83	2,657.20	26.63	100.774		
3,500.00	3,415.66	2,757.29	2,636.44	14.94	13.89	-67.77	1,170.41	-2,578.98	2,709.11	2,681.37	27.74	97.677		
3,600.00	3,512.29	2,836.30	2,710.52	15.42	14.37	-68.33	1,169.70	-2,606.41	2,734.68	2,706.10	28.59	95.668		
3,700.00	3,608.92	2,927.36	2,795.86	15.89	14.93	-68.97	1,168.95	-2,638.16	2,760.78	2,731.26	29.52	93.518		
3,800.00	3,705.55	3,058.62	2,919.20	16.37	15.72	-69.83	1,169.33	-2,683.07	2,786.78	2,756.04	30.74	90.649		
3,900.00	3,802.18	4,003.95	3,842.47	16.84	19.55	-75.41	1,163.08	-2,866.11	2,805.00	2,768.97	36.03	77.862		
4,000.00	3,898.81	4,100.94	3,939.40	17.32	31.59	-75.93	1,162.36	-2,869.51	2,801.90	2,753.30	48.60	57.654		
4,100.00	3,995.44	4,197.93	4,036.34	17.80	43.70	-76.45	1,161.65	-2,872.89	2,799.02	2,737.81	61.22	45.724		
4,200.00	4,092.07	4,294.94	4,133.29	18.28	55.83	-76.96	1,160.96	-2,876.25	2,796.38	2,722.53	73.85	37.866		
4,300.00	4,188.71	4,391.96	4,230.24	18.75	67.98	-77.48	1,160.29	-2,879.59	2,793.95	2,707.46	86.49	32.304		
4,400.00	4,285.34	4,488.98	4,327.21	19.23	80.13	-78.00	1,159.63	-2,882.91	2,791.76	2,692.62	99.14	28.161		
4,500.00	4,381.97	4,586.02	4,424.18	19.71	92.28	-78.53	1,158.99	-2,886.21	2,789.79	2,678.00	111.79	24.956		
4,600.00	4,478.60	4,683.06	4,521.17	20.19	104.44	-79.05	1,158.36	-2,889.49	2,788.05	2,663.61	124.44	22.405		
4,700.00	4,575.23	4,780.11	4,618.16	20.67	116.60	-79.57	1,157.75	-2,892.76	2,786.53	2,649.44	137.09	20.326		
4,800.00	4,671.86	4,877.17	4,715.17	21.14	128.76	-80.09	1,157.15	-2,896.00	2,785.24	2,635.49	149.75	18.599		
4,900.00	4,768.49	4,974.24	4,812.18	21.62	140.92	-80.61	1,156.57	-2,899.22	2,784.18	2,621.77	162.41	17.143		
5,000.00	4,865.12	5,071.32	4,909.20	22.10	153.08	-81.13	1,156.01	-2,902.42	2,783.34	2,608.27	175.07	15.898		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	Reference	Offset	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	4,961.75	5,168.40	5,006.23	22.58	165.24	-81.66	1,155.46	-2,905.61	2,782.73	2,594.99	187.73	14.823	
5,200.00	5,058.38	5,265.49	5,103.27	23.06	177.41	-82.18	1,154.92	-2,908.77	2,782.34	2,581.94	200.40	13.884	
5,300.00	5,155.01	5,362.60	5,200.32	23.54	189.58	-82.70	1,154.40	-2,911.92	2,782.18	2,569.12	213.06	13.058	
5,321.69	5,175.97	5,383.66	5,221.38	23.64	192.21	-82.81	1,154.29	-2,912.59	2,782.18	2,566.37	215.81	12.892	
5,400.00	5,251.64	5,459.71	5,297.38	24.01	201.74	-83.22	1,153.90	-2,915.04	2,782.24	2,556.52	225.73	12.326	
5,500.00	5,348.28	5,556.83	5,394.45	24.49	213.91	-83.74	1,153.41	-2,918.15	2,782.53	2,544.14	238.40	11.672	
5,600.00	5,444.91	5,653.95	5,491.53	24.97	226.08	-84.26	1,152.94	-2,921.23	2,783.04	2,531.98	251.06	11.085	
5,700.00	5,541.54	5,751.09	5,588.62	25.45	238.25	-84.78	1,152.48	-2,924.30	2,783.78	2,520.05	263.73	10.555	
5,800.00	5,638.17	5,848.23	5,685.71	25.93	250.42	-85.30	1,152.04	-2,927.34	2,784.74	2,508.33	276.40	10.075	
5,900.00	5,734.80	5,945.39	5,782.82	26.41	262.59	-85.82	1,151.62	-2,930.37	2,785.92	2,496.84	289.07	9.637	
6,000.00	5,831.43	6,042.55	5,879.93	26.89	274.77	-86.34	1,151.21	-2,933.38	2,787.32	2,485.57	301.74	9.237	
6,100.00	5,928.06	6,139.72	5,977.05	27.37	286.94	-86.86	1,150.82	-2,936.36	2,788.94	2,474.52	314.41	8.870	
6,200.00	6,024.69	6,236.90	6,074.19	27.85	299.12	-87.37	1,150.44	-2,939.33	2,790.78	2,463.69	327.09	8.532	
6,300.00	6,121.32	6,334.08	6,171.33	28.33	311.31	-87.89	1,150.07	-2,942.28	2,792.84	2,453.08	339.76	8.220	
6,400.00	6,217.95	6,431.28	6,268.48	28.81	323.50	-88.40	1,149.73	-2,945.21	2,795.11	2,442.68	352.43	7.931	
6,500.00	6,314.58	6,528.48	6,365.64	29.29	335.69	-88.92	1,149.40	-2,948.12	2,797.61	2,432.50	365.11	7.662	
6,543.64	6,356.75	6,570.91	6,408.04	29.49	341.01	-89.14	1,149.26	-2,949.38	2,798.76	2,428.13	370.64	7.551	
6,550.00	6,362.90	6,577.09	6,414.22	29.53	341.79	-87.05	1,149.24	-2,949.56	2,798.90	2,427.46	371.44	7.535	
6,600.00	6,411.07	6,625.62	6,462.73	29.77	347.87	-71.86	1,149.08	-2,951.00	2,797.84	2,420.06	377.77	7.406	
6,650.00	6,458.79	6,673.82	6,510.91	30.01	353.92	-59.81	1,148.93	-2,952.43	2,792.93	2,408.87	384.06	7.272	
6,700.00	6,505.76	6,721.38	6,558.45	30.26	359.88	-50.92	1,148.79	-2,953.83	2,784.23	2,393.96	390.27	7.134	
6,750.00	6,551.69	6,768.00	6,605.05	30.50	365.73	-44.53	1,148.65	-2,955.20	2,771.78	2,375.42	396.36	6.993	
6,800.00	6,596.30	6,813.41	6,650.44	30.74	371.43	-39.97	1,148.52	-2,956.53	2,755.67	2,353.37	402.30	6.850	
6,850.00	6,639.32	6,857.32	6,694.33	30.98	376.93	-36.72	1,148.39	-2,957.81	2,735.99	2,327.95	408.04	6.705	
6,900.00	6,680.47	6,899.45	6,736.45	31.21	382.22	-34.46	1,148.28	-2,959.04	2,712.88	2,299.33	413.56	6.560	
6,950.00	6,719.51	6,939.55	6,776.53	31.44	387.25	-32.95	1,148.17	-2,960.20	2,686.48	2,267.67	418.81	6.415	
7,000.00	6,756.20	6,977.37	6,814.33	31.67	391.99	-32.07	1,148.07	-2,961.29	2,656.95	2,233.18	423.77	6.270	
7,050.00	6,790.30	7,012.68	6,849.62	31.90	396.42	-31.75	1,147.98	-2,962.31	2,624.48	2,196.07	428.41	6.126	
7,100.00	6,821.62	7,045.25	6,882.18	32.13	400.50	-31.96	1,147.90	-2,963.25	2,589.26	2,156.56	432.70	5.984	
7,150.00	6,849.95	7,074.89	6,911.81	32.35	404.22	-32.71	1,147.83	-2,964.10	2,551.51	2,114.90	436.61	5.844	
7,200.00	6,875.12	7,101.41	6,938.32	32.58	407.55	-34.09	1,147.76	-2,964.86	2,511.46	2,071.34	440.12	5.706	
7,250.00	6,896.97	7,124.66	6,961.55	32.81	410.46	-36.22	1,147.71	-2,965.52	2,469.35	2,026.14	443.21	5.571	
7,300.00	6,915.38	7,144.48	6,981.37	33.05	412.95	-39.35	1,147.66	-2,966.09	2,425.44	1,979.58	445.86	5.440	
7,350.00	6,930.22	7,160.75	6,997.64	33.29	414.99	-43.88	1,147.62	-2,966.55	2,380.00	1,931.94	448.06	5.312	
7,400.00	6,941.41	7,173.39	7,010.26	33.53	416.57	-50.45	1,147.60	-2,966.91	2,333.30	1,883.50	449.80	5.187	
7,450.00	6,948.88	7,182.30	7,019.17	33.79	417.69	-60.10	1,147.58	-2,967.17	2,285.61	1,834.55	451.05	5.067	
7,500.00	6,952.57	7,187.44	7,024.31	34.05	418.33	-74.12	1,147.56	-2,967.31	2,237.22	1,785.39	451.83	4.951	
7,525.63	6,953.00	7,188.60	7,025.47	34.19	418.48	-83.25	1,147.56	-2,967.34	2,212.24	1,760.20	452.04	4.894	
7,600.00	6,952.79	7,190.51	7,027.38	34.61	418.72	-83.48	1,147.56	-2,967.40	2,139.70	1,687.24	452.46	4.729	
7,700.00	6,952.50	7,193.08	7,029.95	35.23	419.04	-83.78	1,147.55	-2,967.47	2,042.36	1,589.30	453.06	4.508	
7,800.00	6,952.22	7,195.65	7,032.51	35.91	419.36	-84.09	1,147.55	-2,967.54	1,945.29	1,491.61	453.69	4.288	
7,900.00	6,951.93	7,198.21	7,035.08	36.65	419.69	-84.39	1,147.54	-2,967.62	1,848.53	1,394.19	454.35	4.069	
8,000.00	6,951.65	7,200.78	7,037.65	37.45	420.01	-84.70	1,147.53	-2,967.69	1,752.13	1,297.08	455.05	3.850	
8,100.00	6,951.36	7,203.34	7,040.21	38.29	420.33	-85.01	1,147.53	-2,967.76	1,656.16	1,200.36	455.80	3.634	
8,200.00	6,951.08	7,205.91	7,042.77	39.19	420.65	-85.31	1,147.52	-2,967.84	1,560.68	1,104.07	456.61	3.418	
8,300.00	6,950.79	7,208.47	7,045.33	40.13	420.97	-85.62	1,147.52	-2,967.91	1,465.80	1,008.32	457.48	3.204	
8,400.00	6,950.51	7,211.03	7,047.89	41.11	421.29	-85.92	1,147.51	-2,967.98	1,371.65	913.22	458.43	2.992	
8,500.00	6,950.22	7,213.59	7,050.45	42.12	421.61	-86.23	1,147.51	-2,968.05	1,278.38	818.90	459.48	2.782	
8,600.00	6,949.94	7,216.15	7,053.01	43.18	421.94	-86.54	1,147.50	-2,968.13	1,186.20	725.56	460.64	2.575	
8,700.00	6,949.65	7,218.71	7,055.57	44.26	422.26	-86.84	1,147.50	-2,968.20	1,095.39	633.44	461.94	2.371	
8,800.00	6,949.37	7,221.27	7,058.13	45.38	422.58	-87.15	1,147.49	-2,968.27	1,006.31	542.90	463.41	2.172	
8,900.00	6,949.08	7,223.82	7,060.68	46.53	422.90	-87.46	1,147.48	-2,968.34	919.48	454.40	465.08	1.977	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 +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	6,948.80	7,226.38	7,063.24	47.70	423.22	-87.76	1,147.48	-2,968.42	835.59	368.61	466.97	1.789
9,100.00	6,948.51	7,228.93	7,065.79	48.89	423.54	-88.07	1,147.47	-2,968.49	755.62	286.50	469.12	1.611
9,200.00	6,948.23	7,231.49	7,068.34	50.11	423.86	-88.38	1,147.47	-2,968.56	680.95	209.44	471.51	1.444 Level 3
9,300.00	6,947.94	7,234.04	7,070.89	51.35	424.18	-88.68	1,147.46	-2,968.63	613.53	139.47	474.06	1.294 Level 3
9,400.00	6,947.66	7,236.59	7,073.44	52.61	424.50	-88.99	1,147.46	-2,968.71	555.99	79.45	476.54	1.167 Level 3
9,500.00	6,947.37	7,239.14	7,075.99	53.89	424.82	-89.30	1,147.45	-2,968.78	511.69	33.15	478.54	1.069 Level 3
9,600.00	6,947.09	7,241.69	7,078.54	55.18	425.14	-89.60	1,147.45	-2,968.85	484.27	4.83	479.44	1.010 Level 3
9,686.66	6,946.84	7,243.90	7,080.75	56.32	425.41	-89.87	1,147.44	-2,968.91	476.46	-2.48	478.94	0.995 Level 3, CC, ES, SF
9,700.00	6,946.80	7,244.24	7,081.09	56.49	425.46	-89.91	1,147.44	-2,968.92	476.64	-2.10	478.74	0.996 Level 3
9,800.00	6,946.52	7,246.78	7,083.63	57.81	425.78	-90.22	1,147.43	-2,969.00	489.74	13.27	476.47	1.028 Level 3
9,900.00	6,946.23	7,249.33	7,086.18	59.15	426.10	-90.52	1,147.43	-2,969.07	522.01	48.77	473.24	1.103 Level 3
10,000.00	6,945.95	7,251.87	7,088.72	60.50	426.42	-90.83	1,147.42	-2,969.14	570.20	100.38	469.82	1.214 Level 3
10,100.00	6,945.66	7,254.42	7,091.26	61.87	426.73	-91.13	1,147.42	-2,969.21	630.68	163.91	466.76	1.351 Level 3
10,200.00	6,945.38	7,256.96	7,093.80	63.24	427.05	-91.44	1,147.41	-2,969.28	700.26	235.97	464.29	1.508
10,300.00	6,945.09	7,259.50	7,096.34	64.63	427.37	-91.74	1,147.41	-2,969.35	776.50	314.08	462.42	1.679
10,400.00	6,944.81	7,262.04	7,098.88	66.02	427.69	-92.05	1,147.40	-2,969.43	857.64	396.57	461.07	1.860
10,500.00	6,944.52	7,264.58	7,101.42	67.42	428.01	-92.35	1,147.40	-2,969.50	942.39	482.26	460.13	2.048
10,600.00	6,944.24	7,267.12	7,103.96	68.84	428.33	-92.66	1,147.39	-2,969.57	1,029.89	570.37	459.52	2.241
10,700.00	6,943.95	7,269.65	7,106.49	70.26	428.65	-92.96	1,147.39	-2,969.64	1,119.47	660.32	459.15	2.438
10,800.00	6,943.67	7,272.19	7,109.03	71.68	428.96	-93.27	1,147.38	-2,969.71	1,210.68	751.72	458.96	2.638
10,900.00	6,943.38	7,274.73	7,111.56	73.12	429.28	-93.57	1,147.38	-2,969.79	1,303.17	844.26	458.91	2.840
11,000.00	6,943.10	7,277.26	7,114.09	74.56	429.60	-93.87	1,147.37	-2,969.86	1,396.70	937.74	458.96	3.043
11,100.00	6,942.81	7,279.79	7,116.63	76.01	429.92	-94.18	1,147.37	-2,969.93	1,491.06	1,031.97	459.09	3.248
11,200.00	6,942.53	7,282.32	7,119.16	77.46	430.23	-94.48	1,147.36	-2,970.00	1,586.11	1,126.83	459.27	3.454
11,300.00	6,942.24	7,284.85	7,121.69	78.92	430.55	-94.78	1,147.35	-2,970.07	1,681.73	1,222.22	459.50	3.660
11,400.00	6,941.96	7,287.38	7,124.22	80.39	430.87	-95.08	1,147.35	-2,970.14	1,777.82	1,318.06	459.77	3.867
11,500.00	6,941.67	7,289.91	7,126.74	81.86	431.19	-95.38	1,147.34	-2,970.21	1,874.33	1,414.27	460.06	4.074
11,600.00	6,941.39	7,292.44	7,129.27	83.33	431.50	-95.68	1,147.34	-2,970.29	1,971.17	1,510.80	460.37	4.282
11,700.00	6,941.10	7,294.97	7,131.79	84.81	431.82	-95.98	1,147.33	-2,970.36	2,068.32	1,607.62	460.70	4.490
11,800.00	6,940.81	7,297.49	7,134.32	86.30	432.14	-96.28	1,147.33	-2,970.43	2,165.72	1,704.68	461.04	4.697
11,900.00	6,940.53	7,300.02	7,136.84	87.79	432.45	-96.58	1,147.32	-2,970.50	2,263.35	1,801.96	461.39	4.906
12,000.00	6,940.24	7,302.54	7,139.36	89.28	432.77	-96.88	1,147.32	-2,970.57	2,361.17	1,899.42	461.75	5.114
12,100.00	6,939.96	7,305.06	7,141.89	90.77	433.09	-97.18	1,147.31	-2,970.64	2,459.16	1,997.05	462.11	5.322
12,200.00	6,939.67	7,307.58	7,144.41	92.27	433.40	-97.48	1,147.31	-2,970.71	2,557.31	2,094.83	462.48	5.530
12,300.00	6,939.39	7,310.10	7,146.93	93.78	433.72	-97.78	1,147.30	-2,970.78	2,655.59	2,192.74	462.85	5.737
12,400.00	6,939.10	7,312.62	7,149.44	95.28	434.03	-98.07	1,147.30	-2,970.85	2,754.00	2,290.77	463.23	5.945
12,500.00	6,938.82	7,315.14	7,151.96	96.79	434.35	-98.37	1,147.29	-2,970.93	2,852.51	2,388.90	463.61	6.153
12,600.00	6,938.53	7,317.66	7,154.48	98.30	434.67	-98.67	1,147.29	-2,971.00	2,951.12	2,487.13	463.99	6.360
12,700.00	6,938.25	7,320.17	7,156.99	99.82	434.98	-98.96	1,147.28	-2,971.07	3,049.82	2,585.45	464.37	6.568
12,800.00	6,937.96	7,322.69	7,159.51	101.34	435.30	-99.26	1,147.28	-2,971.14	3,148.60	2,683.84	464.75	6.775
12,900.00	6,937.68	7,325.20	7,162.02	102.86	435.61	-99.55	1,147.27	-2,971.21	3,247.45	2,782.31	465.14	6.982
13,000.00	6,937.39	7,327.71	7,164.53	104.38	435.93	-99.84	1,147.27	-2,971.28	3,346.37	2,880.84	465.53	7.188
13,100.00	6,937.11	7,330.23	7,167.04	105.91	436.24	-100.14	1,147.26	-2,971.35	3,445.35	2,979.43	465.91	7.395
13,200.00	6,936.82	7,332.74	7,169.55	107.43	436.56	-100.43	1,147.26	-2,971.42	3,544.38	3,078.08	466.30	7.601
13,300.00	6,936.54	7,335.25	7,172.06	108.96	436.87	-100.72	1,147.25	-2,971.49	3,643.47	3,176.78	466.69	7.807
13,400.00	6,936.25	7,337.75	7,174.57	110.49	437.19	-101.01	1,147.25	-2,971.56	3,742.60	3,275.52	467.08	8.013
13,500.00	6,935.97	7,340.26	7,177.07	112.03	437.50	-101.30	1,147.24	-2,971.63	3,841.78	3,374.31	467.47	8.218
13,600.00	6,935.68	7,342.77	7,179.58	113.56	437.81	-101.59	1,147.24	-2,971.70	3,940.99	3,473.14	467.86	8.424
13,700.00	6,935.40	7,345.27	7,182.08	115.10	438.13	-101.88	1,147.23	-2,971.77	4,040.24	3,572.00	468.25	8.628
13,800.00	6,935.11	7,347.78	7,184.59	116.64	438.44	-102.16	1,147.23	-2,971.84	4,139.53	3,670.90	468.64	8.833
13,900.00	6,934.83	7,350.28	7,187.09	118.18	438.76	-102.45	1,147.22	-2,971.91	4,238.85	3,769.83	469.03	9.038
14,000.00	6,934.54	7,352.78	7,189.59	119.72	439.07	-102.74	1,147.22	-2,971.98	4,338.20	3,868.78	469.42	9.242

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	Reference (usft)	Semi Major Axis 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
14,100.00	6,934.26	7,355.29	7,192.09	121.26	439.38	-103.02	1,147.21	-2,972.05	4,437.58	3,967.77	469.81	9.446
14,200.00	6,933.97	7,357.79	7,194.59	122.81	439.70	-103.31	1,147.21	-2,972.12	4,536.98	4,066.78	470.20	9.649
14,300.00	6,933.69	7,360.28	7,197.09	124.36	440.01	-103.59	1,147.20	-2,972.19	4,636.41	4,165.82	470.59	9.852
14,400.00	6,933.40	7,362.78	7,199.58	125.90	440.32	-103.87	1,147.20	-2,972.26	4,735.86	4,264.88	470.98	10.055
14,500.00	6,933.12	7,365.28	7,202.08	127.45	440.64	-104.16	1,147.19	-2,972.33	4,835.33	4,363.96	471.37	10.258
14,600.00	6,932.83	7,367.78	7,204.58	129.00	440.95	-104.44	1,147.19	-2,972.40	4,934.82	4,463.06	471.76	10.460
14,700.00	6,932.55	7,370.27	7,207.07	130.56	441.26	-104.72	1,147.18	-2,972.47	5,034.33	4,562.18	472.15	10.663
14,800.00	6,932.26	7,372.76	7,209.56	132.11	441.58	-105.00	1,147.18	-2,972.54	5,133.86	4,661.32	472.54	10.864
14,900.00	6,931.98	7,375.26	7,212.05	133.66	441.89	-105.28	1,147.17	-2,972.61	5,233.40	4,760.47	472.93	11.066
15,000.00	6,931.69	7,377.75	7,214.55	135.22	442.20	-105.56	1,147.17	-2,972.68	5,332.97	4,859.64	473.33	11.267
15,100.00	6,931.41	7,380.24	7,217.04	136.77	442.51	-105.83	1,147.16	-2,972.75	5,432.54	4,958.82	473.72	11.468
15,200.00	6,931.12	7,382.73	7,219.52	138.33	442.83	-106.11	1,147.16	-2,972.82	5,532.13	5,058.02	474.11	11.668
15,300.00	6,930.84	7,385.22	7,222.01	139.89	443.14	-106.38	1,147.15	-2,972.89	5,631.73	5,157.23	474.50	11.869
15,400.00	6,930.55	7,387.71	7,224.50	141.45	443.45	-106.66	1,147.15	-2,972.96	5,731.35	5,256.46	474.89	12.069
15,500.00	6,930.27	7,390.19	7,226.98	143.01	443.76	-106.93	1,147.15	-2,973.03	5,830.98	5,355.69	475.29	12.268
15,600.00	6,929.98	7,392.68	7,229.47	144.57	444.07	-107.21	1,147.14	-2,973.10	5,930.62	5,454.94	475.68	12.468
15,700.00	6,929.70	7,395.16	7,231.95	146.13	444.39	-107.48	1,147.14	-2,973.17	6,030.27	5,554.20	476.07	12.667
15,800.00	6,929.41	7,397.65	7,234.44	147.70	444.70	-107.75	1,147.13	-2,973.24	6,129.93	5,653.47	476.46	12.865
15,900.00	6,929.13	7,400.13	7,236.92	149.26	445.01	-108.02	1,147.13	-2,973.31	6,229.60	5,752.74	476.86	13.064
16,000.00	6,928.84	7,402.61	7,239.40	150.82	445.32	-108.29	1,147.12	-2,973.38	6,329.28	5,852.03	477.25	13.262
16,100.00	6,928.56	7,405.09	7,241.88	152.39	445.63	-108.56	1,147.12	-2,973.45	6,428.97	5,951.33	477.64	13.460
16,200.00	6,928.27	7,407.57	7,244.36	153.96	445.94	-108.82	1,147.11	-2,973.52	6,528.67	6,050.63	478.04	13.657
16,300.00	6,927.99	7,410.05	7,246.83	155.52	446.25	-109.09	1,147.11	-2,973.59	6,628.37	6,149.94	478.43	13.854
16,400.00	6,927.70	7,412.53	7,249.31	157.09	446.56	-109.35	1,147.10	-2,973.66	6,728.09	6,249.26	478.83	14.051
16,500.00	6,927.42	7,415.00	7,251.79	158.66	446.87	-109.62	1,147.10	-2,973.73	6,827.81	6,348.59	479.22	14.248
16,600.00	6,927.13	7,417.48	7,254.26	160.23	447.18	-109.88	1,147.09	-2,973.80	6,927.54	6,447.92	479.61	14.444
16,700.00	6,926.85	7,419.95	7,256.73	161.80	447.50	-110.14	1,147.09	-2,973.87	7,027.27	6,547.26	480.01	14.640
16,800.00	6,926.56	7,422.43	7,259.21	163.37	447.81	-110.40	1,147.09	-2,973.93	7,127.01	6,646.61	480.40	14.835
16,900.00	6,926.28	7,424.90	7,261.68	164.94	448.12	-110.67	1,147.08	-2,974.00	7,226.76	6,745.96	480.80	15.031
17,000.00	6,925.99	7,427.37	7,264.15	166.51	448.43	-110.92	1,147.08	-2,974.07	7,326.52	6,845.32	481.19	15.226
17,100.00	6,925.71	7,429.84	7,266.62	168.08	448.74	-111.18	1,147.07	-2,974.14	7,426.28	6,944.69	481.59	15.420
17,200.00	6,925.42	7,432.31	7,269.09	169.65	449.04	-111.44	1,147.07	-2,974.21	7,526.04	7,044.06	481.98	15.615
17,300.00	6,925.14	7,434.78	7,271.55	171.23	449.35	-111.70	1,147.06	-2,974.28	7,625.81	7,143.43	482.38	15.809
17,400.00	6,924.85	7,437.25	7,274.02	172.80	449.66	-111.95	1,147.06	-2,974.35	7,725.59	7,242.81	482.78	16.002
17,500.00	6,924.57	7,439.71	7,276.48	174.37	449.97	-112.21	1,147.05	-2,974.42	7,825.37	7,342.20	483.17	16.196
17,600.00	6,924.28	7,442.18	7,278.95	175.95	450.28	-112.46	1,147.05	-2,974.49	7,925.15	7,441.58	483.57	16.389
17,700.00	6,924.00	7,444.64	7,281.41	177.52	450.59	-112.71	1,147.04	-2,974.55	8,024.94	7,540.98	483.97	16.582
17,800.00	6,923.71	7,447.11	7,283.87	179.10	450.90	-112.96	1,147.04	-2,974.62	8,124.74	7,640.38	484.36	16.774
17,900.00	6,923.43	7,449.57	7,286.33	180.68	451.21	-113.21	1,147.04	-2,974.69	8,224.54	7,739.78	484.76	16.966
18,000.00	6,923.14	7,452.03	7,288.80	182.25	451.52	-113.46	1,147.03	-2,974.76	8,324.34	7,839.18	485.16	17.158
18,100.00	6,922.86	7,454.49	7,291.25	183.83	451.83	-113.71	1,147.03	-2,974.83	8,424.15	7,938.59	485.56	17.350
18,200.00	6,922.57	7,456.95	7,293.71	185.41	452.13	-113.96	1,147.02	-2,974.90	8,523.96	8,038.00	485.95	17.541
18,300.00	6,922.29	7,459.41	7,296.17	186.98	452.44	-114.20	1,147.02	-2,974.97	8,623.77	8,137.42	486.35	17.732
18,400.00	6,922.00	7,461.86	7,298.63	188.56	452.75	-114.45	1,147.01	-2,975.03	8,723.59	8,236.84	486.75	17.922
18,500.00	6,921.71	7,464.32	7,301.08	190.14	453.06	-114.69	1,147.01	-2,975.10	8,823.41	8,336.26	487.15	18.112
18,600.00	6,921.43	7,466.77	7,303.53	191.72	453.37	-114.93	1,147.01	-2,975.17	8,923.23	8,435.69	487.55	18.302
18,700.00	6,921.14	7,469.23	7,305.99	193.30	453.67	-115.17	1,147.00	-2,975.24	9,023.06	8,535.12	487.95	18.492
18,800.00	6,920.86	7,471.68	7,308.44	194.88	453.98	-115.41	1,147.00	-2,975.31	9,122.89	8,634.55	488.35	18.681
18,900.00	6,920.57	7,474.13	7,310.89	196.46	454.29	-115.65	1,146.99	-2,975.38	9,222.73	8,733.98	488.74	18.870
19,000.00	6,920.29	7,476.58	7,313.34	198.04	454.60	-115.89	1,146.99	-2,975.44	9,322.56	8,833.42	489.14	19.059
19,100.00	6,920.00	7,479.03	7,315.79	199.62	454.90	-116.13	1,146.98	-2,975.51	9,422.40	8,932.86	489.54	19.247
19,200.00	6,919.72	7,481.48	7,318.24	201.20	455.21	-116.37	1,146.98	-2,975.58	9,522.25	9,032.30	489.94	19.435

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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			Offset Wellbore Centre		Distance		Rule Assigned:		Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
19,300.00	6,919.43	7,483.93	7,320.69	202.78	455.52	-116.60	1,146.97	-2,975.65	9,622.09	9,131.75	490.34	19.623	
19,400.00	6,919.15	7,486.38	7,323.13	204.36	455.83	-116.84	1,146.97	-2,975.72	9,721.94	9,231.19	490.75	19.811	
19,500.00	6,918.86	7,488.82	7,325.58	205.95	456.13	-117.07	1,146.97	-2,975.79	9,821.79	9,330.64	491.15	19.998	
19,600.00	6,918.58	7,491.27	7,328.02	207.53	456.44	-117.30	1,146.96	-2,975.85	9,921.64	9,430.09	491.55	20.185	
19,700.00	6,918.29	7,493.71	7,330.46	209.11	456.75	-117.53	1,146.96	-2,975.92	10,021.50	9,529.55	491.95	20.371	
19,800.00	6,918.01	7,496.16	7,332.91	210.69	457.05	-117.76	1,146.95	-2,975.99	10,121.35	9,629.00	492.35	20.557	
19,900.00	6,917.72	7,498.60	7,335.35	212.28	457.36	-117.99	1,146.95	-2,976.06	10,221.21	9,728.46	492.75	20.743	
20,000.00	6,917.44	7,501.04	7,337.79	213.86	457.66	-118.22	1,146.95	-2,976.12	10,321.07	9,827.92	493.15	20.929	
20,100.00	6,917.15	7,503.48	7,340.23	215.45	457.97	-118.45	1,146.94	-2,976.19	10,420.94	9,927.38	493.56	21.114	
20,200.00	6,916.87	7,505.92	7,342.66	217.03	458.28	-118.67	1,146.94	-2,976.26	10,520.80	10,026.84	493.96	21.299	
20,300.00	6,916.58	7,508.36	7,345.10	218.61	458.58	-118.90	1,146.93	-2,976.33	10,620.67	10,126.31	494.36	21.484	
20,400.00	6,916.30	7,510.79	7,347.54	220.20	458.89	-119.12	1,146.93	-2,976.40	10,720.54	10,225.78	494.76	21.668	
20,500.00	6,916.01	7,513.23	7,349.97	221.78	459.19	-119.34	1,146.92	-2,976.46	10,820.41	10,325.24	495.17	21.852	
20,600.00	6,915.73	7,515.66	7,352.41	223.37	459.50	-119.56	1,146.92	-2,976.53	10,920.28	10,424.71	495.57	22.036	
20,700.00	6,915.44	7,518.10	7,354.84	224.95	459.80	-119.78	1,146.92	-2,976.60	11,020.16	10,524.18	495.97	22.219	
20,800.00	6,915.16	7,520.53	7,357.27	226.54	460.11	-120.00	1,146.91	-2,976.67	11,120.03	10,623.66	496.38	22.402	
20,855.45	6,915.00	7,521.88	7,358.62	227.42	460.28	-120.12	1,146.91	-2,976.70	11,175.42	10,678.82	496.60	22.504	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	156.00	156.00	0.00	1.44	-71.24	2,207.38	-6,498.77	6,863.42				
100.00	100.00	256.00	256.00	0.25	2.37	-71.24	2,207.38	-6,498.77	6,863.42	6,860.81	2.62	2,622.464	
200.00	200.00	356.00	356.00	0.61	3.29	-71.24	2,207.38	-6,498.77	6,863.42	6,859.52	3.90	1,759.911	
300.00	300.00	456.00	456.00	0.97	4.21	-71.24	2,207.38	-6,498.77	6,863.42	6,858.24	5.18	1,324.327	
400.00	400.00	556.01	556.00	1.33	5.39	-71.24	2,207.38	-6,498.77	6,863.42	6,856.70	6.72	1,021.392	
500.00	500.00	656.01	656.00	1.68	7.30	-71.24	2,207.38	-6,498.77	6,863.42	6,854.44	8.98	764.270	
600.00	599.98	755.99	755.98	2.04	9.20	-64.65	2,207.38	-6,498.77	6,862.68	6,851.44	11.24	610.549	
700.00	699.84	859.72	859.71	2.41	11.17	-64.73	2,207.81	-6,498.77	6,860.58	6,847.00	13.57	505.506	
800.00	799.45	963.55	963.53	2.77	13.15	-64.87	2,207.53	-6,498.77	6,856.77	6,840.86	15.91	431.045	
900.00	898.70	1,054.74	1,054.70	3.13	14.91	-65.05	2,207.38	-6,498.77	6,851.52	6,833.48	18.04	379.768	
1,000.00	997.47	1,153.50	1,153.47	3.50	16.85	-65.29	2,207.38	-6,498.77	6,844.89	6,824.53	20.35	336.282	
1,100.00	1,095.62	1,252.06	1,252.02	3.89	18.79	-65.58	2,208.18	-6,498.77	6,837.08	6,814.41	22.67	301.529	
1,200.00	1,193.06	1,355.36	1,355.32	4.30	20.82	-65.93	2,208.02	-6,498.77	6,827.59	6,802.49	25.10	271.999	
1,245.75	1,237.35	1,402.27	1,402.23	4.49	21.74	-66.11	2,207.85	-6,498.77	6,822.78	6,796.56	26.21	260.307	
1,300.00	1,289.78	1,457.76	1,457.71	4.72	22.83	-66.22	2,207.58	-6,498.77	6,816.88	6,789.36	27.53	247.660	
1,400.00	1,386.41	1,542.49	1,542.41	5.15	24.61	-66.39	2,207.38	-6,498.77	6,806.17	6,776.44	29.72	228.994	
1,500.00	1,483.04	1,639.12	1,639.04	5.59	26.71	-66.59	2,207.38	-6,498.77	6,795.60	6,763.35	32.25	210.696	
1,600.00	1,579.67	1,735.75	1,735.67	6.04	28.81	-66.78	2,207.38	-6,498.77	6,785.12	6,750.33	34.79	195.029	
1,700.00	1,676.30	1,837.48	1,837.40	6.49	31.02	-66.98	2,208.08	-6,498.77	6,774.92	6,737.47	37.44	180.940	
1,800.00	1,772.93	1,939.31	1,939.22	6.95	33.24	-67.19	2,207.68	-6,498.77	6,764.48	6,724.38	40.10	168.683	
1,900.00	1,869.56	2,025.74	2,025.56	7.41	35.21	-67.36	2,207.38	-6,498.77	6,754.15	6,711.63	42.52	158.829	
2,000.00	1,966.19	2,122.37	2,122.19	7.87	37.57	-67.56	2,207.38	-6,498.77	6,743.99	6,698.66	45.33	148.763	
2,100.00	2,062.83	2,219.00	2,218.83	8.33	39.93	-67.76	2,207.38	-6,498.77	6,733.92	6,685.78	48.15	139.867	
2,200.00	2,159.46	2,322.22	2,322.01	8.80	42.45	-67.95	2,208.97	-6,498.77	6,724.38	6,673.26	51.12	131.543	
2,300.00	2,256.09	2,428.60	2,428.38	9.27	45.05	-68.18	2,208.32	-6,498.77	6,714.30	6,660.13	54.17	123.943	
2,400.00	2,352.72	2,534.70	2,534.46	9.73	47.64	-68.41	2,207.10	-6,498.77	6,704.18	6,646.96	57.22	117.165	
2,500.00	2,449.35	2,605.71	2,605.35	10.20	49.40	-68.55	2,207.38	-6,498.77	6,694.47	6,635.02	59.45	112.610	
2,600.00	2,545.98	2,702.34	2,701.98	10.67	51.80	-68.75	2,207.38	-6,498.77	6,684.81	6,622.51	62.30	107.295	
2,700.00	2,642.61	2,804.69	2,804.31	11.15	54.33	-68.95	2,208.81	-6,498.77	6,675.62	6,610.32	65.30	102.230	
2,800.00	2,739.24	2,911.61	2,911.21	11.62	56.98	-69.18	2,208.14	-6,498.77	6,665.98	6,597.56	68.41	97.440	
2,900.00	2,835.87	2,992.39	2,991.87	12.09	58.96	-69.35	2,207.38	-6,498.77	6,656.37	6,585.51	70.86	93.943	
3,000.00	2,932.50	3,089.02	3,088.50	12.56	61.19	-69.55	2,207.38	-6,498.77	6,647.06	6,573.51	73.55	90.372	
3,100.00	3,029.13	3,185.65	3,185.13	13.04	63.42	-69.75	2,207.38	-6,498.77	6,637.84	6,561.59	76.25	87.054	
3,200.00	3,125.77	3,287.33	3,286.79	13.51	65.77	-69.95	2,208.92	-6,498.77	6,629.08	6,550.01	79.06	83.844	
3,300.00	3,222.40	3,392.72	3,392.17	13.99	68.20	-70.18	2,208.30	-6,498.77	6,619.89	6,537.92	81.96	80.765	
3,400.00	3,319.03	3,497.82	3,497.24	14.46	70.63	-70.41	2,207.10	-6,498.77	6,610.66	6,525.80	84.86	77.902	
3,500.00	3,415.66	3,572.29	3,571.66	14.94	72.18	-70.57	2,207.38	-6,498.77	6,601.82	6,514.94	86.88	75.990	
3,600.00	3,512.29	3,669.91	3,669.27	15.42	74.25	-70.77	2,208.16	-6,498.77	6,593.22	6,503.79	89.42	73.730	
3,700.00	3,608.92	3,774.06	3,773.41	15.89	76.47	-70.99	2,207.83	-6,498.77	6,584.45	6,492.34	92.11	71.485	
3,800.00	3,705.55	3,862.24	3,861.55	16.37	78.44	-71.18	2,207.38	-6,498.77	6,575.74	6,481.18	94.56	69.542	
3,900.00	3,802.18	3,958.87	3,958.18	16.84	80.86	-71.39	2,207.38	-6,498.77	6,567.22	6,469.77	97.45	67.390	
4,000.00	3,898.81	4,055.50	4,054.81	17.32	83.28	-71.59	2,207.38	-6,498.77	6,558.80	6,458.45	100.34	65.363	
4,100.00	3,995.44	4,152.13	4,151.44	17.80	85.71	-71.80	2,207.38	-6,498.77	6,550.46	6,447.22	103.24	63.450	
4,200.00	4,092.07	4,248.76	4,248.07	18.28	88.13	-72.01	2,207.38	-6,498.77	6,542.22	6,436.08	106.13	61.642	
4,300.00	4,188.71	4,345.40	4,344.71	18.75	90.55	-72.22	2,207.38	-6,498.77	6,534.06	6,425.03	109.03	59.930	
4,400.00	4,285.34	4,442.03	4,441.34	19.23	92.97	-72.43	2,207.38	-6,498.77	6,526.00	6,414.08	111.92	58.307	
4,500.00	4,381.97	4,538.66	4,537.97	19.71	95.39	-72.63	2,207.38	-6,498.77	6,518.03	6,403.21	114.82	56.767	
4,600.00	4,478.60	4,635.29	4,634.60	20.19	97.81	-72.84	2,207.38	-6,498.77	6,510.15	6,392.43	117.72	55.303	
4,700.00	4,575.23	4,731.92	4,731.23	20.67	100.23	-73.05	2,207.38	-6,498.77	6,502.36	6,381.75	120.61	53.910	
4,800.00	4,671.86	4,828.55	4,827.86	21.14	102.65	-73.26	2,207.38	-6,498.77	6,494.67	6,371.16	123.51	52.583	
4,900.00	4,768.49	4,926.10	4,925.37	21.62	105.10	-73.44	2,211.72	-6,498.77	6,487.86	6,361.43	126.43	51.315	
5,000.00	4,865.12	5,023.71	5,022.97	22.10	107.54	-73.66	2,211.60	-6,498.77	6,480.31	6,350.96	129.35	50.097	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	Offset	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	4,961.75	5,121.27	5,120.53	22.58	109.98	-73.87	2,211.40	-6,498.77	6,472.85	6,340.57	132.28	48.934	
5,200.00	5,058.38	5,218.80	5,218.05	23.06	112.43	-74.09	2,211.12	-6,498.77	6,465.47	6,330.27	135.20	47.822	
5,300.00	5,155.01	5,316.28	5,315.53	23.54	114.87	-74.31	2,210.76	-6,498.77	6,458.17	6,320.05	138.12	46.758	
5,400.00	5,251.64	5,413.72	5,412.96	24.01	117.31	-74.52	2,210.31	-6,498.77	6,450.95	6,309.91	141.04	45.739	
5,500.00	5,348.28	5,511.12	5,510.35	24.49	119.75	-74.74	2,209.78	-6,498.77	6,443.82	6,299.86	143.96	44.762	
5,600.00	5,444.91	5,608.47	5,607.70	24.97	122.19	-74.97	2,209.17	-6,498.77	6,436.77	6,289.90	146.88	43.824	
5,700.00	5,541.54	5,705.78	5,705.00	25.45	124.63	-75.19	2,208.47	-6,498.77	6,429.82	6,280.02	149.80	42.924	
5,800.00	5,638.17	5,803.05	5,802.27	25.93	127.06	-75.41	2,207.69	-6,498.77	6,422.95	6,270.24	152.71	42.059	
5,900.00	5,734.80	5,892.20	5,890.80	26.41	129.30	-75.61	2,207.38	-6,498.77	6,416.25	6,260.81	155.43	41.279	
6,000.00	5,831.43	5,988.83	5,987.43	26.89	131.74	-75.83	2,207.38	-6,498.77	6,409.69	6,251.34	158.35	40.478	
6,100.00	5,928.06	6,085.46	6,084.06	27.37	134.17	-76.04	2,207.38	-6,498.77	6,403.23	6,241.97	161.26	39.707	
6,200.00	6,024.69	6,182.09	6,180.69	27.85	136.60	-76.26	2,207.38	-6,498.77	6,396.87	6,232.69	164.18	38.963	
6,300.00	6,121.32	6,278.73	6,277.32	28.33	139.03	-76.48	2,207.38	-6,498.77	6,390.60	6,223.51	167.09	38.246	
6,400.00	6,217.95	6,375.36	6,373.95	28.81	141.47	-76.69	2,207.38	-6,498.77	6,384.43	6,214.43	170.01	37.554	
6,500.00	6,314.58	6,471.99	6,470.58	29.29	143.90	-76.91	2,207.38	-6,498.77	6,378.36	6,205.44	172.92	36.886	
6,543.64	6,356.75	6,514.16	6,512.75	29.49	144.96	-77.01	2,207.38	-6,498.77	6,375.75	6,201.55	174.19	36.602	
6,550.00	6,362.90	6,520.30	6,518.90	29.53	145.12	-74.89	2,207.38	-6,498.77	6,375.33	6,200.96	174.38	36.560	
6,600.00	6,411.07	6,568.47	6,567.07	29.77	146.33	-59.49	2,207.38	-6,498.77	6,369.92	6,194.09	175.83	36.228	
6,650.00	6,458.79	6,616.19	6,614.79	30.01	147.53	-47.13	2,207.38	-6,498.77	6,360.67	6,183.40	177.27	35.881	
6,700.00	6,505.76	6,663.16	6,661.76	30.26	148.71	-37.84	2,207.38	-6,498.77	6,347.64	6,168.96	178.68	35.525	
6,750.00	6,551.69	6,709.09	6,707.69	30.50	149.87	-30.94	2,207.38	-6,498.77	6,330.90	6,150.84	180.06	35.160	
6,800.00	6,596.30	6,753.70	6,752.30	30.74	150.99	-25.75	2,207.38	-6,498.77	6,310.55	6,129.16	181.40	34.789	
6,850.00	6,639.32	6,796.72	6,795.32	30.98	152.07	-21.73	2,207.38	-6,498.77	6,286.72	6,104.04	182.68	34.414	
6,900.00	6,680.47	6,837.87	6,836.47	31.21	153.11	-18.53	2,207.38	-6,498.77	6,259.55	6,075.64	183.91	34.037	
6,950.00	6,719.51	6,876.91	6,875.51	31.44	154.09	-15.88	2,207.38	-6,498.77	6,229.20	6,044.14	185.06	33.660	
7,000.00	6,756.20	6,913.60	6,912.20	31.67	155.02	-13.61	2,207.38	-6,498.77	6,195.86	6,009.71	186.15	33.285	
7,050.00	6,790.30	6,947.71	6,946.30	31.90	155.87	-11.56	2,207.38	-6,498.77	6,159.73	5,972.58	187.15	32.914	
7,100.00	6,821.62	6,979.02	6,977.62	32.13	156.66	-9.61	2,207.38	-6,498.77	6,121.03	5,932.97	188.06	32.548	
7,150.00	6,849.95	7,007.35	7,005.95	32.35	157.38	-7.64	2,207.38	-6,498.77	6,080.00	5,891.12	188.88	32.189	
7,200.00	6,875.12	7,032.52	7,031.12	32.58	158.01	-5.49	2,207.38	-6,498.77	6,036.88	5,847.28	189.60	31.840	
7,250.00	6,896.97	7,054.37	7,052.97	32.81	158.56	-2.93	2,207.38	-6,498.77	5,991.95	5,801.73	190.22	31.500	
7,300.00	6,915.38	7,072.78	7,071.38	33.05	159.02	0.43	2,207.38	-6,498.77	5,945.48	5,754.74	190.73	31.171	
7,350.00	6,930.22	7,087.62	7,086.22	33.29	159.40	5.41	2,207.38	-6,498.77	5,897.75	5,706.61	191.14	30.856	
7,400.00	6,941.41	7,098.81	7,097.41	33.53	159.68	13.88	2,207.38	-6,498.77	5,849.06	5,657.63	191.43	30.555	
7,450.00	6,948.88	7,106.28	7,104.88	33.79	159.87	31.03	2,207.38	-6,498.77	5,799.71	5,608.10	191.61	30.268	
7,500.00	6,952.57	7,109.98	7,108.57	34.05	159.96	67.77	2,207.38	-6,498.77	5,750.01	5,558.34	191.68	29.998	
7,525.63	6,953.00	7,110.40	7,109.00	34.19	159.97	91.65	2,207.38	-6,498.77	5,724.50	5,532.83	191.67	29.866	
7,600.00	6,952.79	7,110.19	7,108.79	34.61	159.96	91.63	2,207.38	-6,498.77	5,650.50	5,458.90	191.60	29.491	
7,700.00	6,952.50	7,109.91	7,108.50	35.23	159.96	91.60	2,207.38	-6,498.77	5,551.01	5,359.50	191.51	28.986	
7,800.00	6,952.22	7,109.62	7,108.22	35.91	159.95	91.57	2,207.38	-6,498.77	5,451.53	5,260.12	191.42	28.480	
7,900.00	6,951.93	7,109.34	7,107.93	36.65	159.94	91.54	2,207.38	-6,498.77	5,352.08	5,160.76	191.32	27.975	
8,000.00	6,951.65	7,109.05	7,107.65	37.45	159.94	91.51	2,207.38	-6,498.77	5,252.65	5,061.43	191.22	27.469	
8,100.00	6,951.36	7,108.77	7,107.36	38.29	159.93	91.48	2,207.38	-6,498.77	5,153.24	4,962.12	191.12	26.963	
8,200.00	6,951.08	7,108.48	7,107.08	39.19	159.92	91.45	2,207.38	-6,498.77	5,053.85	4,862.83	191.02	26.457	
8,300.00	6,950.79	7,108.20	7,106.79	40.13	159.91	91.42	2,207.38	-6,498.77	4,954.49	4,763.58	190.91	25.951	
8,400.00	6,950.51	7,107.91	7,106.51	41.11	159.91	91.40	2,207.38	-6,498.77	4,855.16	4,664.35	190.81	25.445	
8,500.00	6,950.22	7,107.63	7,106.22	42.12	159.90	91.37	2,207.38	-6,498.77	4,755.85	4,565.15	190.70	24.939	
8,600.00	6,949.94	7,107.34	7,105.94	43.18	159.89	91.34	2,207.38	-6,498.77	4,656.57	4,465.98	190.59	24.433	
8,700.00	6,949.65	7,107.06	7,105.65	44.26	159.89	91.31	2,207.38	-6,498.77	4,557.32	4,366.85	190.48	23.926	
8,800.00	6,949.37	7,106.77	7,105.37	45.38	159.88	91.28	2,207.38	-6,498.77	4,458.11	4,267.75	190.36	23.419	
8,900.00	6,949.08	7,106.48	7,105.08	46.53	159.87	91.25	2,207.38	-6,498.77	4,358.93	4,168.69	190.24	22.913	
9,000.00	6,948.80	7,106.20	7,104.80	47.70	159.86	91.22	2,207.38	-6,498.77	4,259.79	4,069.67	190.12	22.406	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 (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)			
9,100.00	6,948.51	7,105.91	7,104.51	48.89	159.86	91.19	2,207.38	-6,498.77	4,160.69	3,970.70	190.00	21.899	
9,200.00	6,948.23	7,105.63	7,104.23	50.11	159.85	91.16	2,207.38	-6,498.77	4,061.64	3,871.77	189.87	21.391	
9,300.00	6,947.94	7,105.34	7,103.94	51.35	159.84	91.14	2,207.38	-6,498.77	3,962.63	3,772.89	189.75	20.884	
9,400.00	6,947.66	7,105.06	7,103.66	52.61	159.84	91.11	2,207.38	-6,498.77	3,863.68	3,674.06	189.62	20.376	
9,500.00	6,947.37	7,104.77	7,103.37	53.89	159.83	91.08	2,207.38	-6,498.77	3,764.78	3,575.29	189.48	19.868	
9,600.00	6,947.09	7,104.49	7,103.09	55.18	159.82	91.05	2,207.38	-6,498.77	3,665.94	3,476.59	189.35	19.360	
9,700.00	6,946.80	7,104.20	7,102.80	56.49	159.81	91.02	2,207.38	-6,498.77	3,567.16	3,377.95	189.22	18.852	
9,800.00	6,946.52	7,103.92	7,102.52	57.81	159.81	90.99	2,207.38	-6,498.77	3,468.46	3,279.38	189.08	18.344	
9,900.00	6,946.23	7,103.63	7,102.23	59.15	159.80	90.96	2,207.38	-6,498.77	3,369.83	3,180.88	188.95	17.835	
10,000.00	6,945.95	7,103.35	7,101.95	60.50	159.79	90.93	2,207.38	-6,498.77	3,271.28	3,082.47	188.81	17.326	
10,100.00	6,945.66	7,103.06	7,101.66	61.87	159.79	90.90	2,207.38	-6,498.77	3,172.83	2,984.15	188.68	16.816	
10,200.00	6,945.38	7,102.78	7,101.38	63.24	159.78	90.88	2,207.38	-6,498.77	3,074.47	2,885.93	188.55	16.306	
10,300.00	6,945.09	7,102.49	7,101.09	64.63	159.77	90.85	2,207.38	-6,498.77	2,976.23	2,787.81	188.42	15.796	
10,400.00	6,944.81	7,102.21	7,100.81	66.02	159.76	90.82	2,207.38	-6,498.77	2,878.10	2,689.80	188.30	15.285	
10,500.00	6,944.52	7,101.92	7,100.52	67.42	159.76	90.79	2,207.38	-6,498.77	2,780.11	2,591.92	188.19	14.773	
10,600.00	6,944.24	7,101.64	7,100.24	68.84	159.75	90.76	2,207.38	-6,498.77	2,682.27	2,494.18	188.09	14.261	
10,700.00	6,943.95	7,101.35	7,099.95	70.26	159.74	90.73	2,207.38	-6,498.77	2,584.59	2,396.59	188.01	13.747	
10,800.00	6,943.67	7,101.07	7,099.67	71.68	159.74	90.70	2,207.38	-6,498.77	2,487.10	2,299.15	187.95	13.233	
10,900.00	6,943.38	7,100.78	7,099.38	73.12	159.73	90.67	2,207.38	-6,498.77	2,389.81	2,201.90	187.91	12.718	
11,000.00	6,943.10	7,100.50	7,099.10	74.56	159.72	90.64	2,207.38	-6,498.77	2,292.76	2,104.85	187.91	12.201	
11,100.00	6,942.81	7,100.21	7,098.81	76.01	159.71	90.61	2,207.38	-6,498.77	2,195.97	2,008.01	187.96	11.683	
11,200.00	6,942.53	7,099.93	7,098.53	77.46	159.71	90.59	2,207.38	-6,498.77	2,099.49	1,911.42	188.07	11.163	
11,300.00	6,942.24	7,099.64	7,098.24	78.92	159.70	90.56	2,207.38	-6,498.77	2,003.34	1,815.09	188.25	10.642	
11,400.00	6,941.96	7,099.36	7,097.96	80.39	159.69	90.53	2,207.38	-6,498.77	1,907.60	1,719.07	188.53	10.118	
11,500.00	6,941.67	7,099.07	7,097.67	81.86	159.69	90.50	2,207.38	-6,498.77	1,812.31	1,623.39	188.92	9.593	
11,600.00	6,941.39	7,098.79	7,097.39	83.33	159.68	90.47	2,207.38	-6,498.77	1,717.56	1,528.09	189.47	9.065	
11,700.00	6,941.10	7,098.50	7,097.10	84.81	159.67	90.44	2,207.38	-6,498.77	1,623.44	1,433.24	190.21	8.535	
11,800.00	6,940.81	7,098.22	7,096.81	86.30	159.66	90.41	2,207.38	-6,498.77	1,530.07	1,338.89	191.18	8.003	
11,900.00	6,940.53	7,097.93	7,096.53	87.79	159.66	90.38	2,207.38	-6,498.77	1,437.59	1,245.15	192.44	7.470	
12,000.00	6,940.24	7,097.65	7,096.24	89.28	159.65	90.35	2,207.38	-6,498.77	1,346.18	1,152.12	194.06	6.937	
12,100.00	6,939.96	7,097.36	7,095.96	90.77	159.64	90.32	2,207.38	-6,498.77	1,256.08	1,059.96	196.12	6.405	
12,200.00	6,939.67	7,097.08	7,095.67	92.27	159.63	90.30	2,207.38	-6,498.77	1,167.60	968.88	198.72	5.876	
12,300.00	6,939.39	7,096.79	7,095.39	93.78	159.63	90.27	2,207.38	-6,498.77	1,081.12	879.16	201.96	5.353	
12,400.00	6,939.10	7,096.51	7,095.10	95.28	159.62	90.24	2,207.38	-6,498.77	997.18	791.21	205.96	4.842	
12,500.00	6,938.82	7,096.22	7,094.82	96.79	159.61	90.21	2,207.38	-6,498.77	916.47	705.60	210.86	4.346	
12,600.00	6,938.53	7,095.94	7,094.53	98.30	159.61	90.18	2,207.38	-6,498.77	839.91	623.13	216.78	3.874	
12,700.00	6,938.25	7,095.65	7,094.25	99.82	159.60	90.15	2,207.38	-6,498.77	768.76	544.96	223.80	3.435	
12,800.00	6,937.96	7,095.37	7,093.96	101.34	159.59	90.12	2,207.38	-6,498.77	704.65	472.76	231.89	3.039	
12,900.00	6,937.68	7,095.08	7,093.68	102.86	159.58	90.09	2,207.38	-6,498.77	649.67	408.86	240.82	2.698	
13,000.00	6,937.39	7,094.80	7,093.39	104.38	159.58	90.06	2,207.38	-6,498.77	606.32	356.33	249.99	2.425	
13,100.00	6,937.11	7,094.51	7,093.11	105.91	159.57	90.04	2,207.38	-6,498.77	577.20	318.79	258.42	2.234	
13,200.00	6,936.82	7,094.23	7,092.82	107.43	159.56	90.01	2,207.38	-6,498.77	564.54	299.65	264.89	2.131	
13,222.29	6,936.76	7,094.16	7,092.76	107.77	159.56	90.00	2,207.38	-6,498.77	564.10	298.14	265.96	2.121 CC, ES	
13,300.00	6,936.54	7,093.94	7,092.54	108.96	159.56	89.98	2,207.38	-6,498.77	569.42	300.94	268.48	2.121 SF	
13,400.00	6,936.25	7,093.66	7,092.25	110.49	159.55	89.95	2,207.38	-6,498.77	591.43	322.44	268.99	2.199	
13,500.00	6,935.97	7,093.37	7,091.97	112.03	159.54	89.92	2,207.38	-6,498.77	628.75	361.78	266.97	2.355	
13,600.00	6,935.68	7,093.09	7,091.68	113.56	159.53	89.89	2,207.38	-6,498.77	678.87	415.52	263.35	2.578	
13,700.00	6,935.40	7,092.80	7,091.40	115.10	159.53	89.86	2,207.38	-6,498.77	739.19	480.23	258.97	2.854	
13,800.00	6,935.11	7,092.52	7,091.11	116.64	159.52	89.83	2,207.38	-6,498.77	807.43	553.02	254.41	3.174	
13,900.00	6,934.83	7,092.23	7,090.83	118.18	159.51	89.80	2,207.38	-6,498.77	881.75	631.72	250.03	3.527	
14,000.00	6,934.54	7,091.95	7,090.54	119.72	159.51	89.77	2,207.38	-6,498.77	960.74	714.76	245.98	3.906	
14,100.00	6,934.26	7,091.66	7,090.26	121.26	159.50	89.75	2,207.38	-6,498.77	1,043.34	801.03	242.32	4.306	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor
14,200.00	6,933.97	7,091.38	7,089.97	122.81	159.49	89.72	2,207.38	-6,498.77	1,128.76	889.72	239.04	4.722
14,300.00	6,933.69	7,091.09	7,089.69	124.36	159.48	89.69	2,207.38	-6,498.77	1,216.41	980.28	236.13	5.151
14,400.00	6,933.40	7,090.81	7,089.40	125.90	159.48	89.66	2,207.38	-6,498.77	1,305.83	1,072.28	233.55	5.591
14,500.00	6,933.12	7,090.52	7,089.12	127.45	159.47	89.63	2,207.38	-6,498.77	1,396.68	1,165.43	231.25	6.040
14,600.00	6,932.83	7,090.24	7,088.83	129.00	159.46	89.60	2,207.38	-6,498.77	1,488.71	1,259.50	229.21	6.495
14,700.00	6,932.55	7,089.95	7,088.55	130.56	159.46	89.57	2,207.38	-6,498.77	1,581.71	1,354.32	227.39	6.956
14,800.00	6,932.26	7,089.67	7,088.26	132.11	159.45	89.54	2,207.38	-6,498.77	1,675.51	1,449.76	225.75	7.422
14,900.00	6,931.98	7,089.38	7,087.98	133.66	159.44	89.51	2,207.38	-6,498.77	1,769.99	1,545.71	224.29	7.892
15,000.00	6,931.69	7,089.10	7,087.69	135.22	159.43	89.49	2,207.38	-6,498.77	1,865.05	1,642.08	222.97	8.365
15,100.00	6,931.41	7,088.81	7,087.41	136.77	159.43	89.46	2,207.38	-6,498.77	1,960.60	1,738.83	221.77	8.841
15,200.00	6,931.12	7,088.53	7,087.12	138.33	159.42	89.43	2,207.38	-6,498.77	2,056.57	1,835.88	220.69	9.319
15,300.00	6,930.84	7,088.24	7,086.84	139.89	159.41	89.40	2,207.38	-6,498.77	2,152.91	1,933.20	219.71	9.799
15,400.00	6,930.55	7,087.96	7,086.55	141.45	159.41	89.37	2,207.38	-6,498.77	2,249.57	2,030.76	218.81	10.281
15,500.00	6,930.27	7,087.67	7,086.27	143.01	159.40	89.34	2,207.38	-6,498.77	2,346.51	2,128.52	217.99	10.764
15,600.00	6,929.98	7,087.38	7,085.98	144.57	159.39	89.31	2,207.38	-6,498.77	2,443.70	2,226.45	217.24	11.249
15,700.00	6,929.70	7,087.10	7,085.70	146.13	159.38	89.28	2,207.38	-6,498.77	2,541.10	2,324.55	216.55	11.734
15,800.00	6,929.41	7,086.81	7,085.41	147.70	159.38	89.25	2,207.38	-6,498.77	2,638.70	2,422.78	215.92	12.221
15,900.00	6,929.13	7,086.53	7,085.13	149.26	159.37	89.22	2,207.38	-6,498.77	2,736.47	2,521.14	215.33	12.708
16,000.00	6,928.84	7,086.24	7,084.84	150.82	159.36	89.20	2,207.38	-6,498.77	2,834.40	2,619.61	214.79	13.196
16,100.00	6,928.56	7,085.96	7,084.56	152.39	159.36	89.17	2,207.38	-6,498.77	2,932.46	2,718.17	214.29	13.685
16,200.00	6,928.27	7,085.67	7,084.27	153.96	159.35	89.14	2,207.38	-6,498.77	3,030.66	2,816.83	213.82	14.174
16,300.00	6,927.99	7,085.39	7,083.99	155.52	159.34	89.11	2,207.38	-6,498.77	3,128.96	2,915.57	213.39	14.663
16,400.00	6,927.70	7,085.10	7,083.70	157.09	159.33	89.08	2,207.38	-6,498.77	3,227.37	3,014.39	212.99	15.153
16,500.00	6,927.42	7,084.82	7,083.42	158.66	159.33	89.05	2,207.38	-6,498.77	3,325.88	3,113.27	212.61	15.643
16,600.00	6,927.13	7,084.53	7,083.13	160.23	159.32	89.02	2,207.38	-6,498.77	3,424.47	3,212.21	212.27	16.133
16,700.00	6,926.85	7,084.25	7,082.85	161.80	159.31	88.99	2,207.38	-6,498.77	3,523.14	3,311.21	211.94	16.623
16,800.00	6,926.56	7,083.96	7,082.56	163.37	159.30	88.96	2,207.38	-6,498.77	3,621.89	3,410.25	211.64	17.114
16,900.00	6,926.28	7,083.68	7,082.28	164.94	159.30	88.94	2,207.38	-6,498.77	3,720.70	3,509.35	211.35	17.604
17,000.00	6,925.99	7,083.39	7,081.99	166.51	159.29	88.91	2,207.38	-6,498.77	3,819.58	3,608.49	211.09	18.095
17,100.00	6,925.71	7,083.11	7,081.71	168.08	159.28	88.88	2,207.38	-6,498.77	3,918.51	3,707.67	210.84	18.586
17,200.00	6,925.42	7,082.82	7,081.42	169.65	159.28	88.85	2,207.38	-6,498.77	4,017.49	3,806.89	210.60	19.076
17,300.00	6,925.14	7,082.54	7,081.14	171.23	159.27	88.82	2,207.38	-6,498.77	4,116.52	3,906.14	210.38	19.567
17,400.00	6,924.85	7,082.25	7,080.85	172.80	159.26	88.79	2,207.38	-6,498.77	4,215.60	4,005.42	210.18	20.057
17,500.00	6,924.57	7,081.97	7,080.57	174.37	159.25	88.76	2,207.38	-6,498.77	4,314.72	4,104.74	209.99	20.548
17,600.00	6,924.28	7,081.68	7,080.28	175.95	159.25	88.73	2,207.38	-6,498.77	4,413.88	4,204.08	209.80	21.038
17,700.00	6,924.00	7,081.40	7,080.00	177.52	159.24	88.70	2,207.38	-6,498.77	4,513.08	4,303.45	209.63	21.528
17,800.00	6,923.71	7,081.11	7,079.71	179.10	159.23	88.67	2,207.38	-6,498.77	4,612.31	4,402.84	209.48	22.018
17,900.00	6,923.43	7,080.83	7,079.43	180.68	159.23	88.65	2,207.38	-6,498.77	4,711.58	4,502.25	209.33	22.508
18,000.00	6,923.14	7,080.54	7,079.14	182.25	159.22	88.62	2,207.38	-6,498.77	4,810.87	4,601.69	209.19	22.998
18,100.00	6,922.86	7,080.26	7,078.86	183.83	159.21	88.59	2,207.38	-6,498.77	4,910.20	4,701.14	209.05	23.488
18,200.00	6,922.57	7,079.97	7,078.57	185.41	159.20	88.56	2,207.38	-6,498.77	5,009.55	4,800.62	208.93	23.977
18,300.00	6,922.29	7,079.69	7,078.29	186.98	159.20	88.53	2,207.38	-6,498.77	5,108.92	4,900.11	208.82	24.466
18,400.00	6,922.00	7,079.40	7,078.00	188.56	159.19	88.50	2,207.38	-6,498.77	5,208.32	4,999.62	208.71	24.955
18,500.00	6,921.71	7,079.12	7,077.71	190.14	159.18	88.47	2,207.38	-6,498.77	5,307.75	5,099.14	208.61	25.444
18,600.00	6,921.43	7,078.83	7,077.43	191.72	159.18	88.44	2,207.38	-6,498.77	5,407.19	5,198.68	208.51	25.933
18,700.00	6,921.14	7,078.55	7,077.14	193.30	159.17	88.41	2,207.38	-6,498.77	5,506.65	5,298.23	208.42	26.421
18,800.00	6,920.86	7,078.26	7,076.86	194.88	159.16	88.39	2,207.38	-6,498.77	5,606.14	5,397.80	208.34	26.909
18,900.00	6,920.57	7,077.98	7,076.57	196.46	159.15	88.36	2,207.38	-6,498.77	5,705.64	5,497.38	208.26	27.397
19,000.00	6,920.29	7,077.69	7,076.29	198.04	159.15	88.33	2,207.38	-6,498.77	5,805.16	5,596.97	208.19	27.884
19,100.00	6,920.00	7,077.41	7,076.00	199.62	159.14	88.30	2,207.38	-6,498.77	5,904.69	5,696.57	208.12	28.371
19,200.00	6,919.72	7,077.12	7,075.72	201.20	159.13	88.27	2,207.38	-6,498.77	6,004.24	5,796.18	208.06	28.858
19,300.00	6,919.43	7,076.84	7,075.43	202.78	159.13	88.24	2,207.38	-6,498.77	6,103.80	5,895.80	208.00	29.345

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,919.15	7,076.55	7,075.15	204.36	159.12	88.21	2,207.38	-6,498.77	6,203.38	5,995.43		207.95	29.831
19,500.00	6,918.86	7,076.27	7,074.86	205.95	159.11	88.18	2,207.38	-6,498.77	6,302.97	6,095.07		207.90	30.317
19,600.00	6,918.58	7,075.98	7,074.58	207.53	159.10	88.15	2,207.38	-6,498.77	6,402.58	6,194.72		207.85	30.803
19,700.00	6,918.29	7,075.70	7,074.29	209.11	159.10	88.13	2,207.38	-6,498.77	6,502.20	6,294.38		207.81	31.289
19,800.00	6,918.01	7,075.41	7,074.01	210.69	159.09	88.10	2,207.38	-6,498.77	6,601.82	6,394.05		207.78	31.774
19,900.00	6,917.72	7,075.13	7,073.72	212.28	159.08	88.07	2,207.38	-6,498.77	6,701.46	6,493.72		207.74	32.258
20,000.00	6,917.44	7,074.84	7,073.44	213.86	159.08	88.04	2,207.38	-6,498.77	6,801.11	6,593.40		207.71	32.743
20,100.00	6,917.15	7,074.56	7,073.15	215.45	159.07	88.01	2,207.38	-6,498.77	6,900.77	6,693.09		207.69	33.227
20,200.00	6,916.87	7,074.27	7,072.87	217.03	159.06	87.98	2,207.38	-6,498.77	7,000.44	6,792.78		207.66	33.711
20,300.00	6,916.58	7,073.99	7,072.58	218.61	159.05	87.95	2,207.38	-6,498.77	7,100.12	6,892.48		207.64	34.194
20,400.00	6,916.30	7,073.70	7,072.30	220.20	159.05	87.92	2,207.38	-6,498.77	7,199.81	6,992.19		207.62	34.677
20,500.00	6,916.01	7,073.42	7,072.01	221.78	159.04	87.89	2,207.38	-6,498.77	7,299.51	7,091.90		207.61	35.160
20,600.00	6,915.73	7,073.13	7,071.73	223.37	159.03	87.86	2,207.38	-6,498.77	7,399.21	7,191.62		207.59	35.643
20,700.00	6,915.44	7,072.85	7,071.44	224.95	159.02	87.84	2,207.38	-6,498.77	7,498.92	7,291.34		207.58	36.125
20,800.00	6,915.16	7,072.56	7,071.16	226.54	159.02	87.81	2,207.38	-6,498.77	7,598.64	7,391.07		207.58	36.606
20,855.45	6,915.00	7,072.40	7,071.00	227.42	159.01	87.79	2,207.38	-6,498.77	7,653.94	7,446.37		207.57	36.873

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	49.16	1,074.04	1,242.33	1,647.29					
100.00	100.00	0.00	0.00	0.25	0.00	49.16	1,074.04	1,242.33	1,642.49	1,642.24	0.25	6,457.490		
146.95	146.95	17.95	17.95	0.42	0.78	49.16	1,074.04	1,242.33	1,642.24	1,641.03	1.20	1,365.577		
200.00	200.00	71.00	71.00	0.61	3.10	49.16	1,074.04	1,242.33	1,642.24	1,638.53	3.71	442.943		
300.00	300.00	171.00	171.00	0.97	7.46	49.16	1,074.04	1,242.33	1,642.24	1,633.81	8.43	194.824		
400.00	400.00	271.00	271.00	1.33	11.82	49.16	1,074.04	1,242.33	1,642.24	1,629.08	13.15	124.874		
500.00	500.00	371.00	371.00	1.68	16.19	49.16	1,074.04	1,242.33	1,642.24	1,624.36	17.87	91.884		
600.00	599.98	470.98	470.98	2.04	20.55	55.83	1,074.04	1,242.33	1,641.25	1,618.66	22.59	72.642		
700.00	699.84	570.84	570.84	2.41	24.91	56.03	1,074.04	1,242.33	1,638.32	1,611.01	27.31	59.989		
800.00	799.45	670.45	670.45	2.77	29.25	56.37	1,074.04	1,242.33	1,633.46	1,601.44	32.02	51.016		
900.00	898.70	769.70	769.70	3.13	33.58	56.84	1,074.04	1,242.33	1,626.72	1,590.00	36.72	44.306		
1,000.00	997.47	868.47	868.47	3.50	37.89	57.44	1,074.04	1,242.33	1,618.15	1,576.75	41.40	39.088		
1,100.00	1,095.62	966.62	966.62	3.89	42.18	58.18	1,074.04	1,242.33	1,607.85	1,561.79	46.06	34.904		
1,200.00	1,193.06	1,064.06	1,064.06	4.30	46.43	59.06	1,074.04	1,242.33	1,595.92	1,545.20	50.71	31.470		
1,245.75	1,237.35	1,108.35	1,108.35	4.49	48.36	59.51	1,074.04	1,242.33	1,589.94	1,537.11	52.83	30.095		
1,300.00	1,289.78	1,160.78	1,160.78	4.72	50.65	59.93	1,074.04	1,242.33	1,582.72	1,527.38	55.34	28.599		
1,400.00	1,386.41	1,257.41	1,257.41	5.15	54.86	60.73	1,074.04	1,242.33	1,569.65	1,509.67	59.98	26.170		
1,500.00	1,483.04	1,354.04	1,354.04	5.59	59.08	61.53	1,074.04	1,242.33	1,556.89	1,492.27	64.62	24.092		
1,600.00	1,579.67	1,450.67	1,450.67	6.04	63.30	62.35	1,074.04	1,242.33	1,544.46	1,475.19	69.27	22.295		
1,700.00	1,676.30	1,547.30	1,547.30	6.49	67.51	63.18	1,074.04	1,242.33	1,532.36	1,458.43	73.93	20.727		
1,800.00	1,772.93	1,643.93	1,643.93	6.95	71.73	64.02	1,074.04	1,242.33	1,520.60	1,442.01	78.59	19.348		
1,900.00	1,869.56	1,740.56	1,740.56	7.41	75.95	64.88	1,074.04	1,242.33	1,509.19	1,425.93	83.26	18.126		
2,000.00	1,966.19	1,837.19	1,837.19	7.87	80.16	65.74	1,074.04	1,242.33	1,498.13	1,410.20	87.93	17.038		
2,100.00	2,062.83	1,933.83	1,933.83	8.33	84.38	66.62	1,074.04	1,242.33	1,487.43	1,394.83	92.61	16.062		
2,200.00	2,159.46	2,030.46	2,030.46	8.80	88.60	67.51	1,074.04	1,242.33	1,477.11	1,379.82	97.28	15.183		
2,300.00	2,256.09	2,127.09	2,127.09	9.27	92.81	68.41	1,074.04	1,242.33	1,467.16	1,365.20	101.97	14.389		
2,400.00	2,352.72	2,223.72	2,223.72	9.73	97.03	69.32	1,074.04	1,242.33	1,457.60	1,350.95	106.65	13.667		
2,500.00	2,449.35	2,320.35	2,320.35	10.20	101.24	70.25	1,074.04	1,242.33	1,448.44	1,337.10	111.34	13.009		
2,600.00	2,545.98	2,416.98	2,416.98	10.67	105.46	71.18	1,074.04	1,242.33	1,439.68	1,323.65	116.03	12.408		
2,700.00	2,642.61	2,513.61	2,513.61	11.15	109.68	72.13	1,074.04	1,242.33	1,431.32	1,310.60	120.72	11.857		
2,800.00	2,739.24	2,610.24	2,610.24	11.62	113.89	73.09	1,074.04	1,242.33	1,423.38	1,297.97	125.41	11.350		
2,900.00	2,835.87	2,706.87	2,706.87	12.09	118.11	74.05	1,074.04	1,242.33	1,415.87	1,285.77	130.11	10.882		
3,000.00	2,932.50	2,803.50	2,803.50	12.56	122.33	75.03	1,074.04	1,242.33	1,408.79	1,273.99	134.80	10.451		
3,100.00	3,029.13	2,900.13	2,900.13	13.04	126.54	76.01	1,074.04	1,242.33	1,402.14	1,262.64	139.50	10.051		
3,200.00	3,125.77	2,996.77	2,996.77	13.51	130.76	77.00	1,074.04	1,242.33	1,395.94	1,251.74	144.20	9.681		
3,300.00	3,222.40	3,093.40	3,093.40	13.99	134.97	78.00	1,074.04	1,242.33	1,390.18	1,241.29	148.90	9.336		
3,400.00	3,319.03	3,190.03	3,190.03	14.46	139.19	79.01	1,074.04	1,242.33	1,384.88	1,231.29	153.60	9.016		
3,500.00	3,415.66	3,286.66	3,286.66	14.94	143.41	80.03	1,074.04	1,242.33	1,380.04	1,221.74	158.30	8.718		
3,600.00	3,512.29	3,383.29	3,383.29	15.42	147.62	81.05	1,074.04	1,242.33	1,375.67	1,212.67	163.00	8.440		
3,700.00	3,608.92	3,479.92	3,479.92	15.89	151.84	82.07	1,074.04	1,242.33	1,371.76	1,204.06	167.70	8.180		
3,800.00	3,705.55	3,576.55	3,576.55	16.37	156.06	83.11	1,074.04	1,242.33	1,368.33	1,195.93	172.40	7.937		
3,900.00	3,802.18	3,673.18	3,673.18	16.84	160.27	84.14	1,074.04	1,242.33	1,365.37	1,188.27	177.10	7.710		
4,000.00	3,898.81	3,769.81	3,769.81	17.32	164.49	85.18	1,074.04	1,242.33	1,362.89	1,181.09	181.80	7.497		
4,100.00	3,995.44	3,866.44	3,866.44	17.80	168.71	86.23	1,074.04	1,242.33	1,360.90	1,174.40	186.50	7.297		
4,200.00	4,092.07	3,963.07	3,963.07	18.28	172.92	87.27	1,074.04	1,242.33	1,359.39	1,168.19	191.20	7.110		
4,300.00	4,188.71	4,059.71	4,059.71	18.75	177.14	88.32	1,074.04	1,242.33	1,358.36	1,162.47	195.89	6.934		
4,400.00	4,285.34	4,156.34	4,156.34	19.23	181.35	89.37	1,074.04	1,242.33	1,357.83	1,157.24	200.59	6.769		
4,460.10	4,343.41	4,214.41	4,214.41	19.52	183.89	90.00	1,074.04	1,242.33	1,357.74	1,154.33	203.41	6.675 CC		
4,500.00	4,381.97	4,252.97	4,252.97	19.71	185.57	90.42	1,074.04	1,242.33	1,357.78	1,152.50	205.28	6.614		
4,600.00	4,478.60	4,349.60	4,349.60	20.19	189.79	91.47	1,074.04	1,242.33	1,358.22	1,148.25	209.97	6.469		
4,700.00	4,575.23	4,446.23	4,446.23	20.67	194.00	92.52	1,074.04	1,242.33	1,359.14	1,144.48	214.66	6.332		
4,800.00	4,671.86	4,542.86	4,542.86	21.14	198.22	93.56	1,074.04	1,242.33	1,360.55	1,141.21	219.34	6.203		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	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)			
4,900.00	4,768.49	4,639.49	4,639.49	21.62	202.44	94.61	1,074.04	1,242.33	1,362.45	1,138.42	224.03	6.082	
5,000.00	4,865.12	4,736.12	4,736.12	22.10	206.65	95.65	1,074.04	1,242.33	1,364.83	1,136.12	228.71	5.968	
5,100.00	4,961.75	4,832.75	4,832.75	22.58	210.87	96.69	1,074.04	1,242.33	1,367.69	1,134.30	233.39	5.860	
5,200.00	5,058.38	4,929.38	4,929.38	23.06	215.08	97.72	1,074.04	1,242.33	1,371.03	1,132.96	238.07	5.759	
5,300.00	5,155.01	5,026.01	5,026.01	23.54	219.30	98.75	1,074.04	1,242.33	1,374.84	1,132.10	242.74	5.664	
5,400.00	5,251.64	5,122.64	5,122.64	24.01	223.52	99.77	1,074.04	1,242.33	1,379.12	1,131.71	247.41	5.574	ES
5,500.00	5,348.28	5,219.28	5,219.28	24.49	227.73	100.79	1,074.04	1,242.33	1,383.87	1,131.79	252.08	5.490	
5,600.00	5,444.91	5,315.91	5,315.91	24.97	231.95	101.79	1,074.04	1,242.33	1,389.08	1,132.33	256.74	5.410	
5,700.00	5,541.54	5,412.54	5,412.54	25.45	236.17	102.80	1,074.04	1,242.33	1,394.74	1,133.34	261.40	5.336	
5,800.00	5,638.17	5,509.17	5,509.17	25.93	240.38	103.79	1,074.04	1,242.33	1,400.85	1,134.79	266.06	5.265	
5,900.00	5,734.80	5,605.80	5,605.80	26.41	244.60	104.78	1,074.04	1,242.33	1,407.41	1,136.69	270.72	5.199	
6,000.00	5,831.43	5,702.43	5,702.43	26.89	248.82	105.75	1,074.04	1,242.33	1,414.41	1,139.04	275.37	5.136	
6,100.00	5,928.06	5,799.06	5,799.06	27.37	253.03	106.72	1,074.04	1,242.33	1,421.83	1,141.82	280.02	5.078	
6,200.00	6,024.69	5,895.69	5,895.69	27.85	257.25	107.68	1,074.04	1,242.33	1,429.69	1,145.02	284.66	5.022	
6,300.00	6,121.32	5,973.00	5,973.00	28.33	260.62	108.44	1,074.04	1,242.33	1,438.09	1,149.67	288.42	4.986	SF
6,400.00	6,217.95	5,973.00	5,973.00	28.81	260.62	108.44	1,074.04	1,242.33	1,451.28	1,163.41	287.86	5.042	
6,500.00	6,314.58	5,973.00	5,973.00	29.29	260.62	108.44	1,074.04	1,242.33	1,471.16	1,185.06	286.10	5.142	
6,543.64	6,356.75	5,973.00	5,973.00	29.49	260.62	108.44	1,074.04	1,242.33	1,481.87	1,196.88	284.99	5.200	
6,550.00	6,362.90	5,973.00	5,973.00	29.53	260.62	110.59	1,074.04	1,242.33	1,483.56	1,198.76	284.81	5.209	
6,600.00	6,411.07	5,973.00	5,973.00	29.77	260.62	126.37	1,074.04	1,242.33	1,499.78	1,216.50	283.28	5.294	
6,650.00	6,458.79	5,973.00	5,973.00	30.01	260.62	139.19	1,074.04	1,242.33	1,520.99	1,239.40	281.59	5.401	
6,700.00	6,505.76	5,973.00	5,973.00	30.26	260.62	149.06	1,074.04	1,242.33	1,546.86	1,267.06	279.80	5.529	
6,750.00	6,551.69	5,973.00	5,973.00	30.50	260.62	156.67	1,074.04	1,242.33	1,576.99	1,299.02	277.96	5.673	
6,800.00	6,596.30	5,973.00	5,973.00	30.74	260.62	162.77	1,074.04	1,242.33	1,610.97	1,334.81	276.16	5.834	
6,850.00	6,639.32	5,973.00	5,973.00	30.98	260.62	167.97	1,074.04	1,242.33	1,648.36	1,373.92	274.43	6.006	
6,900.00	6,680.47	5,973.00	5,973.00	31.21	260.62	172.75	1,074.04	1,242.33	1,688.71	1,415.87	272.84	6.189	
6,950.00	6,719.51	5,973.00	5,973.00	31.44	260.62	177.55	1,074.04	1,242.33	1,731.57	1,460.16	271.41	6.380	
7,000.00	6,756.20	5,973.00	5,973.00	31.67	260.62	-177.09	1,074.04	1,242.33	1,776.52	1,506.34	270.18	6.575	
7,050.00	6,790.30	5,973.00	5,973.00	31.90	260.62	-170.40	1,074.04	1,242.33	1,823.12	1,553.96	269.16	6.773	
7,100.00	6,821.62	5,973.00	5,973.00	32.13	260.62	-160.98	1,074.04	1,242.33	1,870.97	1,602.62	268.35	6.972	
7,150.00	6,849.95	5,973.00	5,973.00	32.35	260.62	-146.22	1,074.04	1,242.33	1,919.71	1,651.94	267.77	7.169	
7,200.00	6,875.12	5,973.00	5,973.00	32.58	260.62	-122.49	1,074.04	1,242.33	1,968.97	1,701.56	267.41	7.363	
7,250.00	6,896.97	5,973.00	5,973.00	32.81	260.62	-91.99	1,074.04	1,242.33	2,018.42	1,751.16	267.26	7.552	
7,300.00	6,915.38	5,973.00	5,973.00	33.05	260.62	-67.10	1,074.04	1,242.33	2,067.76	1,800.45	267.31	7.735	
7,350.00	6,930.22	5,973.00	5,973.00	33.29	260.62	-51.81	1,074.04	1,242.33	2,116.71	1,849.15	267.55	7.911	
7,400.00	6,941.41	5,973.00	5,973.00	33.53	260.62	-42.68	1,074.04	1,242.33	2,164.98	1,897.02	267.96	8.080	
7,450.00	6,948.88	5,973.00	5,973.00	33.79	260.62	-36.92	1,074.04	1,242.33	2,212.35	1,943.83	268.52	8.239	
7,500.00	6,952.57	5,973.00	5,973.00	34.05	260.62	-33.07	1,074.04	1,242.33	2,258.58	1,989.36	269.22	8.389	
7,525.63	6,953.00	5,973.00	5,973.00	34.19	260.62	-31.58	1,074.04	1,242.33	2,281.77	2,012.15	269.63	8.463	
7,600.00	6,952.79	5,973.00	5,973.00	34.61	260.62	-31.58	1,074.04	1,242.33	2,348.76	2,077.95	270.81	8.673	
7,700.00	6,952.50	5,973.00	5,973.00	35.23	260.62	-31.58	1,074.04	1,242.33	2,439.50	2,167.25	272.25	8.961	
7,800.00	6,952.22	5,973.00	5,973.00	35.91	260.62	-31.58	1,074.04	1,242.33	2,530.94	2,257.40	273.54	9.252	
7,900.00	6,951.93	5,973.00	5,973.00	36.65	260.62	-31.58	1,074.04	1,242.33	2,623.01	2,348.30	274.71	9.548	
8,000.00	6,951.65	5,973.00	5,973.00	37.45	260.62	-31.58	1,074.04	1,242.33	2,715.63	2,439.88	275.76	9.848	
8,100.00	6,951.36	5,973.00	5,973.00	38.29	260.62	-31.58	1,074.04	1,242.33	2,808.77	2,532.06	276.71	10.151	
8,200.00	6,951.08	5,973.00	5,973.00	39.19	260.62	-31.58	1,074.04	1,242.33	2,902.36	2,624.78	277.57	10.456	
8,300.00	6,950.79	5,973.00	5,973.00	40.13	260.62	-31.58	1,074.04	1,242.33	2,996.36	2,718.00	278.36	10.764	
8,400.00	6,950.51	5,973.00	5,973.00	41.11	260.62	-31.58	1,074.04	1,242.33	3,090.74	2,811.66	279.08	11.075	
8,500.00	6,950.22	5,973.00	5,973.00	42.12	260.62	-31.58	1,074.04	1,242.33	3,185.46	2,905.72	279.74	11.387	
8,600.00	6,949.94	5,973.00	5,973.00	43.18	260.62	-31.58	1,074.04	1,242.33	3,280.50	3,000.15	280.34	11.702	
8,700.00	6,949.65	5,973.00	5,973.00	44.26	260.62	-31.58	1,074.04	1,242.33	3,375.82	3,094.92	280.90	12.018	
8,800.00	6,949.37	5,973.00	5,973.00	45.38	260.62	-31.58	1,074.04	1,242.33	3,471.41	3,189.99	281.42	12.335	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)					
8,900.00	6,949.08	5,973.00	5,973.00	46.53	260.62	-31.58	1,074.04	1,242.33	3,567.24	3,285.34	281.89	12.655			
9,000.00	6,948.80	5,973.00	5,973.00	47.70	260.62	-31.58	1,074.04	1,242.33	3,663.29	3,380.95	282.33	12.975			
9,100.00	6,948.51	5,973.00	5,973.00	48.89	260.62	-31.58	1,074.04	1,242.33	3,759.54	3,476.80	282.74	13.297			
9,200.00	6,948.23	5,973.00	5,973.00	50.11	260.62	-31.58	1,074.04	1,242.33	3,855.99	3,572.86	283.13	13.619			
9,300.00	6,947.94	5,973.00	5,973.00	51.35	260.62	-31.58	1,074.04	1,242.33	3,952.62	3,669.13	283.48	13.943			
9,400.00	6,947.66	5,973.00	5,973.00	52.61	260.62	-31.58	1,074.04	1,242.33	4,049.40	3,765.59	283.82	14.268			
9,500.00	6,947.37	5,973.00	5,973.00	53.89	260.62	-31.58	1,074.04	1,242.33	4,146.35	3,862.21	284.13	14.593			
9,600.00	6,947.09	5,973.00	5,973.00	55.18	260.62	-31.58	1,074.04	1,242.33	4,243.43	3,959.00	284.43	14.919			
9,700.00	6,946.80	5,973.00	5,973.00	56.49	260.62	-31.58	1,074.04	1,242.33	4,340.64	4,055.94	284.71	15.246			
9,800.00	6,946.52	5,973.00	5,973.00	57.81	260.62	-31.58	1,074.04	1,242.33	4,437.98	4,153.01	284.97	15.574			
9,900.00	6,946.23	5,973.00	5,973.00	59.15	260.62	-31.58	1,074.04	1,242.33	4,535.44	4,250.22	285.22	15.902			
10,000.00	6,945.95	5,973.00	5,973.00	60.50	260.62	-31.58	1,074.04	1,242.33	4,633.00	4,347.55	285.45	16.231			
10,100.00	6,945.66	5,973.00	5,973.00	61.87	260.62	-31.58	1,074.04	1,242.33	4,730.66	4,444.99	285.67	16.560			
10,200.00	6,945.38	5,973.00	5,973.00	63.24	260.62	-31.58	1,074.04	1,242.33	4,828.42	4,542.54	285.88	16.889			
10,300.00	6,945.09	5,973.00	5,973.00	64.63	260.62	-31.58	1,074.04	1,242.33	4,926.28	4,640.19	286.09	17.220			
10,400.00	6,944.81	5,973.00	5,973.00	66.02	260.62	-31.58	1,074.04	1,242.33	5,024.21	4,737.93	286.28	17.550			
10,500.00	6,944.52	5,973.00	5,973.00	67.42	260.62	-31.58	1,074.04	1,242.33	5,122.22	4,835.76	286.46	17.881			
10,600.00	6,944.24	5,973.00	5,973.00	68.84	260.62	-31.58	1,074.04	1,242.33	5,220.31	4,933.68	286.64	18.212			
10,700.00	6,943.95	5,973.00	5,973.00	70.26	260.62	-31.58	1,074.04	1,242.33	5,318.48	5,031.67	286.81	18.544			
10,800.00	6,943.67	5,973.00	5,973.00	71.68	260.62	-31.58	1,074.04	1,242.33	5,416.70	5,129.73	286.97	18.875			
10,900.00	6,943.38	5,973.00	5,973.00	73.12	260.62	-31.58	1,074.04	1,242.33	5,515.00	5,227.87	287.13	19.207			
11,000.00	6,943.10	5,973.00	5,973.00	74.56	260.62	-31.58	1,074.04	1,242.33	5,613.35	5,326.07	287.28	19.540			
11,100.00	6,942.81	5,973.00	5,973.00	76.01	260.62	-31.58	1,074.04	1,242.33	5,711.76	5,424.33	287.42	19.872			
11,200.00	6,942.53	5,973.00	5,973.00	77.46	260.62	-31.58	1,074.04	1,242.33	5,810.22	5,522.66	287.57	20.205			
11,300.00	6,942.24	5,973.00	5,973.00	78.92	260.62	-31.58	1,074.04	1,242.33	5,908.74	5,621.04	287.70	20.538			
11,400.00	6,941.96	5,973.00	5,973.00	80.39	260.62	-31.58	1,074.04	1,242.33	6,007.30	5,719.47	287.83	20.871			
11,500.00	6,941.67	5,973.00	5,973.00	81.86	260.62	-31.58	1,074.04	1,242.33	6,105.91	5,817.95	287.96	21.204			
11,600.00	6,941.39	5,973.00	5,973.00	83.33	260.62	-31.58	1,074.04	1,242.33	6,204.57	5,916.48	288.09	21.537			
11,700.00	6,941.10	5,973.00	5,973.00	84.81	260.62	-31.58	1,074.04	1,242.33	6,303.27	6,015.06	288.21	21.870			
11,800.00	6,940.81	5,973.00	5,973.00	86.30	260.62	-31.58	1,074.04	1,242.33	6,402.01	6,113.68	288.33	22.204			
11,900.00	6,940.53	5,973.00	5,973.00	87.79	260.62	-31.58	1,074.04	1,242.33	6,500.78	6,212.34	288.44	22.537			
12,000.00	6,940.24	5,973.00	5,973.00	89.28	260.62	-31.58	1,074.04	1,242.33	6,599.60	6,311.04	288.56	22.871			
12,100.00	6,939.96	5,973.00	5,973.00	90.77	260.62	-31.58	1,074.04	1,242.33	6,698.45	6,409.78	288.67	23.205			
12,200.00	6,939.67	5,973.00	5,973.00	92.27	260.62	-31.58	1,074.04	1,242.33	6,797.33	6,508.55	288.78	23.538			
12,300.00	6,939.39	5,973.00	5,973.00	93.78	260.62	-31.58	1,074.04	1,242.33	6,896.25	6,607.36	288.88	23.872			
12,400.00	6,939.10	5,973.00	5,973.00	95.28	260.62	-31.58	1,074.04	1,242.33	6,995.19	6,706.20	288.99	24.206			
12,500.00	6,938.82	5,973.00	5,973.00	96.79	260.62	-31.58	1,074.04	1,242.33	7,094.17	6,805.08	289.09	24.540			
12,600.00	6,938.53	5,973.00	5,973.00	98.30	260.62	-31.58	1,074.04	1,242.33	7,193.17	6,903.98	289.19	24.873			
12,700.00	6,938.25	5,973.00	5,973.00	99.82	260.62	-31.58	1,074.04	1,242.33	7,292.20	7,002.91	289.29	25.207			
12,800.00	6,937.96	5,973.00	5,973.00	101.34	260.62	-31.58	1,074.04	1,242.33	7,391.26	7,101.87	289.39	25.541			
12,900.00	6,937.68	5,973.00	5,973.00	102.86	260.62	-31.58	1,074.04	1,242.33	7,490.34	7,200.86	289.49	25.875			
13,000.00	6,937.39	5,973.00	5,973.00	104.38	260.62	-31.58	1,074.04	1,242.33	7,589.45	7,299.87	289.58	26.208			
13,100.00	6,937.11	5,973.00	5,973.00	105.91	260.62	-31.58	1,074.04	1,242.33	7,688.58	7,398.90	289.68	26.542			
13,200.00	6,936.82	5,973.00	5,973.00	107.43	260.62	-31.58	1,074.04	1,242.33	7,787.73	7,497.96	289.77	26.876			
13,300.00	6,936.54	5,973.00	5,973.00	108.96	260.62	-31.58	1,074.04	1,242.33	7,886.90	7,597.04	289.86	27.209			
13,400.00	6,936.25	5,973.00	5,973.00	110.49	260.62	-31.58	1,074.04	1,242.33	7,986.09	7,696.14	289.95	27.543			
13,500.00	6,935.97	5,973.00	5,973.00	112.03	260.62	-31.58	1,074.04	1,242.33	8,085.31	7,795.26	290.04	27.876			
13,600.00	6,935.68	5,973.00	5,973.00	113.56	260.62	-31.58	1,074.04	1,242.33	8,184.54	7,894.41	290.13	28.209			
13,700.00	6,935.40	5,973.00	5,973.00	115.10	260.62	-31.58	1,074.04	1,242.33	8,283.79	7,993.57	290.22	28.543			
13,800.00	6,935.11	5,973.00	5,973.00	116.64	260.62	-31.58	1,074.04	1,242.33	8,383.06	8,092.75	290.31	28.876			
13,900.00	6,934.83	5,973.00	5,973.00	118.18	260.62	-31.58	1,074.04	1,242.33	8,482.35	8,191.95	290.40	29.209			
14,000.00	6,934.54	5,973.00	5,973.00	119.72	260.62	-31.58	1,074.04	1,242.33	8,581.65	8,291.16	290.49	29.542			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)				
19,300.00	6,919.43	5,973.00	5,973.00	202.78	260.62	-31.58	1,074.04	1,242.33	13,859.05	13,563.93	295.12	46.960		
19,400.00	6,919.15	5,973.00	5,973.00	204.36	260.62	-31.58	1,074.04	1,242.33	13,958.79	13,663.57	295.22	47.283		
19,500.00	6,918.86	5,973.00	5,973.00	205.95	260.62	-31.58	1,074.04	1,242.33	14,058.53	13,763.22	295.31	47.606		
19,600.00	6,918.58	5,973.00	5,973.00	207.53	260.62	-31.58	1,074.04	1,242.33	14,158.28	13,862.87	295.40	47.928		
19,700.00	6,918.29	5,973.00	5,973.00	209.11	260.62	-31.58	1,074.04	1,242.33	14,258.02	13,962.53	295.50	48.251		
19,800.00	6,918.01	5,973.00	5,973.00	210.69	260.62	-31.58	1,074.04	1,242.33	14,357.78	14,062.18	295.59	48.573		
19,900.00	6,917.72	5,973.00	5,973.00	212.28	260.62	-31.58	1,074.04	1,242.33	14,457.53	14,161.85	295.69	48.895		
20,000.00	6,917.44	5,973.00	5,973.00	213.86	260.62	-31.58	1,074.04	1,242.33	14,557.29	14,261.51	295.78	49.216		
20,100.00	6,917.15	5,973.00	5,973.00	215.45	260.62	-31.58	1,074.04	1,242.33	14,657.06	14,361.18	295.88	49.538		
20,200.00	6,916.87	5,973.00	5,973.00	217.03	260.62	-31.58	1,074.04	1,242.33	14,756.82	14,460.85	295.97	49.859		
20,300.00	6,916.58	5,973.00	5,973.00	218.61	260.62	-31.58	1,074.04	1,242.33	14,856.59	14,560.52	296.07	50.179		
20,400.00	6,916.30	5,973.00	5,973.00	220.20	260.62	-31.58	1,074.04	1,242.33	14,956.36	14,660.20	296.17	50.500		
20,500.00	6,916.01	5,973.00	5,973.00	221.78	260.62	-31.58	1,074.04	1,242.33	15,056.14	14,759.88	296.26	50.820		
20,600.00	6,915.73	5,973.00	5,973.00	223.37	260.62	-31.58	1,074.04	1,242.33	15,155.92	14,859.56	296.36	51.141		
20,700.00	6,915.44	5,973.00	5,973.00	224.95	260.62	-31.58	1,074.04	1,242.33	15,255.70	14,959.24	296.46	51.460		
20,800.00	6,915.16	5,973.00	5,973.00	226.54	260.62	-31.58	1,074.04	1,242.33	15,355.48	15,058.93	296.55	51.780		
20,855.45	6,915.00	5,973.00	5,973.00	227.42	260.62	-31.58	1,074.04	1,242.33	15,410.81	15,114.21	296.61	51.957		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	147.79	-1,057.98	666.39	1,250.50						
100.00	100.00	81.00	81.00	0.25	0.75	147.79	-1,057.98	666.39	1,250.36	1,249.36	1.00	1,250.791			
200.00	200.00	181.00	181.00	0.61	2.52	147.79	-1,057.98	666.39	1,250.36	1,247.22	3.13	398.973			
300.00	300.00	281.01	281.00	0.97	4.43	147.79	-1,057.98	666.39	1,250.36	1,244.96	5.40	231.539			
400.00	400.00	381.01	381.00	1.33	6.40	147.79	-1,057.98	666.39	1,250.36	1,242.63	7.73	161.830			
500.00	500.00	481.01	481.00	1.68	8.37	147.79	-1,057.98	666.39	1,250.36	1,240.30	10.05	124.383			
534.47	534.47	515.48	515.46	1.81	9.05	154.39	-1,057.19	666.39	1,249.88	1,239.02	10.85	115.149	CC		
600.00	599.98	579.17	579.15	2.04	10.30	154.41	-1,057.24	666.39	1,251.31	1,238.97	12.34	101.381	ES		
700.00	699.84	676.23	676.21	2.41	12.21	154.47	-1,057.54	666.39	1,256.29	1,241.68	14.61	85.967			
800.00	799.45	780.51	780.45	2.77	14.28	154.59	-1,057.98	666.39	1,264.53	1,247.48	17.04	74.191			
900.00	898.70	879.76	879.70	3.13	16.30	154.73	-1,057.98	666.39	1,275.56	1,256.13	19.43	65.639			
1,000.00	997.47	978.52	978.47	3.50	18.32	154.91	-1,057.98	666.39	1,289.75	1,267.93	21.81	59.124			
1,100.00	1,095.62	1,074.68	1,074.62	3.89	20.28	155.09	-1,057.22	666.39	1,306.45	1,282.30	24.15	54.107			
1,200.00	1,193.06	1,169.25	1,169.19	4.30	22.21	155.31	-1,057.51	666.39	1,327.22	1,300.77	26.45	50.180			
1,245.75	1,237.35	1,212.21	1,212.14	4.49	23.08	155.42	-1,057.72	666.39	1,337.84	1,310.34	27.50	48.649			
1,300.00	1,289.78	1,270.89	1,270.78	4.72	24.28	155.70	-1,057.98	666.39	1,350.84	1,321.94	28.90	46.740			
1,400.00	1,386.41	1,367.52	1,367.41	5.15	26.26	156.14	-1,057.98	666.39	1,374.47	1,343.22	31.25	43.983			
1,500.00	1,483.04	1,464.15	1,464.04	5.59	28.23	156.57	-1,057.98	666.39	1,398.18	1,364.57	33.60	41.609			
1,600.00	1,579.67	1,558.97	1,558.85	6.04	30.17	156.95	-1,056.88	666.39	1,420.99	1,385.07	35.92	39.560			
1,700.00	1,676.30	1,651.63	1,651.50	6.49	32.06	157.33	-1,057.16	666.39	1,445.08	1,406.89	38.19	37.835			
1,800.00	1,772.93	1,744.14	1,744.00	6.95	33.95	157.71	-1,057.72	666.39	1,469.51	1,429.04	40.47	36.315			
1,900.00	1,869.56	1,850.74	1,850.56	7.41	36.07	158.13	-1,057.98	666.39	1,493.67	1,450.69	42.98	34.754			
2,000.00	1,966.19	1,947.37	1,947.19	7.87	37.98	158.49	-1,057.98	666.39	1,517.69	1,472.42	45.27	33.527			
2,100.00	2,062.83	2,042.91	2,042.73	8.33	39.86	158.82	-1,057.21	666.39	1,541.09	1,493.55	47.54	32.419			
2,200.00	2,159.46	2,135.97	2,135.79	8.80	41.69	159.15	-1,057.40	666.39	1,565.40	1,515.64	49.76	31.462			
2,300.00	2,256.09	2,228.91	2,228.73	9.27	43.52	159.48	-1,057.83	666.39	1,589.98	1,538.01	51.97	30.593			
2,400.00	2,352.72	2,333.93	2,333.72	9.73	45.59	159.82	-1,057.98	666.39	1,614.32	1,559.89	54.43	29.656			
2,500.00	2,449.35	2,430.56	2,430.35	10.20	47.49	160.13	-1,057.98	666.39	1,638.60	1,581.87	56.73	28.886			
2,600.00	2,545.98	2,526.18	2,525.96	10.67	49.37	160.42	-1,057.18	666.39	1,662.20	1,603.20	59.00	28.173			
2,700.00	2,642.61	2,619.05	2,618.83	11.15	51.20	160.70	-1,057.35	666.39	1,686.73	1,625.51	61.21	27.554			
2,800.00	2,739.24	2,711.82	2,711.59	11.62	53.03	160.98	-1,057.76	666.39	1,711.51	1,648.08	63.43	26.984			
2,900.00	2,835.87	2,817.13	2,816.87	12.09	55.16	161.28	-1,057.98	666.39	1,736.13	1,670.18	65.95	26.325			
3,000.00	2,932.50	2,913.76	2,913.50	12.56	57.13	161.55	-1,057.98	666.39	1,760.61	1,692.29	68.32	25.772			
3,100.00	3,029.13	3,009.88	3,009.62	13.04	59.09	161.80	-1,057.16	666.39	1,784.38	1,713.71	70.67	25.250			
3,200.00	3,125.77	3,102.51	3,102.24	13.51	60.99	162.05	-1,057.30	666.39	1,809.06	1,736.11	72.95	24.800			
3,300.00	3,222.40	3,195.02	3,194.75	13.99	62.88	162.29	-1,057.67	666.39	1,833.99	1,758.77	75.22	24.381			
3,400.00	3,319.03	3,300.34	3,300.03	14.46	65.07	162.55	-1,057.98	666.39	1,858.87	1,781.05	77.81	23.889			
3,500.00	3,415.66	3,396.97	3,396.66	14.94	67.11	162.79	-1,057.98	666.39	1,883.51	1,803.26	80.25	23.470			
3,600.00	3,512.29	3,488.83	3,488.50	15.42	69.06	163.00	-1,057.25	666.39	1,907.52	1,824.94	82.58	23.099			
3,700.00	3,608.92	3,577.87	3,577.54	15.89	70.95	163.21	-1,057.69	666.39	1,932.65	1,847.80	84.85	22.778			
3,800.00	3,705.55	3,686.92	3,686.55	16.37	73.26	163.45	-1,057.98	666.39	1,957.61	1,870.04	87.57	22.355			
3,900.00	3,802.18	3,783.55	3,783.18	16.84	75.31	163.67	-1,057.98	666.39	1,982.36	1,892.35	90.01	22.024			
4,000.00	3,898.81	3,880.18	3,879.81	17.32	77.36	163.87	-1,057.98	666.39	2,007.14	1,914.69	92.45	21.711			
4,100.00	3,995.44	3,976.81	3,976.44	17.80	79.41	164.07	-1,057.98	666.39	2,031.94	1,937.05	94.89	21.414			
4,200.00	4,092.07	4,073.45	4,073.07	18.28	81.46	164.27	-1,057.98	666.39	2,056.76	1,959.43	97.33	21.132			
4,300.00	4,188.71	4,170.08	4,169.71	18.75	83.51	164.46	-1,057.98	666.39	2,081.61	1,981.83	99.77	20.864			
4,400.00	4,285.34	4,266.02	4,265.63	19.23	85.55	164.62	-1,055.25	666.39	2,103.94	2,001.74	102.20	20.587			
4,500.00	4,381.97	4,360.06	4,359.66	19.71	87.54	164.80	-1,055.34	666.39	2,128.91	2,024.33	104.58	20.357			
4,600.00	4,478.60	4,454.03	4,453.63	20.19	89.54	164.97	-1,055.56	666.39	2,154.03	2,047.07	106.96	20.139			
4,700.00	4,575.23	4,547.94	4,547.54	20.67	91.53	165.15	-1,055.90	666.39	2,179.28	2,069.94	109.34	19.931			
4,800.00	4,671.86	4,641.79	4,641.38	21.14	93.52	165.32	-1,056.37	666.39	2,204.67	2,092.95	111.72	19.735			
4,900.00	4,768.49	4,735.58	4,735.16	21.62	95.51	165.49	-1,056.95	666.39	2,230.19	2,116.10	114.09	19.548			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	4,865.12	4,829.30	4,828.87	22.10	97.50	165.65	-1,057.66	666.39	2,255.86	2,139.39	116.46	19.370
5,100.00	4,961.75	4,943.31	4,942.75	22.58	99.92	165.84	-1,057.98	666.39	2,281.09	2,161.78	119.31	19.120
5,200.00	5,058.38	5,039.94	5,039.38	23.06	101.98	166.00	-1,057.98	666.39	2,306.10	2,184.35	121.75	18.941
5,300.00	5,155.01	5,136.58	5,136.01	23.54	104.03	166.15	-1,057.98	666.39	2,331.13	2,206.94	124.19	18.770
5,400.00	5,251.64	5,233.21	5,232.64	24.01	106.08	166.30	-1,057.98	666.39	2,356.18	2,229.54	126.64	18.606
5,500.00	5,348.28	5,329.84	5,329.28	24.49	108.14	166.45	-1,057.98	666.39	2,381.24	2,252.16	129.08	18.448
5,600.00	5,444.91	5,426.47	5,425.91	24.97	110.19	166.59	-1,057.98	666.39	2,406.31	2,274.79	131.52	18.296
5,700.00	5,541.54	5,523.10	5,522.54	25.45	112.24	166.73	-1,057.98	666.39	2,431.40	2,297.43	133.97	18.149
5,800.00	5,638.17	5,619.73	5,619.17	25.93	114.30	166.87	-1,057.98	666.39	2,456.50	2,320.09	136.41	18.008
5,900.00	5,734.80	5,716.36	5,715.80	26.41	116.35	167.00	-1,057.98	666.39	2,481.62	2,342.76	138.86	17.872
6,000.00	5,831.43	5,812.99	5,812.43	26.89	118.40	167.14	-1,057.98	666.39	2,506.75	2,365.45	141.30	17.741
6,100.00	5,928.06	5,909.62	5,909.06	27.37	120.45	167.27	-1,057.98	666.39	2,531.89	2,388.14	143.74	17.614
6,200.00	6,024.69	6,006.25	6,005.69	27.85	122.51	167.39	-1,057.98	666.39	2,557.04	2,410.85	146.19	17.491 SF
6,300.00	6,121.32	6,058.00	6,057.26	28.33	123.61	167.46	-1,057.98	666.39	2,582.60	2,435.02	147.58	17.500
6,400.00	6,217.95	6,058.00	6,057.26	28.81	123.61	167.46	-1,057.98	666.39	2,611.22	2,463.61	147.61	17.690
6,500.00	6,314.58	6,058.00	6,057.26	29.29	123.61	167.46	-1,057.98	666.39	2,643.33	2,495.86	147.46	17.925
6,543.64	6,356.75	6,058.00	6,057.26	29.49	123.61	167.46	-1,057.98	666.39	2,658.40	2,511.05	147.35	18.042
6,550.00	6,362.90	6,058.00	6,057.26	29.53	123.61	169.79	-1,057.98	666.39	2,660.65	2,513.33	147.33	18.060
6,600.00	6,411.07	6,058.00	6,057.26	29.77	123.61	-173.01	-1,057.98	666.39	2,679.52	2,532.37	147.15	18.210
6,650.00	6,458.79	6,058.00	6,057.26	30.01	123.61	-158.67	-1,057.98	666.39	2,700.25	2,553.31	146.94	18.377
6,700.00	6,505.76	6,058.00	6,057.26	30.26	123.61	-147.22	-1,057.98	666.39	2,722.66	2,575.97	146.69	18.560
6,750.00	6,551.69	6,058.00	6,057.26	30.50	123.61	-138.00	-1,057.98	666.39	2,746.59	2,600.17	146.42	18.758
6,800.00	6,596.30	6,058.00	6,057.26	30.74	123.61	-130.34	-1,057.98	666.39	2,771.85	2,625.71	146.14	18.967
6,850.00	6,639.32	6,058.00	6,057.26	30.98	123.61	-123.73	-1,057.98	666.39	2,798.24	2,652.41	145.84	19.187
6,900.00	6,680.47	6,058.00	6,057.26	31.21	123.61	-117.85	-1,057.98	666.39	2,825.59	2,680.05	145.54	19.415
6,950.00	6,719.51	6,058.00	6,057.26	31.44	123.61	-112.49	-1,057.98	666.39	2,853.68	2,708.45	145.23	19.649
7,000.00	6,756.20	6,058.00	6,057.26	31.67	123.61	-107.51	-1,057.98	666.39	2,882.34	2,737.39	144.94	19.886
7,050.00	6,790.30	6,058.00	6,057.26	31.90	123.61	-102.84	-1,057.98	666.39	2,911.36	2,766.69	144.66	20.125
7,100.00	6,821.62	6,058.00	6,057.26	32.13	123.61	-98.45	-1,057.98	666.39	2,940.57	2,796.16	144.41	20.363
7,150.00	6,849.95	6,058.00	6,057.26	32.35	123.61	-94.32	-1,057.98	666.39	2,969.77	2,825.59	144.18	20.598
7,200.00	6,875.12	6,058.00	6,057.26	32.58	123.61	-90.44	-1,057.98	666.39	2,998.80	2,854.82	143.98	20.828
7,250.00	6,896.97	6,058.00	6,057.26	32.81	123.61	-86.82	-1,057.98	666.39	3,027.48	2,883.66	143.82	21.050
7,300.00	6,915.38	6,058.00	6,057.26	33.05	123.61	-83.46	-1,057.98	666.39	3,055.65	2,911.95	143.70	21.264
7,350.00	6,930.22	6,058.00	6,057.26	33.29	123.61	-80.37	-1,057.98	666.39	3,083.14	2,939.53	143.62	21.468
7,400.00	6,941.41	6,058.00	6,057.26	33.53	123.61	-77.55	-1,057.98	666.39	3,109.82	2,966.24	143.58	21.660
7,450.00	6,948.88	6,058.00	6,057.26	33.79	123.61	-75.01	-1,057.98	666.39	3,135.53	2,991.95	143.58	21.838
7,500.00	6,952.57	6,058.00	6,057.26	34.05	123.61	-72.74	-1,057.98	666.39	3,160.15	3,016.52	143.63	22.002
7,525.63	6,953.00	6,058.00	6,057.26	34.19	123.61	-71.69	-1,057.98	666.39	3,172.30	3,028.63	143.67	22.080
7,600.00	6,952.79	6,058.00	6,057.26	34.61	123.61	-71.69	-1,057.98	666.39	3,207.76	3,063.94	143.82	22.303
7,700.00	6,952.50	6,058.00	6,057.26	35.23	123.61	-71.69	-1,057.98	666.39	3,257.51	3,113.46	144.06	22.613
7,800.00	6,952.22	6,058.00	6,057.26	35.91	123.61	-71.69	-1,057.98	666.39	3,309.54	3,165.23	144.31	22.933
7,900.00	6,951.93	6,058.00	6,057.26	36.65	123.61	-71.69	-1,057.98	666.39	3,363.73	3,219.14	144.59	23.265
8,000.00	6,951.65	6,058.00	6,057.26	37.45	123.61	-71.69	-1,057.98	666.39	3,419.99	3,275.11	144.88	23.606
8,100.00	6,951.36	6,058.00	6,057.26	38.29	123.61	-71.69	-1,057.98	666.39	3,478.21	3,333.03	145.18	23.957
8,200.00	6,951.08	6,058.00	6,057.26	39.19	123.61	-71.69	-1,057.98	666.39	3,538.30	3,392.80	145.50	24.318
8,300.00	6,950.79	6,058.00	6,057.26	40.13	123.61	-71.69	-1,057.98	666.39	3,600.17	3,454.35	145.82	24.689
8,400.00	6,950.51	6,058.00	6,057.26	41.11	123.61	-71.69	-1,057.98	666.39	3,663.72	3,517.57	146.15	25.068
8,500.00	6,950.22	6,058.00	6,057.26	42.12	123.61	-71.69	-1,057.98	666.39	3,728.88	3,582.39	146.48	25.456
8,600.00	6,949.94	6,058.00	6,057.26	43.18	123.61	-71.69	-1,057.98	666.39	3,795.54	3,648.73	146.82	25.852
8,700.00	6,949.65	6,058.00	6,057.26	44.26	123.61	-71.69	-1,057.98	666.39	3,863.65	3,716.50	147.15	26.256
8,800.00	6,949.37	6,058.00	6,057.26	45.38	123.61	-71.69	-1,057.98	666.39	3,933.12	3,785.64	147.48	26.668
8,900.00	6,949.08	6,058.00	6,057.26	46.53	123.61	-71.69	-1,057.98	666.39	4,003.88	3,856.07	147.81	27.087

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,948.80	6,058.00	6,057.26	47.70	123.61	-71.69	-1,057.98	666.39	4,075.87	3,927.73	148.14	27.514
9,100.00	6,948.51	6,058.00	6,057.26	48.89	123.61	-71.69	-1,057.98	666.39	4,149.02	4,000.56	148.46	27.947
9,200.00	6,948.23	6,058.00	6,057.26	50.11	123.61	-71.69	-1,057.98	666.39	4,223.27	4,074.49	148.78	28.387
9,300.00	6,947.94	6,058.00	6,057.26	51.35	123.61	-71.69	-1,057.98	666.39	4,298.56	4,149.48	149.09	28.832
9,400.00	6,947.66	6,058.00	6,057.26	52.61	123.61	-71.69	-1,057.98	666.39	4,374.85	4,225.45	149.39	29.284
9,500.00	6,947.37	6,058.00	6,057.26	53.89	123.61	-71.69	-1,057.98	666.39	4,452.07	4,302.38	149.69	29.742
9,600.00	6,947.09	6,058.00	6,057.26	55.18	123.61	-71.69	-1,057.98	666.39	4,530.18	4,380.20	149.98	30.205
9,700.00	6,946.80	6,058.00	6,057.26	56.49	123.61	-71.69	-1,057.98	666.39	4,609.14	4,458.88	150.27	30.673
9,800.00	6,946.52	6,058.00	6,057.26	57.81	123.61	-71.69	-1,057.98	666.39	4,688.91	4,538.36	150.55	31.146
9,900.00	6,946.23	6,058.00	6,057.26	59.15	123.61	-71.69	-1,057.98	666.39	4,769.43	4,618.61	150.82	31.624
10,000.00	6,945.95	6,058.00	6,057.26	60.50	123.61	-71.69	-1,057.98	666.39	4,850.68	4,699.60	151.08	32.106
10,100.00	6,945.66	6,058.00	6,057.26	61.87	123.61	-71.69	-1,057.98	666.39	4,932.62	4,781.28	151.34	32.592
10,200.00	6,945.38	6,058.00	6,057.26	63.24	123.61	-71.69	-1,057.98	666.39	5,015.22	4,863.62	151.60	33.083
10,300.00	6,945.09	6,058.00	6,057.26	64.63	123.61	-71.69	-1,057.98	666.39	5,098.44	4,946.59	151.84	33.577
10,400.00	6,944.81	6,058.00	6,057.26	66.02	123.61	-71.69	-1,057.98	666.39	5,182.25	5,030.17	152.08	34.075
10,500.00	6,944.52	6,058.00	6,057.26	67.42	123.61	-71.69	-1,057.98	666.39	5,266.62	5,114.31	152.32	34.577
10,600.00	6,944.24	6,058.00	6,057.26	68.84	123.61	-71.69	-1,057.98	666.39	5,351.54	5,199.00	152.54	35.082
10,700.00	6,943.95	6,058.00	6,057.26	70.26	123.61	-71.69	-1,057.98	666.39	5,436.97	5,284.20	152.77	35.590
10,800.00	6,943.67	6,058.00	6,057.26	71.68	123.61	-71.69	-1,057.98	666.39	5,522.88	5,369.90	152.98	36.101
10,900.00	6,943.38	6,058.00	6,057.26	73.12	123.61	-71.69	-1,057.98	666.39	5,609.27	5,456.07	153.19	36.615
11,000.00	6,943.10	6,058.00	6,057.26	74.56	123.61	-71.69	-1,057.98	666.39	5,696.10	5,542.70	153.40	37.132
11,100.00	6,942.81	6,058.00	6,057.26	76.01	123.61	-71.69	-1,057.98	666.39	5,783.35	5,629.75	153.60	37.651
11,200.00	6,942.53	6,058.00	6,057.26	77.46	123.61	-71.69	-1,057.98	666.39	5,871.02	5,717.22	153.80	38.173
11,300.00	6,942.24	6,058.00	6,057.26	78.92	123.61	-71.69	-1,057.98	666.39	5,959.07	5,805.07	153.99	38.697
11,400.00	6,941.96	6,058.00	6,057.26	80.39	123.61	-71.69	-1,057.98	666.39	6,047.49	5,893.31	154.18	39.224
11,500.00	6,941.67	6,058.00	6,057.26	81.86	123.61	-71.69	-1,057.98	666.39	6,136.26	5,981.90	154.36	39.752
11,600.00	6,941.39	6,058.00	6,057.26	83.33	123.61	-71.69	-1,057.98	666.39	6,225.38	6,070.84	154.54	40.283
11,700.00	6,941.10	6,058.00	6,057.26	84.81	123.61	-71.69	-1,057.98	666.39	6,314.83	6,160.11	154.72	40.815
11,800.00	6,940.81	6,058.00	6,057.26	86.30	123.61	-71.69	-1,057.98	666.39	6,404.58	6,249.69	154.89	41.350
11,900.00	6,940.53	6,058.00	6,057.26	87.79	123.61	-71.69	-1,057.98	666.39	6,494.64	6,339.58	155.06	41.885
12,000.00	6,940.24	6,058.00	6,057.26	89.28	123.61	-71.69	-1,057.98	666.39	6,584.98	6,429.76	155.22	42.423
12,100.00	6,939.96	6,058.00	6,057.26	90.77	123.61	-71.69	-1,057.98	666.39	6,675.60	6,520.21	155.38	42.962
12,200.00	6,939.67	6,058.00	6,057.26	92.27	123.61	-71.69	-1,057.98	666.39	6,766.48	6,610.94	155.54	43.503
12,300.00	6,939.39	6,058.00	6,057.26	93.78	123.61	-71.69	-1,057.98	666.39	6,857.61	6,701.92	155.70	44.045
12,400.00	6,939.10	6,058.00	6,057.26	95.28	123.61	-71.69	-1,057.98	666.39	6,948.99	6,793.14	155.85	44.588
12,500.00	6,938.82	6,058.00	6,057.26	96.79	123.61	-71.69	-1,057.98	666.39	7,040.61	6,884.61	156.00	45.133
12,600.00	6,938.53	6,058.00	6,057.26	98.30	123.61	-71.69	-1,057.98	666.39	7,132.45	6,976.30	156.14	45.678
12,700.00	6,938.25	6,058.00	6,057.26	99.82	123.61	-71.69	-1,057.98	666.39	7,224.50	7,068.21	156.29	46.225
12,800.00	6,937.96	6,058.00	6,057.26	101.34	123.61	-71.69	-1,057.98	666.39	7,316.77	7,160.34	156.43	46.773
12,900.00	6,937.68	6,058.00	6,057.26	102.86	123.61	-71.69	-1,057.98	666.39	7,409.23	7,252.66	156.57	47.322
13,000.00	6,937.39	6,058.00	6,057.26	104.38	123.61	-71.69	-1,057.98	666.39	7,501.89	7,345.18	156.71	47.872
13,100.00	6,937.11	6,058.00	6,057.26	105.91	123.61	-71.69	-1,057.98	666.39	7,594.73	7,437.89	156.84	48.423
13,200.00	6,936.82	6,058.00	6,057.26	107.43	123.61	-71.69	-1,057.98	666.39	7,687.76	7,530.78	156.98	48.974
13,300.00	6,936.54	6,058.00	6,057.26	108.96	123.61	-71.69	-1,057.98	666.39	7,780.96	7,623.85	157.11	49.526
13,400.00	6,936.25	6,058.00	6,057.26	110.49	123.61	-71.69	-1,057.98	666.39	7,874.32	7,717.08	157.24	50.079
13,500.00	6,935.97	6,058.00	6,057.26	112.03	123.61	-71.69	-1,057.98	666.39	7,967.85	7,810.48	157.36	50.633
13,600.00	6,935.68	6,058.00	6,057.26	113.56	123.61	-71.69	-1,057.98	666.39	8,061.53	7,904.04	157.49	51.188
13,700.00	6,935.40	6,058.00	6,057.26	115.10	123.61	-71.69	-1,057.98	666.39	8,155.36	7,997.74	157.61	51.743
13,800.00	6,935.11	6,058.00	6,057.26	116.64	123.61	-71.69	-1,057.98	666.39	8,249.33	8,091.60	157.74	52.298
13,900.00	6,934.83	6,058.00	6,057.26	118.18	123.61	-71.69	-1,057.98	666.39	8,343.45	8,185.59	157.86	52.854
14,000.00	6,934.54	6,058.00	6,057.26	119.72	123.61	-71.69	-1,057.98	666.39	8,437.70	8,279.72	157.98	53.411
14,100.00	6,934.26	6,058.00	6,057.26	121.26	123.61	-71.69	-1,057.98	666.39	8,532.08	8,373.98	158.10	53.967

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)			
19,400.00	6,919.15	6,058.00	6,057.26	204.36	123.61	-71.69	-1,057.98	666.39	13,649.30	13,485.81	163.49	83.487	
19,500.00	6,918.86	6,058.00	6,057.26	205.95	123.61	-71.69	-1,057.98	666.39	13,747.18	13,583.60	163.59	84.036	
19,600.00	6,918.58	6,058.00	6,057.26	207.53	123.61	-71.69	-1,057.98	666.39	13,845.09	13,681.41	163.68	84.585	
19,700.00	6,918.29	6,058.00	6,057.26	209.11	123.61	-71.69	-1,057.98	666.39	13,943.04	13,779.26	163.78	85.133	
19,800.00	6,918.01	6,058.00	6,057.26	210.69	123.61	-71.69	-1,057.98	666.39	14,041.01	13,877.13	163.88	85.681	
19,900.00	6,917.72	6,058.00	6,057.26	212.28	123.61	-71.69	-1,057.98	666.39	14,139.01	13,975.04	163.97	86.228	
20,000.00	6,917.44	6,058.00	6,057.26	213.86	123.61	-71.69	-1,057.98	666.39	14,237.04	14,072.97	164.07	86.775	
20,100.00	6,917.15	6,058.00	6,057.26	215.45	123.61	-71.69	-1,057.98	666.39	14,335.09	14,170.93	164.17	87.321	
20,200.00	6,916.87	6,058.00	6,057.26	217.03	123.61	-71.69	-1,057.98	666.39	14,433.17	14,268.91	164.26	87.867	
20,300.00	6,916.58	6,058.00	6,057.26	218.61	123.61	-71.69	-1,057.98	666.39	14,531.28	14,366.92	164.36	88.412	
20,400.00	6,916.30	6,058.00	6,057.26	220.20	123.61	-71.69	-1,057.98	666.39	14,629.41	14,464.96	164.46	88.957	
20,500.00	6,916.01	6,058.00	6,057.26	221.78	123.61	-71.69	-1,057.98	666.39	14,727.57	14,563.02	164.55	89.501	
20,600.00	6,915.73	6,058.00	6,057.26	223.37	123.61	-71.69	-1,057.98	666.39	14,825.76	14,661.11	164.65	90.044	
20,700.00	6,915.44	6,058.00	6,057.26	224.95	123.61	-71.69	-1,057.98	666.39	14,923.96	14,759.22	164.75	90.587	
20,800.00	6,915.16	6,058.00	6,057.26	226.54	123.61	-71.69	-1,057.98	666.39	15,022.19	14,857.35	164.84	91.130	
20,855.45	6,915.00	6,058.00	6,057.26	227.42	123.61	-71.69	-1,057.98	666.39	15,076.68	14,911.78	164.90	91.431	

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	-1.22	1,589.53	-33.91	1,589.96				
100.00	100.00	85.00	85.00	0.25	1.17	-1.22	1,589.53	-33.91	1,589.89	1,588.47	1.42	1,118.152	
200.00	200.00	185.00	185.00	0.61	2.55	-1.22	1,589.53	-33.91	1,589.89	1,586.73	3.16	503.492	
300.00	300.00	285.00	285.00	0.97	3.93	-1.22	1,589.53	-33.91	1,589.89	1,585.00	4.89	324.894	
400.00	400.00	385.00	385.00	1.33	5.30	-1.22	1,589.53	-33.91	1,589.89	1,583.26	6.63	239.824	
500.00	500.00	485.00	485.00	1.68	6.68	-1.22	1,589.53	-33.91	1,589.89	1,581.53	8.37	190.059	
600.00	599.98	585.06	584.98	2.04	8.78	5.40	1,589.53	-33.91	1,588.15	1,577.33	10.83	146.676	
700.00	699.84	684.92	684.84	2.41	11.19	5.43	1,589.53	-33.91	1,582.94	1,569.35	13.60	116.406	
800.00	799.45	786.12	786.01	2.77	13.63	5.48	1,591.46	-33.91	1,576.20	1,559.80	16.40	96.092	
900.00	898.70	895.69	895.57	3.13	16.28	5.55	1,590.99	-33.91	1,563.65	1,544.24	19.41	80.554	
1,000.00	997.47	1,004.53	1,004.38	3.50	18.90	5.64	1,589.82	-33.91	1,547.01	1,524.61	22.40	69.058	
1,100.00	1,095.62	1,080.85	1,080.62	3.89	20.63	5.73	1,589.53	-33.91	1,527.58	1,503.09	24.49	62.369	
1,200.00	1,193.06	1,178.29	1,178.06	4.30	22.77	5.87	1,589.53	-33.91	1,505.19	1,478.18	27.01	55.727	
1,245.75	1,237.35	1,222.58	1,222.35	4.49	23.75	5.94	1,589.53	-33.91	1,493.83	1,465.67	28.16	53.049	
1,300.00	1,289.78	1,276.01	1,275.77	4.72	24.93	5.99	1,590.54	-33.91	1,480.95	1,451.41	29.54	50.140	
1,400.00	1,386.41	1,378.19	1,377.94	5.15	27.18	6.11	1,590.28	-33.91	1,455.10	1,422.94	32.15	45.254	
1,500.00	1,483.04	1,480.17	1,479.91	5.59	29.43	6.22	1,589.63	-33.91	1,428.88	1,394.11	34.77	41.096	
1,600.00	1,579.67	1,564.99	1,564.67	6.04	31.38	6.32	1,589.53	-33.91	1,403.14	1,366.04	37.10	37.824	
1,700.00	1,676.30	1,661.62	1,661.30	6.49	33.61	6.44	1,589.53	-33.91	1,377.55	1,337.84	39.71	34.692	
1,800.00	1,772.93	1,759.02	1,758.68	6.95	35.87	6.56	1,590.91	-33.91	1,353.34	1,311.00	42.34	31.964	
1,900.00	1,869.56	1,861.50	1,861.16	7.41	38.24	6.70	1,590.63	-33.91	1,327.50	1,282.41	45.09	29.443	
2,000.00	1,966.19	1,963.77	1,963.41	7.87	40.61	6.84	1,589.90	-33.91	1,301.24	1,253.41	47.83	27.206	
2,100.00	2,062.83	2,048.27	2,047.83	8.33	42.61	6.96	1,589.53	-33.91	1,275.25	1,225.02	50.23	25.390	
2,200.00	2,159.46	2,144.90	2,144.46	8.80	44.95	7.10	1,589.53	-33.91	1,249.69	1,196.74	52.95	23.603	
2,300.00	2,256.09	2,241.53	2,241.09	9.27	47.29	7.25	1,589.53	-33.91	1,224.14	1,168.47	55.67	21.990	
2,400.00	2,352.72	2,343.45	2,342.98	9.73	49.75	7.41	1,590.65	-33.91	1,199.73	1,141.22	58.51	20.504	
2,500.00	2,449.35	2,445.33	2,444.86	10.20	52.22	7.58	1,589.97	-33.91	1,173.55	1,112.20	61.35	19.127	
2,600.00	2,545.98	2,531.56	2,530.98	10.67	54.35	7.74	1,589.53	-33.91	1,147.54	1,083.66	63.88	17.963	
2,700.00	2,642.61	2,628.19	2,627.61	11.15	56.78	7.91	1,589.53	-33.91	1,122.03	1,055.31	66.71	16.819	
2,800.00	2,739.24	2,724.82	2,724.24	11.62	59.22	8.10	1,589.53	-33.91	1,096.52	1,026.98	69.54	15.769	
2,900.00	2,835.87	2,825.20	2,824.59	12.09	61.76	8.30	1,591.14	-33.91	1,072.65	1,000.19	72.45	14.805	
3,000.00	2,932.50	2,927.06	2,926.43	12.56	64.33	8.51	1,590.53	-33.91	1,046.59	971.19	75.40	13.880	
3,100.00	3,029.13	3,028.66	3,028.02	13.04	66.89	8.74	1,589.41	-33.91	1,020.06	941.72	78.34	13.021	
3,200.00	3,125.77	3,111.53	3,110.77	13.51	68.79	8.93	1,589.53	-33.91	994.63	913.96	80.66	12.331	
3,300.00	3,222.40	3,208.16	3,207.40	13.99	71.03	9.17	1,589.53	-33.91	969.19	885.89	83.29	11.636	
3,400.00	3,319.03	3,304.79	3,304.03	14.46	73.26	9.42	1,589.53	-33.91	943.76	857.84	85.92	10.984	
3,500.00	3,415.66	3,403.71	3,402.91	14.94	75.55	9.68	1,591.57	-33.91	920.40	831.80	88.60	10.389	
3,600.00	3,512.29	3,503.95	3,503.14	15.42	77.87	9.97	1,591.12	-33.91	894.58	803.28	91.30	9.798	
3,700.00	3,608.92	3,603.99	3,603.16	15.89	80.19	10.28	1,590.26	-33.91	868.39	774.39	94.00	9.239	
3,800.00	3,705.55	3,691.47	3,690.55	16.37	82.16	10.56	1,589.53	-33.91	842.26	745.87	96.39	8.738	
3,900.00	3,802.18	3,788.10	3,787.18	16.84	84.20	10.89	1,589.53	-33.91	816.95	718.11	98.83	8.266	
4,000.00	3,898.81	3,884.73	3,883.81	17.32	86.24	11.24	1,589.53	-33.91	791.66	690.38	101.27	7.817	
4,100.00	3,995.44	3,981.36	3,980.44	17.80	88.28	11.62	1,589.53	-33.91	766.39	662.68	103.71	7.390	
4,200.00	4,092.07	4,077.99	4,077.07	18.28	90.33	12.02	1,589.53	-33.91	741.17	635.01	106.16	6.982	
4,300.00	4,188.71	4,174.63	4,173.71	18.75	92.37	12.45	1,589.53	-33.91	715.97	607.38	108.60	6.593	
4,400.00	4,285.34	4,271.26	4,270.34	19.23	94.41	12.91	1,589.53	-33.91	690.82	579.78	111.04	6.221	
4,500.00	4,381.97	4,367.89	4,366.97	19.71	96.45	13.40	1,589.53	-33.91	665.72	552.22	113.49	5.866	
4,600.00	4,478.60	4,464.52	4,463.60	20.19	98.49	13.93	1,589.53	-33.91	640.66	524.72	115.94	5.526	
4,700.00	4,575.23	4,561.56	4,560.61	20.67	100.54	14.47	1,593.14	-33.91	619.24	500.84	118.40	5.230	
4,800.00	4,671.86	4,658.79	4,657.83	21.14	102.60	15.09	1,593.03	-33.91	594.19	473.32	120.86	4.916	
4,900.00	4,768.49	4,755.97	4,755.01	21.62	104.65	15.77	1,592.81	-33.91	569.11	445.78	123.33	4.615	
5,000.00	4,865.12	4,853.10	4,852.13	22.10	106.70	16.51	1,592.50	-33.91	544.01	418.21	125.80	4.324	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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)			
5,100.00	4,961.75	4,950.18	4,949.20	22.58	108.75	17.33	1,592.09	-33.91	518.91	390.64	128.27	4.045	
5,200.00	5,058.38	5,047.20	5,046.22	23.06	110.80	18.23	1,591.58	-33.91	493.83	363.08	130.75	3.777	
5,300.00	5,155.01	5,144.18	5,143.19	23.54	112.85	19.23	1,590.98	-33.91	468.77	335.54	133.23	3.518	
5,400.00	5,251.64	5,241.11	5,240.11	24.01	114.90	20.35	1,590.27	-33.91	443.77	308.04	135.72	3.270	
5,500.00	5,348.28	5,334.45	5,333.28	24.49	116.86	21.55	1,589.53	-33.91	418.89	280.71	138.18	3.032	
5,600.00	5,444.91	5,431.08	5,429.91	24.97	118.64	22.91	1,589.53	-33.91	394.95	254.52	140.43	2.813	
5,700.00	5,541.54	5,527.71	5,526.54	25.45	120.42	24.45	1,589.53	-33.91	371.25	228.56	142.69	2.602	
5,800.00	5,638.17	5,624.34	5,623.17	25.93	122.20	26.20	1,589.53	-33.91	347.84	202.86	144.98	2.399	
5,900.00	5,734.80	5,720.97	5,719.80	26.41	123.98	28.19	1,589.53	-33.91	324.78	177.50	147.29	2.205	
6,000.00	5,831.43	5,817.60	5,816.43	26.89	125.77	30.47	1,589.53	-33.91	302.16	152.53	149.62	2.019	
6,100.00	5,928.06	5,914.24	5,913.06	27.37	127.55	33.12	1,589.53	-33.91	280.07	128.07	152.00	1.843	
6,200.00	6,024.69	6,010.87	6,009.69	27.85	129.33	36.20	1,589.53	-33.91	258.66	104.24	154.42	1.675	
6,300.00	6,121.32	6,107.50	6,106.32	28.33	131.11	39.81	1,589.53	-33.91	238.11	81.21	156.90	1.518	
6,400.00	6,217.95	6,204.13	6,202.95	28.81	132.89	44.06	1,589.53	-33.91	218.66	59.22	159.44	1.371	Level 3
6,500.00	6,314.58	6,300.76	6,299.58	29.29	134.67	49.08	1,589.53	-33.91	200.63	38.57	162.06	1.238	Level 3
6,543.64	6,356.75	6,342.93	6,341.75	29.49	135.45	51.54	1,589.53	-33.91	193.31	30.09	163.22	1.184	Level 3
6,550.00	6,362.90	6,349.07	6,347.90	29.53	135.56	54.11	1,589.53	-33.91	192.30	28.90	163.40	1.177	Level 3
6,600.00	6,411.07	6,397.24	6,396.07	29.77	136.45	73.47	1,589.53	-33.91	186.30	21.51	164.79	1.131	Level 3
6,648.94	6,457.78	6,443.96	6,442.78	30.01	137.31	90.00	1,589.53	-33.91	184.22	18.01	166.21	1.108	Level 3, CC
6,650.00	6,458.79	6,444.96	6,443.79	30.01	137.33	90.33	1,589.53	-33.91	184.22	17.98	166.24	1.108	Level 3, ES, SF
6,700.00	6,505.76	6,491.93	6,490.76	30.26	138.19	104.40	1,589.53	-33.91	186.68	18.98	167.70	1.113	Level 3
6,750.00	6,551.69	6,537.86	6,536.69	30.50	139.04	116.06	1,589.53	-33.91	194.12	25.02	169.11	1.148	Level 3
6,800.00	6,596.30	6,582.47	6,581.30	30.74	139.86	125.74	1,589.53	-33.91	206.76	36.35	170.40	1.213	Level 3
6,850.00	6,639.32	6,625.49	6,624.32	30.98	140.65	133.77	1,589.53	-33.91	224.51	52.93	171.58	1.308	Level 3
6,900.00	6,680.47	6,666.65	6,665.47	31.21	141.41	140.42	1,589.53	-33.91	247.07	74.45	172.62	1.431	Level 3
6,950.00	6,719.51	6,705.69	6,704.51	31.44	142.13	145.92	1,589.53	-33.91	274.04	100.48	173.56	1.579	
7,000.00	6,756.20	6,742.37	6,741.20	31.67	142.81	150.48	1,589.53	-33.91	304.96	130.56	174.40	1.749	
7,050.00	6,790.30	6,776.48	6,775.30	31.90	143.44	154.26	1,589.53	-33.91	339.38	164.22	175.16	1.938	
7,100.00	6,821.62	6,807.79	6,806.62	32.13	144.01	157.42	1,589.53	-33.91	376.89	201.06	175.84	2.143	
7,150.00	6,849.95	6,836.12	6,834.95	32.35	144.54	160.11	1,589.53	-33.91	417.11	240.67	176.44	2.364	
7,200.00	6,875.12	6,861.29	6,860.12	32.58	145.00	162.44	1,589.53	-33.91	459.68	282.71	176.97	2.597	
7,250.00	6,896.97	6,883.15	6,881.97	32.81	145.40	164.54	1,589.53	-33.91	504.27	326.83	177.43	2.842	
7,300.00	6,915.38	6,901.55	6,900.38	33.05	145.74	166.55	1,589.53	-33.91	550.53	372.71	177.82	3.096	
7,350.00	6,930.22	6,916.40	6,915.22	33.29	146.01	168.72	1,589.53	-33.91	598.16	420.03	178.13	3.358	
7,400.00	6,941.41	6,927.58	6,926.41	33.53	146.22	171.57	1,589.53	-33.91	646.84	468.48	178.36	3.627	
7,450.00	6,948.88	6,935.05	6,933.88	33.79	146.36	176.97	1,589.53	-33.91	696.26	517.75	178.51	3.900	
7,500.00	6,952.57	6,938.75	6,937.57	34.05	146.43	-158.77	1,589.53	-33.91	746.11	567.52	178.59	4.178	
7,525.63	6,953.00	6,939.17	6,938.00	34.19	146.43	-83.13	1,589.53	-33.91	771.73	593.13	178.60	4.321	
7,600.00	6,952.79	6,938.96	6,937.79	34.61	146.43	-82.48	1,589.53	-33.91	846.08	667.48	178.60	4.737	
7,700.00	6,952.50	6,938.68	6,937.50	35.23	146.43	-81.60	1,589.53	-33.91	946.06	767.46	178.60	5.297	
7,800.00	6,952.22	6,938.39	6,937.22	35.91	146.42	-80.73	1,589.53	-33.91	1,046.04	867.44	178.60	5.857	
7,900.00	6,951.93	6,938.11	6,936.93	36.65	146.41	-79.86	1,589.53	-33.91	1,146.03	967.42	178.61	6.416	
8,000.00	6,951.65	6,937.82	6,936.65	37.45	146.41	-78.99	1,589.53	-33.91	1,246.02	1,067.41	178.61	6.976	
8,100.00	6,951.36	6,937.54	6,936.36	38.29	146.40	-78.13	1,589.53	-33.91	1,346.01	1,167.39	178.62	7.536	
8,200.00	6,951.08	6,937.25	6,936.08	39.19	146.40	-77.28	1,589.53	-33.91	1,446.00	1,267.38	178.62	8.095	
8,300.00	6,950.79	6,936.97	6,935.79	40.13	146.39	-76.43	1,589.53	-33.91	1,545.99	1,367.36	178.63	8.655	
8,400.00	6,950.51	6,936.68	6,935.51	41.11	146.39	-75.59	1,589.53	-33.91	1,645.98	1,467.35	178.64	9.214	
8,500.00	6,950.22	6,936.40	6,935.22	42.12	146.38	-74.75	1,589.53	-33.91	1,745.98	1,567.33	178.64	9.774	
8,600.00	6,949.94	6,936.11	6,934.94	43.18	146.38	-73.93	1,589.53	-33.91	1,845.97	1,667.32	178.65	10.333	
8,700.00	6,949.65	6,935.83	6,934.65	44.26	146.37	-73.10	1,589.53	-33.91	1,945.97	1,767.30	178.66	10.892	
8,800.00	6,949.37	6,935.54	6,934.37	45.38	146.37	-72.29	1,589.53	-33.91	2,045.96	1,867.29	178.67	11.451	
8,900.00	6,949.08	6,935.26	6,934.08	46.53	146.36	-71.48	1,589.53	-33.91	2,145.96	1,967.27	178.68	12.010	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,933.97	6,920.15	6,918.97	122.81	146.08	-40.71	1,589.53	-33.91	7,445.88	7,265.61	180.27	41.305	
14,300.00	6,933.69	6,919.86	6,918.69	124.36	146.08	-40.33	1,589.53	-33.91	7,545.88	7,365.57	180.31	41.849	
14,400.00	6,933.40	6,919.58	6,918.40	125.90	146.07	-39.96	1,589.53	-33.91	7,645.88	7,465.52	180.36	42.392	
14,500.00	6,933.12	6,919.29	6,918.12	127.45	146.07	-39.59	1,589.53	-33.91	7,745.88	7,565.47	180.41	42.935	
14,600.00	6,932.83	6,919.01	6,917.83	129.00	146.06	-39.23	1,589.53	-33.91	7,845.88	7,665.42	180.46	43.477	
14,700.00	6,932.55	6,918.72	6,917.55	130.56	146.06	-38.88	1,589.53	-33.91	7,945.88	7,765.37	180.51	44.019	
14,800.00	6,932.26	6,918.44	6,917.26	132.11	146.05	-38.53	1,589.53	-33.91	8,045.88	7,865.32	180.56	44.561	
14,900.00	6,931.98	6,918.15	6,916.98	133.66	146.05	-38.18	1,589.53	-33.91	8,145.88	7,965.26	180.61	45.102	
15,000.00	6,931.69	6,917.87	6,916.69	135.22	146.04	-37.84	1,589.53	-33.91	8,245.88	8,065.21	180.66	45.642	
15,100.00	6,931.41	6,917.58	6,916.41	136.77	146.04	-37.51	1,589.53	-33.91	8,345.87	8,165.16	180.72	46.182	
15,200.00	6,931.12	6,917.30	6,916.12	138.33	146.03	-37.18	1,589.53	-33.91	8,445.87	8,265.11	180.77	46.722	
15,300.00	6,930.84	6,917.01	6,915.84	139.89	146.03	-36.86	1,589.53	-33.91	8,545.87	8,365.05	180.82	47.261	
15,400.00	6,930.55	6,916.73	6,915.55	141.45	146.02	-36.54	1,589.53	-33.91	8,645.87	8,465.00	180.88	47.800	
15,500.00	6,930.27	6,916.44	6,915.27	143.01	146.02	-36.22	1,589.53	-33.91	8,745.87	8,564.94	180.93	48.338	
15,600.00	6,929.98	6,916.16	6,914.98	144.57	146.01	-35.91	1,589.53	-33.91	8,845.87	8,664.89	180.99	48.876	
15,700.00	6,929.70	6,915.87	6,914.70	146.13	146.00	-35.61	1,589.53	-33.91	8,945.87	8,764.83	181.04	49.414	
15,800.00	6,929.41	6,915.59	6,914.41	147.70	146.00	-35.30	1,589.53	-33.91	9,045.87	8,864.77	181.10	49.950	
15,900.00	6,929.13	6,915.30	6,914.13	149.26	145.99	-35.01	1,589.53	-33.91	9,145.87	8,964.72	181.15	50.487	
16,000.00	6,928.84	6,915.02	6,913.84	150.82	145.99	-34.72	1,589.53	-33.91	9,245.87	9,064.66	181.21	51.023	
16,100.00	6,928.56	6,914.73	6,913.56	152.39	145.98	-34.43	1,589.53	-33.91	9,345.87	9,164.60	181.27	51.558	
16,200.00	6,928.27	6,914.45	6,913.27	153.96	145.98	-34.14	1,589.53	-33.91	9,445.87	9,264.54	181.33	52.093	
16,300.00	6,927.99	6,914.16	6,912.99	155.52	145.97	-33.86	1,589.53	-33.91	9,545.87	9,364.48	181.39	52.627	
16,400.00	6,927.70	6,913.88	6,912.70	157.09	145.97	-33.59	1,589.53	-33.91	9,645.87	9,464.42	181.45	53.161	
16,500.00	6,927.42	6,913.59	6,912.42	158.66	145.96	-33.32	1,589.53	-33.91	9,745.87	9,564.36	181.51	53.694	
16,600.00	6,927.13	6,913.31	6,912.13	160.23	145.96	-33.05	1,589.53	-33.91	9,845.87	9,664.30	181.57	54.227	
16,700.00	6,926.85	6,913.02	6,911.85	161.80	145.95	-32.79	1,589.53	-33.91	9,945.86	9,764.24	181.63	54.759	
16,800.00	6,926.56	6,912.74	6,911.56	163.37	145.95	-32.52	1,589.53	-33.91	10,045.86	9,864.17	181.69	55.291	
16,900.00	6,926.28	6,912.45	6,911.28	164.94	145.94	-32.27	1,589.53	-33.91	10,145.86	9,964.11	181.75	55.822	
17,000.00	6,925.99	6,912.17	6,910.99	166.51	145.94	-32.01	1,589.53	-33.91	10,245.86	10,064.05	181.82	56.353	
17,100.00	6,925.71	6,911.88	6,910.71	168.08	145.93	-31.77	1,589.53	-33.91	10,345.86	10,163.98	181.88	56.883	
17,200.00	6,925.42	6,911.60	6,910.42	169.65	145.93	-31.52	1,589.53	-33.91	10,445.86	10,263.92	181.94	57.413	
17,300.00	6,925.14	6,911.31	6,910.14	171.23	145.92	-31.28	1,589.53	-33.91	10,545.86	10,363.85	182.01	57.942	
17,400.00	6,924.85	6,911.02	6,909.85	172.80	145.92	-31.04	1,589.53	-33.91	10,645.86	10,463.79	182.07	58.471	
17,500.00	6,924.57	6,910.74	6,909.57	174.37	145.91	-30.80	1,589.53	-33.91	10,745.86	10,563.72	182.14	58.999	
17,600.00	6,924.28	6,910.45	6,909.28	175.95	145.91	-30.57	1,589.53	-33.91	10,845.86	10,663.66	182.20	59.526	
17,700.00	6,924.00	6,910.17	6,909.00	177.52	145.90	-30.34	1,589.53	-33.91	10,945.86	10,763.59	182.27	60.053	
17,800.00	6,923.71	6,909.88	6,908.71	179.10	145.89	-30.11	1,589.53	-33.91	11,045.86	10,863.52	182.34	60.579	
17,900.00	6,923.43	6,909.60	6,908.43	180.68	145.89	-29.89	1,589.53	-33.91	11,145.86	10,963.45	182.40	61.105	
18,000.00	6,923.14	6,909.31	6,908.14	182.25	145.88	-29.67	1,589.53	-33.91	11,245.86	11,063.39	182.47	61.631	
18,100.00	6,922.86	6,909.03	6,907.86	183.83	145.88	-29.45	1,589.53	-33.91	11,345.86	11,163.32	182.54	62.155	
18,200.00	6,922.57	6,908.74	6,907.57	185.41	145.87	-29.23	1,589.53	-33.91	11,445.86	11,263.25	182.61	62.680	
18,300.00	6,922.29	6,908.46	6,907.29	186.98	145.87	-29.02	1,589.53	-33.91	11,545.86	11,363.18	182.68	63.203	
18,400.00	6,922.00	6,908.17	6,907.00	188.56	145.86	-28.81	1,589.53	-33.91	11,645.86	11,463.11	182.75	63.726	
18,500.00	6,921.71	6,907.89	6,906.71	190.14	145.86	-28.61	1,589.53	-33.91	11,745.85	11,563.04	182.82	64.249	
18,600.00	6,921.43	6,907.60	6,906.43	191.72	145.85	-28.40	1,589.53	-33.91	11,845.85	11,662.96	182.89	64.771	
18,700.00	6,921.14	6,907.32	6,906.14	193.30	145.85	-28.20	1,589.53	-33.91	11,945.85	11,762.89	182.96	65.292	
18,800.00	6,920.86	6,907.03	6,905.86	194.88	145.84	-28.00	1,589.53	-33.91	12,045.85	11,862.82	183.03	65.813	
18,900.00	6,920.57	6,906.75	6,905.57	196.46	145.84	-27.81	1,589.53	-33.91	12,145.85	11,962.75	183.10	66.333	
19,000.00	6,920.29	6,906.46	6,905.29	198.04	145.83	-27.61	1,589.53	-33.91	12,245.85	12,062.67	183.18	66.852	
19,100.00	6,920.00	6,906.18	6,905.00	199.62	145.83	-27.42	1,589.53	-33.91	12,345.85	12,162.60	183.25	67.371	
19,200.00	6,919.72	6,905.89	6,904.72	201.20	145.82	-27.24	1,589.53	-33.91	12,445.85	12,262.53	183.32	67.890	
19,300.00	6,919.43	6,905.61	6,904.43	202.78	145.82	-27.05	1,589.53	-33.91	12,545.85	12,362.45	183.40	68.408	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:	
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	6,919.15	6,905.32	6,904.15	204.36	145.81	-26.87	1,589.53	-33.91	12,645.85	12,462.38	183.47	68.925
19,500.00	6,918.86	6,905.04	6,903.86	205.95	145.81	-26.68	1,589.53	-33.91	12,745.85	12,562.30	183.55	69.442
19,600.00	6,918.58	6,904.75	6,903.58	207.53	145.80	-26.50	1,589.53	-33.91	12,845.85	12,662.23	183.62	69.958
19,700.00	6,918.29	6,904.47	6,903.29	209.11	145.79	-26.33	1,589.53	-33.91	12,945.85	12,762.15	183.70	70.473
19,800.00	6,918.01	6,904.18	6,903.01	210.69	145.79	-26.15	1,589.53	-33.91	13,045.85	12,862.07	183.78	70.988
19,900.00	6,917.72	6,903.90	6,902.72	212.28	145.78	-25.98	1,589.53	-33.91	13,145.85	12,962.00	183.85	71.502
20,000.00	6,917.44	6,903.61	6,902.44	213.86	145.78	-25.81	1,589.53	-33.91	13,245.85	13,061.92	183.93	72.016
20,100.00	6,917.15	6,903.33	6,902.15	215.45	145.77	-25.64	1,589.53	-33.91	13,345.85	13,161.84	184.01	72.529
20,200.00	6,916.87	6,903.04	6,901.87	217.03	145.77	-25.47	1,589.53	-33.91	13,445.85	13,261.76	184.09	73.041
20,300.00	6,916.58	6,902.76	6,901.58	218.61	145.76	-25.31	1,589.53	-33.91	13,545.85	13,361.68	184.16	73.553
20,400.00	6,916.30	6,902.47	6,901.30	220.20	145.76	-25.15	1,589.53	-33.91	13,645.85	13,461.60	184.24	74.065
20,500.00	6,916.01	6,902.19	6,901.01	221.78	145.75	-24.99	1,589.53	-33.91	13,745.84	13,561.52	184.32	74.575
20,600.00	6,915.73	6,901.90	6,900.73	223.37	145.75	-24.83	1,589.53	-33.91	13,845.84	13,661.44	184.40	75.085
20,700.00	6,915.44	6,901.62	6,900.44	224.95	145.74	-24.67	1,589.53	-33.91	13,945.84	13,761.36	184.48	75.595
20,800.00	6,915.16	6,901.33	6,900.16	226.54	145.74	-24.52	1,589.53	-33.91	14,045.84	13,861.28	184.56	76.104
20,855.45	6,915.00	6,901.17	6,900.00	227.42	145.73	-24.43	1,589.53	-33.91	14,101.29	13,916.69	184.61	76.385

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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
8,800.00	6,949.37	7,151.36	6,905.69	45.38	46.42	92.90	3,187.38	3,040.03	5,355.37	5,271.58	83.79	63.911
8,900.00	6,949.08	7,152.85	6,907.18	46.53	46.42	92.95	3,187.33	3,040.01	5,450.90	5,366.87	84.03	64.869
9,000.00	6,948.80	7,154.43	6,908.75	47.70	46.42	93.01	3,187.28	3,040.00	5,546.58	5,462.32	84.26	65.829
9,100.00	6,948.51	7,156.10	6,910.42	48.89	46.43	93.07	3,187.23	3,039.98	5,642.41	5,557.93	84.48	66.790
9,200.00	6,948.23	7,157.87	6,912.19	50.11	46.43	93.13	3,187.17	3,039.97	5,738.38	5,653.68	84.70	67.752
9,300.00	6,947.94	7,159.76	6,914.08	51.35	46.43	93.20	3,187.11	3,039.95	5,834.49	5,749.58	84.91	68.716
9,400.00	6,947.66	7,161.77	6,916.09	52.61	46.44	93.27	3,187.04	3,039.93	5,930.72	5,845.61	85.11	69.680
9,500.00	6,947.37	7,163.91	6,918.23	53.89	46.44	93.35	3,186.98	3,039.91	6,027.08	5,941.77	85.32	70.645
9,600.00	6,947.09	7,166.21	6,920.53	55.18	46.45	93.43	3,186.90	3,039.88	6,123.56	6,038.05	85.51	71.611
9,700.00	6,946.80	7,168.68	6,922.99	56.49	46.45	93.52	3,186.82	3,039.86	6,220.14	6,134.44	85.70	72.577
9,800.00	6,946.52	7,171.33	6,925.65	57.81	46.46	93.61	3,186.74	3,039.83	6,316.84	6,230.94	85.89	73.544
9,900.00	6,946.23	7,174.19	6,928.51	59.15	46.46	93.71	3,186.65	3,039.80	6,413.63	6,327.55	86.08	74.512
10,000.00	6,945.95	7,177.29	6,931.60	60.50	46.47	93.82	3,186.55	3,039.76	6,510.52	6,424.26	86.26	75.479
10,100.00	6,945.66	7,180.65	6,934.96	61.87	46.48	93.94	3,186.44	3,039.72	6,607.50	6,521.07	86.43	76.447
10,200.00	6,945.38	7,184.31	6,938.62	63.24	46.49	94.08	3,186.32	3,039.67	6,704.57	6,617.96	86.61	77.415
10,300.00	6,945.09	7,188.31	6,942.62	64.63	46.49	94.22	3,186.19	3,039.62	6,801.72	6,714.95	86.78	78.383
10,400.00	6,944.81	7,192.70	6,947.01	66.02	46.50	94.38	3,186.05	3,039.57	6,898.96	6,812.02	86.94	79.350
10,500.00	6,944.52	7,197.55	6,951.85	67.42	46.51	94.55	3,185.89	3,039.50	6,996.27	6,909.16	87.11	80.318
10,600.00	6,944.24	7,202.92	6,957.22	68.84	46.52	94.74	3,185.72	3,039.42	7,093.66	7,006.39	87.27	81.284
10,700.00	6,943.95	7,208.92	6,963.21	70.26	46.54	94.96	3,185.52	3,039.33	7,191.12	7,103.69	87.43	82.250
10,800.00	6,943.67	7,215.64	6,969.93	71.68	46.55	95.20	3,185.30	3,039.23	7,288.64	7,201.05	87.59	83.215
10,900.00	6,943.38	7,223.23	6,977.52	73.12	46.57	95.47	3,185.05	3,039.10	7,386.23	7,298.49	87.75	84.178
11,000.00	6,943.10	7,231.88	6,986.16	74.56	46.58	95.78	3,184.76	3,038.95	7,483.88	7,395.98	87.90	85.139
11,100.00	6,942.81	7,241.82	6,996.09	76.01	46.61	96.13	3,184.43	3,038.77	7,581.59	7,493.54	88.06	86.099
11,200.00	6,942.53	7,253.36	7,007.63	77.46	46.63	96.54	3,184.05	3,038.54	7,679.36	7,591.15	88.21	87.056
11,300.00	6,942.24	7,266.93	7,021.18	78.92	46.66	97.02	3,183.59	3,038.26	7,777.18	7,688.82	88.37	88.009
11,400.00	6,941.96	7,283.10	7,037.34	80.39	46.69	97.60	3,183.05	3,037.89	7,875.06	7,786.53	88.53	88.957
11,500.00	6,941.67	7,302.71	7,056.93	81.86	46.73	98.29	3,182.38	3,037.41	7,972.98	7,884.29	88.69	89.900
11,600.00	6,941.39	7,326.98	7,081.18	83.33	46.79	99.15	3,181.54	3,036.75	8,070.95	7,982.09	88.85	90.835
11,700.00	6,941.10	7,357.81	7,111.97	84.81	46.85	100.24	3,180.46	3,035.83	8,168.95	8,079.93	89.03	91.758
11,800.00	6,940.81	7,398.25	7,152.36	86.30	46.94	101.65	3,179.02	3,034.45	8,266.99	8,177.78	89.21	92.666
11,900.00	6,940.53	7,312.00	7,066.21	87.79	46.75	98.62	3,182.06	3,037.17	8,365.14	8,275.92	89.21	93.764
12,000.00	6,940.24	7,312.00	7,066.21	89.28	46.75	98.62	3,182.06	3,037.17	8,463.29	8,373.95	89.34	94.733
12,100.00	6,939.96	7,312.00	7,066.21	90.77	46.75	98.62	3,182.06	3,037.17	8,561.49	8,472.03	89.46	95.701
12,200.00	6,939.67	7,312.00	7,066.21	92.27	46.75	98.62	3,182.06	3,037.17	8,659.73	8,570.14	89.58	96.669
12,300.00	6,939.39	7,312.00	7,066.21	93.78	46.75	98.62	3,182.06	3,037.17	8,758.00	8,668.30	89.70	97.637
12,400.00	6,939.10	7,312.00	7,066.21	95.28	46.75	98.62	3,182.06	3,037.17	8,856.32	8,766.50	89.82	98.604
12,500.00	6,938.82	7,312.00	7,066.21	96.79	46.75	98.62	3,182.06	3,037.17	8,954.67	8,864.74	89.93	99.571
12,600.00	6,938.53	7,312.00	7,066.21	98.30	46.75	98.62	3,182.06	3,037.17	9,053.06	8,963.02	90.05	100.537
12,700.00	6,938.25	7,312.00	7,066.21	99.82	46.75	98.62	3,182.06	3,037.17	9,151.49	9,061.33	90.16	101.503
12,800.00	6,937.96	7,312.00	7,066.21	101.34	46.75	98.62	3,182.06	3,037.17	9,249.95	9,159.67	90.27	102.468
12,900.00	6,937.68	7,312.00	7,066.21	102.86	46.75	98.62	3,182.06	3,037.17	9,348.44	9,258.06	90.38	103.433
13,000.00	6,937.39	7,312.00	7,066.21	104.38	46.75	98.62	3,182.06	3,037.17	9,446.96	9,356.47	90.49	104.397
13,100.00	6,937.11	7,113.37	6,867.70	105.91	46.34	91.53	3,188.17	3,037.63	9,543.45	9,453.18	90.26	105.728
13,200.00	6,936.82	7,113.30	6,867.63	107.43	46.34	91.53	3,188.17	3,037.63	9,642.05	9,551.68	90.37	106.697
13,300.00	6,936.54	7,113.23	6,867.56	108.96	46.34	91.53	3,188.17	3,037.63	9,740.68	9,650.21	90.47	107.666
13,400.00	6,936.25	7,113.17	6,867.49	110.49	46.34	91.53	3,188.17	3,037.63	9,839.34	9,748.77	90.57	108.634
13,500.00	6,935.97	7,113.10	6,867.42	112.03	46.34	91.52	3,188.18	3,037.63	9,938.03	9,847.35	90.67	109.601
13,600.00	6,935.68	7,113.03	6,867.36	113.56	46.34	91.52	3,188.18	3,037.63	10,036.74	9,945.96	90.78	110.567
13,700.00	6,935.40	7,112.96	6,867.29	115.10	46.34	91.52	3,188.18	3,037.63	10,135.48	10,044.60	90.87	111.532
13,800.00	6,935.11	7,112.89	6,867.22	116.64	46.34	91.52	3,188.18	3,037.63	10,234.24	10,143.26	90.97	112.497
13,900.00	6,934.83	7,112.82	6,867.15	118.18	46.34	91.51	3,188.18	3,037.63	10,333.02	10,241.95	91.07	113.461

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		
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	
14,000.00	6,934.54	7,112.76	6,867.08	119.72	46.34	91.51	3,188.19	3,037.63	10,431.83	10,340.66	91.17	114.424		
14,100.00	6,934.26	7,112.69	6,867.02	121.26	46.34	91.51	3,188.19	3,037.63	10,530.66	10,439.40	91.26	115.386		
14,200.00	6,933.97	7,112.62	6,866.95	122.81	46.34	91.51	3,188.19	3,037.63	10,629.52	10,538.16	91.36	116.347		
14,300.00	6,933.69	7,112.55	6,866.88	124.36	46.34	91.50	3,188.19	3,037.63	10,728.39	10,636.93	91.46	117.307		
14,400.00	6,933.40	7,112.48	6,866.81	125.90	46.34	91.50	3,188.19	3,037.63	10,827.29	10,735.74	91.55	118.266		
14,500.00	6,933.12	7,112.42	6,866.74	127.45	46.34	91.50	3,188.20	3,037.63	10,926.20	10,834.56	91.64	119.225		
14,600.00	6,932.83	7,112.35	6,866.68	129.00	46.34	91.50	3,188.20	3,037.63	11,025.14	10,933.40	91.74	120.182		
14,700.00	6,932.55	7,112.28	6,866.61	130.56	46.34	91.49	3,188.20	3,037.63	11,124.09	11,032.26	91.83	121.139		
14,800.00	6,932.26	7,112.21	6,866.54	132.11	46.33	91.49	3,188.20	3,037.63	11,223.06	11,131.14	91.92	122.094		
14,900.00	6,931.98	7,112.14	6,866.47	133.66	46.33	91.49	3,188.20	3,037.63	11,322.05	11,230.04	92.01	123.049		
15,000.00	6,931.69	7,112.07	6,866.40	135.22	46.33	91.49	3,188.21	3,037.63	11,421.06	11,328.96	92.10	124.002		
15,100.00	6,931.41	7,112.01	6,866.33	136.77	46.33	91.48	3,188.21	3,037.63	11,520.08	11,427.89	92.19	124.954		
15,200.00	6,931.12	7,111.94	6,866.27	138.33	46.33	91.48	3,188.21	3,037.63	11,619.13	11,526.84	92.28	125.905		
15,300.00	6,930.84	7,111.87	6,866.20	139.89	46.33	91.48	3,188.21	3,037.63	11,718.18	11,625.81	92.37	126.856		
15,400.00	6,930.55	7,111.80	6,866.13	141.45	46.33	91.48	3,188.21	3,037.63	11,817.26	11,724.80	92.46	127.805		
15,500.00	6,930.27	7,111.73	6,866.06	143.01	46.33	91.48	3,188.22	3,037.63	11,916.35	11,823.80	92.55	128.753		
15,600.00	6,929.98	7,111.67	6,865.99	144.57	46.33	91.47	3,188.22	3,037.63	12,015.45	11,922.81	92.64	129.699		
15,700.00	6,929.70	7,111.60	6,865.93	146.13	46.33	91.47	3,188.22	3,037.64	12,114.57	12,021.84	92.73	130.645		
15,800.00	6,929.41	6,501.23	6,255.96	147.70	43.85	70.54	3,201.32	3,025.80	12,215.08	12,124.59	90.49	134.992		
15,900.00	6,929.13	6,472.12	6,226.88	149.26	43.69	69.63	3,201.41	3,024.47	12,314.10	12,223.67	90.42	136.181		
16,000.00	6,928.84	6,440.78	6,195.58	150.82	43.52	68.66	3,201.45	3,022.99	12,413.12	12,322.77	90.35	137.390		
16,100.00	6,928.56	6,406.94	6,161.78	152.39	43.34	67.62	3,201.42	3,021.32	12,512.15	12,421.89	90.26	138.621		
16,200.00	6,928.27	6,376.00	6,130.88	153.96	43.18	66.68	3,201.33	3,019.74	12,611.17	12,520.99	90.19	139.833		
16,300.00	6,927.99	6,376.00	6,130.88	155.52	43.18	66.68	3,201.33	3,019.74	12,710.21	12,619.94	90.27	140.798		
16,400.00	6,927.70	6,364.53	6,119.43	157.09	43.10	66.34	3,201.29	3,019.14	12,809.26	12,718.98	90.28	141.885		
16,500.00	6,927.42	6,359.20	6,114.10	158.66	43.06	66.18	3,201.27	3,018.86	12,908.32	12,817.99	90.33	142.905		
16,600.00	6,927.13	6,353.86	6,108.77	160.23	43.02	66.02	3,201.25	3,018.58	13,007.39	12,917.01	90.38	143.925		
16,700.00	6,926.85	6,348.53	6,103.45	161.80	42.98	65.87	3,201.23	3,018.30	13,106.47	13,016.05	90.42	144.944		
16,800.00	6,926.56	6,343.19	6,098.12	163.37	42.94	65.71	3,201.21	3,018.03	13,205.57	13,115.09	90.47	145.963		
16,900.00	6,926.28	6,337.86	6,092.79	164.94	42.90	65.55	3,201.20	3,017.75	13,304.67	13,214.15	90.52	146.980		
17,000.00	6,925.99	6,332.53	6,087.47	166.51	42.87	65.39	3,201.18	3,017.47	13,403.79	13,313.22	90.57	147.997		
17,100.00	6,925.71	6,327.19	6,082.14	168.08	42.83	65.24	3,201.16	3,017.19	13,502.92	13,412.31	90.62	149.014		
17,200.00	6,925.42	6,321.86	6,076.82	169.65	42.79	65.08	3,201.15	3,016.91	13,602.06	13,511.40	90.66	150.029		
17,300.00	6,925.14	6,316.53	6,071.49	171.23	42.75	64.92	3,201.13	3,016.63	13,701.21	13,610.50	90.71	151.044		
17,400.00	6,924.85	6,311.20	6,066.17	172.80	42.71	64.77	3,201.12	3,016.36	13,800.37	13,709.61	90.76	152.058		
17,500.00	6,924.57	6,305.86	6,060.84	174.37	42.67	64.61	3,201.10	3,016.08	13,899.54	13,808.73	90.80	153.071		
17,600.00	6,924.28	6,300.53	6,055.52	175.95	42.64	64.46	3,201.09	3,015.80	13,998.72	13,907.87	90.85	154.083		
17,700.00	6,924.00	6,295.20	6,050.19	177.52	42.60	64.30	3,201.08	3,015.52	14,097.91	14,007.01	90.90	155.095		
17,800.00	6,923.71	6,289.87	6,044.87	179.10	42.56	64.15	3,201.07	3,015.24	14,197.11	14,106.16	90.95	156.105		
17,900.00	6,923.43	6,284.54	6,039.54	180.68	42.52	64.00	3,201.05	3,014.96	14,296.31	14,205.32	90.99	157.115		
18,000.00	6,923.14	6,279.20	6,034.22	182.25	42.48	63.84	3,201.04	3,014.69	14,395.53	14,304.49	91.04	158.124		
18,100.00	6,922.86	6,273.87	6,028.89	183.83	42.45	63.69	3,201.03	3,014.41	14,494.75	14,403.67	91.09	159.132		
18,200.00	6,922.57	6,268.54	6,023.57	185.41	42.41	63.54	3,201.02	3,014.13	14,593.99	14,502.86	91.13	160.139		
18,300.00	6,922.29	6,263.21	6,018.25	186.98	42.37	63.39	3,201.01	3,013.85	14,693.23	14,602.05	91.18	161.145		
18,400.00	6,922.00	6,257.88	6,012.92	188.56	42.33	63.24	3,201.00	3,013.57	14,792.48	14,701.25	91.23	162.150		
18,500.00	6,921.71	6,252.55	6,007.60	190.14	42.29	63.09	3,200.99	3,013.30	14,891.74	14,800.47	91.27	163.155		
18,600.00	6,921.43	6,247.22	6,002.27	191.72	42.25	62.94	3,200.99	3,013.02	14,991.01	14,899.68	91.32	164.158		
18,700.00	6,921.14	6,241.89	5,996.95	193.30	42.22	62.78	3,200.98	3,012.74	15,090.28	14,998.91	91.37	165.160		
18,800.00	6,920.86	6,236.56	5,991.63	194.88	42.18	62.64	3,200.97	3,012.46	15,189.56	15,098.15	91.41	166.162		
18,900.00	6,920.57	6,231.23	5,986.30	196.46	42.14	62.49	3,200.96	3,012.18	15,288.85	15,197.39	91.46	167.162		
19,000.00	6,920.29	6,225.90	5,980.98	198.04	42.10	62.34	3,200.96	3,011.91	15,388.15	15,296.64	91.51	168.161		
19,100.00	6,920.00	6,220.57	5,975.66	199.62	42.06	62.19	3,200.95	3,011.63	15,487.45	15,395.89	91.56	169.160		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,919.72	6,215.24	5,970.34	201.20	42.02	62.04	3,200.95	3,011.35	15,586.76	15,495.16	91.60	170.157
19,300.00	6,919.43	6,209.91	5,965.01	202.78	41.99	61.89	3,200.94	3,011.07	15,686.08	15,594.43	91.65	171.153
19,400.00	6,919.15	6,204.58	5,959.69	204.36	41.95	61.75	3,200.94	3,010.79	15,785.40	15,693.71	91.70	172.149
19,500.00	6,918.86	6,199.25	5,954.37	205.95	41.91	61.60	3,200.94	3,010.52	15,884.73	15,792.99	91.74	173.143
19,600.00	6,918.58	6,193.92	5,949.05	207.53	41.87	61.45	3,200.93	3,010.24	15,984.07	15,892.28	91.79	174.136
19,700.00	6,918.29	6,188.59	5,943.73	209.11	41.83	61.31	3,200.93	3,009.96	16,083.41	15,991.58	91.84	175.128
19,800.00	6,918.01	6,183.26	5,938.40	210.69	41.80	61.16	3,200.93	3,009.68	16,182.76	16,090.88	91.89	176.119
19,900.00	6,917.72	6,177.93	5,933.08	212.28	41.76	61.02	3,200.93	3,009.40	16,282.12	16,190.19	91.93	177.109
20,000.00	6,917.44	6,172.60	5,927.76	213.86	41.72	60.87	3,200.93	3,009.13	16,381.48	16,289.50	91.98	178.097
20,100.00	6,917.15	6,167.28	5,922.44	215.45	41.68	60.73	3,200.93	3,008.85	16,480.85	16,388.82	92.03	179.085
20,200.00	6,916.87	6,161.95	5,917.12	217.03	41.64	60.58	3,200.93	3,008.57	16,580.22	16,488.15	92.08	180.071
20,300.00	6,916.58	6,156.62	5,911.80	218.61	41.60	60.44	3,200.93	3,008.29	16,679.60	16,587.48	92.12	181.057
20,400.00	6,916.30	6,151.29	5,906.48	220.20	41.57	60.30	3,200.93	3,008.02	16,778.99	16,686.82	92.17	182.041
20,500.00	6,916.01	6,145.96	5,901.16	221.78	41.53	60.15	3,200.93	3,007.74	16,878.38	16,786.16	92.22	183.024
20,600.00	6,915.73	6,140.64	5,895.84	223.37	41.49	60.01	3,200.93	3,007.46	16,977.78	16,885.51	92.27	184.006
20,700.00	6,915.44	6,135.31	5,890.52	224.95	41.45	59.87	3,200.94	3,007.18	17,077.18	16,984.86	92.32	184.986
20,800.00	6,915.16	6,129.98	5,885.20	226.54	41.41	59.73	3,200.94	3,006.90	17,176.58	17,084.22	92.36	185.966
20,855.45	6,915.00	6,127.03	5,882.25	227.42	41.39	59.65	3,200.94	3,006.75	17,231.71	17,139.32	92.39	186.508

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	75.05	1,030.22	3,858.86	3,994.17						
100.00	100.00	65.00	65.00	0.25	0.58	75.05	1,030.22	3,858.86	3,994.01	3,993.19	0.83	4,830.009			
200.00	200.00	165.00	165.00	0.61	1.46	75.05	1,030.22	3,858.86	3,994.01	3,991.94	2.07	1,928.346			
300.00	300.00	265.00	265.00	0.97	2.35	75.05	1,030.22	3,858.86	3,994.01	3,990.70	3.32	1,204.646			
400.00	400.00	365.00	365.00	1.33	3.23	75.05	1,030.22	3,858.86	3,994.01	3,989.45	4.56	875.918			
500.00	500.00	465.00	465.00	1.68	4.12	75.05	1,030.22	3,858.86	3,994.01	3,988.21	5.80	688.137			
600.00	599.98	564.98	564.98	2.04	5.00	81.69	1,030.22	3,858.86	3,993.76	3,986.71	7.05	566.679			
700.00	699.84	664.84	664.84	2.41	5.89	81.78	1,030.22	3,858.86	3,993.01	3,984.72	8.29	481.650			
800.00	799.45	764.45	764.45	2.77	6.77	81.93	1,030.22	3,858.86	3,991.77	3,982.23	9.53	418.715			
900.00	898.70	863.70	863.70	3.13	7.87	82.14	1,030.22	3,858.86	3,990.07	3,979.07	11.00	362.803			
1,000.00	997.47	963.21	963.20	3.50	9.63	82.40	1,030.31	3,858.86	3,987.96	3,974.82	13.14	303.580			
1,100.00	1,095.62	1,060.63	1,060.62	3.89	11.38	82.72	1,030.22	3,858.86	3,985.42	3,970.14	15.27	260.923			
1,200.00	1,193.06	1,158.06	1,158.06	4.30	13.17	83.08	1,030.22	3,858.86	3,982.57	3,965.10	17.47	228.000			
1,245.75	1,237.35	1,202.36	1,202.35	4.49	13.98	83.27	1,030.22	3,858.86	3,981.17	3,962.69	18.47	215.531			
1,300.00	1,289.78	1,254.78	1,254.78	4.72	14.95	83.46	1,030.22	3,858.86	3,979.50	3,959.83	19.66	202.373			
1,400.00	1,386.41	1,351.84	1,351.84	5.15	16.73	83.82	1,030.50	3,858.86	3,976.61	3,954.73	21.88	181.753			
1,500.00	1,483.04	1,449.15	1,449.14	5.59	18.51	84.18	1,030.42	3,858.86	3,973.81	3,949.70	24.11	164.843			
1,600.00	1,579.67	1,546.41	1,546.41	6.04	20.30	84.54	1,030.25	3,858.86	3,971.15	3,944.81	26.34	150.769			
1,700.00	1,676.30	1,641.33	1,641.30	6.49	22.16	84.89	1,030.22	3,858.86	3,968.69	3,940.04	28.65	138.519			
1,800.00	1,772.93	1,737.96	1,737.93	6.95	24.08	85.25	1,030.22	3,858.86	3,966.40	3,935.38	31.02	127.852			
1,900.00	1,869.56	1,835.48	1,835.45	7.41	26.01	85.60	1,030.96	3,858.86	3,964.42	3,931.01	33.42	118.636			
2,000.00	1,966.19	1,934.15	1,934.12	7.87	27.97	85.97	1,030.71	3,858.86	3,962.42	3,926.58	35.84	110.572			
2,100.00	2,062.83	2,027.91	2,027.83	8.33	29.83	86.33	1,030.22	3,858.86	3,960.54	3,922.38	38.16	103.789			
2,200.00	2,159.46	2,124.54	2,124.46	8.80	31.77	86.68	1,030.22	3,858.86	3,958.91	3,918.34	40.57	97.583			
2,300.00	2,256.09	2,221.17	2,221.09	9.27	33.72	87.04	1,030.22	3,858.86	3,957.45	3,914.47	42.98	92.074			
2,400.00	2,352.72	2,320.22	2,320.12	9.73	35.71	87.40	1,030.95	3,858.86	3,956.28	3,910.84	45.44	87.061			
2,500.00	2,449.35	2,419.37	2,419.27	10.20	37.70	87.78	1,030.37	3,858.86	3,955.07	3,907.16	47.91	82.556			
2,600.00	2,545.98	2,511.11	2,510.98	10.67	39.56	88.12	1,030.22	3,858.86	3,954.09	3,903.85	50.23	78.712			
2,700.00	2,642.61	2,607.74	2,607.61	11.15	41.52	88.48	1,030.22	3,858.86	3,953.30	3,900.63	52.66	75.066			
2,800.00	2,739.24	2,704.37	2,704.24	11.62	43.48	88.84	1,030.22	3,858.86	3,952.68	3,897.58	55.09	71.744			
2,900.00	2,835.87	2,801.26	2,801.12	12.09	45.44	89.19	1,031.32	3,858.86	3,952.37	3,894.84	57.53	68.701			
3,000.00	2,932.50	2,898.80	2,898.66	12.56	47.42	89.56	1,031.18	3,858.86	3,952.06	3,892.08	59.98	65.890			
3,100.00	3,029.13	2,996.25	2,996.11	13.04	49.39	89.92	1,030.86	3,858.86	3,951.89	3,889.47	62.43	63.303			
3,156.57	3,083.80	3,051.34	3,051.20	13.31	50.51	90.13	1,030.59	3,858.86	3,951.87	3,888.06	63.81	61.930 CC			
3,200.00	3,125.77	3,093.61	3,093.46	13.51	51.36	90.30	1,030.35	3,858.86	3,951.88	3,887.01	64.87	60.916			
3,300.00	3,222.40	3,187.60	3,187.40	13.99	53.27	90.65	1,030.22	3,858.86	3,952.09	3,884.83	67.26	58.759			
3,400.00	3,319.03	3,284.24	3,284.03	14.46	55.24	91.01	1,030.22	3,858.86	3,952.47	3,882.77	69.70	56.708			
3,500.00	3,415.66	3,380.87	3,380.66	14.94	57.20	91.37	1,030.22	3,858.86	3,953.02	3,880.89	72.14	54.798			
3,600.00	3,512.29	3,478.56	3,478.34	15.42	59.19	91.72	1,031.24	3,858.86	3,953.83	3,879.23	74.60	53.001			
3,700.00	3,608.92	3,576.11	3,575.88	15.89	61.17	92.09	1,030.78	3,858.86	3,954.67	3,877.62	77.06	51.321			
3,800.00	3,705.55	3,670.82	3,670.55	16.37	63.10	92.45	1,030.22	3,858.86	3,955.69	3,876.23	79.46	49.783			
3,900.00	3,802.18	3,767.45	3,767.18	16.84	65.07	92.81	1,030.22	3,858.86	3,956.91	3,875.00	81.90	48.313			
4,000.00	3,898.81	3,864.08	3,863.81	17.32	67.04	93.17	1,030.22	3,858.86	3,958.30	3,873.95	84.34	46.930			
4,100.00	3,995.44	3,961.05	3,960.77	17.80	69.01	93.52	1,030.99	3,858.86	3,959.89	3,873.10	86.79	45.624			
4,200.00	4,092.07	4,058.10	4,057.82	18.28	70.99	93.88	1,030.71	3,858.86	3,961.59	3,872.35	89.25	44.390			
4,300.00	4,188.71	4,154.04	4,153.71	18.75	72.98	94.25	1,030.22	3,858.86	3,963.46	3,871.75	91.71	43.217			
4,400.00	4,285.34	4,250.67	4,250.34	19.23	75.83	94.60	1,030.22	3,858.86	3,965.52	3,870.48	95.03	41.727			
4,500.00	4,381.97	4,347.30	4,346.97	19.71	78.68	94.96	1,030.22	3,858.86	3,967.74	3,869.38	98.36	40.340			
4,600.00	4,478.60	4,444.06	4,443.71	20.19	81.53	95.31	1,031.27	3,858.86	3,970.14	3,868.46	101.68	39.044			
4,700.00	4,575.23	4,540.84	4,540.49	20.67	84.38	95.67	1,030.96	3,858.86	3,972.68	3,867.67	105.01	37.831			
4,800.00	4,671.86	4,637.46	4,637.10	21.14	87.23	96.03	1,030.32	3,858.86	3,975.39	3,867.06	108.33	36.696			
4,900.00	4,768.49	4,734.30	4,733.49	21.62	91.08	96.39	1,030.22	3,858.86	3,978.27	3,865.62	112.65	35.315			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
5,000.00	4,865.12	4,830.58	4,829.66	22.10	95.04	96.73	1,031.14	3,858.86	3,981.31	3,864.23	117.08	34.005
5,100.00	4,961.75	4,928.05	4,926.75	22.58	99.27	97.10	1,030.22	3,858.86	3,984.53	3,862.74	121.79	32.717
5,200.00	5,058.38	5,024.68	5,023.38	23.06	103.59	97.46	1,030.22	3,858.86	3,987.90	3,861.32	126.58	31.505
5,300.00	5,155.01	5,121.22	5,119.76	23.54	107.91	97.75	1,034.57	3,858.86	3,991.33	3,859.96	131.37	30.383
5,400.00	5,251.64	5,216.43	5,214.90	24.01	112.16	98.11	1,033.83	3,858.86	3,995.02	3,858.93	136.09	29.356
5,500.00	5,348.28	5,311.08	5,309.45	24.49	116.39	98.48	1,031.85	3,858.86	3,998.93	3,858.14	140.79	28.404
5,600.00	5,444.91	5,412.42	5,409.91	24.97	121.04	98.87	1,030.22	3,858.86	4,003.02	3,857.11	145.91	27.436
5,700.00	5,541.54	5,509.05	5,506.54	25.45	125.59	99.22	1,030.22	3,858.86	4,007.20	3,856.27	150.93	26.550
5,800.00	5,638.17	5,605.69	5,603.17	25.93	130.15	99.57	1,030.22	3,858.86	4,011.55	3,855.60	155.95	25.723
5,900.00	5,734.80	5,699.95	5,697.22	26.41	134.59	99.86	1,034.38	3,858.86	4,015.79	3,854.93	160.86	24.965
6,000.00	5,831.43	5,793.19	5,790.38	26.89	138.98	100.21	1,032.86	3,858.86	4,020.54	3,854.82	165.72	24.261
6,100.00	5,928.06	5,896.85	5,893.06	27.37	143.88	100.62	1,030.22	3,858.86	4,025.54	3,854.46	171.08	23.530
6,200.00	6,024.69	5,993.48	5,989.69	27.85	148.57	100.97	1,030.22	3,858.86	4,030.52	3,854.28	176.24	22.870
6,300.00	6,121.32	6,090.11	6,086.32	28.33	153.26	101.32	1,030.22	3,858.86	4,035.66	3,854.27	181.39	22.248
6,400.00	6,217.95	6,184.79	6,180.82	28.81	157.86	101.59	1,034.63	3,858.86	4,040.54	3,854.09	186.45	21.671 ES
6,500.00	6,314.58	6,276.56	6,272.51	29.29	162.31	101.94	1,033.57	3,858.86	4,046.08	3,854.72	191.37	21.143
6,543.64	6,356.75	6,316.45	6,312.36	29.49	164.25	102.09	1,032.76	3,858.86	4,048.59	3,855.09	193.51	20.922
6,550.00	6,362.90	6,322.26	6,318.16	29.53	164.53	104.24	1,032.62	3,858.86	4,049.00	3,855.18	193.82	20.891
6,600.00	6,411.07	6,367.68	6,363.53	29.77	166.73	119.92	1,031.40	3,858.86	4,054.39	3,858.14	196.25	20.659
6,650.00	6,458.79	6,428.84	6,423.79	30.01	169.72	132.60	1,030.22	3,858.86	4,063.67	3,864.20	199.47	20.373
6,700.00	6,505.76	6,475.81	6,470.76	30.26	172.04	142.15	1,030.22	3,858.86	4,076.67	3,874.66	202.01	20.181
6,750.00	6,551.69	6,521.74	6,516.69	30.50	174.31	149.30	1,030.22	3,858.86	4,093.43	3,888.94	204.49	20.018
6,800.00	6,596.30	6,566.35	6,561.30	30.74	176.51	154.74	1,030.22	3,858.86	4,113.83	3,906.94	206.89	19.884
6,850.00	6,639.32	6,609.37	6,604.32	30.98	178.63	159.01	1,030.22	3,858.86	4,137.75	3,928.54	209.21	19.778
6,900.00	6,680.47	6,650.52	6,645.47	31.21	180.66	162.47	1,030.22	3,858.86	4,165.02	3,953.61	211.42	19.700
6,950.00	6,719.51	6,687.09	6,681.86	31.44	182.47	165.31	1,034.44	3,858.86	4,194.97	3,981.58	213.39	19.659
7,000.00	6,756.20	6,721.29	6,716.04	31.67	184.16	167.86	1,034.19	3,858.86	4,228.45	4,013.22	215.23	19.647 SF
7,050.00	6,790.30	6,753.02	6,747.75	31.90	185.72	170.22	1,033.81	3,858.86	4,264.73	4,047.81	216.92	19.660
7,100.00	6,821.62	6,782.10	6,776.80	32.13	187.16	172.50	1,033.33	3,858.86	4,303.59	4,085.11	218.47	19.699
7,150.00	6,849.95	6,808.35	6,803.02	32.35	188.46	174.87	1,032.80	3,858.86	4,344.76	4,124.90	219.86	19.761
7,200.00	6,875.12	6,831.64	6,826.28	32.58	189.60	177.50	1,032.25	3,858.86	4,388.00	4,166.91	221.09	19.847
7,250.00	6,896.97	6,851.83	6,846.45	32.81	190.60	-179.34	1,031.71	3,858.86	4,433.03	4,210.89	222.14	19.956
7,300.00	6,915.38	6,868.81	6,863.40	33.05	191.44	-175.18	1,031.21	3,858.86	4,479.57	4,256.55	223.02	20.086
7,350.00	6,930.22	6,901.48	6,895.22	33.29	193.05	-169.21	1,030.22	3,858.86	4,527.36	4,302.69	224.66	20.152
7,400.00	6,941.41	6,912.67	6,906.41	33.53	193.60	-159.39	1,030.22	3,858.86	4,575.99	4,350.77	225.22	20.318
7,450.00	6,948.88	6,920.14	6,913.88	33.79	193.96	-141.14	1,030.22	3,858.86	4,625.26	4,399.69	225.57	20.505
7,500.00	6,952.57	6,923.83	6,917.57	34.05	194.14	-108.25	1,030.22	3,858.86	4,674.86	4,449.13	225.73	20.710
7,525.63	6,953.00	6,924.26	6,918.00	34.19	194.16	-88.63	1,030.22	3,858.86	4,700.32	4,474.59	225.73	20.823
7,600.00	6,952.79	6,924.05	6,917.79	34.61	194.15	-88.61	1,030.22	3,858.86	4,774.18	4,548.51	225.67	21.156
7,700.00	6,952.50	6,923.76	6,917.50	35.23	194.14	-88.58	1,030.22	3,858.86	4,873.51	4,647.92	225.59	21.603
7,800.00	6,952.22	6,923.48	6,917.22	35.91	194.12	-88.55	1,030.22	3,858.86	4,972.87	4,747.35	225.52	22.051
7,900.00	6,951.93	6,923.19	6,916.93	36.65	194.11	-88.52	1,030.22	3,858.86	5,072.25	4,846.81	225.44	22.499
8,000.00	6,951.65	6,922.91	6,916.65	37.45	194.09	-88.49	1,030.22	3,858.86	5,171.66	4,946.28	225.38	22.947
8,100.00	6,951.36	6,922.62	6,916.36	38.29	194.08	-88.46	1,030.22	3,858.86	5,271.09	5,045.78	225.31	23.394
8,200.00	6,951.08	6,922.34	6,916.08	39.19	194.07	-88.43	1,030.22	3,858.86	5,370.54	5,145.29	225.25	23.842
8,300.00	6,950.79	6,922.05	6,915.79	40.13	194.05	-88.40	1,030.22	3,858.86	5,470.01	5,244.82	225.20	24.290
8,400.00	6,950.51	6,921.77	6,915.51	41.11	194.04	-88.37	1,030.22	3,858.86	5,569.50	5,344.36	225.14	24.738
8,500.00	6,950.22	6,921.48	6,915.22	42.12	194.03	-88.34	1,030.22	3,858.86	5,669.01	5,443.92	225.09	25.185
8,600.00	6,949.94	6,921.20	6,914.94	43.18	194.01	-88.31	1,030.22	3,858.86	5,768.54	5,543.50	225.04	25.633
8,700.00	6,949.65	6,920.91	6,914.65	44.26	194.00	-88.29	1,030.22	3,858.86	5,868.08	5,643.08	225.00	26.081
8,800.00	6,949.37	6,920.63	6,914.37	45.38	193.98	-88.26	1,030.22	3,858.86	5,967.64	5,742.68	224.95	26.528
8,900.00	6,949.08	6,920.34	6,914.08	46.53	193.97	-88.23	1,030.22	3,858.86	6,067.21	5,842.30	224.91	26.976

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,948.80	6,920.06	6,913.80	47.70	193.96	-88.20	1,030.22	3,858.86	6,166.79	5,941.92	224.87	27.423		
9,100.00	6,948.51	6,919.77	6,913.51	48.89	193.94	-88.17	1,030.22	3,858.86	6,266.39	6,041.55	224.84	27.871		
9,200.00	6,948.23	6,919.49	6,913.23	50.11	193.93	-88.14	1,030.22	3,858.86	6,366.00	6,141.20	224.81	28.318		
9,300.00	6,947.94	6,919.20	6,912.94	51.35	193.91	-88.11	1,030.22	3,858.86	6,465.63	6,240.85	224.77	28.765		
9,400.00	6,947.66	6,918.92	6,912.66	52.61	193.90	-88.08	1,030.22	3,858.86	6,565.26	6,340.52	224.75	29.212		
9,500.00	6,947.37	6,918.63	6,912.37	53.89	193.89	-88.05	1,030.22	3,858.86	6,664.91	6,440.19	224.72	29.659		
9,600.00	6,947.09	6,918.34	6,912.09	55.18	193.87	-88.02	1,030.22	3,858.86	6,764.56	6,539.87	224.69	30.106		
9,700.00	6,946.80	6,918.06	6,911.80	56.49	193.86	-87.99	1,030.22	3,858.86	6,864.23	6,639.56	224.67	30.553		
9,800.00	6,946.52	6,917.77	6,911.52	57.81	193.85	-87.96	1,030.22	3,858.86	6,963.90	6,739.26	224.65	30.999		
9,900.00	6,946.23	6,917.49	6,911.23	59.15	193.83	-87.93	1,030.22	3,858.86	7,063.59	6,838.96	224.63	31.446		
10,000.00	6,945.95	6,917.20	6,910.95	60.50	193.82	-87.90	1,030.22	3,858.86	7,163.28	6,938.67	224.61	31.892		
10,100.00	6,945.66	6,916.92	6,910.66	61.87	193.80	-87.87	1,030.22	3,858.86	7,262.98	7,038.39	224.60	32.338		
10,200.00	6,945.38	6,916.63	6,910.38	63.24	193.79	-87.85	1,030.22	3,858.86	7,362.69	7,138.11	224.58	32.784		
10,300.00	6,945.09	6,916.35	6,910.09	64.63	193.78	-87.82	1,030.22	3,858.86	7,462.41	7,237.84	224.57	33.230		
10,400.00	6,944.81	6,916.06	6,909.81	66.02	193.76	-87.79	1,030.22	3,858.86	7,562.14	7,337.58	224.56	33.676		
10,500.00	6,944.52	6,915.78	6,909.52	67.42	193.75	-87.76	1,030.22	3,858.86	7,661.87	7,437.32	224.55	34.121		
10,600.00	6,944.24	6,915.49	6,909.24	68.84	193.73	-87.73	1,030.22	3,858.86	7,761.61	7,537.07	224.54	34.567		
10,700.00	6,943.95	6,915.21	6,908.95	70.26	193.72	-87.70	1,030.22	3,858.86	7,861.35	7,636.82	224.53	35.012		
10,800.00	6,943.67	6,914.92	6,908.67	71.68	193.71	-87.67	1,030.22	3,858.86	7,961.11	7,736.58	224.53	35.457		
10,900.00	6,943.38	6,914.64	6,908.38	73.12	193.69	-87.64	1,030.22	3,858.86	8,060.86	7,836.34	224.52	35.902		
11,000.00	6,943.10	6,914.35	6,908.10	74.56	193.68	-87.61	1,030.22	3,858.86	8,160.63	7,936.11	224.52	36.347		
11,100.00	6,942.81	6,914.07	6,907.81	76.01	193.66	-87.58	1,030.22	3,858.86	8,260.40	8,035.88	224.52	36.791		
11,200.00	6,942.53	6,913.78	6,907.53	77.46	193.65	-87.55	1,030.22	3,858.86	8,360.17	8,135.65	224.52	37.236		
11,300.00	6,942.24	6,913.50	6,907.24	78.92	193.64	-87.52	1,030.22	3,858.86	8,459.95	8,235.43	224.52	37.680		
11,400.00	6,941.96	6,913.21	6,906.96	80.39	193.62	-87.49	1,030.22	3,858.86	8,559.74	8,335.21	224.53	38.124		
11,500.00	6,941.67	6,912.93	6,906.67	81.86	193.61	-87.46	1,030.22	3,858.86	8,659.53	8,435.00	224.53	38.567		
11,600.00	6,941.39	6,912.64	6,906.39	83.33	193.60	-87.43	1,030.22	3,858.86	8,759.33	8,534.79	224.54	39.011		
11,700.00	6,941.10	6,912.36	6,906.10	84.81	193.58	-87.41	1,030.22	3,858.86	8,859.13	8,634.58	224.54	39.454		
11,800.00	6,940.81	6,912.07	6,905.81	86.30	193.57	-87.38	1,030.22	3,858.86	8,958.93	8,734.38	224.55	39.897		
11,900.00	6,940.53	6,911.79	6,905.53	87.79	193.55	-87.35	1,030.22	3,858.86	9,058.74	8,834.18	224.56	40.340		
12,000.00	6,940.24	6,911.50	6,905.24	89.28	193.54	-87.32	1,030.22	3,858.86	9,158.55	8,933.98	224.57	40.783		
12,100.00	6,939.96	6,911.22	6,904.96	90.77	193.53	-87.29	1,030.22	3,858.86	9,258.37	9,033.79	224.58	41.225		
12,200.00	6,939.67	6,910.93	6,904.67	92.27	193.51	-87.26	1,030.22	3,858.86	9,358.19	9,133.60	224.59	41.667		
12,300.00	6,939.39	6,910.65	6,904.39	93.78	193.50	-87.23	1,030.22	3,858.86	9,458.01	9,233.41	224.61	42.109		
12,400.00	6,939.10	6,910.36	6,904.10	95.28	193.48	-87.20	1,030.22	3,858.86	9,557.84	9,333.22	224.62	42.551		
12,500.00	6,938.82	6,910.08	6,903.82	96.79	193.47	-87.17	1,030.22	3,858.86	9,657.68	9,433.04	224.64	42.992		
12,600.00	6,938.53	6,909.79	6,903.53	98.30	193.46	-87.14	1,030.22	3,858.86	9,757.51	9,532.86	224.66	43.433		
12,700.00	6,938.25	6,909.51	6,903.25	99.82	193.44	-87.11	1,030.22	3,858.86	9,857.35	9,632.68	224.67	43.874		
12,800.00	6,937.96	6,909.22	6,902.96	101.34	193.43	-87.08	1,030.22	3,858.86	9,957.19	9,732.50	224.69	44.315		
12,900.00	6,937.68	6,908.94	6,902.68	102.86	193.41	-87.05	1,030.22	3,858.86	10,057.04	9,832.32	224.71	44.755		
13,000.00	6,937.39	6,908.65	6,902.39	104.38	193.40	-87.02	1,030.22	3,858.86	10,156.88	9,932.15	224.73	45.195		
13,100.00	6,937.11	6,908.37	6,902.11	105.91	193.39	-87.00	1,030.22	3,858.86	10,256.74	10,031.98	224.76	45.635		
13,200.00	6,936.82	6,908.08	6,901.82	107.43	193.37	-86.97	1,030.22	3,858.86	10,356.59	10,131.81	224.78	46.075		
13,300.00	6,936.54	6,907.80	6,901.54	108.96	193.36	-86.94	1,030.22	3,858.86	10,456.45	10,231.64	224.80	46.514		
13,400.00	6,936.25	6,907.51	6,901.25	110.49	193.35	-86.91	1,030.22	3,858.86	10,556.31	10,331.48	224.83	46.953		
13,500.00	6,935.97	6,907.23	6,900.97	112.03	193.33	-86.88	1,030.22	3,858.86	10,656.17	10,431.31	224.85	47.392		
13,600.00	6,935.68	6,906.94	6,900.68	113.56	193.32	-86.85	1,030.22	3,858.86	10,756.03	10,531.15	224.88	47.830		
13,700.00	6,935.40	6,906.66	6,900.40	115.10	193.30	-86.82	1,030.22	3,858.86	10,855.90	10,630.99	224.91	48.268		
13,800.00	6,935.11	6,906.37	6,900.11	116.64	193.29	-86.79	1,030.22	3,858.86	10,955.77	10,730.83	224.94	48.706		
13,900.00	6,934.83	6,906.09	6,899.83	118.18	193.28	-86.76	1,030.22	3,858.86	11,055.64	10,830.67	224.97	49.143		
14,000.00	6,934.54	6,905.80	6,899.54	119.72	193.26	-86.73	1,030.22	3,858.86	11,155.51	10,930.52	225.00	49.581		
14,100.00	6,934.26	6,905.52	6,899.26	121.26	193.25	-86.70	1,030.22	3,858.86	11,255.39	11,030.36	225.03	50.018		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.15	6,870.08	6,864.67	204.36	191.50	-83.16	1,031.18	3,858.86	16,550.94	16,324.20	226.74	72.997		
19,500.00	6,918.86	6,869.80	6,864.40	205.95	191.49	-83.13	1,031.18	3,858.86	16,650.88	16,424.08	226.80	73.415		
19,600.00	6,918.58	6,869.53	6,864.12	207.53	191.48	-83.10	1,031.19	3,858.86	16,750.83	16,523.95	226.87	73.833		
19,700.00	6,918.29	6,869.25	6,863.84	209.11	191.46	-83.07	1,031.20	3,858.86	16,850.77	16,623.83	226.94	74.251		
19,800.00	6,918.01	6,868.97	6,863.56	210.69	191.45	-83.04	1,031.21	3,858.86	16,950.72	16,723.71	227.01	74.669		
19,900.00	6,917.72	6,868.69	6,863.28	212.28	191.43	-83.02	1,031.22	3,858.86	17,050.66	16,823.58	227.08	75.086		
20,000.00	6,917.44	6,868.41	6,863.01	213.86	191.42	-82.99	1,031.23	3,858.86	17,150.61	16,923.46	227.15	75.502		
20,100.00	6,917.15	6,868.14	6,862.73	215.45	191.41	-82.96	1,031.23	3,858.86	17,250.56	17,023.33	227.22	75.919		
20,200.00	6,916.87	6,867.86	6,862.45	217.03	191.39	-82.93	1,031.24	3,858.86	17,350.50	17,123.21	227.30	76.334		
20,300.00	6,916.58	6,867.58	6,862.17	218.61	191.38	-82.90	1,031.25	3,858.86	17,450.45	17,223.08	227.37	76.750		
20,400.00	6,916.30	6,867.30	6,861.90	220.20	191.37	-82.87	1,031.26	3,858.86	17,550.40	17,322.96	227.44	77.164		
20,500.00	6,916.01	6,867.02	6,861.62	221.78	191.35	-82.85	1,031.27	3,858.86	17,650.35	17,422.84	227.51	77.579		
20,600.00	6,915.73	6,866.75	6,861.34	223.37	191.34	-82.82	1,031.28	3,858.86	17,750.30	17,522.71	227.59	77.993		
20,700.00	6,915.44	6,866.47	6,861.06	224.95	191.32	-82.79	1,031.29	3,858.86	17,850.25	17,622.59	227.66	78.407		
20,800.00	6,915.16	6,866.19	6,860.79	226.54	191.31	-82.76	1,031.29	3,858.86	17,950.20	17,722.47	227.74	78.820		
20,855.45	6,915.00	6,866.04	6,860.63	227.42	191.30	-82.74	1,031.30	3,858.86	18,005.63	17,777.85	227.78	79.049		

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.43	6,941.23	6,935.43	202.78	202.31	-89.74	-1,154.39	-8,045.20	5,345.49	5,047.15	298.34	17.917		
19,400.00	6,919.15	6,940.95	6,935.15	204.36	202.30	-89.73	-1,154.39	-8,045.20	5,430.86	5,133.35	297.51	18.254		
19,500.00	6,918.86	6,940.66	6,934.86	205.95	202.29	-89.72	-1,154.39	-8,045.20	5,516.72	5,220.01	296.70	18.593		
19,600.00	6,918.58	6,940.38	6,934.58	207.53	202.28	-89.72	-1,154.39	-8,045.20	5,603.05	5,307.13	295.92	18.935		
19,700.00	6,918.29	6,940.09	6,934.29	209.11	202.27	-89.71	-1,154.39	-8,045.20	5,689.82	5,394.67	295.15	19.278		
19,800.00	6,918.01	6,939.81	6,934.01	210.69	202.26	-89.71	-1,154.39	-8,045.20	5,777.02	5,482.63	294.40	19.623		
19,900.00	6,917.72	6,939.52	6,933.72	212.28	202.24	-89.70	-1,154.39	-8,045.20	5,864.64	5,570.97	293.67	19.970		
20,000.00	6,917.44	6,939.24	6,933.44	213.86	202.23	-89.69	-1,154.39	-8,045.20	5,952.64	5,659.68	292.96	20.319		
20,100.00	6,917.15	6,938.95	6,933.15	215.45	202.22	-89.69	-1,154.39	-8,045.20	6,041.01	5,748.75	292.27	20.670		
20,200.00	6,916.87	6,938.67	6,932.87	217.03	202.21	-89.68	-1,154.39	-8,045.20	6,129.74	5,838.15	291.59	21.022		
20,300.00	6,916.58	6,938.38	6,932.58	218.61	202.20	-89.68	-1,154.39	-8,045.20	6,218.82	5,927.88	290.93	21.375		
20,400.00	6,916.30	6,938.10	6,932.30	220.20	202.18	-89.67	-1,154.39	-8,045.20	6,308.22	6,017.93	290.29	21.730		
20,500.00	6,916.01	6,937.81	6,932.01	221.78	202.17	-89.67	-1,154.39	-8,045.20	6,397.94	6,108.27	289.67	22.087		
20,600.00	6,915.73	6,937.53	6,931.73	223.37	202.16	-89.66	-1,154.39	-8,045.20	6,487.95	6,198.89	289.06	22.445		
20,700.00	6,915.44	6,937.24	6,931.44	224.95	202.15	-89.65	-1,154.39	-8,045.20	6,578.26	6,289.78	288.47	22.804		
20,800.00	6,915.16	6,936.96	6,931.16	226.54	202.14	-89.65	-1,154.39	-8,045.20	6,668.84	6,380.94	287.90	23.164		
20,855.45	6,915.00	6,936.80	6,931.00	227.42	202.13	-89.64	-1,154.39	-8,045.20	6,719.18	6,431.60	287.58	23.364		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		Rule Assigned:			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)					
19,200.00	6,919.72	8,600.00	8,048.55	201.20	335.10	-171.55	1,482.95	-7,160.85	5,438.45	5,179.80	258.65	21.026				
19,300.00	6,919.43	8,600.00	8,048.55	202.78	335.10	-171.55	1,482.95	-7,160.85	5,536.36	5,278.24	258.12	21.448				
19,400.00	6,919.15	8,600.00	8,048.55	204.36	335.10	-171.55	1,482.95	-7,160.85	5,634.35	5,376.73	257.62	21.871				
19,500.00	6,918.86	8,600.00	8,048.55	205.95	335.10	-171.55	1,482.95	-7,160.85	5,732.40	5,475.27	257.13	22.294				
19,600.00	6,918.58	8,600.00	8,048.55	207.53	335.10	-171.55	1,482.95	-7,160.85	5,830.52	5,573.86	256.66	22.717				
19,700.00	6,918.29	8,600.00	8,048.55	209.11	335.10	-171.55	1,482.95	-7,160.85	5,928.70	5,672.49	256.21	23.140				
19,800.00	6,918.01	8,600.00	8,048.55	210.69	335.10	-171.55	1,482.95	-7,160.85	6,026.95	5,771.17	255.78	23.563				
19,900.00	6,917.72	8,600.00	8,048.55	212.28	335.10	-171.55	1,482.95	-7,160.85	6,125.25	5,869.89	255.36	23.987				
20,000.00	6,917.44	8,600.00	8,048.55	213.86	335.10	-171.55	1,482.95	-7,160.85	6,223.60	5,968.64	254.96	24.410				
20,100.00	6,917.15	8,600.00	8,048.55	215.45	335.10	-171.55	1,482.95	-7,160.85	6,322.00	6,067.43	254.57	24.834				
20,200.00	6,916.87	8,600.00	8,048.55	217.03	335.10	-171.55	1,482.95	-7,160.85	6,420.46	6,166.26	254.20	25.257				
20,300.00	6,916.58	8,600.00	8,048.55	218.61	335.10	-171.55	1,482.95	-7,160.85	6,518.96	6,265.12	253.84	25.681				
20,400.00	6,916.30	8,600.00	8,048.55	220.20	335.10	-171.55	1,482.95	-7,160.85	6,617.51	6,364.01	253.50	26.104				
20,500.00	6,916.01	8,600.00	8,048.55	221.78	335.10	-171.55	1,482.95	-7,160.85	6,716.10	6,462.93	253.17	26.528				
20,600.00	6,915.73	8,600.00	8,048.55	223.37	335.10	-171.55	1,482.95	-7,160.85	6,814.73	6,561.88	252.85	26.951				
20,700.00	6,915.44	8,600.00	8,048.55	224.95	335.10	-171.55	1,482.95	-7,160.85	6,913.40	6,660.85	252.54	27.375				
20,800.00	6,915.16	8,600.00	8,048.55	226.54	335.10	-171.55	1,482.95	-7,160.85	7,012.10	6,759.86	252.25	27.798				
20,855.45	6,915.00	8,600.00	8,048.55	227.42	335.10	-171.55	1,482.95	-7,160.85	7,066.86	6,814.76	252.09	28.033				

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset Vertical Depth (usft)	Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
9,100.00	6,948.51	6,984.05	6,983.51	48.89	136.44	-91.29	656.16	-10,363.00	8,041.40	7,869.92	171.48	46.895		
9,200.00	6,948.23	6,983.76	6,983.23	50.11	136.43	-91.28	656.16	-10,363.00	7,942.20	7,770.55	171.65	46.271		
9,300.00	6,947.94	6,983.48	6,982.94	51.35	136.42	-91.26	656.16	-10,363.00	7,843.02	7,671.20	171.82	45.646		
9,400.00	6,947.66	6,983.19	6,982.66	52.61	136.42	-91.24	656.16	-10,363.00	7,743.86	7,571.86	172.00	45.022		
9,500.00	6,947.37	6,982.91	6,982.37	53.89	136.41	-91.23	656.16	-10,363.00	7,644.72	7,472.53	172.19	44.397		
9,600.00	6,947.09	6,982.62	6,982.09	55.18	136.41	-91.21	656.16	-10,363.00	7,545.61	7,373.22	172.38	43.772		
9,700.00	6,946.80	6,982.34	6,981.80	56.49	136.40	-91.19	656.16	-10,363.00	7,446.52	7,273.93	172.58	43.147		
9,800.00	6,946.52	6,982.05	6,981.52	57.81	136.39	-91.18	656.16	-10,363.00	7,347.45	7,174.66	172.79	42.522		
9,900.00	6,946.23	6,981.77	6,981.23	59.15	136.39	-91.16	656.16	-10,363.00	7,248.41	7,075.40	173.01	41.897		
10,000.00	6,945.95	6,981.48	6,980.95	60.50	136.38	-91.15	656.16	-10,363.00	7,149.39	6,976.17	173.23	41.272		
10,100.00	6,945.66	6,981.20	6,980.66	61.87	136.38	-91.13	656.16	-10,363.00	7,050.41	6,876.95	173.46	40.646		
10,200.00	6,945.38	6,980.91	6,980.38	63.24	136.37	-91.11	656.16	-10,363.00	6,951.45	6,777.76	173.69	40.021		
10,300.00	6,945.09	6,980.63	6,980.09	64.63	136.36	-91.10	656.16	-10,363.00	6,852.53	6,678.58	173.94	39.396		
10,400.00	6,944.81	6,980.34	6,979.81	66.02	136.36	-91.08	656.16	-10,363.00	6,753.63	6,579.43	174.20	38.770		
10,500.00	6,944.52	6,980.06	6,979.52	67.42	136.35	-91.07	656.16	-10,363.00	6,654.77	6,480.31	174.46	38.145		
10,600.00	6,944.24	6,979.77	6,979.24	68.84	136.35	-91.05	656.16	-10,363.00	6,555.94	6,381.21	174.73	37.520		
10,700.00	6,943.95	6,979.49	6,978.95	70.26	136.34	-91.03	656.16	-10,363.00	6,457.15	6,282.13	175.02	36.895		
10,800.00	6,943.67	6,979.20	6,978.67	71.68	136.33	-91.02	656.16	-10,363.00	6,358.40	6,183.09	175.31	36.270		
10,900.00	6,943.38	6,978.92	6,978.38	73.12	136.33	-91.00	656.16	-10,363.00	6,259.68	6,084.07	175.61	35.645		
11,000.00	6,943.10	6,978.63	6,978.10	74.56	136.32	-90.98	656.16	-10,363.00	6,161.01	5,985.08	175.93	35.020		
11,100.00	6,942.81	6,978.35	6,977.81	76.01	136.31	-90.97	656.16	-10,363.00	6,062.38	5,886.12	176.26	34.395		
11,200.00	6,942.53	6,978.06	6,977.53	77.46	136.31	-90.95	656.16	-10,363.00	5,963.80	5,787.20	176.60	33.770		
11,300.00	6,942.24	6,977.78	6,977.24	78.92	136.30	-90.94	656.16	-10,363.00	5,865.26	5,688.31	176.95	33.146		
11,400.00	6,941.96	6,977.49	6,976.96	80.39	136.30	-90.92	656.16	-10,363.00	5,766.78	5,589.45	177.32	32.521		
11,500.00	6,941.67	6,977.21	6,976.67	81.86	136.29	-90.90	656.16	-10,363.00	5,668.34	5,490.64	177.70	31.897		
11,600.00	6,941.39	6,976.92	6,976.39	83.33	136.28	-90.89	656.16	-10,363.00	5,569.97	5,391.86	178.10	31.274		
11,700.00	6,941.10	6,976.64	6,976.10	84.81	136.28	-90.87	656.16	-10,363.00	5,471.65	5,293.13	178.52	30.650		
11,800.00	6,940.81	6,976.35	6,975.81	86.30	136.27	-90.85	656.16	-10,363.00	5,373.39	5,194.44	178.95	30.027		
11,900.00	6,940.53	6,976.07	6,975.53	87.79	136.27	-90.84	656.16	-10,363.00	5,275.20	5,095.80	179.40	29.405		
12,000.00	6,940.24	6,975.78	6,975.24	89.28	136.26	-90.82	656.16	-10,363.00	5,177.08	4,997.21	179.87	28.782		
12,100.00	6,939.96	6,975.50	6,974.96	90.77	136.25	-90.81	656.16	-10,363.00	5,079.04	4,898.68	180.36	28.160		
12,200.00	6,939.67	6,975.21	6,974.67	92.27	136.25	-90.79	656.16	-10,363.00	4,981.07	4,800.19	180.87	27.539		
12,300.00	6,939.39	6,974.93	6,974.39	93.78	136.24	-90.77	656.16	-10,363.00	4,883.18	4,701.77	181.41	26.918		
12,400.00	6,939.10	6,974.64	6,974.10	95.28	136.24	-90.76	656.16	-10,363.00	4,785.38	4,603.41	181.97	26.298		
12,500.00	6,938.82	6,974.36	6,973.82	96.79	136.23	-90.74	656.16	-10,363.00	4,687.67	4,505.12	182.55	25.679		
12,600.00	6,938.53	6,974.07	6,973.53	98.30	136.22	-90.73	656.16	-10,363.00	4,590.06	4,406.90	183.16	25.060		
12,700.00	6,938.25	6,973.79	6,973.25	99.82	136.22	-90.71	656.16	-10,363.00	4,492.56	4,308.75	183.81	24.442		
12,800.00	6,937.96	6,973.50	6,972.96	101.34	136.21	-90.69	656.16	-10,363.00	4,395.17	4,210.69	184.48	23.825		
12,900.00	6,937.68	6,973.22	6,972.68	102.86	136.21	-90.68	656.16	-10,363.00	4,297.90	4,112.71	185.19	23.209		
13,000.00	6,937.39	6,972.93	6,972.39	104.38	136.20	-90.66	656.16	-10,363.00	4,200.75	4,014.83	185.93	22.593		
13,100.00	6,937.11	6,972.65	6,972.11	105.91	136.19	-90.64	656.16	-10,363.00	4,103.75	3,917.04	186.71	21.979		
13,200.00	6,936.82	6,972.36	6,971.82	107.43	136.19	-90.63	656.16	-10,363.00	4,006.89	3,819.36	187.53	21.367		
13,300.00	6,936.54	6,972.08	6,971.54	108.96	136.18	-90.61	656.16	-10,363.00	3,910.19	3,721.79	188.40	20.755		
13,400.00	6,936.25	6,971.79	6,971.25	110.49	136.18	-90.60	656.16	-10,363.00	3,813.66	3,624.35	189.31	20.145		
13,500.00	6,935.97	6,971.51	6,970.97	112.03	136.17	-90.58	656.16	-10,363.00	3,717.31	3,527.04	190.27	19.537		
13,600.00	6,935.68	6,971.22	6,970.68	113.56	136.16	-90.56	656.16	-10,363.00	3,621.16	3,429.87	191.29	18.930		
13,700.00	6,935.40	6,970.94	6,970.40	115.10	136.16	-90.55	656.16	-10,363.00	3,525.23	3,332.86	192.37	18.326		
13,800.00	6,935.11	6,970.65	6,970.11	116.64	136.15	-90.53	656.16	-10,363.00	3,429.53	3,236.02	193.50	17.723		
13,900.00	6,934.83	6,970.37	6,969.83	118.18	136.15	-90.51	656.16	-10,363.00	3,334.08	3,139.36	194.71	17.123		
14,000.00	6,934.54	6,970.08	6,969.54	119.72	136.14	-90.50	656.16	-10,363.00	3,238.90	3,042.90	195.99	16.525		
14,100.00	6,934.26	6,969.80	6,969.26	121.26	136.13	-90.48	656.16	-10,363.00	3,144.02	2,946.67	197.36	15.931		
14,200.00	6,933.97	6,969.51	6,968.97	122.81	136.13	-90.47	656.16	-10,363.00	3,049.47	2,850.67	198.81	15.339		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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			
14,300.00	6,933.69	6,969.23	6,968.69	124.36	136.12	-90.45	656.16	-10,363.00	2,955.28	2,754.93	200.35	14.751			
14,400.00	6,933.40	6,968.94	6,968.40	125.90	136.12	-90.43	656.16	-10,363.00	2,861.49	2,659.49	202.00	14.166			
14,500.00	6,933.12	6,968.66	6,968.12	127.45	136.11	-90.42	656.16	-10,363.00	2,768.13	2,564.37	203.76	13.585			
14,600.00	6,932.83	6,968.37	6,967.83	129.00	136.10	-90.40	656.16	-10,363.00	2,675.25	2,469.61	205.64	13.010			
14,700.00	6,932.55	6,968.09	6,967.55	130.56	136.10	-90.39	656.16	-10,363.00	2,582.90	2,375.25	207.65	12.439			
14,800.00	6,932.26	6,967.80	6,967.26	132.11	136.09	-90.37	656.16	-10,363.00	2,491.14	2,281.33	209.81	11.873			
14,900.00	6,931.98	6,967.52	6,966.98	133.66	136.09	-90.35	656.16	-10,363.00	2,400.04	2,187.91	212.13	11.314			
15,000.00	6,931.69	6,967.23	6,966.69	135.22	136.08	-90.34	656.16	-10,363.00	2,309.67	2,095.06	214.62	10.762			
15,100.00	6,931.41	6,966.95	6,966.41	136.77	136.07	-90.32	656.16	-10,363.00	2,220.14	2,002.84	217.30	10.217			
15,200.00	6,931.12	6,966.66	6,966.12	138.33	136.07	-90.30	656.16	-10,363.00	2,131.53	1,911.34	220.18	9.681			
15,300.00	6,930.84	6,966.38	6,965.84	139.89	136.06	-90.29	656.16	-10,363.00	2,043.97	1,820.68	223.29	9.154			
15,400.00	6,930.55	6,966.09	6,965.55	141.45	136.06	-90.27	656.16	-10,363.00	1,957.61	1,730.96	226.65	8.637			
15,500.00	6,930.27	6,965.81	6,965.27	143.01	136.05	-90.26	656.16	-10,363.00	1,872.60	1,642.34	230.26	8.132			
15,600.00	6,929.98	6,965.52	6,964.98	144.57	136.04	-90.24	656.16	-10,363.00	1,789.15	1,554.98	234.16	7.641			
15,700.00	6,929.70	6,965.24	6,964.70	146.13	136.04	-90.22	656.16	-10,363.00	1,707.47	1,469.11	238.36	7.163			
15,800.00	6,929.41	6,964.95	6,964.41	147.70	136.03	-90.21	656.16	-10,363.00	1,627.84	1,384.96	242.88	6.702			
15,900.00	6,929.13	6,964.66	6,964.13	149.26	136.03	-90.19	656.16	-10,363.00	1,550.57	1,302.86	247.72	6.259			
16,000.00	6,928.84	6,964.38	6,963.84	150.82	136.02	-90.17	656.16	-10,363.00	1,476.04	1,223.16	252.88	5.837			
16,100.00	6,928.56	6,964.09	6,963.56	152.39	136.01	-90.16	656.16	-10,363.00	1,404.67	1,146.32	258.35	5.437			
16,200.00	6,928.27	6,963.81	6,963.27	153.96	136.01	-90.14	656.16	-10,363.00	1,336.98	1,072.89	264.09	5.063			
16,300.00	6,927.99	6,963.52	6,962.99	155.52	136.00	-90.13	656.16	-10,363.00	1,273.54	1,003.52	270.03	4.716			
16,400.00	6,927.70	6,963.24	6,962.70	157.09	136.00	-90.11	656.16	-10,363.00	1,215.04	938.98	276.06	4.401			
16,500.00	6,927.42	6,962.95	6,962.42	158.66	135.99	-90.09	656.16	-10,363.00	1,162.21	880.17	282.04	4.121			
16,600.00	6,927.13	6,962.67	6,962.13	160.23	135.98	-90.08	656.16	-10,363.00	1,115.86	828.11	287.75	3.878			
16,700.00	6,926.85	6,962.38	6,961.85	161.80	135.98	-90.06	656.16	-10,363.00	1,076.82	783.90	292.93	3.676			
16,800.00	6,926.56	6,962.10	6,961.56	163.37	135.97	-90.05	656.16	-10,363.00	1,045.92	748.64	297.29	3.518			
16,900.00	6,926.28	6,961.81	6,961.28	164.94	135.96	-90.03	656.16	-10,363.00	1,023.90	723.37	300.53	3.407			
17,000.00	6,925.99	6,961.53	6,960.99	166.51	135.96	-90.01	656.16	-10,363.00	1,011.32	708.92	302.40	3.344			
17,077.96	6,925.77	6,961.31	6,960.77	167.73	135.95	-90.00	656.16	-10,363.00	1,008.31	705.51	302.81	3.330	CC, ES, SF		
17,100.00	6,925.71	6,961.24	6,960.71	168.08	135.95	-90.00	656.16	-10,363.00	1,008.55	705.81	302.75	3.331			
17,200.00	6,925.42	6,960.96	6,960.42	169.65	135.95	-89.98	656.16	-10,363.00	1,015.67	714.15	301.52	3.368			
17,300.00	6,925.14	6,960.67	6,960.14	171.23	135.94	-89.96	656.16	-10,363.00	1,032.47	733.64	298.84	3.455			
17,400.00	6,924.85	6,960.39	6,959.85	172.80	135.93	-89.95	656.16	-10,363.00	1,058.49	763.60	294.89	3.589			
17,500.00	6,924.57	6,960.10	6,959.57	174.37	135.93	-89.93	656.16	-10,363.00	1,093.07	803.09	289.98	3.769			
17,600.00	6,924.28	6,959.82	6,959.28	175.95	135.92	-89.92	656.16	-10,363.00	1,135.44	851.03	284.41	3.992			
17,700.00	6,924.00	6,959.53	6,959.00	177.52	135.92	-89.90	656.16	-10,363.00	1,184.75	906.30	278.44	4.255			
17,800.00	6,923.71	6,959.25	6,958.71	179.10	135.91	-89.88	656.16	-10,363.00	1,240.17	967.84	272.33	4.554			
17,900.00	6,923.43	6,958.96	6,958.43	180.68	135.90	-89.87	656.16	-10,363.00	1,300.94	1,034.68	266.26	4.886			
18,000.00	6,923.14	6,958.68	6,958.14	182.25	135.90	-89.85	656.16	-10,363.00	1,366.32	1,105.97	260.35	5.248			
18,100.00	6,922.86	6,958.39	6,957.86	183.83	135.89	-89.83	656.16	-10,363.00	1,435.70	1,181.00	254.70	5.637			
18,200.00	6,922.57	6,958.11	6,957.57	185.41	135.89	-89.82	656.16	-10,363.00	1,508.53	1,259.17	249.35	6.050			
18,300.00	6,922.29	6,957.82	6,957.29	186.98	135.88	-89.80	656.16	-10,363.00	1,584.32	1,339.98	244.34	6.484			
18,400.00	6,922.00	6,957.54	6,957.00	188.56	135.87	-89.79	656.16	-10,363.00	1,662.67	1,423.01	239.66	6.938			
18,500.00	6,921.71	6,957.25	6,956.71	190.14	135.87	-89.77	656.16	-10,363.00	1,743.24	1,507.92	235.31	7.408			
18,600.00	6,921.43	6,956.97	6,956.43	191.72	135.86	-89.75	656.16	-10,363.00	1,825.73	1,594.44	231.29	7.894			
18,700.00	6,921.14	6,956.68	6,956.14	193.30	135.86	-89.74	656.16	-10,363.00	1,909.89	1,682.32	227.57	8.393			
18,800.00	6,920.86	6,956.40	6,955.86	194.88	135.85	-89.72	656.16	-10,363.00	1,995.52	1,771.39	224.13	8.904			
18,900.00	6,920.57	6,956.11	6,955.57	196.46	135.84	-89.70	656.16	-10,363.00	2,082.42	1,861.47	220.95	9.425			
19,000.00	6,920.29	6,955.83	6,955.29	198.04	135.84	-89.69	656.16	-10,363.00	2,170.46	1,952.44	218.02	9.956			
19,100.00	6,920.00	6,955.54	6,955.00	199.62	135.83	-89.67	656.16	-10,363.00	2,259.49	2,044.19	215.30	10.494			
19,200.00	6,919.72	6,955.26	6,954.72	201.20	135.83	-89.66	656.16	-10,363.00	2,349.40	2,136.61	212.80	11.041			
19,300.00	6,919.43	6,954.97	6,954.43	202.78	135.82	-89.64	656.16	-10,363.00	2,440.10	2,229.62	210.48	11.593			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,919.15	6,954.69	6,954.15	204.36	135.81	-89.62	656.16	-10,363.00	2,531.50	2,323.17	208.33	12.151	
19,500.00	6,918.86	6,954.40	6,953.86	205.95	135.81	-89.61	656.16	-10,363.00	2,623.53	2,417.18	206.35	12.714	
19,600.00	6,918.58	6,954.12	6,953.58	207.53	135.80	-89.59	656.16	-10,363.00	2,716.12	2,511.62	204.50	13.282	
19,700.00	6,918.29	6,953.83	6,953.29	209.11	135.80	-89.58	656.16	-10,363.00	2,809.22	2,606.43	202.79	13.853	
19,800.00	6,918.01	6,953.55	6,953.01	210.69	135.79	-89.56	656.16	-10,363.00	2,902.78	2,701.58	201.20	14.427	
19,900.00	6,917.72	6,953.26	6,952.72	212.28	135.78	-89.54	656.16	-10,363.00	2,996.75	2,797.03	199.72	15.005	
20,000.00	6,917.44	6,952.98	6,952.44	213.86	135.78	-89.53	656.16	-10,363.00	3,091.10	2,892.76	198.35	15.584	
20,100.00	6,917.15	6,952.69	6,952.15	215.45	135.77	-89.51	656.16	-10,363.00	3,185.80	2,988.74	197.06	16.166	
20,200.00	6,916.87	6,952.41	6,951.87	217.03	135.77	-89.49	656.16	-10,363.00	3,280.81	3,084.94	195.87	16.750	
20,300.00	6,916.58	6,952.12	6,951.58	218.61	135.76	-89.48	656.16	-10,363.00	3,376.11	3,181.36	194.76	17.335	
20,400.00	6,916.30	6,951.84	6,951.30	220.20	135.75	-89.46	656.16	-10,363.00	3,471.68	3,277.96	193.72	17.922	
20,500.00	6,916.01	6,951.55	6,951.01	221.78	135.75	-89.45	656.16	-10,363.00	3,567.48	3,374.74	192.74	18.509	
20,600.00	6,915.73	6,951.27	6,950.73	223.37	135.74	-89.43	656.16	-10,363.00	3,663.52	3,471.68	191.84	19.097	
20,700.00	6,915.44	6,950.98	6,950.44	224.95	135.74	-89.41	656.16	-10,363.00	3,759.75	3,568.77	190.99	19.686	
20,800.00	6,915.16	6,950.70	6,950.16	226.54	135.73	-89.40	656.16	-10,363.00	3,856.18	3,665.99	190.19	20.275	
20,855.45	6,915.00	6,950.54	6,950.00	227.42	135.73	-89.39	656.16	-10,363.00	3,909.73	3,719.96	189.77	20.602	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	169.28	-1,277.52	241.82	1,300.34				
100.00	100.00	81.00	81.00	0.25	0.80	169.28	-1,277.52	241.82	1,300.20	1,299.15	1.05	1,239.557	
200.00	200.00	181.00	181.00	0.61	1.78	169.28	-1,277.52	241.82	1,300.20	1,297.81	2.39	543.488	
300.00	300.00	281.00	281.00	0.97	2.77	169.28	-1,277.52	241.82	1,300.20	1,296.47	3.74	348.045	
400.00	400.00	381.01	381.00	1.33	4.04	169.28	-1,277.52	241.82	1,300.20	1,294.84	5.36	242.399	
500.00	500.00	481.01	481.00	1.68	5.94	169.28	-1,277.52	241.82	1,300.20	1,292.58	7.63	170.513	CC
600.00	599.98	580.99	580.98	2.04	7.84	175.90	-1,277.52	241.82	1,301.94	1,292.06	9.89	131.686	ES
700.00	699.84	678.56	678.54	2.41	9.70	175.90	-1,276.74	241.82	1,306.40	1,294.29	12.11	107.920	
800.00	799.45	775.00	774.98	2.77	11.53	175.91	-1,277.03	241.82	1,315.39	1,301.08	14.30	91.961	
900.00	898.70	879.74	879.70	3.13	13.52	175.94	-1,277.52	241.82	1,328.01	1,311.36	16.65	79.750	
1,000.00	997.47	978.51	978.47	3.50	15.34	175.97	-1,277.52	241.82	1,343.62	1,324.78	18.84	71.323	
1,100.00	1,095.62	1,076.66	1,076.62	3.89	17.15	175.99	-1,277.52	241.82	1,362.65	1,341.64	21.02	64.841	
1,200.00	1,193.06	1,172.71	1,172.66	4.30	18.92	176.02	-1,277.01	241.82	1,384.59	1,361.44	23.16	59.795	
1,245.75	1,237.35	1,215.95	1,215.91	4.49	19.72	176.04	-1,277.07	241.82	1,396.05	1,371.92	24.13	57.867	
1,300.00	1,289.78	1,267.11	1,267.06	4.72	20.66	176.08	-1,277.18	241.82	1,410.10	1,384.83	25.27	55.808	
1,400.00	1,386.41	1,367.47	1,367.41	5.15	22.51	176.15	-1,277.52	241.82	1,436.11	1,408.62	27.48	52.254	
1,500.00	1,483.04	1,464.10	1,464.04	5.59	24.30	176.22	-1,277.52	241.82	1,461.79	1,432.16	29.64	49.324	
1,600.00	1,579.67	1,560.73	1,560.67	6.04	26.08	176.29	-1,277.52	241.82	1,487.48	1,455.69	31.79	46.787	
1,700.00	1,676.30	1,655.70	1,655.64	6.49	27.83	176.34	-1,277.04	241.82	1,512.70	1,478.78	33.92	44.597	
1,800.00	1,772.93	1,749.64	1,749.58	6.95	29.57	176.41	-1,277.23	241.82	1,538.58	1,502.55	36.03	42.704	
1,900.00	1,869.56	1,850.64	1,850.56	7.41	31.43	176.47	-1,277.52	241.82	1,564.55	1,526.28	38.27	40.878	
2,000.00	1,966.19	1,947.27	1,947.19	7.87	33.22	176.53	-1,277.52	241.82	1,590.24	1,549.81	40.44	39.326	
2,100.00	2,062.83	2,043.90	2,043.83	8.33	35.00	176.58	-1,277.52	241.82	1,615.94	1,573.34	42.60	37.930	
2,200.00	2,159.46	2,138.85	2,138.77	8.80	36.76	176.63	-1,277.00	241.82	1,641.13	1,596.39	44.74	36.684	
2,300.00	2,256.09	2,232.76	2,232.68	9.27	38.49	176.68	-1,277.18	241.82	1,667.01	1,620.15	46.85	35.580	
2,400.00	2,352.72	2,333.81	2,333.72	9.73	40.37	176.74	-1,277.52	241.82	1,693.03	1,643.92	49.11	34.474	
2,500.00	2,449.35	2,430.45	2,430.35	10.20	42.26	176.79	-1,277.52	241.82	1,718.73	1,667.35	51.39	33.447	
2,600.00	2,545.98	2,527.08	2,526.98	10.67	44.15	176.83	-1,277.52	241.82	1,744.43	1,690.77	53.66	32.507	
2,700.00	2,642.61	2,622.39	2,622.29	11.15	46.02	176.88	-1,276.99	241.82	1,769.62	1,713.70	55.91	31.648	
2,800.00	2,739.24	2,716.11	2,716.01	11.62	47.86	176.92	-1,277.14	241.82	1,795.47	1,737.34	58.13	30.885	
2,900.00	2,835.87	2,809.75	2,809.65	12.09	49.69	176.96	-1,277.44	241.82	1,821.48	1,761.13	60.35	30.182	
3,000.00	2,932.50	2,913.64	2,913.50	12.56	51.84	177.01	-1,277.52	241.82	1,847.25	1,784.36	62.89	29.373	
3,100.00	3,029.13	3,010.28	3,010.13	13.04	53.86	177.05	-1,277.52	241.82	1,872.96	1,807.66	65.30	28.684	
3,200.00	3,125.77	3,106.91	3,106.77	13.51	55.88	177.09	-1,277.52	241.82	1,898.66	1,830.96	67.70	28.044	
3,300.00	3,222.40	3,203.54	3,203.40	13.99	57.90	177.13	-1,277.52	241.82	1,924.37	1,854.26	70.11	27.448	
3,400.00	3,319.03	3,298.56	3,298.40	14.46	59.88	177.16	-1,275.67	241.82	1,948.25	1,875.77	72.48	26.879	
3,500.00	3,415.66	3,391.50	3,391.34	14.94	61.83	177.19	-1,275.83	241.82	1,974.13	1,899.33	74.81	26.390	
3,600.00	3,512.29	3,484.35	3,484.18	15.42	63.77	177.23	-1,276.17	241.82	2,000.19	1,923.06	77.13	25.933	
3,700.00	3,608.92	3,577.11	3,576.93	15.89	65.71	177.27	-1,276.69	241.82	2,026.43	1,946.98	79.45	25.505	
3,800.00	3,705.55	3,686.82	3,686.55	16.37	68.00	177.31	-1,277.52	241.82	2,052.92	1,970.77	82.15	24.990	
3,900.00	3,802.18	3,783.45	3,783.18	16.84	70.04	177.34	-1,277.52	241.82	2,078.63	1,994.06	84.57	24.578	
4,000.00	3,898.81	3,880.08	3,879.81	17.32	72.07	177.38	-1,277.52	241.82	2,104.35	2,017.35	86.99	24.190	
4,100.00	3,995.44	3,973.74	3,973.45	17.80	74.04	177.40	-1,276.47	241.82	2,129.02	2,039.68	89.35	23.828	
4,200.00	4,092.07	4,063.61	4,063.32	18.28	75.93	177.43	-1,276.74	241.82	2,155.03	2,063.41	91.62	23.522	
4,300.00	4,188.71	4,153.33	4,153.04	18.75	77.82	177.46	-1,277.29	241.82	2,181.33	2,087.45	93.88	23.234	
4,400.00	4,285.34	4,266.68	4,266.34	19.23	80.21	177.50	-1,277.52	241.82	2,207.20	2,110.52	96.69	22.828	
4,500.00	4,381.97	4,363.31	4,362.97	19.71	82.25	177.53	-1,277.52	241.82	2,232.92	2,133.80	99.12	22.528	
4,600.00	4,478.60	4,457.57	4,457.21	20.19	84.24	177.55	-1,276.46	241.82	2,257.59	2,156.10	101.49	22.244	
4,700.00	4,575.23	4,547.05	4,546.69	20.67	86.12	177.58	-1,276.70	241.82	2,283.56	2,179.81	103.76	22.009	
4,800.00	4,671.86	4,636.38	4,636.01	21.14	88.01	177.60	-1,277.21	241.82	2,309.83	2,203.82	106.02	21.787	
4,900.00	4,768.49	4,749.91	4,749.49	21.62	90.41	177.64	-1,277.52	241.82	2,335.79	2,226.96	108.83	21.462	
5,000.00	4,865.12	4,846.54	4,846.12	22.10	92.45	177.66	-1,277.52	241.82	2,361.51	2,250.24	111.27	21.224	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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	4,961.75	4,942.04	4,941.60	22.58	94.47	177.68	-1,276.41	241.82	2,386.13	2,272.46	113.67	20.991	
5,200.00	5,058.38	5,031.36	5,030.92	23.06	96.36	177.71	-1,276.59	241.82	2,412.05	2,296.11	115.94	20.805	
5,300.00	5,155.01	5,120.54	5,120.09	23.54	98.24	177.73	-1,277.05	241.82	2,438.25	2,320.05	118.20	20.628	
5,400.00	5,251.64	5,233.14	5,232.64	24.01	100.62	177.76	-1,277.52	241.82	2,464.38	2,343.39	121.00	20.367	
5,500.00	5,348.28	5,329.78	5,329.28	24.49	102.67	177.78	-1,277.52	241.82	2,490.10	2,366.67	123.43	20.173	
5,600.00	5,444.91	5,426.08	5,425.57	24.97	104.71	177.80	-1,276.47	241.82	2,514.79	2,388.93	125.86	19.980	
5,700.00	5,541.54	5,514.65	5,514.14	25.45	106.58	177.82	-1,276.62	241.82	2,540.68	2,412.56	128.11	19.831	
5,800.00	5,638.17	5,603.08	5,602.56	25.93	108.45	177.84	-1,277.06	241.82	2,566.87	2,436.51	130.36	19.691	
5,900.00	5,734.80	5,716.37	5,715.80	26.41	110.85	177.87	-1,277.52	241.82	2,592.99	2,459.81	133.18	19.470	
6,000.00	5,831.43	5,813.00	5,812.43	26.89	112.90	177.89	-1,277.52	241.82	2,618.71	2,483.09	135.62	19.309	
6,100.00	5,928.06	5,909.63	5,909.06	27.37	114.95	177.91	-1,277.52	241.82	2,644.43	2,506.38	138.06	19.155	
6,200.00	6,024.69	5,998.96	5,998.38	27.85	116.84	177.93	-1,276.52	241.82	2,669.18	2,528.85	140.33	19.021	
6,300.00	6,121.32	6,087.47	6,086.88	28.33	118.72	177.95	-1,276.90	241.82	2,695.31	2,552.73	142.58	18.904	
6,400.00	6,217.95	6,199.60	6,198.95	28.81	121.09	177.97	-1,277.52	241.82	2,721.60	2,576.23	145.37	18.721	
6,500.00	6,314.58	6,296.24	6,295.58	29.29	123.14	177.99	-1,277.52	241.82	2,747.33	2,599.51	147.81	18.586	
6,543.64	6,356.75	6,338.40	6,337.75	29.49	124.04	178.00	-1,277.52	241.82	2,758.55	2,609.67	148.88	18.529	
6,550.00	6,362.90	6,344.55	6,343.90	29.53	124.17	-179.73	-1,277.52	241.82	2,760.19	2,611.16	149.03	18.521	
6,600.00	6,411.07	6,392.72	6,392.07	29.77	125.19	-163.09	-1,277.52	241.82	2,773.40	2,623.15	150.25	18.458	
6,650.00	6,458.79	6,440.44	6,439.79	30.01	126.20	-149.57	-1,277.52	241.82	2,787.10	2,635.64	151.46	18.402	
6,700.00	6,505.76	6,487.41	6,486.76	30.26	127.20	-139.19	-1,277.52	241.82	2,801.23	2,648.58	152.65	18.351	
6,750.00	6,551.69	6,532.57	6,531.90	30.50	128.15	-131.28	-1,276.00	241.82	2,814.25	2,660.46	153.79	18.299	
6,800.00	6,596.30	6,574.27	6,573.60	30.74	129.04	-125.13	-1,276.03	241.82	2,829.15	2,674.29	154.86	18.269	
6,850.00	6,639.32	6,614.45	6,613.79	30.98	129.89	-120.22	-1,276.11	241.82	2,844.42	2,688.53	155.89	18.246	
6,900.00	6,680.47	6,652.88	6,652.22	31.21	130.70	-116.20	-1,276.21	241.82	2,860.02	2,703.15	156.88	18.231	
6,950.00	6,719.51	6,689.32	6,688.65	31.44	131.48	-112.82	-1,276.35	241.82	2,875.94	2,718.12	157.82	18.223 SF	
7,000.00	6,756.20	6,723.55	6,722.87	31.67	132.20	-109.90	-1,276.51	241.82	2,892.16	2,733.45	158.70	18.224	
7,050.00	6,790.30	6,755.35	6,754.67	31.90	132.88	-107.31	-1,276.68	241.82	2,908.65	2,749.12	159.53	18.232	
7,100.00	6,821.62	6,784.54	6,783.86	32.13	133.50	-104.98	-1,276.86	241.82	2,925.41	2,765.11	160.30	18.249	
7,150.00	6,849.95	6,810.93	6,810.25	32.35	134.06	-102.83	-1,277.05	241.82	2,942.41	2,781.40	161.01	18.275	
7,200.00	6,875.12	6,834.38	6,833.70	32.58	134.55	-100.82	-1,277.22	241.82	2,959.62	2,797.98	161.64	18.310	
7,250.00	6,896.97	6,878.73	6,877.97	32.81	135.49	-99.35	-1,277.52	241.82	2,977.05	2,814.28	162.77	18.290	
7,300.00	6,915.38	6,897.13	6,896.38	33.05	135.88	-97.56	-1,277.52	241.82	2,994.44	2,831.15	163.28	18.339	
7,350.00	6,930.22	6,911.98	6,911.22	33.29	136.20	-95.81	-1,277.52	241.82	3,011.94	2,848.22	163.72	18.397	
7,400.00	6,941.41	6,923.17	6,922.41	33.53	136.44	-94.09	-1,277.52	241.82	3,029.51	2,865.44	164.07	18.465	
7,450.00	6,948.88	6,930.63	6,929.88	33.79	136.60	-92.41	-1,277.52	241.82	3,047.07	2,882.74	164.33	18.543	
7,500.00	6,952.57	6,934.33	6,933.57	34.05	136.67	-90.77	-1,277.52	241.82	3,064.54	2,900.04	164.50	18.630	
7,525.63	6,953.00	6,934.76	6,934.00	34.19	136.68	-89.94	-1,277.52	241.82	3,073.43	2,908.88	164.55	18.678	
7,600.00	6,952.79	6,934.54	6,933.79	34.61	136.68	-89.94	-1,277.52	241.82	3,099.94	2,935.26	164.67	18.825	
7,700.00	6,952.50	6,934.26	6,933.50	35.23	136.67	-89.93	-1,277.52	241.82	3,138.00	2,973.15	164.86	19.035	
7,800.00	6,952.22	6,933.97	6,933.22	35.91	136.67	-89.92	-1,277.52	241.82	3,178.76	3,013.70	165.06	19.258	
7,900.00	6,951.93	6,933.69	6,932.93	36.65	136.66	-89.92	-1,277.52	241.82	3,222.11	3,056.83	165.28	19.495	
8,000.00	6,951.65	6,933.40	6,932.65	37.45	136.65	-89.91	-1,277.52	241.82	3,267.95	3,102.43	165.51	19.744	
8,100.00	6,951.36	6,933.12	6,932.36	38.29	136.65	-89.91	-1,277.52	241.82	3,316.16	3,150.41	165.76	20.006	
8,200.00	6,951.08	6,932.83	6,932.08	39.19	136.64	-89.90	-1,277.52	241.82	3,366.66	3,200.66	166.00	20.281	
8,300.00	6,950.79	6,932.55	6,931.79	40.13	136.64	-89.90	-1,277.52	241.82	3,419.34	3,253.08	166.26	20.566	
8,400.00	6,950.51	6,932.26	6,931.51	41.11	136.63	-89.89	-1,277.52	241.82	3,474.10	3,307.58	166.52	20.864	
8,500.00	6,950.22	6,931.98	6,931.22	42.12	136.62	-89.88	-1,277.52	241.82	3,530.84	3,364.06	166.77	21.171	
8,600.00	6,949.94	6,931.69	6,930.94	43.18	136.62	-89.88	-1,277.52	241.82	3,589.47	3,422.44	167.03	21.490	
8,700.00	6,949.65	6,931.41	6,930.65	44.26	136.61	-89.87	-1,277.52	241.82	3,649.90	3,482.61	167.29	21.818	
8,800.00	6,949.37	6,931.12	6,930.37	45.38	136.61	-89.87	-1,277.52	241.82	3,712.04	3,544.49	167.54	22.156	
8,900.00	6,949.08	6,930.84	6,930.08	46.53	136.60	-89.86	-1,277.52	241.82	3,775.80	3,608.01	167.80	22.502	
9,000.00	6,948.80	6,930.55	6,929.80	47.70	136.59	-89.86	-1,277.52	241.82	3,841.11	3,673.07	168.04	22.858	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		
9,100.00	6,948.51	6,930.27	6,929.51	48.89	136.59	-89.85	-1,277.52	241.82	3,907.89	3,739.61	168.29	23.222		
9,200.00	6,948.23	6,929.98	6,929.23	50.11	136.58	-89.84	-1,277.52	241.82	3,976.06	3,807.54	168.53	23.593		
9,300.00	6,947.94	6,929.70	6,928.94	51.35	136.58	-89.84	-1,277.52	241.82	4,045.56	3,876.80	168.76	23.972		
9,400.00	6,947.66	6,929.41	6,928.66	52.61	136.57	-89.83	-1,277.52	241.82	4,116.31	3,947.33	168.99	24.359		
9,500.00	6,947.37	6,929.13	6,928.37	53.89	136.56	-89.83	-1,277.52	241.82	4,188.26	4,019.05	169.21	24.752		
9,600.00	6,947.09	6,928.84	6,928.09	55.18	136.56	-89.82	-1,277.52	241.82	4,261.33	4,091.91	169.43	25.152		
9,700.00	6,946.80	6,928.56	6,927.80	56.49	136.55	-89.82	-1,277.52	241.82	4,335.48	4,165.85	169.64	25.558		
9,800.00	6,946.52	6,928.27	6,927.52	57.81	136.55	-89.81	-1,277.52	241.82	4,410.66	4,240.82	169.84	25.969		
9,900.00	6,946.23	6,927.99	6,927.23	59.15	136.54	-89.81	-1,277.52	241.82	4,486.80	4,316.76	170.04	26.387		
10,000.00	6,945.95	6,927.70	6,926.95	60.50	136.53	-89.80	-1,277.52	241.82	4,563.86	4,393.63	170.23	26.810		
10,100.00	6,945.66	6,927.42	6,926.66	61.87	136.53	-89.79	-1,277.52	241.82	4,641.80	4,471.38	170.42	27.237		
10,200.00	6,945.38	6,927.13	6,926.38	63.24	136.52	-89.79	-1,277.52	241.82	4,720.57	4,549.96	170.60	27.670		
10,300.00	6,945.09	6,926.85	6,926.09	64.63	136.52	-89.78	-1,277.52	241.82	4,800.13	4,629.35	170.78	28.107		
10,400.00	6,944.81	6,926.56	6,925.81	66.02	136.51	-89.78	-1,277.52	241.82	4,880.44	4,709.49	170.95	28.549		
10,500.00	6,944.52	6,926.28	6,925.52	67.42	136.50	-89.77	-1,277.52	241.82	4,961.47	4,790.35	171.12	28.994		
10,600.00	6,944.24	6,925.99	6,925.24	68.84	136.50	-89.77	-1,277.52	241.82	5,043.17	4,871.89	171.28	29.444		
10,700.00	6,943.95	6,925.71	6,924.95	70.26	136.49	-89.76	-1,277.52	241.82	5,125.53	4,954.09	171.44	29.897		
10,800.00	6,943.67	6,925.42	6,924.67	71.68	136.48	-89.75	-1,277.52	241.82	5,208.51	5,036.92	171.59	30.354		
10,900.00	6,943.38	6,925.14	6,924.38	73.12	136.48	-89.75	-1,277.52	241.82	5,292.07	5,120.33	171.74	30.814		
11,000.00	6,943.10	6,924.85	6,924.10	74.56	136.47	-89.74	-1,277.52	241.82	5,376.19	5,204.31	171.89	31.278		
11,100.00	6,942.81	6,924.57	6,923.81	76.01	136.47	-89.74	-1,277.52	241.82	5,460.85	5,288.83	172.03	31.744		
11,200.00	6,942.53	6,924.28	6,923.53	77.46	136.46	-89.73	-1,277.52	241.82	5,546.03	5,373.86	172.16	32.214		
11,300.00	6,942.24	6,924.00	6,923.24	78.92	136.45	-89.73	-1,277.52	241.82	5,631.68	5,459.39	172.30	32.686		
11,400.00	6,941.96	6,923.71	6,922.96	80.39	136.45	-89.72	-1,277.52	241.82	5,717.81	5,545.38	172.43	33.161		
11,500.00	6,941.67	6,923.43	6,922.67	81.86	136.44	-89.71	-1,277.52	241.82	5,804.38	5,631.82	172.55	33.638		
11,600.00	6,941.39	6,923.14	6,922.39	83.33	136.44	-89.71	-1,277.52	241.82	5,891.37	5,718.69	172.68	34.118		
11,700.00	6,941.10	6,922.86	6,922.10	84.81	136.43	-89.70	-1,277.52	241.82	5,978.77	5,805.97	172.80	34.600		
11,800.00	6,940.81	6,922.57	6,921.81	86.30	136.42	-89.70	-1,277.52	241.82	6,066.56	5,893.65	172.92	35.084		
11,900.00	6,940.53	6,922.29	6,921.53	87.79	136.42	-89.69	-1,277.52	241.82	6,154.72	5,981.69	173.03	35.570		
12,000.00	6,940.24	6,922.00	6,921.24	89.28	136.41	-89.69	-1,277.52	241.82	6,243.24	6,070.10	173.14	36.058		
12,100.00	6,939.96	6,921.72	6,920.96	90.77	136.41	-89.68	-1,277.52	241.82	6,332.11	6,158.85	173.26	36.548		
12,200.00	6,939.67	6,921.43	6,920.67	92.27	136.40	-89.68	-1,277.52	241.82	6,421.29	6,247.93	173.36	37.039		
12,300.00	6,939.39	6,921.15	6,920.39	93.78	136.39	-89.67	-1,277.52	241.82	6,510.80	6,337.33	173.47	37.533		
12,400.00	6,939.10	6,920.86	6,920.10	95.28	136.39	-89.66	-1,277.52	241.82	6,600.60	6,427.03	173.57	38.028		
12,500.00	6,938.82	6,920.58	6,919.82	96.79	136.38	-89.66	-1,277.52	241.82	6,690.70	6,517.02	173.68	38.524		
12,600.00	6,938.53	6,920.29	6,919.53	98.30	136.38	-89.65	-1,277.52	241.82	6,781.07	6,607.29	173.78	39.022		
12,700.00	6,938.25	6,920.01	6,919.25	99.82	136.37	-89.65	-1,277.52	241.82	6,871.71	6,697.83	173.87	39.521		
12,800.00	6,937.96	6,919.72	6,918.96	101.34	136.36	-89.64	-1,277.52	241.82	6,962.60	6,788.63	173.97	40.022		
12,900.00	6,937.68	6,919.44	6,918.68	102.86	136.36	-89.64	-1,277.52	241.82	7,053.74	6,879.67	174.07	40.523		
13,000.00	6,937.39	6,919.15	6,918.39	104.38	136.35	-89.63	-1,277.52	241.82	7,145.12	6,970.96	174.16	41.026		
13,100.00	6,937.11	6,918.87	6,918.11	105.91	136.35	-89.62	-1,277.52	241.82	7,236.72	7,062.47	174.25	41.530		
13,200.00	6,936.82	6,918.58	6,917.82	107.43	136.34	-89.62	-1,277.52	241.82	7,328.55	7,154.21	174.34	42.035		
13,300.00	6,936.54	6,918.30	6,917.54	108.96	136.33	-89.61	-1,277.52	241.82	7,420.59	7,246.15	174.43	42.541		
13,400.00	6,936.25	6,918.01	6,917.25	110.49	136.33	-89.61	-1,277.52	241.82	7,512.83	7,338.31	174.52	43.048		
13,500.00	6,935.97	6,917.73	6,916.97	112.03	136.32	-89.60	-1,277.52	241.82	7,605.26	7,430.65	174.61	43.556		
13,600.00	6,935.68	6,917.44	6,916.68	113.56	136.32	-89.60	-1,277.52	241.82	7,697.89	7,523.19	174.69	44.065		
13,700.00	6,935.40	6,917.16	6,916.40	115.10	136.31	-89.59	-1,277.52	241.82	7,790.70	7,615.92	174.78	44.574		
13,800.00	6,935.11	6,916.87	6,916.11	116.64	136.30	-89.58	-1,277.52	241.82	7,883.68	7,708.82	174.86	45.085		
13,900.00	6,934.83	6,916.59	6,915.83	118.18	136.30	-89.58	-1,277.52	241.82	7,976.83	7,801.89	174.95	45.596		
14,000.00	6,934.54	6,916.30	6,915.54	119.72	136.29	-89.57	-1,277.52	241.82	8,070.15	7,895.12	175.03	46.107		
14,100.00	6,934.26	6,916.01	6,915.26	121.26	136.29	-89.57	-1,277.52	241.82	8,163.63	7,988.51	175.11	46.620		
14,200.00	6,933.97	6,915.73	6,914.97	122.81	136.28	-89.56	-1,277.52	241.82	8,257.25	8,082.06	175.19	47.132		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		
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	6,933.69	6,915.44	6,914.69	124.36	136.27	-89.56	-1,277.52	241.82	8,351.03	8,175.76	175.27	47.646		
14,400.00	6,933.40	6,915.16	6,914.40	125.90	136.27	-89.55	-1,277.52	241.82	8,444.95	8,269.60	175.35	48.160		
14,500.00	6,933.12	6,914.87	6,914.12	127.45	136.26	-89.54	-1,277.52	241.82	8,539.01	8,363.57	175.43	48.674		
14,600.00	6,932.83	6,914.59	6,913.83	129.00	136.25	-89.54	-1,277.52	241.82	8,633.20	8,457.69	175.51	49.189		
14,700.00	6,932.55	6,914.30	6,913.55	130.56	136.25	-89.53	-1,277.52	241.82	8,727.52	8,551.93	175.59	49.705		
14,800.00	6,932.26	6,914.02	6,913.26	132.11	136.24	-89.53	-1,277.52	241.82	8,821.96	8,646.30	175.67	50.220		
14,900.00	6,931.98	6,913.73	6,912.98	133.66	136.24	-89.52	-1,277.52	241.82	8,916.53	8,740.78	175.74	50.736		
15,000.00	6,931.69	6,913.45	6,912.69	135.22	136.23	-89.52	-1,277.52	241.82	9,011.21	8,835.39	175.82	51.253		
15,100.00	6,931.41	6,913.16	6,912.41	136.77	136.22	-89.51	-1,277.52	241.82	9,106.01	8,930.11	175.89	51.770		
15,200.00	6,931.12	6,912.88	6,912.12	138.33	136.22	-89.51	-1,277.52	241.82	9,200.91	9,024.94	175.97	52.287		
15,300.00	6,930.84	6,912.59	6,911.84	139.89	136.21	-89.50	-1,277.52	241.82	9,295.93	9,119.88	176.05	52.804		
15,400.00	6,930.55	6,912.31	6,911.55	141.45	136.21	-89.49	-1,277.52	241.82	9,391.05	9,214.92	176.12	53.321		
15,500.00	6,930.27	6,912.02	6,911.27	143.01	136.20	-89.49	-1,277.52	241.82	9,486.26	9,310.07	176.20	53.839		
15,600.00	6,929.98	6,911.74	6,910.98	144.57	136.19	-89.48	-1,277.52	241.82	9,581.58	9,405.31	176.27	54.357		
15,700.00	6,929.70	6,911.45	6,910.70	146.13	136.19	-89.48	-1,277.52	241.82	9,676.99	9,500.64	176.34	54.875		
15,800.00	6,929.41	6,911.17	6,910.41	147.70	136.18	-89.47	-1,277.52	241.82	9,772.49	9,596.07	176.42	55.394		
15,900.00	6,929.13	6,910.88	6,910.13	149.26	136.18	-89.47	-1,277.52	241.82	9,868.08	9,691.59	176.49	55.912		
16,000.00	6,928.84	6,910.60	6,909.84	150.82	136.17	-89.46	-1,277.52	241.82	9,963.76	9,787.19	176.57	56.431		
16,100.00	6,928.56	6,910.31	6,909.56	152.39	136.16	-89.45	-1,277.52	241.82	10,059.52	9,882.88	176.64	56.949		
16,200.00	6,928.27	6,910.03	6,909.27	153.96	136.16	-89.45	-1,277.52	241.82	10,155.36	9,978.65	176.71	57.468		
16,300.00	6,927.99	6,909.74	6,908.99	155.52	136.15	-89.44	-1,277.52	241.82	10,251.28	10,074.50	176.79	57.987		
16,400.00	6,927.70	6,909.46	6,908.70	157.09	136.15	-89.44	-1,277.52	241.82	10,347.28	10,170.42	176.86	58.506		
16,500.00	6,927.42	6,909.17	6,908.42	158.66	136.14	-89.43	-1,277.52	241.82	10,443.36	10,266.43	176.93	59.024		
16,600.00	6,927.13	6,908.89	6,908.13	160.23	136.13	-89.43	-1,277.52	241.82	10,539.51	10,362.50	177.01	59.543		
16,700.00	6,926.85	6,908.60	6,907.85	161.80	136.13	-89.42	-1,277.52	241.82	10,635.73	10,458.65	177.08	60.062		
16,800.00	6,926.56	6,908.32	6,907.56	163.37	136.12	-89.41	-1,277.52	241.82	10,732.01	10,554.86	177.15	60.581		
16,900.00	6,926.28	6,908.03	6,907.28	164.94	136.12	-89.41	-1,277.52	241.82	10,828.37	10,651.14	177.22	61.100		
17,000.00	6,925.99	6,907.75	6,906.99	166.51	136.11	-89.40	-1,277.52	241.82	10,924.79	10,747.49	177.30	61.618		
17,100.00	6,925.71	6,907.46	6,906.71	168.08	136.10	-89.40	-1,277.52	241.82	11,021.27	10,843.90	177.37	62.137		
17,200.00	6,925.42	6,907.18	6,906.42	169.65	136.10	-89.39	-1,277.52	241.82	11,117.82	10,940.38	177.44	62.655		
17,300.00	6,925.14	6,906.89	6,906.14	171.23	136.09	-89.39	-1,277.52	241.82	11,214.43	11,036.91	177.52	63.174		
17,400.00	6,924.85	6,906.61	6,905.85	172.80	136.09	-89.38	-1,277.52	241.82	11,311.09	11,133.50	177.59	63.692		
17,500.00	6,924.57	6,906.32	6,905.57	174.37	136.08	-89.37	-1,277.52	241.82	11,407.82	11,230.15	177.66	64.211		
17,600.00	6,924.28	6,906.04	6,905.28	175.95	136.07	-89.37	-1,277.52	241.82	11,504.60	11,326.86	177.74	64.729		
17,700.00	6,924.00	6,905.75	6,905.00	177.52	136.07	-89.36	-1,277.52	241.82	11,601.43	11,423.62	177.81	65.247		
17,800.00	6,923.71	6,905.47	6,904.71	179.10	136.06	-89.36	-1,277.52	241.82	11,698.32	11,520.44	177.88	65.765		
17,900.00	6,923.43	6,905.18	6,904.43	180.68	136.06	-89.35	-1,277.52	241.82	11,795.26	11,617.30	177.96	66.282		
18,000.00	6,923.14	6,904.90	6,904.14	182.25	136.05	-89.35	-1,277.52	241.82	11,892.25	11,714.22	178.03	66.800		
18,100.00	6,922.86	6,904.61	6,903.86	183.83	136.04	-89.34	-1,277.52	241.82	11,989.29	11,811.19	178.10	67.317		
18,200.00	6,922.57	6,904.33	6,903.57	185.41	136.04	-89.34	-1,277.52	241.82	12,086.37	11,908.20	178.18	67.834		
18,300.00	6,922.29	6,904.04	6,903.29	186.98	136.03	-89.33	-1,277.52	241.82	12,183.51	12,005.26	178.25	68.351		
18,400.00	6,922.00	6,903.76	6,903.00	188.56	136.03	-89.32	-1,277.52	241.82	12,280.69	12,102.37	178.32	68.868		
18,500.00	6,921.71	6,903.47	6,902.71	190.14	136.02	-89.32	-1,277.52	241.82	12,377.92	12,199.52	178.40	69.384		
18,600.00	6,921.43	6,903.19	6,902.43	191.72	136.01	-89.31	-1,277.52	241.82	12,475.19	12,296.71	178.47	69.900		
18,700.00	6,921.14	6,902.90	6,902.14	193.30	136.01	-89.31	-1,277.52	241.82	12,572.50	12,393.95	178.55	70.416		
18,800.00	6,920.86	6,902.62	6,901.86	194.88	136.00	-89.30	-1,277.52	241.82	12,669.85	12,491.23	178.62	70.932		
18,900.00	6,920.57	6,902.33	6,901.57	196.46	135.99	-89.30	-1,277.52	241.82	12,767.25	12,588.55	178.69	71.447		
19,000.00	6,920.29	6,902.05	6,901.29	198.04	135.99	-89.29	-1,277.52	241.82	12,864.68	12,685.91	178.77	71.963		
19,100.00	6,920.00	6,901.76	6,901.00	199.62	135.98	-89.28	-1,277.52	241.82	12,962.16	12,783.31	178.84	72.478		
19,200.00	6,919.72	6,901.48	6,900.72	201.20	135.98	-89.28	-1,277.52	241.82	13,059.67	12,880.75	178.92	72.992		
19,300.00	6,919.43	6,901.19	6,900.43	202.78	135.97	-89.27	-1,277.52	241.82	13,157.22	12,978.23	178.99	73.507		
19,400.00	6,919.15	6,900.91	6,900.15	204.36	135.96	-89.27	-1,277.52	241.82	13,254.81	13,075.74	179.07	74.021		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:		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	6,918.86	6,900.62	6,899.86	205.95	135.96	-89.26	-1,277.52	241.82	13,352.43	13,173.28	179.14	74.534	
19,600.00	6,918.58	6,900.34	6,899.58	207.53	135.95	-89.26	-1,277.52	241.82	13,450.08	13,270.86	179.22	75.048	
19,700.00	6,918.29	6,900.05	6,899.29	209.11	135.95	-89.25	-1,277.52	241.82	13,547.78	13,368.48	179.30	75.561	
19,800.00	6,918.01	6,899.77	6,899.01	210.69	135.94	-89.24	-1,277.52	241.82	13,645.50	13,466.13	179.37	76.074	
19,900.00	6,917.72	6,899.48	6,898.72	212.28	135.93	-89.24	-1,277.52	241.82	13,743.26	13,563.81	179.45	76.586	
20,000.00	6,917.44	6,899.20	6,898.44	213.86	135.93	-89.23	-1,277.52	241.82	13,841.05	13,661.52	179.53	77.098	
20,100.00	6,917.15	6,898.91	6,898.15	215.45	135.92	-89.23	-1,277.52	241.82	13,938.87	13,759.27	179.60	77.610	
20,200.00	6,916.87	6,898.63	6,897.87	217.03	135.92	-89.22	-1,277.52	241.82	14,036.72	13,857.04	179.68	78.121	
20,300.00	6,916.58	6,898.34	6,897.58	218.61	135.91	-89.22	-1,277.52	241.82	14,134.60	13,954.84	179.76	78.632	
20,400.00	6,916.30	6,898.06	6,897.30	220.20	135.90	-89.21	-1,277.52	241.82	14,232.51	14,052.68	179.83	79.143	
20,500.00	6,916.01	6,897.77	6,897.01	221.78	135.90	-89.20	-1,277.52	241.82	14,330.45	14,150.54	179.91	79.653	
20,600.00	6,915.73	6,897.49	6,896.73	223.37	135.89	-89.20	-1,277.52	241.82	14,428.42	14,248.43	179.99	80.163	
20,700.00	6,915.44	6,897.20	6,896.44	224.95	135.89	-89.19	-1,277.52	241.82	14,526.41	14,346.35	180.07	80.673	
20,800.00	6,915.16	6,896.91	6,896.16	226.54	135.88	-89.19	-1,277.52	241.82	14,624.44	14,444.29	180.14	81.182	
20,855.45	6,915.00	6,896.76	6,896.00	227.42	135.88	-89.18	-1,277.52	241.82	14,678.80	14,498.62	180.19	81.464	

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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													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	6.00	6.00	0.00	0.05	-122.46	-2,123.41	-3,337.91	3,956.07					
100.00	100.00	106.00	106.00	0.25	0.94	-122.46	-2,123.41	-3,337.91	3,956.07	3,954.88	1.19	3,324.291		
200.00	200.00	206.00	206.00	0.61	1.82	-122.46	-2,123.41	-3,337.91	3,956.07	3,953.64	2.43	1,625.141		
300.00	300.00	306.00	306.00	0.97	3.09	-122.46	-2,123.41	-3,337.91	3,956.07	3,952.02	4.05	975.851		
346.92	346.92	352.85	352.85	1.14	3.93	-122.46	-2,123.32	-3,337.91	3,956.02	3,950.96	5.07	780.886		
400.00	400.00	403.23	403.23	1.33	4.84	-122.46	-2,123.35	-3,337.91	3,956.04	3,949.88	6.16	641.801		
500.00	500.00	506.00	506.00	1.68	6.69	-122.46	-2,123.41	-3,337.91	3,956.07	3,947.70	8.38	472.354		
600.00	599.98	603.11	603.10	2.04	8.44	-115.86	-2,123.16	-3,337.91	3,956.70	3,946.22	10.48	377.380		
700.00	699.84	705.85	705.84	2.41	10.29	-115.89	-2,123.41	-3,337.91	3,959.12	3,946.43	12.69	311.961		
800.00	799.45	805.46	805.45	2.77	12.05	-115.93	-2,123.41	-3,337.91	3,962.94	3,948.13	14.82	267.487		
900.00	898.70	904.71	904.70	3.13	13.81	-115.99	-2,123.41	-3,337.91	3,968.31	3,951.37	16.94	234.278		
1,000.00	997.47	1,002.33	1,002.32	3.50	15.54	-116.06	-2,123.15	-3,337.91	3,975.10	3,956.06	19.04	208.771		
1,100.00	1,095.62	1,098.66	1,098.64	3.89	17.24	-116.15	-2,123.25	-3,337.91	3,983.68	3,962.55	21.13	188.530		
1,200.00	1,193.06	1,199.07	1,199.06	4.30	19.02	-116.26	-2,123.41	-3,337.91	3,993.91	3,970.60	23.31	171.340		
1,245.75	1,237.35	1,243.37	1,243.35	4.49	19.84	-116.31	-2,123.41	-3,337.91	3,999.10	3,974.79	24.31	164.493		
1,300.00	1,289.78	1,295.79	1,295.78	4.72	20.80	-116.48	-2,123.41	-3,337.91	4,005.48	3,979.98	25.50	157.079		
1,400.00	1,386.41	1,392.42	1,392.41	5.15	22.58	-116.80	-2,123.41	-3,337.91	4,017.34	3,989.64	27.70	145.052		
1,500.00	1,483.04	1,488.16	1,488.14	5.59	24.34	-117.11	-2,123.15	-3,337.91	4,029.18	3,999.30	29.88	134.837		
1,600.00	1,579.67	1,582.87	1,582.85	6.04	26.08	-117.42	-2,123.23	-3,337.91	4,041.34	4,009.29	32.05	126.081		
1,700.00	1,676.30	1,677.54	1,677.52	6.49	27.82	-117.73	-2,123.38	-3,337.91	4,053.67	4,019.45	34.23	118.431		
1,800.00	1,772.93	1,778.97	1,778.93	6.95	29.85	-118.06	-2,123.41	-3,337.91	4,066.06	4,029.37	36.69	110.810		
1,900.00	1,869.56	1,875.60	1,875.56	7.41	31.81	-118.37	-2,123.41	-3,337.91	4,078.56	4,039.46	39.09	104.328		
2,000.00	1,966.19	1,970.59	1,970.55	7.87	33.73	-118.67	-2,122.60	-3,337.91	4,090.69	4,049.23	41.46	98.662		
2,100.00	2,062.83	2,061.45	2,061.41	8.33	35.58	-118.96	-2,122.77	-3,337.91	4,103.54	4,059.79	43.75	93.803		
2,200.00	2,159.46	2,152.20	2,152.15	8.80	37.42	-119.25	-2,123.15	-3,337.91	4,116.64	4,070.62	46.03	89.435		
2,300.00	2,256.09	2,262.20	2,262.09	9.27	39.71	-119.60	-2,123.41	-3,337.91	4,129.76	4,081.00	48.77	84.686		
2,400.00	2,352.72	2,342.94	2,342.81	9.73	41.42	-119.85	-2,123.08	-3,337.91	4,142.69	4,091.77	50.92	81.361		
2,500.00	2,449.35	2,455.50	2,455.35	10.20	43.92	-120.20	-2,123.41	-3,337.91	4,156.09	4,102.22	53.87	77.155		
2,600.00	2,545.98	2,552.13	2,551.98	10.67	46.12	-120.50	-2,123.41	-3,337.91	4,169.42	4,112.91	56.51	73.777		
2,700.00	2,642.61	2,647.23	2,647.07	11.15	48.29	-120.78	-2,122.33	-3,337.91	4,182.21	4,123.08	59.13	70.734		
2,800.00	2,739.24	2,735.73	2,735.57	11.62	50.31	-121.05	-2,122.52	-3,337.91	4,195.90	4,134.32	61.59	68.132		
2,900.00	2,835.87	2,824.09	2,823.92	12.09	52.32	-121.32	-2,122.99	-3,337.91	4,209.90	4,145.86	64.04	65.737		
3,000.00	2,932.50	2,938.80	2,938.50	12.56	54.92	-121.67	-2,123.41	-3,337.91	4,223.92	4,156.83	67.09	62.955		
3,100.00	3,029.13	3,035.43	3,035.13	13.04	57.11	-121.96	-2,123.41	-3,337.91	4,237.83	4,168.10	69.73	60.778		
3,200.00	3,125.77	3,132.06	3,131.77	13.51	59.30	-122.25	-2,123.41	-3,337.91	4,251.84	4,179.49	72.36	58.762		
3,300.00	3,222.40	3,228.69	3,228.40	13.99	61.49	-122.53	-2,123.41	-3,337.91	4,265.97	4,190.98	74.99	56.889		
3,400.00	3,319.03	3,325.32	3,325.03	14.46	63.67	-122.82	-2,123.41	-3,337.91	4,280.20	4,202.59	77.62	55.144		
3,500.00	3,415.66	3,418.84	3,418.48	14.94	65.79	-123.05	-2,119.59	-3,337.91	4,292.06	4,211.88	80.18	53.532		
3,600.00	3,512.29	3,507.86	3,507.49	15.42	67.81	-123.31	-2,119.81	-3,337.91	4,306.65	4,224.02	82.63	52.118		
3,700.00	3,608.92	3,596.78	3,596.39	15.89	69.82	-123.57	-2,120.27	-3,337.91	4,321.52	4,236.43	85.08	50.791		
3,800.00	3,705.55	3,685.57	3,685.17	16.37	71.83	-123.83	-2,120.97	-3,337.91	4,336.66	4,249.13	87.53	49.544		
3,900.00	3,802.18	3,774.24	3,773.82	16.84	73.84	-124.10	-2,121.91	-3,337.91	4,352.09	4,262.12	89.98	48.370		
4,000.00	3,898.81	3,905.36	3,904.81	17.32	76.83	-124.48	-2,123.41	-3,337.91	4,367.82	4,274.40	93.42	46.756		
4,100.00	3,995.44	4,001.40	4,000.85	17.80	79.09	-124.75	-2,123.04	-3,337.91	4,382.53	4,286.41	96.12	45.592		
4,200.00	4,092.07	4,083.83	4,083.28	18.28	81.04	-124.98	-2,123.26	-3,337.91	4,397.76	4,299.25	98.50	44.645		
4,300.00	4,188.71	4,192.54	4,191.86	18.75	84.17	-125.28	-2,123.25	-3,337.91	4,412.89	4,310.81	102.08	43.231		
4,400.00	4,285.34	4,292.16	4,291.34	19.23	87.62	-125.55	-2,123.41	-3,337.91	4,428.26	4,322.29	105.97	41.790		
4,500.00	4,381.97	4,388.92	4,387.97	19.71	91.02	-125.82	-2,123.41	-3,337.91	4,443.61	4,333.80	109.81	40.468		
4,600.00	4,478.60	4,485.70	4,484.60	20.19	94.63	-126.08	-2,123.41	-3,337.91	4,459.06	4,345.21	113.85	39.167		
4,700.00	4,575.23	4,582.50	4,581.23	20.67	98.38	-126.34	-2,123.41	-3,337.91	4,474.60	4,356.57	118.04	37.908		
4,800.00	4,671.86	4,667.71	4,666.34	21.14	101.76	-126.57	-2,123.02	-3,337.91	4,489.99	4,368.14	121.84	36.850		
4,900.00	4,768.49	4,776.15	4,774.49	21.62	106.49	-126.86	-2,123.41	-3,337.91	4,505.97	4,378.96	127.01	35.477		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.43	6,931.10	6,925.43	202.78	199.38	-89.60	-2,123.41	-3,337.91	9,992.34	9,725.22		267.12	37.408
19,400.00	6,919.15	6,930.81	6,925.15	204.36	199.37	-89.59	-2,123.41	-3,337.91	10,085.10	9,818.05		267.05	37.765
19,500.00	6,918.86	6,930.53	6,924.86	205.95	199.36	-89.59	-2,123.41	-3,337.91	10,178.00	9,911.02		266.98	38.123
19,600.00	6,918.58	6,930.24	6,924.58	207.53	199.35	-89.58	-2,123.41	-3,337.91	10,271.03	10,004.12		266.91	38.481
19,700.00	6,918.29	6,929.96	6,924.29	209.11	199.34	-89.58	-2,123.41	-3,337.91	10,364.20	10,097.35		266.85	38.839
19,800.00	6,918.01	6,929.67	6,924.01	210.69	199.33	-89.57	-2,123.41	-3,337.91	10,457.49	10,190.70		266.79	39.198
19,900.00	6,917.72	6,929.39	6,923.72	212.28	199.32	-89.57	-2,123.41	-3,337.91	10,550.90	10,284.17		266.72	39.557
20,000.00	6,917.44	6,929.10	6,923.44	213.86	199.31	-89.57	-2,123.41	-3,337.91	10,644.43	10,377.77		266.66	39.917
20,100.00	6,917.15	6,928.82	6,923.15	215.45	199.29	-89.56	-2,123.41	-3,337.91	10,738.08	10,471.47		266.61	40.277
20,200.00	6,916.87	6,928.53	6,922.87	217.03	199.28	-89.56	-2,123.41	-3,337.91	10,831.84	10,565.29		266.55	40.637
20,300.00	6,916.58	6,928.25	6,922.58	218.61	199.27	-89.55	-2,123.41	-3,337.91	10,925.71	10,659.22		266.49	40.998
20,400.00	6,916.30	6,927.96	6,922.30	220.20	199.26	-89.55	-2,123.41	-3,337.91	11,019.70	10,753.25		266.44	41.359
20,500.00	6,916.01	6,927.68	6,922.01	221.78	199.25	-89.54	-2,123.41	-3,337.91	11,113.78	10,847.39		266.39	41.720
20,600.00	6,915.73	6,927.39	6,921.73	223.37	199.24	-89.54	-2,123.41	-3,337.91	11,207.97	10,941.63		266.34	42.082
20,700.00	6,915.44	6,927.11	6,921.44	224.95	199.23	-89.54	-2,123.41	-3,337.91	11,302.26	11,035.97		266.29	42.443
20,800.00	6,915.16	6,926.82	6,921.16	226.54	199.22	-89.53	-2,123.41	-3,337.91	11,396.64	11,130.40		266.24	42.805
20,855.45	6,915.00	6,926.67	6,921.00	227.42	199.21	-89.53	-2,123.41	-3,337.91	11,449.02	11,182.80		266.22	43.006

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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												
5,100.00	4,961.75	5,125.66	5,122.75	22.58	137.76	-82.38	1,202.35	-5,577.43	5,453.43	5,293.16	160.27	34.027
5,200.00	5,058.38	5,223.92	5,220.94	23.06	141.62	-82.63	1,203.35	-5,577.43	5,449.98	5,285.37	164.61	33.109
5,300.00	5,155.01	5,319.25	5,316.01	23.54	145.37	-82.90	1,202.35	-5,577.43	5,446.61	5,277.77	168.84	32.259
5,400.00	5,251.64	5,415.88	5,412.64	24.01	149.19	-83.16	1,202.35	-5,577.43	5,443.38	5,270.24	173.14	31.440
5,500.00	5,348.28	5,512.76	5,509.43	24.49	153.01	-83.40	1,204.53	-5,577.43	5,440.27	5,262.83	177.44	30.660
5,600.00	5,444.91	5,609.31	5,605.92	24.97	156.82	-83.67	1,203.08	-5,577.43	5,437.27	5,255.54	181.73	29.919
5,700.00	5,541.54	5,706.28	5,702.54	25.45	160.58	-83.94	1,202.35	-5,577.43	5,434.40	5,248.43	185.97	29.221
5,800.00	5,638.17	5,802.91	5,799.17	25.93	164.29	-84.20	1,202.35	-5,577.43	5,431.65	5,241.48	190.17	28.562
5,900.00	5,734.80	5,899.45	5,895.61	26.41	168.00	-84.43	1,205.57	-5,577.43	5,428.97	5,234.61	194.36	27.932
6,000.00	5,831.43	5,995.11	5,991.23	26.89	171.68	-84.69	1,204.96	-5,577.43	5,426.46	5,227.94	198.52	27.335
6,100.00	5,928.06	6,090.32	6,086.38	27.37	175.34	-84.97	1,203.39	-5,577.43	5,424.10	5,221.43	202.66	26.764
6,200.00	6,024.69	6,190.06	6,185.69	27.85	179.18	-85.25	1,202.35	-5,577.43	5,421.85	5,214.87	206.99	26.194
6,300.00	6,121.32	6,286.69	6,282.32	28.33	182.91	-85.51	1,202.35	-5,577.43	5,419.71	5,208.51	211.19	25.662
6,400.00	6,217.95	6,383.32	6,378.95	28.81	186.63	-85.77	1,202.35	-5,577.43	5,417.68	5,202.28	215.40	25.151
6,500.00	6,314.58	6,478.27	6,473.80	29.29	190.30	-86.00	1,205.18	-5,577.43	5,415.66	5,196.11	219.55	24.667
6,543.64	6,356.75	6,519.49	6,515.00	29.49	191.89	-86.12	1,204.79	-5,577.43	5,414.88	5,193.53	221.35	24.463
6,550.00	6,362.90	6,525.49	6,521.00	29.53	192.12	-84.01	1,204.72	-5,577.43	5,414.73	5,193.12	221.61	24.434
6,600.00	6,411.07	6,572.47	6,567.96	29.77	193.93	-68.70	1,204.06	-5,577.43	5,411.43	5,187.76	223.66	24.194
6,650.00	6,458.79	6,618.91	6,614.37	30.01	195.72	-56.50	1,203.21	-5,577.43	5,404.27	5,178.57	225.70	23.945
6,700.00	6,505.76	6,671.78	6,666.76	30.26	197.74	-47.46	1,202.35	-5,577.43	5,393.29	5,165.33	227.96	23.659
6,750.00	6,551.69	6,717.71	6,712.69	30.50	199.46	-40.87	1,202.35	-5,577.43	5,378.52	5,148.60	229.92	23.393
6,800.00	6,596.30	6,762.33	6,757.30	30.74	201.13	-36.07	1,202.35	-5,577.43	5,360.08	5,128.26	231.82	23.122
6,850.00	6,639.32	6,805.34	6,800.32	30.98	202.74	-32.54	1,202.35	-5,577.43	5,338.10	5,104.44	233.65	22.846
6,900.00	6,680.47	6,846.50	6,841.47	31.21	204.28	-29.94	1,202.35	-5,577.43	5,312.69	5,077.28	235.41	22.568
6,950.00	6,719.51	6,885.54	6,880.51	31.44	205.74	-28.05	1,202.35	-5,577.43	5,284.03	5,046.95	237.08	22.288
7,000.00	6,756.20	6,921.61	6,916.50	31.67	207.09	-26.67	1,205.57	-5,577.43	5,252.07	5,013.44	238.63	22.010
7,050.00	6,790.30	6,954.48	6,949.35	31.90	208.32	-25.79	1,205.45	-5,577.43	5,217.43	4,977.39	240.04	21.735
7,100.00	6,821.62	6,984.62	6,979.48	32.13	209.45	-25.34	1,205.24	-5,577.43	5,180.11	4,938.77	241.34	21.464
7,150.00	6,849.95	7,011.84	7,006.68	32.35	210.47	-25.30	1,204.97	-5,577.43	5,140.35	4,897.83	242.52	21.195
7,200.00	6,875.12	7,035.99	7,030.83	32.58	211.37	-25.71	1,204.67	-5,577.43	5,098.38	4,854.80	243.58	20.931
7,250.00	6,896.97	7,056.94	7,051.76	32.81	212.16	-26.68	1,204.35	-5,577.43	5,054.45	4,809.96	244.49	20.673
7,300.00	6,915.38	7,074.56	7,069.37	33.05	212.82	-28.43	1,204.05	-5,577.43	5,008.83	4,763.56	245.27	20.422
7,350.00	6,930.22	7,088.76	7,083.56	33.29	213.35	-31.39	1,203.79	-5,577.43	4,961.80	4,715.89	245.91	20.178
7,400.00	6,941.41	7,099.46	7,094.25	33.53	213.75	-36.59	1,203.57	-5,577.43	4,913.64	4,667.24	246.40	19.942
7,450.00	6,948.88	7,106.59	7,101.37	33.79	214.02	-46.67	1,203.42	-5,577.43	4,864.64	4,617.90	246.74	19.716
7,500.00	6,952.57	7,110.11	7,104.90	34.05	214.15	-69.45	1,203.35	-5,577.43	4,815.10	4,568.16	246.93	19.499
7,525.63	6,953.00	7,110.52	7,105.30	34.19	214.16	-90.65	1,203.34	-5,577.43	4,789.59	4,542.61	246.98	19.393
7,600.00	6,952.79	7,110.31	7,105.09	34.61	214.15	-90.62	1,203.34	-5,577.43	4,715.53	4,468.49	247.04	19.088
7,700.00	6,952.50	7,110.02	7,104.80	35.23	214.14	-90.58	1,203.35	-5,577.43	4,615.97	4,368.83	247.14	18.678
7,800.00	6,952.22	7,109.74	7,104.52	35.91	214.13	-90.54	1,203.36	-5,577.43	4,516.42	4,269.19	247.23	18.268
7,900.00	6,951.93	7,109.45	7,104.23	36.65	214.12	-90.50	1,203.36	-5,577.43	4,416.90	4,169.56	247.34	17.858
8,000.00	6,951.65	7,109.17	7,103.95	37.45	214.11	-90.47	1,203.37	-5,577.43	4,317.39	4,069.95	247.45	17.448
8,100.00	6,951.36	7,108.88	7,103.67	38.29	214.10	-90.43	1,203.37	-5,577.43	4,217.91	3,970.35	247.56	17.038
8,200.00	6,951.08	7,108.60	7,103.38	39.19	214.09	-90.39	1,203.38	-5,577.43	4,118.46	3,870.77	247.69	16.628
8,300.00	6,950.79	7,108.31	7,103.10	40.13	214.08	-90.35	1,203.39	-5,577.43	4,019.03	3,771.21	247.82	16.218
8,400.00	6,950.51	7,108.03	7,102.81	41.11	214.07	-90.32	1,203.39	-5,577.43	3,919.63	3,671.67	247.96	15.808
8,500.00	6,950.22	7,107.74	7,102.53	42.12	214.06	-90.28	1,203.40	-5,577.43	3,820.27	3,572.16	248.11	15.398
8,600.00	6,949.94	7,107.46	7,102.24	43.18	214.05	-90.24	1,203.41	-5,577.43	3,720.93	3,472.67	248.27	14.988
8,700.00	6,949.65	7,107.17	7,101.96	44.26	214.04	-90.21	1,203.41	-5,577.43	3,621.64	3,373.20	248.44	14.578
8,800.00	6,949.37	7,106.89	7,101.67	45.38	214.03	-90.17	1,203.42	-5,577.43	3,522.38	3,273.77	248.62	14.168
8,900.00	6,949.08	7,106.60	7,101.39	46.53	214.02	-90.13	1,203.42	-5,577.43	3,423.17	3,174.36	248.81	13.758
9,000.00	6,948.80	7,106.32	7,101.11	47.70	214.01	-90.09	1,203.43	-5,577.43	3,324.00	3,074.99	249.01	13.349

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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	6,948.51	7,106.03	7,100.82	48.89	213.99	-90.06	1,203.44	-5,577.43	3,224.89	2,975.66	249.23	12.939
9,200.00	6,948.23	7,105.75	7,100.54	50.11	213.98	-90.02	1,203.44	-5,577.43	3,125.83	2,876.36	249.47	12.530
9,300.00	6,947.94	7,105.47	7,100.25	51.35	213.97	-89.98	1,203.45	-5,577.43	3,026.83	2,777.11	249.72	12.121
9,400.00	6,947.66	7,105.18	7,099.97	52.61	213.96	-89.94	1,203.45	-5,577.43	2,927.91	2,677.91	250.00	11.712
9,500.00	6,947.37	7,104.90	7,099.68	53.89	213.95	-89.91	1,203.46	-5,577.43	2,829.05	2,578.76	250.29	11.303
9,600.00	6,947.09	7,104.61	7,099.40	55.18	213.94	-89.87	1,203.47	-5,577.43	2,730.29	2,479.67	250.61	10.895
9,700.00	6,946.80	7,104.33	7,099.12	56.49	213.93	-89.83	1,203.47	-5,577.43	2,631.61	2,380.65	250.96	10.486
9,800.00	6,946.52	7,104.04	7,098.83	57.81	213.92	-89.79	1,203.48	-5,577.43	2,533.04	2,281.70	251.33	10.078
9,900.00	6,946.23	7,103.76	7,098.55	59.15	213.91	-89.76	1,203.48	-5,577.43	2,434.58	2,182.84	251.74	9.671
10,000.00	6,945.95	7,103.48	7,098.26	60.50	213.90	-89.72	1,203.49	-5,577.43	2,336.26	2,084.06	252.19	9.264
10,100.00	6,945.66	7,103.19	7,097.98	61.87	213.89	-89.68	1,203.50	-5,577.43	2,238.08	1,985.39	252.69	8.857
10,200.00	6,945.38	7,102.91	7,097.70	63.24	213.88	-89.64	1,203.50	-5,577.43	2,140.07	1,886.84	253.23	8.451
10,300.00	6,945.09	7,102.62	7,097.41	64.63	213.87	-89.61	1,203.51	-5,577.43	2,042.26	1,788.43	253.83	8.046
10,400.00	6,944.81	7,102.34	7,097.13	66.02	213.86	-89.57	1,203.51	-5,577.43	1,944.67	1,690.17	254.50	7.641
10,500.00	6,944.52	7,102.05	7,096.84	67.42	213.85	-89.53	1,203.52	-5,577.43	1,847.33	1,592.09	255.24	7.238
10,600.00	6,944.24	7,101.77	7,096.56	68.84	213.84	-89.49	1,203.53	-5,577.43	1,750.30	1,494.23	256.07	6.835
10,700.00	6,943.95	7,101.49	7,096.28	70.26	213.82	-89.46	1,203.53	-5,577.43	1,653.62	1,396.61	257.01	6.434
10,800.00	6,943.67	7,101.20	7,095.99	71.68	213.81	-89.42	1,203.54	-5,577.43	1,557.36	1,299.28	258.08	6.034
10,900.00	6,943.38	7,100.92	7,095.71	73.12	213.80	-89.38	1,203.54	-5,577.43	1,461.60	1,202.31	259.29	5.637
11,000.00	6,943.10	7,100.63	7,095.42	74.56	213.79	-89.34	1,203.55	-5,577.43	1,366.45	1,105.76	260.69	5.242
11,100.00	6,942.81	7,100.35	7,095.14	76.01	213.78	-89.31	1,203.55	-5,577.43	1,272.04	1,009.75	262.29	4.850
11,200.00	6,942.53	7,100.07	7,094.86	77.46	213.77	-89.27	1,203.56	-5,577.43	1,178.56	914.39	264.16	4.461
11,300.00	6,942.24	7,099.78	7,094.57	78.92	213.76	-89.23	1,203.57	-5,577.43	1,086.23	819.88	266.35	4.078
11,400.00	6,941.96	7,099.50	7,094.29	80.39	213.75	-89.19	1,203.57	-5,577.43	995.39	726.46	268.93	3.701
11,500.00	6,941.67	7,099.22	7,094.01	81.86	213.74	-89.16	1,203.58	-5,577.43	906.49	634.50	271.98	3.333
11,600.00	6,941.39	7,098.93	7,093.72	83.33	213.73	-89.12	1,203.58	-5,577.43	820.14	544.52	275.61	2.976
11,700.00	6,941.10	7,098.65	7,093.44	84.81	213.72	-89.08	1,203.59	-5,577.43	737.24	457.33	279.91	2.634
11,800.00	6,940.81	7,098.36	7,093.16	86.30	213.71	-89.04	1,203.60	-5,577.43	659.12	374.16	284.95	2.313
11,900.00	6,940.53	7,098.08	7,092.87	87.79	213.70	-89.01	1,203.60	-5,577.43	587.66	296.98	290.68	2.022
12,000.00	6,940.24	7,097.80	7,092.59	89.28	213.69	-88.97	1,203.61	-5,577.43	525.59	228.84	296.75	1.771
12,100.00	6,939.96	7,097.51	7,092.31	90.77	213.68	-88.93	1,203.61	-5,577.43	476.61	174.32	302.28	1.577
12,200.00	6,939.67	7,097.23	7,092.02	92.27	213.67	-88.90	1,203.62	-5,577.43	445.04	139.30	305.74	1.456 Level 3
12,295.47	6,939.40	7,096.96	7,091.75	93.71	213.66	-88.86	1,203.62	-5,577.43	434.68	129.09	305.58	1.422 Level 3, CC, ES, SF
12,300.00	6,939.39	7,096.95	7,091.74	93.78	213.65	-88.86	1,203.62	-5,577.43	434.70	129.22	305.48	1.423 Level 3
12,400.00	6,939.10	7,096.66	7,091.46	95.28	213.64	-88.82	1,203.63	-5,577.43	447.07	146.04	301.02	1.485 Level 3
12,500.00	6,938.82	7,096.38	7,091.17	96.79	213.63	-88.78	1,203.64	-5,577.43	480.39	186.74	293.65	1.636
12,600.00	6,938.53	7,096.10	7,090.89	98.30	213.62	-88.75	1,203.64	-5,577.43	530.73	245.41	285.32	1.860
12,700.00	6,938.25	7,095.81	7,090.61	99.82	213.61	-88.71	1,203.65	-5,577.43	593.79	316.32	277.47	2.140
12,800.00	6,937.96	7,095.53	7,090.32	101.34	213.60	-88.67	1,203.65	-5,577.43	665.95	395.24	270.71	2.460
12,900.00	6,937.68	7,095.25	7,090.04	102.86	213.59	-88.63	1,203.66	-5,577.43	744.58	479.41	265.17	2.808
13,000.00	6,937.39	7,094.96	7,089.76	104.38	213.58	-88.60	1,203.66	-5,577.43	827.83	567.11	260.72	3.175
13,100.00	6,937.11	7,094.68	7,089.47	105.91	213.57	-88.56	1,203.67	-5,577.43	914.44	657.26	257.18	3.556
13,200.00	6,936.82	7,094.40	7,089.19	107.43	213.56	-88.52	1,203.68	-5,577.43	1,003.55	749.17	254.38	3.945
13,300.00	6,936.54	7,094.11	7,088.91	108.96	213.55	-88.48	1,203.68	-5,577.43	1,094.54	842.38	252.16	4.341
13,400.00	6,936.25	7,093.83	7,088.62	110.49	213.54	-88.45	1,203.69	-5,577.43	1,186.98	936.58	250.40	4.740
13,500.00	6,935.97	7,093.55	7,088.34	112.03	213.53	-88.41	1,203.69	-5,577.43	1,280.55	1,031.55	249.00	5.143
13,600.00	6,935.68	7,093.26	7,088.06	113.56	213.52	-88.37	1,203.70	-5,577.43	1,375.03	1,127.15	247.89	5.547
13,700.00	6,935.40	7,092.98	7,087.78	115.10	213.51	-88.34	1,203.70	-5,577.43	1,470.25	1,223.25	247.00	5.952
13,800.00	6,935.11	7,092.70	7,087.49	116.64	213.50	-88.30	1,203.71	-5,577.43	1,566.05	1,319.77	246.29	6.359
13,900.00	6,934.83	7,092.41	7,087.21	118.18	213.49	-88.26	1,203.72	-5,577.43	1,662.36	1,416.64	245.72	6.765
14,000.00	6,934.54	7,092.13	7,086.93	119.72	213.47	-88.22	1,203.72	-5,577.43	1,759.07	1,513.80	245.27	7.172
14,100.00	6,934.26	7,091.85	7,086.64	121.26	213.46	-88.19	1,203.73	-5,577.43	1,856.13	1,611.23	244.91	7.579

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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)			
14,200.00	6,933.97	7,091.56	7,086.36	122.81	213.45	-88.15	1,203.73	-5,577.43	1,953.49	1,708.87	244.62	7.986	
14,300.00	6,933.69	7,091.28	7,086.08	124.36	213.44	-88.11	1,203.74	-5,577.43	2,051.11	1,806.71	244.39	8.393	
14,400.00	6,933.40	7,091.00	7,085.80	125.90	213.43	-88.07	1,203.74	-5,577.43	2,148.94	1,904.72	244.22	8.799	
14,500.00	6,933.12	7,090.72	7,085.51	127.45	213.42	-88.04	1,203.75	-5,577.43	2,246.96	2,002.88	244.08	9.206	
14,600.00	6,932.83	7,090.43	7,085.23	129.00	213.41	-88.00	1,203.76	-5,577.43	2,345.15	2,101.18	243.98	9.612	
14,700.00	6,932.55	7,090.15	7,084.95	130.56	213.40	-87.96	1,203.76	-5,577.43	2,443.49	2,199.59	243.90	10.018	
14,800.00	6,932.26	7,089.87	7,084.67	132.11	213.39	-87.93	1,203.77	-5,577.43	2,541.96	2,298.11	243.85	10.424	
14,900.00	6,931.98	7,089.58	7,084.38	133.66	213.38	-87.89	1,203.77	-5,577.43	2,640.54	2,396.72	243.82	10.830	
15,000.00	6,931.69	7,089.30	7,084.10	135.22	213.37	-87.85	1,203.78	-5,577.43	2,739.22	2,495.42	243.80	11.235	
15,100.00	6,931.41	7,089.02	7,083.82	136.77	213.36	-87.81	1,203.78	-5,577.43	2,838.00	2,594.20	243.80	11.641	
15,200.00	6,931.12	7,088.74	7,083.54	138.33	213.35	-87.78	1,203.79	-5,577.43	2,936.86	2,693.05	243.81	12.046	
15,300.00	6,930.84	7,088.45	7,083.25	139.89	213.34	-87.74	1,203.79	-5,577.43	3,035.79	2,791.96	243.83	12.450	
15,400.00	6,930.55	7,088.17	7,082.97	141.45	213.33	-87.70	1,203.80	-5,577.43	3,134.80	2,890.93	243.86	12.855	
15,500.00	6,930.27	7,087.89	7,082.69	143.01	213.32	-87.66	1,203.80	-5,577.43	3,233.86	2,989.96	243.90	13.259	
15,600.00	6,929.98	7,087.61	7,082.41	144.57	213.31	-87.63	1,203.81	-5,577.43	3,332.98	3,089.04	243.94	13.663	
15,700.00	6,929.70	7,087.32	7,082.12	146.13	213.29	-87.59	1,203.82	-5,577.43	3,432.15	3,188.16	243.99	14.067	
15,800.00	6,929.41	7,087.04	7,081.84	147.70	213.28	-87.55	1,203.82	-5,577.43	3,531.37	3,287.33	244.04	14.470	
15,900.00	6,929.13	7,086.76	7,081.56	149.26	213.27	-87.52	1,203.83	-5,577.43	3,630.63	3,386.53	244.10	14.874	
16,000.00	6,928.84	7,086.48	7,081.28	150.82	213.26	-87.48	1,203.83	-5,577.43	3,729.93	3,485.77	244.16	15.277	
16,100.00	6,928.56	7,086.19	7,080.99	152.39	213.25	-87.44	1,203.84	-5,577.43	3,829.26	3,585.04	244.22	15.680	
16,200.00	6,928.27	7,085.91	7,080.71	153.96	213.24	-87.40	1,203.84	-5,577.43	3,928.63	3,684.35	244.28	16.082	
16,300.00	6,927.99	7,085.63	7,080.43	155.52	213.23	-87.37	1,203.85	-5,577.43	4,028.03	3,783.68	244.35	16.485	
16,400.00	6,927.70	7,085.35	7,080.15	157.09	213.22	-87.33	1,203.85	-5,577.43	4,127.46	3,883.04	244.42	16.887	
16,500.00	6,927.42	7,085.06	7,079.87	158.66	213.21	-87.29	1,203.86	-5,577.43	4,226.92	3,982.42	244.49	17.288	
16,600.00	6,927.13	7,084.78	7,079.58	160.23	213.20	-87.26	1,203.86	-5,577.43	4,326.40	4,081.83	244.57	17.690	
16,700.00	6,926.85	7,084.50	7,079.30	161.80	213.19	-87.22	1,203.87	-5,577.43	4,425.91	4,181.26	244.64	18.091	
16,800.00	6,926.56	7,084.22	7,079.02	163.37	213.18	-87.18	1,203.88	-5,577.43	4,525.43	4,280.71	244.72	18.492	
16,900.00	6,926.28	7,083.94	7,078.74	164.94	213.17	-87.14	1,203.88	-5,577.43	4,624.98	4,380.18	244.79	18.893	
17,000.00	6,925.99	7,083.65	7,078.46	166.51	213.16	-87.11	1,203.89	-5,577.43	4,724.55	4,479.67	244.87	19.294	
17,100.00	6,925.71	7,083.37	7,078.17	168.08	213.15	-87.07	1,203.89	-5,577.43	4,824.13	4,579.18	244.95	19.694	
17,200.00	6,925.42	7,083.09	7,077.89	169.65	213.14	-87.03	1,203.90	-5,577.43	4,923.73	4,678.70	245.03	20.094	
17,300.00	6,925.14	7,082.81	7,077.61	171.23	213.13	-87.00	1,203.90	-5,577.43	5,023.35	4,778.24	245.11	20.494	
17,400.00	6,924.85	7,082.53	7,077.33	172.80	213.12	-86.96	1,203.91	-5,577.43	5,122.98	4,877.79	245.19	20.894	
17,500.00	6,924.57	7,082.24	7,077.05	174.37	213.10	-86.92	1,203.91	-5,577.43	5,222.63	4,977.35	245.28	21.293	
17,600.00	6,924.28	7,081.96	7,076.77	175.95	213.09	-86.88	1,203.92	-5,577.43	5,322.28	5,076.93	245.36	21.692	
17,700.00	6,924.00	7,081.68	7,076.48	177.52	213.08	-86.85	1,203.92	-5,577.43	5,421.96	5,176.52	245.44	22.091	
17,800.00	6,923.71	7,081.40	7,076.20	179.10	213.07	-86.81	1,203.93	-5,577.43	5,521.64	5,276.12	245.52	22.489	
17,900.00	6,923.43	7,081.12	7,075.92	180.68	213.06	-86.77	1,203.93	-5,577.43	5,621.33	5,375.73	245.61	22.887	
18,000.00	6,923.14	7,080.83	7,075.64	182.25	213.05	-86.74	1,203.94	-5,577.43	5,721.04	5,475.35	245.69	23.285	
18,100.00	6,922.86	7,080.55	7,075.36	183.83	213.04	-86.70	1,203.94	-5,577.43	5,820.76	5,574.98	245.78	23.683	
18,200.00	6,922.57	7,080.27	7,075.08	185.41	213.03	-86.66	1,203.95	-5,577.43	5,920.48	5,674.62	245.86	24.080	
18,300.00	6,922.29	7,079.99	7,074.79	186.98	213.02	-86.63	1,203.95	-5,577.43	6,020.21	5,774.27	245.95	24.478	
18,400.00	6,922.00	7,079.71	7,074.51	188.56	213.01	-86.59	1,203.96	-5,577.43	6,119.96	5,873.92	246.03	24.874	
18,500.00	6,921.71	7,079.43	7,074.23	190.14	213.00	-86.55	1,203.97	-5,577.43	6,219.71	5,973.59	246.12	25.271	
18,600.00	6,921.43	7,079.14	7,073.95	191.72	212.99	-86.51	1,203.97	-5,577.43	6,319.47	6,073.26	246.21	25.667	
18,700.00	6,921.14	7,078.86	7,073.67	193.30	212.98	-86.48	1,203.98	-5,577.43	6,419.23	6,172.94	246.29	26.063	
18,800.00	6,920.86	7,078.58	7,073.39	194.88	212.97	-86.44	1,203.98	-5,577.43	6,519.01	6,272.63	246.38	26.459	
18,900.00	6,920.57	7,078.30	7,073.11	196.46	212.96	-86.40	1,203.99	-5,577.43	6,618.79	6,372.32	246.47	26.855	
19,000.00	6,920.29	7,078.02	7,072.82	198.04	212.95	-86.37	1,203.99	-5,577.43	6,718.57	6,472.02	246.56	27.250	
19,100.00	6,920.00	7,077.74	7,072.54	199.62	212.94	-86.33	1,204.00	-5,577.43	6,818.37	6,571.72	246.64	27.645	
19,200.00	6,919.72	7,077.46	7,072.26	201.20	212.93	-86.29	1,204.00	-5,577.43	6,918.17	6,671.43	246.73	28.039	
19,300.00	6,919.43	7,077.17	7,071.98	202.78	212.91	-86.25	1,204.01	-5,577.43	7,017.97	6,771.15	246.82	28.433	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.15	7,076.89	7,071.70	204.36	212.90	-86.22	1,204.01	-5,577.43	7,117.78	6,870.87	246.91	28.827	
19,500.00	6,918.86	7,076.61	7,071.42	205.95	212.89	-86.18	1,204.02	-5,577.43	7,217.60	6,970.60	247.00	29.221	
19,600.00	6,918.58	7,076.33	7,071.14	207.53	212.88	-86.14	1,204.02	-5,577.43	7,317.42	7,070.33	247.09	29.615	
19,700.00	6,918.29	7,076.05	7,070.86	209.11	212.87	-86.11	1,204.03	-5,577.43	7,417.24	7,170.07	247.18	30.008	
19,800.00	6,918.01	7,075.77	7,070.57	210.69	212.86	-86.07	1,204.03	-5,577.43	7,517.07	7,269.81	247.27	30.401	
19,900.00	6,917.72	7,075.49	7,070.29	212.28	212.85	-86.03	1,204.04	-5,577.43	7,616.91	7,369.55	247.36	30.793	
20,000.00	6,917.44	7,075.20	7,070.01	213.86	212.84	-86.00	1,204.04	-5,577.43	7,716.75	7,469.30	247.45	31.185	
20,100.00	6,917.15	7,074.92	7,069.73	215.45	212.83	-85.96	1,204.05	-5,577.43	7,816.59	7,569.05	247.54	31.577	
20,200.00	6,916.87	7,074.64	7,069.45	217.03	212.82	-85.92	1,204.05	-5,577.43	7,916.44	7,668.81	247.63	31.969	
20,300.00	6,916.58	7,074.36	7,069.17	218.61	212.81	-85.89	1,204.06	-5,577.43	8,016.29	7,768.57	247.72	32.360	
20,400.00	6,916.30	7,074.08	7,068.89	220.20	212.80	-85.85	1,204.06	-5,577.43	8,116.14	7,868.33	247.81	32.751	
20,500.00	6,916.01	7,073.80	7,068.61	221.78	212.79	-85.81	1,204.07	-5,577.43	8,216.00	7,968.10	247.90	33.142	
20,600.00	6,915.73	7,073.52	7,068.33	223.37	212.78	-85.77	1,204.07	-5,577.43	8,315.86	8,067.86	248.00	33.532	
20,700.00	6,915.44	7,073.24	7,068.05	224.95	212.77	-85.74	1,204.08	-5,577.43	8,415.72	8,167.64	248.09	33.922	
20,800.00	6,915.16	7,072.96	7,067.77	226.54	212.76	-85.70	1,204.08	-5,577.43	8,515.59	8,267.41	248.18	34.312	
20,855.45	6,915.00	7,072.80	7,067.61	227.42	212.75	-85.68	1,204.09	-5,577.43	8,570.97	8,322.74	248.23	34.528	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	15.00	15.00	0.00	0.15	-104.65	-1,409.88	-5,394.61	5,575.80					
100.00	100.00	115.00	115.00	0.25	1.13	-104.65	-1,409.88	-5,394.61	5,575.80	5,574.42	1.38	4,029.680		
200.00	200.00	215.00	215.00	0.61	3.02	-104.65	-1,409.88	-5,394.61	5,575.80	5,572.18	3.63	1,537.191		
215.61	215.61	230.02	230.02	0.67	3.32	-104.64	-1,409.57	-5,394.61	5,575.73	5,571.74	3.99	1,397.340		
300.00	300.00	306.87	306.86	0.97	4.90	-104.65	-1,409.81	-5,394.61	5,575.79	5,569.93	5.86	950.940		
400.00	400.00	415.03	415.00	1.33	7.11	-104.65	-1,409.88	-5,394.61	5,575.80	5,567.37	8.43	661.158		
431.74	431.74	446.38	446.35	1.44	7.75	-104.64	-1,409.34	-5,394.61	5,575.67	5,566.48	9.19	606.815		
500.00	500.00	508.51	508.48	1.68	9.02	-104.64	-1,409.49	-5,394.61	5,575.71	5,565.01	10.70	520.924		
600.00	599.98	615.03	614.98	2.04	11.20	-98.05	-1,409.88	-5,394.61	5,576.05	5,562.81	13.24	421.160		
700.00	699.84	714.89	714.84	2.41	13.24	-98.09	-1,409.88	-5,394.61	5,576.78	5,561.14	15.64	356.575		
800.00	799.45	814.51	814.45	2.77	15.28	-98.15	-1,409.88	-5,394.61	5,578.02	5,559.98	18.04	309.243		
900.00	898.70	910.28	910.22	3.13	17.23	-98.23	-1,409.17	-5,394.61	5,579.59	5,559.23	20.36	274.011		
1,000.00	997.47	1,005.40	1,005.34	3.50	19.18	-98.33	-1,409.52	-5,394.61	5,581.97	5,559.28	22.68	246.079		
1,100.00	1,095.62	1,110.74	1,110.62	3.89	21.37	-98.48	-1,409.88	-5,394.61	5,584.90	5,559.64	25.26	221.094		
1,200.00	1,193.06	1,208.17	1,208.06	4.30	23.44	-98.64	-1,409.88	-5,394.61	5,588.33	5,560.60	27.74	201.489		
1,245.75	1,237.35	1,252.47	1,252.35	4.49	24.38	-98.72	-1,409.88	-5,394.61	5,590.11	5,561.24	28.87	193.649		
1,300.00	1,289.78	1,304.71	1,304.59	4.72	25.49	-98.84	-1,408.86	-5,394.61	5,592.04	5,561.83	30.21	185.120		
1,400.00	1,386.41	1,396.07	1,395.95	5.15	27.43	-99.08	-1,409.03	-5,394.61	5,596.24	5,563.66	32.58	171.761		
1,500.00	1,483.04	1,487.28	1,487.15	5.59	29.37	-99.32	-1,409.50	-5,394.61	5,600.64	5,565.68	34.96	160.204		
1,600.00	1,579.67	1,594.86	1,594.67	6.04	31.66	-99.61	-1,409.88	-5,394.61	5,605.12	5,567.43	37.69	148.708		
1,700.00	1,676.30	1,691.49	1,691.30	6.49	33.71	-99.86	-1,409.88	-5,394.61	5,609.62	5,569.42	40.20	139.553		
1,800.00	1,772.93	1,788.12	1,787.93	6.95	35.77	-100.11	-1,409.88	-5,394.61	5,614.23	5,571.53	42.71	131.463		
1,900.00	1,869.56	1,880.20	1,880.00	7.41	37.73	-100.34	-1,408.84	-5,394.61	5,618.65	5,573.53	45.12	124.526		
2,000.00	1,966.19	1,971.62	1,971.42	7.87	39.67	-100.58	-1,409.23	-5,394.61	5,623.61	5,576.09	47.52	118.335		
2,100.00	2,062.83	2,078.09	2,077.83	8.33	41.98	-100.86	-1,409.88	-5,394.61	5,628.75	5,578.46	50.29	111.921		
2,200.00	2,159.46	2,174.72	2,174.46	8.80	44.28	-101.10	-1,409.88	-5,394.61	5,633.82	5,580.76	53.06	106.180		
2,300.00	2,256.09	2,271.35	2,271.09	9.27	46.59	-101.35	-1,409.88	-5,394.61	5,639.00	5,583.17	55.83	101.009		
2,400.00	2,352.72	2,363.15	2,362.87	9.73	48.78	-101.58	-1,408.97	-5,394.61	5,644.00	5,585.52	58.48	96.511		
2,500.00	2,449.35	2,453.50	2,453.21	10.20	50.93	-101.82	-1,409.36	-5,394.61	5,649.54	5,588.44	61.10	92.464		
2,600.00	2,545.98	2,561.38	2,560.98	10.67	53.48	-102.10	-1,409.88	-5,394.61	5,655.21	5,591.10	64.11	88.212		
2,700.00	2,642.61	2,658.01	2,657.61	11.15	55.71	-102.34	-1,409.88	-5,394.61	5,660.84	5,594.04	66.80	84.738		
2,800.00	2,739.24	2,754.64	2,754.24	11.62	57.94	-102.59	-1,409.88	-5,394.61	5,666.58	5,597.08	69.50	81.534		
2,900.00	2,835.87	2,843.05	2,842.61	12.09	59.97	-102.80	-1,408.12	-5,394.61	5,671.84	5,599.84	72.00	78.770		
3,000.00	2,932.50	2,929.33	2,928.88	12.56	61.96	-103.02	-1,408.72	-5,394.61	5,678.02	5,603.56	74.46	76.255		
3,100.00	3,029.13	3,044.66	3,044.13	13.04	64.53	-103.32	-1,409.88	-5,394.61	5,684.46	5,606.97	77.49	73.354		
3,200.00	3,125.77	3,141.29	3,140.77	13.51	66.33	-103.57	-1,409.88	-5,394.61	5,690.65	5,610.88	79.76	71.346		
3,300.00	3,222.40	3,237.92	3,237.40	13.99	68.13	-103.81	-1,409.88	-5,394.61	5,696.94	5,614.91	82.03	69.450		
3,400.00	3,319.03	3,333.33	3,332.80	14.46	69.91	-104.04	-1,408.95	-5,394.61	5,703.01	5,618.73	84.27	67.671		
3,500.00	3,415.66	3,425.54	3,425.00	14.94	71.63	-104.28	-1,409.11	-5,394.61	5,709.57	5,623.11	86.46	66.037		
3,600.00	3,512.29	3,517.65	3,517.11	15.42	73.34	-104.51	-1,409.46	-5,394.61	5,716.32	5,627.67	88.64	64.487		
3,700.00	3,608.92	3,624.48	3,623.92	15.89	75.34	-104.78	-1,409.88	-5,394.61	5,723.19	5,632.09	91.10	62.820		
3,800.00	3,705.55	3,720.86	3,720.30	16.37	77.14	-105.02	-1,409.60	-5,394.61	5,729.92	5,636.55	93.38	61.364		
3,900.00	3,802.18	3,810.67	3,810.10	16.84	78.82	-105.24	-1,409.76	-5,394.61	5,736.92	5,641.40	95.52	60.059		
4,000.00	3,898.81	3,914.39	3,913.81	17.32	81.07	-105.50	-1,409.88	-5,394.61	5,744.01	5,645.78	98.24	58.472		
4,100.00	3,995.44	4,010.08	4,009.50	17.80	83.27	-105.73	-1,409.37	-5,394.61	5,750.97	5,650.07	100.90	56.995		
4,200.00	4,092.07	4,098.38	4,097.80	18.28	85.30	-105.95	-1,409.57	-5,394.61	5,758.31	5,654.92	103.40	55.691		
4,300.00	4,188.71	4,204.36	4,203.71	18.75	88.03	-106.22	-1,409.88	-5,394.61	5,765.79	5,659.20	106.59	54.091		
4,400.00	4,285.34	4,287.33	4,286.66	19.23	90.45	-106.42	-1,409.27	-5,394.61	5,773.04	5,663.56	109.48	52.733		
4,500.00	4,381.97	4,397.75	4,396.97	19.71	93.77	-106.69	-1,409.88	-5,394.61	5,780.84	5,667.57	113.27	51.035		
4,600.00	4,478.60	4,494.49	4,493.60	20.19	96.77	-106.93	-1,409.88	-5,394.61	5,788.52	5,671.79	116.74	49.586		
4,700.00	4,575.23	4,566.74	4,565.82	20.67	98.98	-107.10	-1,409.43	-5,394.61	5,796.17	5,676.78	119.40	48.544		
4,800.00	4,671.86	4,675.88	4,674.87	21.14	102.24	-107.37	-1,409.30	-5,394.61	5,803.97	5,680.84	123.13	47.137		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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)			
4,900.00	4,768.49	4,784.57	4,783.49	21.62	105.47	-107.64	-1,409.88	-5,394.61	5,812.19	5,685.36	126.83	45.826	
5,000.00	4,865.12	4,861.72	4,860.62	22.10	107.77	-107.82	-1,409.22	-5,394.61	5,820.04	5,690.45	129.59	44.911	
5,100.00	4,961.75	4,977.96	4,976.75	22.58	111.38	-108.10	-1,409.88	-5,394.61	5,828.48	5,694.82	133.66	43.606	
5,200.00	5,058.38	5,064.49	5,063.25	23.06	114.14	-108.30	-1,408.70	-5,394.61	5,836.28	5,699.40	136.89	42.636	
5,300.00	5,155.01	5,171.44	5,170.01	23.54	117.57	-108.57	-1,409.88	-5,394.61	5,845.18	5,704.40	140.78	41.520	
5,400.00	5,251.64	5,268.07	5,266.64	24.01	120.78	-108.80	-1,409.88	-5,394.61	5,853.69	5,709.24	144.45	40.524	
5,500.00	5,348.28	5,340.45	5,338.98	24.49	123.18	-108.96	-1,408.78	-5,394.61	5,861.85	5,714.54	147.31	39.793	
5,600.00	5,444.91	5,461.57	5,459.91	24.97	127.21	-109.26	-1,409.88	-5,394.61	5,870.99	5,719.18	151.81	38.674	
5,700.00	5,541.54	5,558.32	5,556.54	25.45	130.42	-109.49	-1,409.88	-5,394.61	5,879.79	5,724.31	155.48	37.817	
5,800.00	5,638.17	5,645.60	5,643.80	25.93	133.26	-109.69	-1,408.88	-5,394.61	5,888.25	5,729.48	158.77	37.086	
5,900.00	5,734.80	5,751.74	5,749.80	26.41	136.71	-109.95	-1,409.88	-5,394.61	5,897.70	5,735.01	162.69	36.252	
6,000.00	5,831.43	5,838.13	5,836.17	26.89	139.53	-110.14	-1,408.98	-5,394.61	5,906.39	5,740.43	165.96	35.589	
6,100.00	5,928.06	5,945.17	5,943.06	27.37	143.08	-110.40	-1,409.88	-5,394.61	5,915.99	5,746.02	169.98	34.805	
6,200.00	6,024.69	6,035.99	6,033.86	27.85	146.25	-110.61	-1,408.69	-5,394.61	5,924.73	5,751.13	173.60	34.128	
6,300.00	6,121.32	6,138.66	6,136.32	28.33	149.83	-110.86	-1,409.88	-5,394.61	5,934.68	5,757.04	177.64	33.409	
6,400.00	6,217.95	6,233.25	6,230.89	28.81	153.14	-111.07	-1,408.75	-5,394.61	5,943.63	5,762.23	181.41	32.764	
6,500.00	6,314.58	6,332.12	6,329.58	29.29	156.58	-111.31	-1,409.88	-5,394.61	5,953.75	5,768.45	185.31	32.129	
6,543.64	6,356.75	6,374.29	6,371.75	29.49	157.97	-111.40	-1,409.88	-5,394.61	5,957.97	5,771.07	186.90	31.878	
6,550.00	6,362.90	6,380.43	6,377.90	29.53	158.17	-109.27	-1,409.88	-5,394.61	5,958.56	5,771.43	187.13	31.842	
6,600.00	6,411.07	6,428.60	6,426.07	29.77	159.76	-93.82	-1,409.88	-5,394.61	5,961.24	5,772.29	188.95	31.549	
6,650.00	6,458.79	6,467.28	6,464.71	30.01	161.03	-81.57	-1,408.55	-5,394.61	5,959.87	5,769.40	190.46	31.291	
6,700.00	6,505.76	6,498.43	6,495.85	30.26	162.06	-72.59	-1,408.73	-5,394.61	5,955.85	5,764.11	191.73	31.063	
6,750.00	6,551.69	6,528.80	6,526.21	30.50	163.06	-66.20	-1,409.07	-5,394.61	5,948.58	5,755.59	192.98	30.824	
6,800.00	6,596.30	6,614.05	6,611.30	30.74	165.78	-61.96	-1,409.88	-5,394.61	5,938.00	5,742.02	195.98	30.299	
6,850.00	6,639.32	6,657.06	6,654.32	30.98	167.10	-58.99	-1,409.88	-5,394.61	5,923.95	5,726.38	197.57	29.984	
6,900.00	6,680.47	6,698.22	6,695.47	31.21	168.37	-57.10	-1,409.88	-5,394.61	5,906.76	5,707.66	199.11	29.666	
6,950.00	6,719.51	6,725.30	6,722.52	31.44	169.21	-55.99	-1,408.70	-5,394.61	5,885.99	5,685.79	200.21	29.399	
7,000.00	6,756.20	6,750.35	6,747.56	31.67	169.98	-55.60	-1,408.85	-5,394.61	5,863.05	5,661.80	201.25	29.134	
7,050.00	6,790.30	6,773.59	6,770.80	31.90	170.69	-55.83	-1,409.08	-5,394.61	5,837.45	5,635.21	202.23	28.865	
7,100.00	6,821.62	6,839.54	6,836.62	32.13	172.69	-57.02	-1,409.88	-5,394.61	5,809.45	5,604.93	204.52	28.405	
7,150.00	6,849.95	6,867.87	6,864.95	32.35	173.50	-58.54	-1,409.88	-5,394.61	5,778.79	5,573.18	205.61	28.106	
7,200.00	6,875.12	6,893.04	6,890.12	32.58	174.22	-60.65	-1,409.88	-5,394.61	5,745.97	5,539.36	206.61	27.811	
7,250.00	6,896.97	6,914.89	6,911.97	32.81	174.85	-63.37	-1,409.88	-5,394.61	5,711.21	5,503.70	207.51	27.523	
7,300.00	6,915.38	6,933.30	6,930.38	33.05	175.37	-66.74	-1,409.88	-5,394.61	5,674.72	5,466.40	208.31	27.241	
7,350.00	6,930.22	6,948.14	6,945.22	33.29	175.80	-70.78	-1,409.88	-5,394.61	5,636.73	5,427.71	209.02	26.968	
7,400.00	6,941.41	6,958.21	6,955.27	33.53	176.09	-75.49	-1,408.74	-5,394.61	5,596.86	5,387.28	209.58	26.705	
7,450.00	6,948.88	6,963.53	6,960.59	33.79	176.24	-80.87	-1,408.74	-5,394.61	5,556.58	5,346.57	210.01	26.459	
7,500.00	6,952.57	6,966.16	6,963.22	34.05	176.31	-86.87	-1,408.75	-5,394.61	5,515.52	5,305.16	210.36	26.219	
7,525.63	6,953.00	6,966.47	6,963.52	34.19	176.32	-90.16	-1,408.75	-5,394.61	5,494.25	5,283.74	210.51	26.100	
7,600.00	6,952.79	6,966.32	6,963.37	34.61	176.32	-90.16	-1,408.75	-5,394.61	5,432.51	5,221.59	210.91	25.757	
7,700.00	6,952.50	6,966.11	6,963.17	35.23	176.31	-90.15	-1,408.75	-5,394.61	5,350.00	5,138.51	211.49	25.297	
7,800.00	6,952.22	6,965.91	6,962.96	35.91	176.31	-90.15	-1,408.75	-5,394.61	5,268.10	5,056.00	212.09	24.839	
7,900.00	6,951.93	6,965.70	6,962.76	36.65	176.30	-90.15	-1,408.75	-5,394.61	5,186.83	4,974.10	212.73	24.382	
8,000.00	6,951.65	6,965.50	6,962.56	37.45	176.29	-90.14	-1,408.75	-5,394.61	5,106.22	4,892.82	213.40	23.928	
8,100.00	6,951.36	6,965.30	6,962.35	38.29	176.29	-90.14	-1,408.75	-5,394.61	5,026.32	4,812.21	214.11	23.476	
8,200.00	6,951.08	6,965.09	6,962.15	39.19	176.28	-90.14	-1,408.75	-5,394.61	4,947.14	4,732.30	214.85	23.026	
8,300.00	6,950.79	6,964.89	6,961.95	40.13	176.28	-90.13	-1,408.75	-5,394.61	4,868.73	4,653.11	215.62	22.580	
8,400.00	6,950.51	6,964.69	6,961.74	41.11	176.27	-90.13	-1,408.75	-5,394.61	4,791.13	4,574.69	216.44	22.136	
8,500.00	6,950.22	6,964.48	6,961.54	42.12	176.26	-90.12	-1,408.75	-5,394.61	4,714.37	4,497.08	217.29	21.696	
8,600.00	6,949.94	6,964.28	6,961.34	43.18	176.26	-90.12	-1,408.75	-5,394.61	4,638.49	4,420.31	218.18	21.260	
8,700.00	6,949.65	6,964.08	6,961.13	44.26	176.25	-90.12	-1,408.75	-5,394.61	4,563.54	4,344.44	219.11	20.828	
8,800.00	6,949.37	6,963.87	6,960.93	45.38	176.25	-90.11	-1,408.74	-5,394.61	4,489.57	4,269.50	220.08	20.400	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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
8,900.00	6,949.08	6,963.67	6,960.73	46.53	176.24	-90.11	-1,408.74	-5,394.61	4,416.63	4,195.55	221.08	19.977
9,000.00	6,948.80	6,963.47	6,960.52	47.70	176.24	-90.10	-1,408.74	-5,394.61	4,344.76	4,122.63	222.13	19.559
9,100.00	6,948.51	6,963.26	6,960.32	48.89	176.23	-90.10	-1,408.74	-5,394.61	4,274.03	4,050.80	223.22	19.147
9,200.00	6,948.23	6,963.06	6,960.12	50.11	176.22	-90.10	-1,408.74	-5,394.61	4,204.48	3,980.12	224.36	18.740
9,300.00	6,947.94	6,962.86	6,959.91	51.35	176.22	-90.09	-1,408.74	-5,394.61	4,136.18	3,910.65	225.53	18.340
9,400.00	6,947.66	6,962.65	6,959.71	52.61	176.21	-90.09	-1,408.74	-5,394.61	4,069.19	3,842.45	226.74	17.946
9,500.00	6,947.37	6,962.45	6,959.51	53.89	176.21	-90.09	-1,408.74	-5,394.61	4,003.58	3,775.59	228.00	17.560
9,600.00	6,947.09	6,962.25	6,959.30	55.18	176.20	-90.08	-1,408.74	-5,394.61	3,939.42	3,710.13	229.29	17.181
9,700.00	6,946.80	6,962.04	6,959.10	56.49	176.19	-90.08	-1,408.74	-5,394.61	3,876.77	3,646.15	230.62	16.810
9,800.00	6,946.52	6,961.84	6,958.90	57.81	176.19	-90.07	-1,408.74	-5,394.61	3,815.72	3,583.73	231.99	16.448
9,900.00	6,946.23	6,961.64	6,958.69	59.15	176.18	-90.07	-1,408.74	-5,394.61	3,756.34	3,522.94	233.40	16.094
10,000.00	6,945.95	6,961.43	6,958.49	60.50	176.18	-90.07	-1,408.74	-5,394.61	3,698.70	3,463.87	234.84	15.750
10,100.00	6,945.66	6,961.23	6,958.29	61.87	176.17	-90.06	-1,408.74	-5,394.61	3,642.90	3,406.60	236.31	15.416
10,200.00	6,945.38	6,961.03	6,958.09	63.24	176.17	-90.06	-1,408.74	-5,394.61	3,589.02	3,351.22	237.81	15.092
10,300.00	6,945.09	6,960.82	6,957.88	64.63	176.16	-90.05	-1,408.74	-5,394.61	3,537.15	3,297.82	239.33	14.779
10,400.00	6,944.81	6,960.62	6,957.68	66.02	176.15	-90.05	-1,408.74	-5,394.61	3,487.37	3,246.49	240.88	14.477
10,500.00	6,944.52	6,960.42	6,957.48	67.42	176.15	-90.05	-1,408.74	-5,394.61	3,439.78	3,197.33	242.45	14.188
10,600.00	6,944.24	6,960.22	6,957.27	68.84	176.14	-90.04	-1,408.74	-5,394.61	3,394.48	3,150.44	244.03	13.910
10,700.00	6,943.95	6,960.01	6,957.07	70.26	176.14	-90.04	-1,408.74	-5,394.61	3,351.54	3,105.92	245.62	13.645
10,800.00	6,943.67	6,959.81	6,956.87	71.68	176.13	-90.04	-1,408.74	-5,394.61	3,311.06	3,063.85	247.21	13.394
10,900.00	6,943.38	6,959.61	6,956.66	73.12	176.13	-90.03	-1,408.74	-5,394.61	3,273.15	3,024.34	248.80	13.156
11,000.00	6,943.10	6,959.40	6,956.46	74.56	176.12	-90.03	-1,408.74	-5,394.61	3,237.87	2,987.49	250.38	12.932
11,100.00	6,942.81	6,959.20	6,956.26	76.01	176.11	-90.02	-1,408.74	-5,394.61	3,205.33	2,953.39	251.95	12.722
11,200.00	6,942.53	6,959.00	6,956.06	77.46	176.11	-90.02	-1,408.74	-5,394.61	3,175.61	2,922.12	253.49	12.527
11,300.00	6,942.24	6,958.79	6,955.85	78.92	176.10	-90.02	-1,408.74	-5,394.61	3,148.79	2,893.78	255.01	12.348
11,400.00	6,941.96	6,958.59	6,955.65	80.39	176.10	-90.01	-1,408.74	-5,394.61	3,124.93	2,868.45	256.48	12.184
11,500.00	6,941.67	6,958.39	6,955.45	81.86	176.09	-90.01	-1,408.74	-5,394.61	3,104.12	2,846.20	257.91	12.036
11,600.00	6,941.39	6,958.19	6,955.24	83.33	176.08	-90.01	-1,408.74	-5,394.61	3,086.40	2,827.11	259.29	11.903
11,700.00	6,941.10	6,957.98	6,955.04	84.81	176.08	-90.00	-1,408.74	-5,394.61	3,071.84	2,811.23	260.61	11.787
11,800.00	6,940.81	6,957.78	6,954.84	86.30	176.07	-90.00	-1,408.74	-5,394.61	3,060.48	2,798.62	261.87	11.687
11,900.00	6,940.53	6,957.58	6,954.64	87.79	176.07	-89.99	-1,408.74	-5,394.61	3,052.36	2,789.31	263.05	11.604
12,000.00	6,940.24	6,957.38	6,954.43	89.28	176.06	-89.99	-1,408.74	-5,394.61	3,047.50	2,783.34	264.16	11.537
12,098.30	6,939.96	6,957.18	6,954.23	90.75	176.06	-89.99	-1,408.74	-5,394.61	3,045.91	2,780.74	265.17	11.487 CC
12,100.00	6,939.96	6,957.17	6,954.23	90.77	176.06	-89.99	-1,408.74	-5,394.61	3,045.91	2,780.72	265.19	11.486 ES
12,200.00	6,939.67	6,956.97	6,954.03	92.27	176.05	-89.98	-1,408.74	-5,394.61	3,047.61	2,781.48	266.13	11.452
12,300.00	6,939.39	6,956.77	6,953.83	93.78	176.04	-89.98	-1,408.74	-5,394.61	3,052.58	2,785.60	266.98	11.434
12,400.00	6,939.10	6,956.56	6,953.62	95.28	176.04	-89.97	-1,408.74	-5,394.61	3,060.82	2,793.07	267.75	11.432 SF
12,500.00	6,938.82	6,956.36	6,953.42	96.79	176.03	-89.97	-1,408.74	-5,394.61	3,072.29	2,803.87	268.42	11.446
12,600.00	6,938.53	6,956.16	6,953.22	98.30	176.03	-89.97	-1,408.74	-5,394.61	3,086.95	2,817.95	269.00	11.476
12,700.00	6,938.25	6,955.96	6,953.01	99.82	176.02	-89.96	-1,408.74	-5,394.61	3,104.77	2,835.28	269.49	11.521
12,800.00	6,937.96	6,955.75	6,952.81	101.34	176.01	-89.96	-1,408.74	-5,394.61	3,125.69	2,855.80	269.89	11.581
12,900.00	6,937.68	6,955.55	6,952.61	102.86	176.01	-89.96	-1,408.74	-5,394.61	3,149.65	2,879.45	270.20	11.657
13,000.00	6,937.39	6,955.32	6,952.39	104.38	176.00	-89.95	-1,409.88	-5,394.61	3,177.67	2,907.23	270.44	11.750
13,100.00	6,937.11	6,955.03	6,952.11	105.91	175.99	-89.95	-1,409.88	-5,394.61	3,207.48	2,936.90	270.58	11.854
13,200.00	6,936.82	6,954.75	6,951.82	107.43	175.99	-89.94	-1,409.88	-5,394.61	3,240.10	2,969.45	270.65	11.971
13,300.00	6,936.54	6,954.46	6,951.54	108.96	175.98	-89.94	-1,409.88	-5,394.61	3,275.46	3,004.81	270.65	12.102
13,400.00	6,936.25	6,954.18	6,951.25	110.49	175.97	-89.93	-1,409.88	-5,394.61	3,313.45	3,042.87	270.58	12.246
13,500.00	6,935.97	6,953.89	6,950.97	112.03	175.96	-89.92	-1,409.88	-5,394.61	3,354.00	3,083.55	270.44	12.402
13,600.00	6,935.68	6,953.61	6,950.68	113.56	175.95	-89.92	-1,409.88	-5,394.61	3,397.00	3,126.75	270.25	12.570
13,700.00	6,935.40	6,953.32	6,950.40	115.10	175.95	-89.91	-1,409.88	-5,394.61	3,442.38	3,172.37	270.01	12.749
13,800.00	6,935.11	6,953.04	6,950.11	116.64	175.94	-89.91	-1,409.88	-5,394.61	3,490.03	3,220.32	269.71	12.940
13,900.00	6,934.83	6,952.75	6,949.83	118.18	175.93	-89.90	-1,409.88	-5,394.61	3,539.87	3,270.49	269.38	13.141

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
14,000.00	6,934.54	6,952.46	6,949.54	119.72	175.92	-89.90	-1,409.88	-5,394.61	3,591.79	3,322.79	269.00	13.352
14,100.00	6,934.26	6,952.18	6,949.26	121.26	175.91	-89.89	-1,409.88	-5,394.61	3,645.73	3,377.14	268.59	13.574
14,200.00	6,933.97	6,951.89	6,948.97	122.81	175.90	-89.89	-1,409.88	-5,394.61	3,701.58	3,433.43	268.15	13.804
14,300.00	6,933.69	6,951.61	6,948.69	124.36	175.90	-89.88	-1,409.88	-5,394.61	3,759.26	3,491.57	267.69	14.044
14,400.00	6,933.40	6,951.32	6,948.40	125.90	175.89	-89.88	-1,409.88	-5,394.61	3,818.68	3,551.49	267.20	14.292
14,500.00	6,933.12	6,951.04	6,948.12	127.45	175.88	-89.87	-1,409.88	-5,394.61	3,879.78	3,613.09	266.69	14.548
14,600.00	6,932.83	6,950.75	6,947.83	129.00	175.87	-89.87	-1,409.88	-5,394.61	3,942.46	3,676.30	266.17	14.812
14,700.00	6,932.55	6,950.47	6,947.55	130.56	175.86	-89.86	-1,409.88	-5,394.61	4,006.66	3,741.03	265.63	15.083
14,800.00	6,932.26	6,950.18	6,947.26	132.11	175.86	-89.86	-1,409.88	-5,394.61	4,072.31	3,807.22	265.09	15.362
14,900.00	6,931.98	6,949.90	6,946.98	133.66	175.85	-89.85	-1,409.88	-5,394.61	4,139.33	3,874.79	264.54	15.647
15,000.00	6,931.69	6,949.61	6,946.69	135.22	175.84	-89.84	-1,409.88	-5,394.61	4,207.66	3,943.68	263.98	15.939
15,100.00	6,931.41	6,949.33	6,946.41	136.77	175.83	-89.84	-1,409.88	-5,394.61	4,277.23	4,013.81	263.42	16.237
15,200.00	6,931.12	6,949.04	6,946.12	138.33	175.82	-89.83	-1,409.88	-5,394.61	4,347.99	4,085.14	262.86	16.541
15,300.00	6,930.84	6,948.76	6,945.84	139.89	175.81	-89.83	-1,409.88	-5,394.61	4,419.88	4,157.59	262.30	16.851
15,400.00	6,930.55	6,948.47	6,945.55	141.45	175.81	-89.82	-1,409.88	-5,394.61	4,492.85	4,231.12	261.74	17.166
15,500.00	6,930.27	6,948.19	6,945.27	143.01	175.80	-89.82	-1,409.88	-5,394.61	4,566.84	4,305.67	261.18	17.486
15,600.00	6,929.98	6,947.90	6,944.98	144.57	175.79	-89.81	-1,409.88	-5,394.61	4,641.81	4,381.18	260.62	17.810
15,700.00	6,929.70	6,947.62	6,944.70	146.13	175.78	-89.81	-1,409.88	-5,394.61	4,717.70	4,457.63	260.08	18.140
15,800.00	6,929.41	6,947.33	6,944.41	147.70	175.77	-89.80	-1,409.88	-5,394.61	4,794.48	4,534.95	259.53	18.474
15,900.00	6,929.13	6,947.05	6,944.13	149.26	175.77	-89.80	-1,409.88	-5,394.61	4,872.10	4,613.11	259.00	18.812
16,000.00	6,928.84	6,946.76	6,943.84	150.82	175.76	-89.79	-1,409.88	-5,394.61	4,950.53	4,692.06	258.47	19.153
16,100.00	6,928.56	6,946.48	6,943.56	152.39	175.75	-89.79	-1,409.88	-5,394.61	5,029.72	4,771.77	257.94	19.499
16,200.00	6,928.27	6,946.19	6,943.27	153.96	175.74	-89.78	-1,409.88	-5,394.61	5,109.64	4,852.21	257.43	19.849
16,300.00	6,927.99	6,945.91	6,942.99	155.52	175.73	-89.77	-1,409.88	-5,394.61	5,190.25	4,933.33	256.92	20.201
16,400.00	6,927.70	6,945.62	6,942.70	157.09	175.73	-89.77	-1,409.88	-5,394.61	5,271.53	5,015.11	256.43	20.558
16,500.00	6,927.42	6,945.34	6,942.42	158.66	175.72	-89.76	-1,409.88	-5,394.61	5,353.45	5,097.51	255.94	20.917
16,600.00	6,927.13	6,945.05	6,942.13	160.23	175.71	-89.76	-1,409.88	-5,394.61	5,435.97	5,180.51	255.46	21.279
16,700.00	6,926.85	6,944.77	6,941.85	161.80	175.70	-89.75	-1,409.88	-5,394.61	5,519.07	5,264.08	254.99	21.644
16,800.00	6,926.56	6,944.48	6,941.56	163.37	175.69	-89.75	-1,409.88	-5,394.61	5,602.72	5,348.19	254.53	22.012
16,900.00	6,926.28	6,944.20	6,941.28	164.94	175.68	-89.74	-1,409.88	-5,394.61	5,686.89	5,432.82	254.08	22.383
17,000.00	6,925.99	6,943.91	6,940.99	166.51	175.68	-89.74	-1,409.88	-5,394.61	5,771.58	5,517.94	253.63	22.756
17,100.00	6,925.71	6,943.63	6,940.71	168.08	175.67	-89.73	-1,409.88	-5,394.61	5,856.74	5,603.54	253.20	23.131
17,200.00	6,925.42	6,943.34	6,940.42	169.65	175.66	-89.73	-1,409.88	-5,394.61	5,942.37	5,689.59	252.78	23.508
17,300.00	6,925.14	6,943.06	6,940.14	171.23	175.65	-89.72	-1,409.88	-5,394.61	6,028.44	5,776.08	252.36	23.888
17,400.00	6,924.85	6,942.77	6,939.85	172.80	175.64	-89.72	-1,409.88	-5,394.61	6,114.93	5,862.98	251.96	24.270
17,500.00	6,924.57	6,942.49	6,939.57	174.37	175.64	-89.71	-1,409.88	-5,394.61	6,201.83	5,950.27	251.56	24.653
17,600.00	6,924.28	6,942.20	6,939.28	175.95	175.63	-89.71	-1,409.88	-5,394.61	6,289.12	6,037.95	251.17	25.039
17,700.00	6,924.00	6,941.92	6,939.00	177.52	175.62	-89.70	-1,409.88	-5,394.61	6,376.79	6,125.99	250.80	25.426
17,800.00	6,923.71	6,941.63	6,938.71	179.10	175.61	-89.69	-1,409.88	-5,394.61	6,464.81	6,214.38	250.43	25.815
17,900.00	6,923.43	6,941.35	6,938.43	180.68	175.60	-89.69	-1,409.88	-5,394.61	6,553.17	6,303.11	250.06	26.206
18,000.00	6,923.14	6,941.06	6,938.14	182.25	175.59	-89.68	-1,409.88	-5,394.61	6,641.87	6,392.16	249.71	26.598
18,100.00	6,922.86	6,940.78	6,937.86	183.83	175.59	-89.68	-1,409.88	-5,394.61	6,730.88	6,481.51	249.37	26.992
18,200.00	6,922.57	6,940.49	6,937.57	185.41	175.58	-89.67	-1,409.88	-5,394.61	6,820.20	6,571.17	249.03	27.387
18,300.00	6,922.29	6,940.21	6,937.29	186.98	175.57	-89.67	-1,409.88	-5,394.61	6,909.81	6,661.10	248.70	27.783
18,400.00	6,922.00	6,939.92	6,937.00	188.56	175.56	-89.66	-1,409.88	-5,394.61	6,999.70	6,751.31	248.38	28.181
18,500.00	6,921.71	6,939.64	6,936.71	190.14	175.55	-89.66	-1,409.88	-5,394.61	7,089.86	6,841.79	248.07	28.580
18,600.00	6,921.43	6,939.35	6,936.43	191.72	175.55	-89.65	-1,409.88	-5,394.61	7,180.28	6,932.51	247.76	28.980
18,700.00	6,921.14	6,939.07	6,936.14	193.30	175.54	-89.65	-1,409.88	-5,394.61	7,270.95	7,023.48	247.47	29.381
18,800.00	6,920.86	6,938.78	6,935.86	194.88	175.53	-89.64	-1,409.88	-5,394.61	7,361.87	7,114.69	247.18	29.784
18,900.00	6,920.57	6,938.50	6,935.57	196.46	175.52	-89.64	-1,409.88	-5,394.61	7,453.01	7,206.12	246.89	30.187
19,000.00	6,920.29	6,938.21	6,935.29	198.04	175.51	-89.63	-1,409.88	-5,394.61	7,544.38	7,297.77	246.62	30.591
19,100.00	6,920.00	6,937.93	6,935.00	199.62	175.51	-89.62	-1,409.88	-5,394.61	7,635.97	7,389.62	246.35	30.997

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)			
19,200.00	6,919.72	6,937.64	6,934.72	201.20	175.50	-89.62	-1,409.88	-5,394.61	7,727.77	7,481.68	246.09	31.403	
19,300.00	6,919.43	6,937.36	6,934.43	202.78	175.49	-89.61	-1,409.88	-5,394.61	7,819.77	7,573.94	245.83	31.810	
19,400.00	6,919.15	6,937.07	6,934.15	204.36	175.48	-89.61	-1,409.88	-5,394.61	7,911.96	7,666.38	245.58	32.217	
19,500.00	6,918.86	6,936.79	6,933.86	205.95	175.47	-89.60	-1,409.88	-5,394.61	8,004.34	7,759.00	245.34	32.626	
19,600.00	6,918.58	6,936.50	6,933.58	207.53	175.46	-89.60	-1,409.88	-5,394.61	8,096.90	7,851.80	245.10	33.035	
19,700.00	6,918.29	6,936.22	6,933.29	209.11	175.46	-89.59	-1,409.88	-5,394.61	8,189.63	7,944.76	244.87	33.445	
19,800.00	6,918.01	6,935.93	6,933.01	210.69	175.45	-89.59	-1,409.88	-5,394.61	8,282.53	8,037.89	244.64	33.856	
19,900.00	6,917.72	6,935.65	6,932.72	212.28	175.44	-89.58	-1,409.88	-5,394.61	8,375.60	8,131.18	244.42	34.267	
20,000.00	6,917.44	6,935.36	6,932.44	213.86	175.43	-89.58	-1,409.88	-5,394.61	8,468.83	8,224.62	244.21	34.678	
20,100.00	6,917.15	6,935.08	6,932.15	215.45	175.42	-89.57	-1,409.88	-5,394.61	8,562.21	8,318.20	244.00	35.091	
20,200.00	6,916.87	6,934.79	6,931.87	217.03	175.42	-89.57	-1,409.88	-5,394.61	8,655.73	8,411.93	243.80	35.504	
20,300.00	6,916.58	6,934.51	6,931.58	218.61	175.41	-89.56	-1,409.88	-5,394.61	8,749.40	8,505.80	243.60	35.917	
20,400.00	6,916.30	6,934.22	6,931.30	220.20	175.40	-89.56	-1,409.88	-5,394.61	8,843.21	8,599.80	243.41	36.331	
20,500.00	6,916.01	6,933.93	6,931.01	221.78	175.39	-89.55	-1,409.88	-5,394.61	8,937.15	8,693.93	243.22	36.745	
20,600.00	6,915.73	6,933.65	6,930.73	223.37	175.38	-89.54	-1,409.88	-5,394.61	9,031.22	8,788.19	243.04	37.160	
20,700.00	6,915.44	6,933.36	6,930.44	224.95	175.37	-89.54	-1,409.88	-5,394.61	9,125.42	8,882.56	242.86	37.575	
20,800.00	6,915.16	6,933.08	6,930.16	226.54	175.37	-89.53	-1,409.88	-5,394.61	9,219.74	8,977.06	242.69	37.990	
20,855.45	6,915.00	6,932.92	6,930.00	227.42	175.36	-89.53	-1,409.88	-5,394.61	9,272.10	9,029.51	242.59	38.221	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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													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	96.89	-503.20	4,166.96	4,197.24					
100.00	100.00	93.00	93.00	0.25	0.82	96.89	-503.20	4,166.96	4,197.24	4,196.16	1.07	3,904.946		
200.00	200.00	193.00	193.00	0.61	2.06	96.89	-503.20	4,166.96	4,197.24	4,194.57	2.67	1,571.953		
261.44	261.44	254.39	254.39	0.83	3.22	96.88	-503.10	4,166.96	4,197.23	4,193.18	4.05	1,036.436 CC		
300.00	300.00	292.49	292.49	0.97	3.94	96.88	-503.12	4,166.96	4,197.23	4,192.32	4.91	855.248		
400.00	400.00	393.01	393.00	1.33	6.39	96.89	-503.20	4,166.96	4,197.24	4,189.52	7.71	544.107		
500.00	500.00	493.01	493.00	1.68	9.35	96.89	-503.20	4,166.96	4,197.24	4,186.20	11.04	380.247		
600.00	599.98	592.67	592.65	2.04	12.31	103.50	-502.18	4,166.96	4,197.52	4,183.17	14.35	292.479		
700.00	699.84	690.67	690.64	2.41	15.22	103.55	-502.43	4,166.96	4,198.78	4,181.16	17.62	238.350		
800.00	799.45	788.38	788.34	2.77	18.11	103.63	-503.03	4,166.96	4,200.91	4,180.04	20.87	201.249		
900.00	898.70	892.07	891.70	3.13	22.11	103.74	-503.20	4,166.96	4,203.83	4,178.60	25.23	166.606		
1,000.00	997.47	990.83	990.47	3.50	26.13	103.87	-503.20	4,166.96	4,207.61	4,177.98	29.63	142.023 ES		
1,100.00	1,095.62	1,081.50	1,081.02	3.89	29.82	103.98	-501.18	4,166.96	4,212.03	4,178.32	33.70	124.974		
1,200.00	1,193.06	1,186.97	1,186.06	4.30	34.10	104.21	-503.20	4,166.96	4,217.91	4,179.52	38.39	109.863		
1,245.75	1,237.35	1,231.27	1,230.35	4.49	35.88	104.29	-503.20	4,166.96	4,220.81	4,180.45	40.36	104.577		
1,300.00	1,289.78	1,283.69	1,282.78	4.72	37.99	104.47	-503.20	4,166.96	4,224.39	4,181.70	42.69	98.946		
1,400.00	1,386.41	1,380.32	1,379.41	5.15	41.87	104.80	-503.20	4,166.96	4,231.11	4,184.10	47.00	90.020		
1,500.00	1,483.04	1,472.74	1,471.72	5.59	45.58	105.07	-500.30	4,166.96	4,237.51	4,186.37	51.15	82.848		
1,600.00	1,579.67	1,562.54	1,561.48	6.04	49.18	105.39	-501.32	4,166.96	4,244.68	4,189.49	55.19	76.904		
1,700.00	1,676.30	1,670.86	1,669.30	6.49	53.91	105.77	-503.20	4,166.96	4,252.12	4,191.76	60.36	70.441		
1,800.00	1,772.93	1,767.49	1,765.93	6.95	59.62	106.10	-503.20	4,166.96	4,259.42	4,192.89	66.52	64.031		
1,900.00	1,869.56	1,864.12	1,862.56	7.41	65.33	106.42	-503.20	4,166.96	4,266.85	4,194.17	72.68	58.707		
2,000.00	1,966.19	1,954.77	1,953.10	7.87	70.68	106.68	-500.39	4,166.96	4,273.92	4,195.43	78.49	54.454		
2,100.00	2,062.83	2,043.34	2,041.62	8.33	75.92	106.99	-501.51	4,166.96	4,281.85	4,197.68	84.17	50.870		
2,200.00	2,159.46	2,155.71	2,152.46	8.80	83.14	107.38	-503.20	4,166.96	4,290.01	4,198.16	91.85	46.707		
2,300.00	2,256.09	2,252.34	2,249.09	9.27	90.51	107.70	-503.20	4,166.96	4,298.01	4,198.33	99.68	43.118		
2,400.00	2,352.72	2,331.65	2,328.05	9.73	96.57	107.90	-499.35	4,166.96	4,305.39	4,199.20	106.19	40.545		
2,500.00	2,449.35	2,447.46	2,442.35	10.20	105.36	108.33	-503.20	4,166.96	4,314.43	4,198.99	115.44	37.374		
2,600.00	2,545.98	2,544.09	2,538.98	10.67	112.38	108.64	-503.20	4,166.96	4,322.84	4,199.92	122.92	35.168		
2,700.00	2,642.61	2,615.26	2,609.89	11.15	117.55	108.84	-500.88	4,166.96	4,330.95	4,202.40	128.55	33.692		
2,800.00	2,739.24	2,738.61	2,732.24	11.62	126.35	109.27	-503.20	4,166.96	4,340.08	4,202.27	137.81	31.494		
2,900.00	2,835.87	2,835.00	2,828.43	12.09	133.11	109.52	-499.21	4,166.96	4,347.96	4,202.94	145.02	29.982		
3,000.00	2,932.50	2,908.09	2,901.41	12.56	138.23	109.77	-500.06	4,166.96	4,357.17	4,206.57	150.60	28.933		
3,100.00	3,029.13	3,030.05	3,022.13	13.04	146.53	110.19	-503.20	4,166.96	4,366.95	4,207.59	159.36	27.403		
3,200.00	3,125.77	3,126.68	3,118.77	13.51	152.63	110.50	-503.20	4,166.96	4,376.17	4,210.25	165.92	26.376		
3,300.00	3,222.40	3,218.25	3,210.08	13.99	158.41	110.73	-498.36	4,166.96	4,384.29	4,212.14	172.15	25.468		
3,400.00	3,319.03	3,294.65	3,286.36	14.46	163.23	110.98	-499.39	4,166.96	4,394.09	4,216.66	177.42	24.766		
3,500.00	3,415.66	3,418.13	3,408.66	14.94	170.82	111.41	-503.20	4,166.96	4,404.62	4,219.14	185.48	23.748		
3,600.00	3,512.29	3,514.76	3,505.29	15.42	175.54	111.72	-503.20	4,166.96	4,414.36	4,223.71	190.65	23.154		
3,700.00	3,608.92	3,589.39	3,579.76	15.89	179.19	111.92	-501.24	4,166.96	4,423.75	4,229.00	194.75	22.715		
3,800.00	3,705.55	3,708.58	3,698.55	16.37	184.22	112.32	-503.20	4,166.96	4,434.24	4,233.99	200.24	22.144		
3,900.00	3,802.18	3,805.21	3,795.18	16.84	187.43	112.61	-503.20	4,166.96	4,444.36	4,240.45	203.91	21.796		
4,000.00	3,898.81	3,901.84	3,891.81	17.32	190.65	112.91	-503.20	4,166.96	4,454.61	4,247.04	207.58	21.460		
4,100.00	3,995.44	3,998.47	3,988.44	17.80	193.86	113.21	-503.20	4,166.96	4,464.99	4,253.75	211.24	21.137		
4,200.00	4,092.07	4,095.10	4,085.07	18.28	197.07	113.50	-503.20	4,166.96	4,475.49	4,260.58	214.91	20.825		
4,300.00	4,188.71	4,190.60	4,180.39	18.75	200.25	113.71	-496.45	4,166.96	4,484.04	4,265.50	218.54	20.518		
4,400.00	4,285.34	4,280.92	4,270.67	19.23	203.25	113.99	-496.73	4,166.96	4,494.85	4,272.86	221.99	20.248		
4,500.00	4,381.97	4,371.05	4,360.77	19.71	206.25	114.27	-497.43	4,166.96	4,505.92	4,280.48	225.44	19.988		
4,600.00	4,478.60	4,460.99	4,450.66	20.19	209.24	114.55	-498.53	4,166.96	4,517.26	4,288.38	228.87	19.737		
4,700.00	4,575.23	4,550.74	4,540.36	20.67	212.22	114.83	-500.04	4,166.96	4,528.87	4,296.57	232.30	19.496		
4,800.00	4,671.86	4,640.30	4,629.84	21.14	215.20	115.12	-501.95	4,166.96	4,540.77	4,305.04	235.72	19.263		
4,900.00	4,768.49	4,772.43	4,761.49	21.62	218.39	115.52	-503.20	4,166.96	4,552.39	4,313.00	239.39	19.017		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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)			
9,000.00	6,948.80	6,952.73	6,941.80	47.70	258.87	-89.49	-503.20	4,166.96	6,787.30	6,500.23	287.07	23.644	
9,100.00	6,948.51	6,952.45	6,941.51	48.89	258.87	-89.49	-503.20	4,166.96	6,882.52	6,595.49	287.02	23.979	
9,200.00	6,948.23	6,952.16	6,941.23	50.11	258.86	-89.48	-503.20	4,166.96	6,977.87	6,690.89	286.98	24.315	
9,300.00	6,947.94	6,951.88	6,940.94	51.35	258.86	-89.47	-503.20	4,166.96	7,073.35	6,786.40	286.95	24.650	
9,400.00	6,947.66	6,951.59	6,940.66	52.61	258.85	-89.46	-503.20	4,166.96	7,168.96	6,882.04	286.92	24.986	
9,500.00	6,947.37	6,951.31	6,940.37	53.89	258.85	-89.46	-503.20	4,166.96	7,264.68	6,977.79	286.89	25.322	
9,600.00	6,947.09	6,951.02	6,940.09	55.18	258.84	-89.45	-503.20	4,166.96	7,360.52	7,073.64	286.87	25.658	
9,700.00	6,946.80	6,950.74	6,939.80	56.49	258.84	-89.44	-503.20	4,166.96	7,456.46	7,169.61	286.86	25.994	
9,800.00	6,946.52	6,950.45	6,939.52	57.81	258.83	-89.43	-503.20	4,166.96	7,552.51	7,265.67	286.84	26.330	
9,900.00	6,946.23	6,950.17	6,939.23	59.15	258.83	-89.42	-503.20	4,166.96	7,648.66	7,361.83	286.84	26.666	
10,000.00	6,945.95	6,949.88	6,938.95	60.50	258.82	-89.42	-503.20	4,166.96	7,744.91	7,458.08	286.83	27.002	
10,100.00	6,945.66	6,949.60	6,938.66	61.87	258.81	-89.41	-503.20	4,166.96	7,841.26	7,554.43	286.83	27.337	
10,200.00	6,945.38	6,949.31	6,938.38	63.24	258.81	-89.40	-503.20	4,166.96	7,937.69	7,650.86	286.84	27.673	
10,300.00	6,945.09	6,949.03	6,938.09	64.63	258.80	-89.39	-503.20	4,166.96	8,034.21	7,747.37	286.84	28.009	
10,400.00	6,944.81	6,948.74	6,937.81	66.02	258.80	-89.39	-503.20	4,166.96	8,130.82	7,843.97	286.85	28.345	
10,500.00	6,944.52	6,948.46	6,937.52	67.42	258.79	-89.38	-503.20	4,166.96	8,227.51	7,940.64	286.86	28.681	
10,600.00	6,944.24	6,948.17	6,937.24	68.84	258.79	-89.37	-503.20	4,166.96	8,324.27	8,037.39	286.88	29.017	
10,700.00	6,943.95	6,947.89	6,936.95	70.26	258.78	-89.36	-503.20	4,166.96	8,421.11	8,134.21	286.90	29.352	
10,800.00	6,943.67	6,947.60	6,936.67	71.68	258.78	-89.35	-503.20	4,166.96	8,518.02	8,231.11	286.92	29.688	
10,900.00	6,943.38	6,947.32	6,936.38	73.12	258.77	-89.35	-503.20	4,166.96	8,615.01	8,328.07	286.94	30.024	
11,000.00	6,943.10	6,947.03	6,936.10	74.56	258.77	-89.34	-503.20	4,166.96	8,712.06	8,425.10	286.96	30.359	
11,100.00	6,942.81	6,946.75	6,935.81	76.01	258.76	-89.33	-503.20	4,166.96	8,809.18	8,522.19	286.99	30.695	
11,200.00	6,942.53	6,946.46	6,935.53	77.46	258.76	-89.32	-503.20	4,166.96	8,906.36	8,619.34	287.02	31.030	
11,300.00	6,942.24	6,946.18	6,935.24	78.92	258.75	-89.31	-503.20	4,166.96	9,003.60	8,716.55	287.05	31.366	
11,400.00	6,941.96	6,945.89	6,934.96	80.39	258.75	-89.31	-503.20	4,166.96	9,100.91	8,813.82	287.09	31.701	
11,500.00	6,941.67	6,945.60	6,934.67	81.86	258.74	-89.30	-503.20	4,166.96	9,198.27	8,911.15	287.12	32.036	
11,600.00	6,941.39	6,945.32	6,934.39	83.33	258.74	-89.29	-503.20	4,166.96	9,295.68	9,008.53	287.16	32.371	
11,700.00	6,941.10	6,945.03	6,934.10	84.81	258.73	-89.28	-503.20	4,166.96	9,393.16	9,105.96	287.20	32.706	
11,800.00	6,940.81	6,944.75	6,933.81	86.30	258.72	-89.28	-503.20	4,166.96	9,490.68	9,203.44	287.24	33.041	
11,900.00	6,940.53	6,944.46	6,933.53	87.79	258.72	-89.27	-503.20	4,166.96	9,588.25	9,300.97	287.28	33.376	
12,000.00	6,940.24	6,944.18	6,933.24	89.28	258.71	-89.26	-503.20	4,166.96	9,685.88	9,398.56	287.32	33.711	
12,100.00	6,939.96	6,943.89	6,932.96	90.77	258.71	-89.25	-503.20	4,166.96	9,783.55	9,496.18	287.37	34.045	
12,200.00	6,939.67	6,943.61	6,932.67	92.27	258.70	-89.24	-503.20	4,166.96	9,881.27	9,593.85	287.42	34.380	
12,300.00	6,939.39	6,943.32	6,932.39	93.78	258.70	-89.24	-503.20	4,166.96	9,979.03	9,691.57	287.46	34.714	
12,400.00	6,939.10	6,943.04	6,932.10	95.28	258.69	-89.23	-503.20	4,166.96	10,076.84	9,789.33	287.51	35.048	
12,500.00	6,938.82	6,942.75	6,931.82	96.79	258.69	-89.22	-503.20	4,166.96	10,174.69	9,887.13	287.56	35.382	
12,600.00	6,938.53	6,942.47	6,931.53	98.30	258.68	-89.21	-503.20	4,166.96	10,272.58	9,984.97	287.61	35.716	
12,700.00	6,938.25	6,942.18	6,931.25	99.82	258.68	-89.21	-503.20	4,166.96	10,370.52	10,082.85	287.67	36.050	
12,800.00	6,937.96	6,941.90	6,930.96	101.34	258.67	-89.20	-503.20	4,166.96	10,468.49	10,180.77	287.72	36.384	
12,900.00	6,937.68	6,941.61	6,930.68	102.86	258.67	-89.19	-503.20	4,166.96	10,566.50	10,278.72	287.78	36.718	
13,000.00	6,937.39	6,941.33	6,930.39	104.38	258.66	-89.18	-503.20	4,166.96	10,664.54	10,376.71	287.83	37.051	
13,100.00	6,937.11	6,941.04	6,930.11	105.91	258.66	-89.17	-503.20	4,166.96	10,762.63	10,474.74	287.89	37.384	
13,200.00	6,936.82	6,940.76	6,929.82	107.43	258.65	-89.17	-503.20	4,166.96	10,860.74	10,572.79	287.95	37.718	
13,300.00	6,936.54	6,940.47	6,929.54	108.96	258.65	-89.16	-503.20	4,166.96	10,958.89	10,670.89	288.01	38.051	
13,400.00	6,936.25	6,940.19	6,929.25	110.49	258.64	-89.15	-503.20	4,166.96	11,057.08	10,769.01	288.07	38.383	
13,500.00	6,935.97	6,939.90	6,928.97	112.03	258.63	-89.14	-503.20	4,166.96	11,155.30	10,867.17	288.13	38.716	
13,600.00	6,935.68	6,939.62	6,928.68	113.56	258.63	-89.13	-503.20	4,166.96	11,253.54	10,965.35	288.19	39.049	
13,700.00	6,935.40	6,939.33	6,928.40	115.10	258.62	-89.13	-503.20	4,166.96	11,351.82	11,063.57	288.26	39.381	
13,800.00	6,935.11	6,939.05	6,928.11	116.64	258.62	-89.12	-503.20	4,166.96	11,450.13	11,161.81	288.32	39.713	
13,900.00	6,934.83	6,938.76	6,927.83	118.18	258.61	-89.11	-503.20	4,166.96	11,548.47	11,260.08	288.38	40.045	
14,000.00	6,934.54	6,938.48	6,927.54	119.72	258.61	-89.10	-503.20	4,166.96	11,646.83	11,358.38	288.45	40.377	
14,100.00	6,934.26	6,938.19	6,927.26	121.26	258.60	-89.10	-503.20	4,166.96	11,745.23	11,456.71	288.52	40.709	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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)		
14,200.00	6,933.97	6,937.91	6,926.97	122.81	258.60	-89.09	-503.20	4,166.96	11,843.65	11,555.06	288.58	41.041
14,300.00	6,933.69	6,937.62	6,926.69	124.36	258.59	-89.08	-503.20	4,166.96	11,942.09	11,653.44	288.65	41.372
14,400.00	6,933.40	6,937.34	6,926.40	125.90	258.59	-89.07	-503.20	4,166.96	12,040.57	11,751.85	288.72	41.703
14,500.00	6,933.12	6,937.05	6,926.12	127.45	258.58	-89.06	-503.20	4,166.96	12,139.06	11,850.27	288.79	42.034
14,600.00	6,932.83	6,936.77	6,925.83	129.00	258.58	-89.06	-503.20	4,166.96	12,237.58	11,948.73	288.86	42.365
14,700.00	6,932.55	6,936.48	6,925.55	130.56	258.57	-89.05	-503.20	4,166.96	12,336.13	12,047.20	288.93	42.696
14,800.00	6,932.26	6,936.20	6,925.26	132.11	258.57	-89.04	-503.20	4,166.96	12,434.70	12,145.70	289.00	43.027
14,900.00	6,931.98	6,935.91	6,924.98	133.66	258.56	-89.03	-503.20	4,166.96	12,533.29	12,244.22	289.07	43.357
15,000.00	6,931.69	6,935.63	6,924.69	135.22	258.56	-89.03	-503.20	4,166.96	12,631.90	12,342.76	289.14	43.687
15,100.00	6,931.41	6,935.34	6,924.41	136.77	258.55	-89.02	-503.20	4,166.96	12,730.54	12,441.32	289.22	44.017
15,200.00	6,931.12	6,935.06	6,924.12	138.33	258.54	-89.01	-503.20	4,166.96	12,829.19	12,539.90	289.29	44.347
15,300.00	6,930.84	6,934.77	6,923.84	139.89	258.54	-89.00	-503.20	4,166.96	12,927.87	12,638.50	289.37	44.676
15,400.00	6,930.55	6,934.49	6,923.55	141.45	258.53	-88.99	-503.20	4,166.96	13,026.57	12,737.12	289.44	45.006
15,500.00	6,930.27	6,934.20	6,923.27	143.01	258.53	-88.99	-503.20	4,166.96	13,125.28	12,835.77	289.52	45.335
15,600.00	6,929.98	6,933.92	6,922.98	144.57	258.52	-88.98	-503.20	4,166.96	13,224.02	12,934.43	289.59	45.664
15,700.00	6,929.70	6,933.63	6,922.70	146.13	258.52	-88.97	-503.20	4,166.96	13,322.77	13,033.10	289.67	45.993
15,800.00	6,929.41	6,933.35	6,922.41	147.70	258.51	-88.96	-503.20	4,166.96	13,421.55	13,131.80	289.75	46.322
15,900.00	6,929.13	6,933.06	6,922.13	149.26	258.51	-88.96	-503.20	4,166.96	13,520.34	13,230.51	289.83	46.650
16,000.00	6,928.84	6,932.78	6,921.84	150.82	258.50	-88.95	-503.20	4,166.96	13,619.15	13,329.24	289.90	46.978
16,100.00	6,928.56	6,932.49	6,921.56	152.39	258.50	-88.94	-503.20	4,166.96	13,717.97	13,427.99	289.98	47.306
16,200.00	6,928.27	6,932.21	6,921.27	153.96	258.49	-88.93	-503.20	4,166.96	13,816.82	13,526.75	290.06	47.634
16,300.00	6,927.99	6,931.92	6,920.99	155.52	258.49	-88.92	-503.20	4,166.96	13,915.67	13,625.53	290.14	47.962
16,400.00	6,927.70	6,931.64	6,920.70	157.09	258.48	-88.92	-503.20	4,166.96	14,014.55	13,724.33	290.22	48.289
16,500.00	6,927.42	6,931.35	6,920.42	158.66	258.48	-88.91	-503.20	4,166.96	14,113.44	13,823.14	290.30	48.616
16,600.00	6,927.13	6,931.07	6,920.13	160.23	258.47	-88.90	-503.20	4,166.96	14,212.35	13,921.96	290.38	48.943
16,700.00	6,926.85	6,930.78	6,919.85	161.80	258.47	-88.89	-503.20	4,166.96	14,311.27	14,020.80	290.47	49.270
16,800.00	6,926.56	6,930.50	6,919.56	163.37	258.46	-88.88	-503.20	4,166.96	14,410.21	14,119.66	290.55	49.596
16,900.00	6,926.28	6,930.21	6,919.28	164.94	258.45	-88.88	-503.20	4,166.96	14,509.16	14,218.53	290.63	49.923
17,000.00	6,925.99	6,929.93	6,918.99	166.51	258.45	-88.87	-503.20	4,166.96	14,608.13	14,317.41	290.72	50.249
17,100.00	6,925.71	6,929.64	6,918.71	168.08	258.44	-88.86	-503.20	4,166.96	14,707.11	14,416.31	290.80	50.575
17,200.00	6,925.42	6,929.36	6,918.42	169.65	258.44	-88.85	-503.20	4,166.96	14,806.10	14,515.22	290.88	50.900
17,300.00	6,925.14	6,929.07	6,918.14	171.23	258.43	-88.85	-503.20	4,166.96	14,905.11	14,614.14	290.97	51.226
17,400.00	6,924.85	6,928.79	6,917.85	172.80	258.43	-88.84	-503.20	4,166.96	15,004.13	14,713.07	291.05	51.551
17,500.00	6,924.57	6,928.50	6,917.57	174.37	258.42	-88.83	-503.20	4,166.96	15,103.16	14,812.02	291.14	51.876
17,600.00	6,924.28	6,928.22	6,917.28	175.95	258.42	-88.82	-503.20	4,166.96	15,202.21	14,910.98	291.22	52.201
17,700.00	6,924.00	6,927.93	6,917.00	177.52	258.41	-88.81	-503.20	4,166.96	15,301.26	15,009.95	291.31	52.526
17,800.00	6,923.71	6,927.65	6,916.71	179.10	258.41	-88.81	-503.20	4,166.96	15,400.33	15,108.94	291.40	52.850
17,900.00	6,923.43	6,927.36	6,916.43	180.68	258.40	-88.80	-503.20	4,166.96	15,499.42	15,207.93	291.48	53.174
18,000.00	6,923.14	6,927.08	6,916.14	182.25	258.40	-88.79	-503.20	4,166.96	15,598.51	15,306.94	291.57	53.498
18,100.00	6,922.86	6,926.79	6,915.86	183.83	258.39	-88.78	-503.20	4,166.96	15,697.62	15,405.96	291.66	53.822
18,200.00	6,922.57	6,926.50	6,915.57	185.41	258.39	-88.78	-503.20	4,166.96	15,796.73	15,504.98	291.75	54.145
18,300.00	6,922.29	6,926.22	6,915.29	186.98	258.38	-88.77	-503.20	4,166.96	15,895.86	15,604.02	291.84	54.468
18,400.00	6,922.00	6,925.93	6,915.00	188.56	258.38	-88.76	-503.20	4,166.96	15,995.00	15,703.07	291.93	54.791
18,500.00	6,921.71	6,925.65	6,914.71	190.14	258.37	-88.75	-503.20	4,166.96	16,094.15	15,802.13	292.02	55.114
18,600.00	6,921.43	6,925.36	6,914.43	191.72	258.36	-88.74	-503.20	4,166.96	16,193.31	15,901.20	292.11	55.437
18,700.00	6,921.14	6,925.08	6,914.14	193.30	258.36	-88.74	-503.20	4,166.96	16,292.48	16,000.28	292.20	55.759
18,800.00	6,920.86	6,924.79	6,913.86	194.88	258.35	-88.73	-503.20	4,166.96	16,391.66	16,099.37	292.29	56.081
18,900.00	6,920.57	6,924.51	6,913.57	196.46	258.35	-88.72	-503.20	4,166.96	16,490.85	16,198.47	292.38	56.403
19,000.00	6,920.29	6,924.22	6,913.29	198.04	258.34	-88.71	-503.20	4,166.96	16,590.05	16,297.58	292.47	56.724
19,100.00	6,920.00	6,923.94	6,913.00	199.62	258.34	-88.70	-503.20	4,166.96	16,689.26	16,396.70	292.56	57.046
19,200.00	6,919.72	6,923.65	6,912.72	201.20	258.33	-88.70	-503.20	4,166.96	16,788.47	16,495.82	292.65	57.367
19,300.00	6,919.43	6,923.37	6,912.43	202.78	258.33	-88.69	-503.20	4,166.96	16,887.70	16,594.96	292.74	57.688

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.15	6,923.08	6,912.15	204.36	258.32	-88.68	-503.20	4,166.96	16,986.94	16,694.10	292.84	58.008	
19,500.00	6,918.86	6,922.80	6,911.86	205.95	258.32	-88.67	-503.20	4,166.96	17,086.19	16,793.26	292.93	58.329	
19,600.00	6,918.58	6,922.51	6,911.58	207.53	258.31	-88.67	-503.20	4,166.96	17,185.44	16,892.42	293.02	58.649	
19,700.00	6,918.29	6,922.23	6,911.29	209.11	258.31	-88.66	-503.20	4,166.96	17,284.70	16,991.59	293.12	58.969	
19,800.00	6,918.01	6,921.94	6,911.01	210.69	258.30	-88.65	-503.20	4,166.96	17,383.97	17,090.76	293.21	59.288	
19,900.00	6,917.72	6,921.66	6,910.72	212.28	258.30	-88.64	-503.20	4,166.96	17,483.25	17,189.95	293.31	59.608	
20,000.00	6,917.44	6,921.37	6,910.44	213.86	258.29	-88.63	-503.20	4,166.96	17,582.54	17,289.14	293.40	59.927	
20,100.00	6,917.15	6,921.09	6,910.15	215.45	258.29	-88.63	-503.20	4,166.96	17,681.84	17,388.34	293.50	60.246	
20,200.00	6,916.87	6,920.80	6,909.87	217.03	258.28	-88.62	-503.20	4,166.96	17,781.14	17,487.55	293.59	60.564	
20,300.00	6,916.58	6,920.52	6,909.58	218.61	258.27	-88.61	-503.20	4,166.96	17,880.45	17,586.77	293.69	60.883	
20,400.00	6,916.30	6,920.23	6,909.30	220.20	258.27	-88.60	-503.20	4,166.96	17,979.77	17,685.99	293.78	61.201	
20,500.00	6,916.01	6,919.95	6,909.01	221.78	258.26	-88.60	-503.20	4,166.96	18,079.10	17,785.22	293.88	61.519	
20,600.00	6,915.73	6,919.66	6,908.73	223.37	258.26	-88.59	-503.20	4,166.96	18,178.43	17,884.46	293.98	61.837	
20,700.00	6,915.44	6,919.38	6,908.44	224.95	258.25	-88.58	-503.20	4,166.96	18,277.78	17,983.70	294.07	62.154	
20,800.00	6,915.16	6,919.09	6,908.16	226.54	258.25	-88.57	-503.20	4,166.96	18,377.12	18,082.95	294.17	62.471	
20,855.45	6,915.00	6,918.93	6,908.00	227.42	258.25	-88.57	-503.20	4,166.96	18,432.22	18,137.99	294.22	62.647	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	49.10	1,041.63	1,202.57	1,594.63					
100.00	100.00	0.00	0.00	0.25	0.00	49.10	1,041.63	1,202.57	1,590.98	1,590.73	0.25	6,333.701		
200.00	200.00	103.58	103.58	0.61	1.14	49.09	1,041.62	1,202.08	1,590.63	1,588.89	1.74	911.835		
300.00	300.00	216.15	216.14	0.97	2.38	49.05	1,041.56	1,200.46	1,589.51	1,586.17	3.34	476.382		
400.00	400.00	328.67	328.63	1.33	3.61	48.99	1,041.47	1,197.68	1,587.59	1,582.66	4.93	322.144		
500.00	500.00	423.47	423.39	1.68	3.92	48.94	1,041.13	1,195.15	1,585.35	1,579.76	5.58	283.974		
600.00	599.98	504.00	503.89	2.04	3.99	55.67	1,039.39	1,194.93	1,582.79	1,576.77	6.02	263.080		
700.00	699.84	566.00	565.81	2.41	4.03	55.93	1,037.02	1,196.95	1,579.99	1,573.57	6.42	246.033		
800.00	799.45	635.72	635.28	2.77	4.05	56.35	1,033.87	1,201.80	1,577.57	1,570.77	6.80	231.942		
900.00	898.70	693.96	693.07	3.13	4.10	56.83	1,030.62	1,208.23	1,575.75	1,568.57	7.18	219.391		
1,000.00	997.47	765.79	763.91	3.50	4.21	57.58	1,025.50	1,218.91	1,574.36	1,566.78	7.58	207.640		
1,100.00	1,095.62	826.65	823.51	3.89	4.32	58.35	1,020.26	1,230.07	1,573.43	1,565.44	8.00	196.768		
1,182.10	1,175.68	880.87	876.27	4.22	4.42	59.11	1,015.11	1,241.46	1,573.20	1,564.83	8.36	188.099	CC	
1,200.00	1,193.06	889.95	885.07	4.30	4.44	59.25	1,014.21	1,243.51	1,573.23	1,564.79	8.44	186.369	ES	
1,245.75	1,237.35	913.91	908.23	4.49	4.49	59.62	1,011.80	1,249.16	1,573.57	1,564.92	8.65	181.938		
1,300.00	1,289.78	943.43	936.66	4.72	4.56	60.09	1,008.86	1,256.50	1,574.62	1,565.71	8.90	176.831		
1,400.00	1,386.41	999.00	989.81	5.15	4.70	61.01	1,003.13	1,271.67	1,579.14	1,569.74	9.40	167.930		
1,500.00	1,483.04	1,054.75	1,042.46	5.59	4.87	61.98	996.41	1,288.73	1,586.81	1,576.87	9.94	159.629		
1,600.00	1,579.67	1,114.83	1,098.58	6.04	5.06	63.08	988.45	1,308.65	1,597.50	1,586.98	10.52	151.890		
1,700.00	1,676.30	1,176.86	1,155.74	6.49	5.27	64.26	979.03	1,330.80	1,611.08	1,599.94	11.14	144.615		
1,800.00	1,772.93	1,220.00	1,194.96	6.95	5.43	65.11	971.85	1,347.28	1,627.93	1,616.23	11.69	139.231		
1,900.00	1,869.56	1,269.77	1,239.57	7.41	5.64	66.11	963.21	1,367.58	1,648.39	1,636.10	12.30	134.047		
2,000.00	1,966.19	1,313.00	1,277.85	7.87	5.83	66.99	955.63	1,386.17	1,672.41	1,659.55	12.86	130.027		
2,100.00	2,062.83	1,355.70	1,315.08	8.33	6.07	67.86	947.90	1,405.59	1,700.05	1,686.61	13.43	126.547		
2,200.00	2,159.46	1,414.94	1,366.21	8.80	6.46	69.08	936.96	1,433.45	1,730.72	1,716.59	14.12	122.542		
2,300.00	2,256.09	1,467.57	1,411.07	9.27	6.86	70.16	926.72	1,459.00	1,764.18	1,749.41	14.77	119.410		
2,400.00	2,352.72	1,513.38	1,449.61	9.73	7.24	71.11	917.25	1,481.88	1,800.42	1,785.05	15.36	117.180		
2,500.00	2,449.35	1,555.54	1,484.68	10.20	7.62	71.98	908.46	1,503.56	1,839.59	1,823.67	15.92	115.586		
2,600.00	2,545.98	1,598.00	1,519.42	10.67	8.03	72.85	899.25	1,526.16	1,881.73	1,865.26	16.47	114.268		
2,700.00	2,642.61	1,659.90	1,569.41	11.15	8.67	74.13	885.10	1,559.81	1,926.37	1,909.17	17.20	112.003		
2,800.00	2,739.24	1,706.60	1,606.98	11.62	9.16	75.08	874.17	1,585.30	1,972.80	1,955.03	17.77	111.011		
2,900.00	2,835.87	1,743.34	1,636.09	12.09	9.57	75.82	865.33	1,605.90	2,021.82	2,003.58	18.24	110.870		
3,000.00	2,932.50	1,798.26	1,679.28	12.56	10.20	76.81	852.30	1,637.21	2,073.02	2,054.14	18.88	109.807		
3,100.00	3,029.13	1,848.00	1,718.28	13.04	10.78	77.86	840.61	1,665.79	2,125.90	2,106.44	19.46	109.268		
3,200.00	3,125.77	1,909.91	1,766.36	13.51	11.53	79.04	825.56	1,701.78	2,180.52	2,160.36	20.16	108.159		
3,300.00	3,222.40	1,973.00	1,815.14	13.99	12.31	80.22	809.37	1,738.36	2,236.27	2,215.40	20.87	107.139		
3,400.00	3,319.03	2,025.77	1,855.77	14.46	12.97	81.19	795.62	1,769.10	2,293.35	2,271.88	21.47	106.830		
3,500.00	3,415.66	2,092.03	1,906.63	14.94	13.82	82.37	778.32	1,807.88	2,351.68	2,329.47	22.20	105.914		
3,600.00	3,512.29	2,132.00	1,937.24	15.42	14.33	83.06	767.97	1,831.41	2,411.23	2,388.59	22.65	106.472		
3,700.00	3,608.92	2,690.30	2,394.28	15.89	20.62	91.07	639.75	2,122.76	2,469.97	2,441.69	28.28	87.335		
3,800.00	3,705.55	3,459.74	3,112.89	16.37	25.41	98.39	532.77	2,364.34	2,507.94	2,474.42	33.51	74.831		
3,900.00	3,802.18	4,017.31	3,666.22	16.84	29.28	102.09	508.92	2,414.71	2,518.68	2,480.18	38.49	65.430		
4,000.00	3,898.81	4,112.96	3,761.86	17.32	33.29	102.64	508.63	2,415.76	2,525.54	2,482.00	43.54	58.010		
4,100.00	3,995.44	4,208.61	3,857.50	17.80	37.36	103.19	508.33	2,416.84	2,532.68	2,484.12	48.56	52.156		
4,200.00	4,092.07	4,304.25	3,953.14	18.28	41.48	103.74	508.02	2,417.96	2,540.11	2,486.54	53.57	47.416		
4,300.00	4,188.71	4,399.88	4,048.76	18.75	45.62	104.28	507.70	2,419.11	2,547.82	2,489.24	58.57	43.499		
4,400.00	4,285.34	4,495.50	4,144.38	19.23	49.78	104.82	507.38	2,420.29	2,555.80	2,492.23	63.57	40.206		
4,500.00	4,381.97	4,591.12	4,239.99	19.71	53.95	105.36	507.04	2,421.50	2,564.06	2,495.51	68.56	37.401		
4,600.00	4,478.60	4,686.73	4,335.59	20.19	58.13	105.89	506.70	2,422.75	2,572.60	2,499.06	73.54	34.983		
4,700.00	4,575.23	4,782.33	4,431.18	20.67	62.32	106.42	506.35	2,424.02	2,581.41	2,502.89	78.52	32.877		
4,800.00	4,671.86	4,877.93	4,526.77	21.14	66.51	106.95	505.99	2,425.33	2,590.49	2,507.00	83.49	31.027		
4,900.00	4,768.49	4,973.52	4,622.34	21.62	70.71	107.47	505.62	2,426.67	2,599.84	2,511.37	88.46	29.390		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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	4,865.12	5,069.10	4,717.91	22.10	74.91	107.99	505.24	2,428.04	2,609.45	2,516.02	93.43	27.931
5,100.00	4,961.75	5,164.67	4,813.47	22.58	79.11	108.51	504.86	2,429.44	2,619.32	2,520.93	98.39	26.623
5,200.00	5,058.38	5,260.23	4,909.03	23.06	83.32	109.02	504.46	2,430.88	2,629.45	2,526.11	103.34	25.444
5,300.00	5,155.01	5,355.79	5,004.57	23.54	87.53	109.53	504.06	2,432.34	2,639.84	2,531.55	108.29	24.377
5,400.00	5,251.64	5,451.34	5,100.11	24.01	91.74	110.03	503.65	2,433.84	2,650.49	2,537.24	113.24	23.406
5,500.00	5,348.28	5,546.88	5,195.64	24.49	95.96	110.53	503.23	2,435.37	2,661.38	2,543.20	118.18	22.519
5,600.00	5,444.91	5,642.41	5,291.16	24.97	100.19	111.03	502.80	2,436.93	2,672.53	2,549.40	123.12	21.706
5,700.00	5,541.54	5,737.97	5,386.70	25.45	104.32	111.52	502.36	2,438.52	2,683.92	2,555.96	127.96	20.975
5,800.00	5,638.17	5,834.42	5,483.13	25.93	105.47	112.02	501.91	2,440.15	2,695.54	2,565.94	129.60	20.799
5,900.00	5,734.80	5,930.86	5,579.56	26.41	106.62	112.51	501.46	2,441.77	2,707.36	2,576.13	131.24	20.629
6,000.00	5,831.43	6,027.31	5,676.00	26.89	107.78	112.99	501.02	2,443.39	2,719.40	2,586.52	132.88	20.466
6,100.00	5,928.06	6,123.76	5,772.43	27.37	108.93	113.48	500.57	2,445.01	2,731.63	2,597.12	134.51	20.307
6,200.00	6,024.69	6,220.21	5,868.86	27.85	110.08	113.95	500.12	2,446.64	2,744.06	2,607.91	136.15	20.155
6,300.00	6,121.32	6,316.66	5,965.30	28.33	110.60	114.43	499.68	2,448.26	2,756.69	2,619.54	137.15	20.099
6,400.00	6,217.95	6,413.10	6,061.73	28.81	110.82	114.90	499.23	2,449.88	2,769.52	2,631.67	137.85	20.091
6,500.00	6,314.58	6,509.55	6,158.16	29.29	111.04	115.36	498.78	2,451.51	2,782.54	2,644.00	138.54	20.085
6,543.64	6,356.75	6,551.64	6,200.25	29.49	111.13	115.56	498.59	2,452.21	2,788.28	2,649.44	138.84	20.083
6,550.00	6,362.90	6,557.77	6,206.38	29.53	111.14	117.74	498.56	2,452.32	2,789.15	2,650.26	138.88	20.083 SF
6,600.00	6,411.07	6,605.81	6,254.41	29.77	111.25	133.68	498.34	2,453.13	2,798.07	2,658.85	139.22	20.098
6,650.00	6,458.79	6,653.33	6,301.92	30.01	111.36	146.64	498.12	2,453.93	2,810.64	2,671.08	139.56	20.140
6,700.00	6,505.76	6,700.04	6,348.62	30.26	111.46	156.59	497.90	2,454.71	2,826.77	2,686.89	139.88	20.209
6,750.00	6,551.69	6,728.00	6,376.58	30.50	111.53	164.18	497.77	2,455.18	2,846.41	2,706.28	140.13	20.312
6,800.00	6,596.30	6,784.35	6,432.92	30.74	111.66	170.25	497.49	2,456.18	2,869.30	2,728.83	140.47	20.426
6,850.00	6,639.32	6,823.05	6,471.61	30.98	111.75	175.21	497.29	2,456.93	2,895.48	2,754.74	140.74	20.573
6,900.00	6,680.47	6,859.93	6,508.49	31.21	111.84	179.51	497.08	2,457.69	2,924.70	2,783.71	140.99	20.745
6,950.00	6,719.51	6,894.77	6,543.31	31.44	111.92	-176.56	496.87	2,458.45	2,956.78	2,815.57	141.21	20.939
7,000.00	6,756.20	6,927.33	6,575.87	31.67	112.00	-172.77	496.67	2,459.19	2,991.51	2,850.10	141.41	21.155
7,050.00	6,790.30	6,957.43	6,605.95	31.90	112.07	-168.93	496.47	2,459.91	3,028.68	2,887.10	141.58	21.391
7,100.00	6,821.62	6,984.87	6,633.39	32.13	112.14	-164.81	496.28	2,460.59	3,068.06	2,926.32	141.73	21.647
7,150.00	6,849.95	7,009.49	6,658.00	32.35	112.20	-160.20	496.10	2,461.23	3,109.39	2,967.54	141.85	21.920
7,200.00	6,875.12	7,031.16	6,679.66	32.58	112.25	-154.81	495.95	2,461.80	3,152.44	3,010.49	141.95	22.208
7,250.00	6,896.97	7,049.74	6,698.23	32.81	112.29	-148.30	495.81	2,462.31	3,196.93	3,054.91	142.02	22.511
7,300.00	6,915.38	7,065.12	6,713.61	33.05	112.33	-140.25	495.69	2,462.73	3,242.60	3,100.54	142.06	22.826
7,350.00	6,930.22	7,077.23	6,725.72	33.29	112.36	-130.26	495.60	2,463.07	3,289.17	3,147.10	142.07	23.152
7,400.00	6,941.41	7,086.01	6,734.49	33.53	112.38	-118.22	495.53	2,463.32	3,336.36	3,194.30	142.06	23.486
7,450.00	6,948.88	7,091.42	6,739.89	33.79	112.39	-104.62	495.48	2,463.48	3,383.90	3,241.88	142.03	23.826
7,500.00	6,952.57	7,093.43	6,741.90	34.05	112.40	-90.81	495.47	2,463.54	3,431.50	3,289.53	141.97	24.171
7,525.63	6,953.00	7,093.15	6,741.62	34.19	112.40	-84.14	495.47	2,463.53	3,455.82	3,313.89	141.93	24.349
7,600.00	6,952.79	7,091.04	6,739.51	34.61	112.39	-84.03	495.49	2,463.47	3,526.37	3,384.55	141.82	24.865
7,700.00	6,952.50	7,088.21	6,736.69	35.23	112.38	-83.89	495.51	2,463.39	3,621.48	3,479.79	141.68	25.561
7,800.00	6,952.22	7,085.41	6,733.89	35.91	112.38	-83.74	495.53	2,463.31	3,716.83	3,575.28	141.55	26.257
7,900.00	6,951.93	7,082.62	6,731.10	36.65	112.37	-83.60	495.55	2,463.23	3,812.43	3,670.99	141.44	26.955
8,000.00	6,951.65	7,079.85	6,728.33	37.45	112.36	-83.46	495.58	2,463.15	3,908.24	3,766.91	141.33	27.654
8,100.00	6,951.36	7,077.09	6,725.57	38.29	112.36	-83.31	495.60	2,463.07	4,004.25	3,863.02	141.23	28.353
8,200.00	6,951.08	7,074.35	6,722.83	39.19	112.35	-83.17	495.62	2,462.99	4,100.45	3,959.32	141.13	29.053
8,300.00	6,950.79	7,071.63	6,720.11	40.13	112.34	-83.03	495.64	2,462.92	4,196.83	4,055.78	141.05	29.754
8,400.00	6,950.51	7,068.92	6,717.40	41.11	112.34	-82.89	495.66	2,462.84	4,293.37	4,152.40	140.97	30.456
8,500.00	6,950.22	7,066.23	6,714.71	42.12	112.33	-82.76	495.68	2,462.76	4,390.06	4,249.17	140.90	31.158
8,600.00	6,949.94	7,063.55	6,712.04	43.18	112.33	-82.62	495.70	2,462.69	4,486.90	4,346.07	140.83	31.860
8,700.00	6,949.65	7,060.89	6,709.37	44.26	112.32	-82.48	495.72	2,462.61	4,583.87	4,443.10	140.77	32.563
8,800.00	6,949.37	7,058.24	6,706.73	45.38	112.31	-82.35	495.74	2,462.54	4,680.97	4,540.26	140.71	33.266
8,900.00	6,949.08	7,055.61	6,704.10	46.53	112.31	-82.21	495.76	2,462.47	4,778.18	4,637.52	140.66	33.970

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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)			
9,000.00	6,948.80	7,052.99	6,701.48		47.70	112.30	-82.08	495.78	2,462.40	4,875.51	4,734.90	140.61	34.673
9,100.00	6,948.51	7,050.39	6,698.88	48.89	112.29	-81.94	495.80	2,462.32	4,972.94	4,832.37	140.57	35.377	
9,200.00	6,948.23	7,047.80	6,696.29	50.11	112.29	-81.81	495.82	2,462.25	5,070.47	4,929.94	140.53	36.081	
9,300.00	6,947.94	7,045.23	6,693.72	51.35	112.28	-81.68	495.84	2,462.18	5,168.09	5,027.59	140.50	36.784	
9,400.00	6,947.66	7,042.67	6,691.16	52.61	112.28	-81.55	495.86	2,462.11	5,265.80	5,125.34	140.47	37.488	
9,500.00	6,947.37	7,040.12	6,688.62	53.89	112.27	-81.42	495.88	2,462.04	5,363.59	5,223.16	140.44	38.192	
9,600.00	6,947.09	7,037.59	6,686.09	55.18	112.26	-81.29	495.90	2,461.98	5,461.47	5,321.05	140.41	38.896	
9,700.00	6,946.80	7,035.08	6,683.58	56.49	112.26	-81.16	495.92	2,461.91	5,559.41	5,419.02	140.39	39.600	
9,800.00	6,946.52	7,032.58	6,681.07	57.81	112.25	-81.03	495.94	2,461.84	5,657.43	5,517.06	140.37	40.303	
9,900.00	6,946.23	7,030.09	6,678.59	59.15	112.25	-80.91	495.95	2,461.77	5,755.51	5,615.15	140.36	41.007	
10,000.00	6,945.95	7,027.61	6,676.11	60.50	112.24	-80.78	495.97	2,461.71	5,853.66	5,713.31	140.34	41.710	
10,100.00	6,945.66	7,025.15	6,673.65	61.87	112.23	-80.66	495.99	2,461.64	5,951.86	5,811.53	140.33	42.413	
10,200.00	6,945.38	7,022.70	6,671.21	63.24	112.23	-80.53	496.01	2,461.58	6,050.13	5,909.81	140.32	43.116	
10,300.00	6,945.09	7,020.27	6,668.77	64.63	112.22	-80.41	496.03	2,461.51	6,148.45	6,008.13	140.32	43.818	
10,400.00	6,944.81	7,017.85	6,666.35	66.02	112.22	-80.29	496.04	2,461.45	6,246.82	6,106.51	140.31	44.521	
10,500.00	6,944.52	7,015.44	6,663.95	67.42	112.21	-80.16	496.06	2,461.38	6,345.24	6,204.93	140.31	45.223	
10,600.00	6,944.24	7,013.05	6,661.55	68.84	112.21	-80.04	496.08	2,461.32	6,443.71	6,303.40	140.31	45.924	
10,700.00	6,943.95	7,010.66	6,659.17	70.26	112.20	-79.92	496.10	2,461.26	6,542.23	6,401.91	140.31	46.626	
10,800.00	6,943.67	7,008.30	6,656.80	71.68	112.19	-79.80	496.11	2,461.20	6,640.78	6,500.46	140.32	47.327	
10,900.00	6,943.38	7,005.94	6,654.45	73.12	112.19	-79.68	496.13	2,461.14	6,739.38	6,599.06	140.32	48.027	
11,000.00	6,943.10	7,003.60	6,652.11	74.56	112.18	-79.56	496.15	2,461.07	6,838.02	6,697.69	140.33	48.727	
11,100.00	6,942.81	7,001.27	6,649.78	76.01	112.18	-79.45	496.16	2,461.01	6,936.70	6,796.36	140.34	49.427	
11,200.00	6,942.53	6,998.95	6,647.46	77.46	112.17	-79.33	496.18	2,460.95	7,035.41	6,895.06	140.35	50.126	
11,300.00	6,942.24	6,996.64	6,645.15	78.92	112.17	-79.21	496.20	2,460.89	7,134.16	6,993.79	140.37	50.825	
11,400.00	6,941.96	6,994.35	6,642.86	80.39	112.16	-79.10	496.21	2,460.84	7,232.94	7,092.56	140.38	51.523	
11,500.00	6,941.67	6,992.07	6,640.58	81.86	112.16	-78.98	496.23	2,460.78	7,331.76	7,191.36	140.40	52.221	
11,600.00	6,941.39	6,989.80	6,638.31	83.33	112.15	-78.87	496.24	2,460.72	7,430.60	7,290.18	140.42	52.918	
11,700.00	6,941.10	6,987.54	6,636.05	84.81	112.14	-78.75	496.26	2,460.66	7,529.47	7,389.04	140.44	53.615	
11,800.00	6,940.81	6,985.29	6,633.81	86.30	112.14	-78.64	496.28	2,460.61	7,628.38	7,487.92	140.46	54.311	
11,900.00	6,940.53	6,983.06	6,631.58	87.79	112.13	-78.53	496.29	2,460.55	7,727.31	7,586.83	140.48	55.007	
12,000.00	6,940.24	6,980.84	6,629.35	89.28	112.13	-78.42	496.31	2,460.49	7,826.26	7,685.76	140.50	55.702	
12,100.00	6,939.96	6,978.62	6,627.14	90.77	112.12	-78.31	496.32	2,460.44	7,925.25	7,784.72	140.53	56.396	
12,200.00	6,939.67	6,976.43	6,624.95	92.27	112.12	-78.20	496.34	2,460.38	8,024.25	7,883.70	140.55	57.090	
12,300.00	6,939.39	6,974.24	6,622.76	93.78	112.11	-78.09	496.35	2,460.33	8,123.28	7,982.70	140.58	57.783	
12,400.00	6,939.10	6,972.06	6,620.58	95.28	112.11	-77.98	496.37	2,460.27	8,222.34	8,081.73	140.61	58.476	
12,500.00	6,938.82	6,969.90	6,618.42	96.79	112.10	-77.87	496.38	2,460.22	8,321.41	8,180.77	140.64	59.168	
12,600.00	6,938.53	6,967.74	6,616.26	98.30	112.10	-77.76	496.40	2,460.17	8,420.51	8,279.84	140.67	59.859	
12,700.00	6,938.25	6,965.60	6,614.12	99.82	112.09	-77.66	496.41	2,460.11	8,519.62	8,378.92	140.71	60.549	
12,800.00	6,937.96	6,963.47	6,611.99	101.34	112.09	-77.55	496.43	2,460.06	8,618.76	8,478.02	140.74	61.239	
12,900.00	6,937.68	6,961.34	6,609.87	102.86	112.08	-77.44	496.44	2,460.01	8,717.92	8,577.14	140.77	61.928	
13,000.00	6,937.39	6,959.23	6,607.76	104.38	112.08	-77.34	496.46	2,459.96	8,817.09	8,676.28	140.81	62.617	
13,100.00	6,937.11	6,957.13	6,605.66	105.91	112.07	-77.24	496.47	2,459.90	8,916.28	8,775.43	140.85	63.305	
13,200.00	6,936.82	6,955.05	6,603.57	107.43	112.07	-77.13	496.48	2,459.85	9,015.49	8,874.60	140.89	63.992	
13,300.00	6,936.54	6,952.97	6,601.49	108.96	112.06	-77.03	496.50	2,459.80	9,114.72	8,973.79	140.92	64.678	
13,400.00	6,936.25	6,950.90	6,599.43	110.49	112.06	-76.93	496.51	2,459.75	9,213.96	9,072.99	140.97	65.363	
13,500.00	6,935.97	6,948.84	6,597.37	112.03	112.05	-76.82	496.52	2,459.70	9,313.21	9,172.21	141.01	66.048	
13,600.00	6,935.68	6,946.79	6,595.32	113.56	112.05	-76.72	496.54	2,459.65	9,412.49	9,271.44	141.05	66.732	
13,700.00	6,935.40	6,944.76	6,593.29	115.10	112.04	-76.62	496.55	2,459.61	9,511.77	9,370.68	141.09	67.415	
13,800.00	6,935.11	6,942.73	6,591.26	116.64	112.04	-76.52	496.57	2,459.56	9,611.07	9,469.94	141.14	68.098	
13,900.00	6,934.83	6,940.71	6,589.24	118.18	112.03	-76.42	496.58	2,459.51	9,710.39	9,569.21	141.18	68.779	
14,000.00	6,934.54	6,938.71	6,587.24	119.72	112.03	-76.32	496.59	2,459.46	9,809.72	9,668.49	141.23	69.460	
14,100.00	6,934.26	6,936.71	6,585.24	121.26	112.02	-76.22	496.60	2,459.41	9,909.06	9,767.78	141.28	70.140	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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
14,200.00	6,933.97	6,934.72	6,583.25	122.81	112.02	-76.13	496.62	2,459.37	10,008.41	9,867.09	141.32	70.819
14,300.00	6,933.69	6,932.74	6,581.28	124.36	112.01	-76.03	496.63	2,459.32	10,107.78	9,966.41	141.37	71.497
14,400.00	6,933.40	6,930.78	6,579.31	125.90	112.01	-75.93	496.64	2,459.27	10,207.16	10,065.73	141.42	72.175
14,500.00	6,933.12	6,928.82	6,577.35	127.45	112.00	-75.84	496.66	2,459.23	10,306.55	10,165.07	141.47	72.851
14,600.00	6,932.83	6,926.87	6,575.41	129.00	112.00	-75.74	496.67	2,459.18	10,405.95	10,264.42	141.53	73.527
14,700.00	6,932.55	6,924.93	6,573.47	130.56	112.00	-75.64	496.68	2,459.14	10,505.36	10,363.78	141.58	74.202
14,800.00	6,932.26	6,923.00	6,571.54	132.11	111.99	-75.55	496.69	2,459.09	10,604.78	10,463.15	141.63	74.876
14,900.00	6,931.98	6,921.08	6,569.62	133.66	111.99	-75.46	496.71	2,459.05	10,704.21	10,562.53	141.69	75.549
15,000.00	6,931.69	6,919.17	6,567.71	135.22	111.98	-75.36	496.72	2,459.00	10,803.66	10,661.92	141.74	76.221
15,100.00	6,931.41	6,917.27	6,565.81	136.77	111.98	-75.27	496.73	2,458.96	10,903.11	10,761.31	141.80	76.893
15,200.00	6,931.12	6,915.38	6,563.92	138.33	111.97	-75.18	496.74	2,458.92	11,002.57	10,860.72	141.85	77.563
15,300.00	6,930.84	6,913.50	6,562.03	139.89	111.97	-75.09	496.75	2,458.87	11,102.04	10,960.13	141.91	78.232
15,400.00	6,930.55	6,911.62	6,560.16	141.45	111.96	-74.99	496.77	2,458.83	11,201.52	11,059.55	141.97	78.901
15,500.00	6,930.27	6,909.76	6,558.30	143.01	111.96	-74.90	496.78	2,458.79	11,301.01	11,158.98	142.03	79.569
15,600.00	6,929.98	6,907.90	6,556.44	144.57	111.95	-74.81	496.79	2,458.74	11,400.51	11,258.42	142.09	80.235
15,700.00	6,929.70	6,906.05	6,554.59	146.13	111.95	-74.72	496.80	2,458.70	11,500.01	11,357.86	142.15	80.901
15,800.00	6,929.41	6,904.21	6,552.76	147.70	111.95	-74.63	496.81	2,458.66	11,599.53	11,457.32	142.21	81.566
15,900.00	6,929.13	6,902.38	6,550.93	149.26	111.94	-74.54	496.82	2,458.62	11,699.05	11,556.77	142.27	82.230
16,000.00	6,928.84	6,900.56	6,549.11	150.82	111.94	-74.46	496.83	2,458.58	11,798.58	11,656.24	142.34	82.893
16,100.00	6,928.56	6,898.75	6,547.29	152.39	111.93	-74.37	496.85	2,458.54	11,898.11	11,755.71	142.40	83.555
16,200.00	6,928.27	6,896.95	6,545.49	153.96	111.93	-74.28	496.86	2,458.50	11,997.66	11,855.19	142.46	84.215
16,300.00	6,927.99	6,895.15	6,543.70	155.52	111.92	-74.19	496.87	2,458.46	12,097.21	11,954.68	142.53	84.875
16,400.00	6,927.70	6,893.36	6,541.91	157.09	111.92	-74.11	496.88	2,458.42	12,196.77	12,054.17	142.59	85.535
16,500.00	6,927.42	6,891.59	6,540.13	158.66	111.92	-74.02	496.89	2,458.38	12,296.33	12,153.67	142.66	86.193
16,600.00	6,927.13	6,889.81	6,538.36	160.23	111.91	-73.94	496.90	2,458.34	12,395.90	12,253.17	142.73	86.850
16,700.00	6,926.85	6,888.05	6,536.60	161.80	111.91	-73.85	496.91	2,458.30	12,495.48	12,352.69	142.80	87.506
16,800.00	6,926.56	6,886.30	6,534.85	163.37	111.90	-73.77	496.92	2,458.26	12,595.07	12,452.20	142.86	88.161
16,900.00	6,926.28	6,884.55	6,533.10	164.94	111.90	-73.68	496.93	2,458.22	12,694.66	12,551.72	142.93	88.815
17,000.00	6,925.99	6,882.81	6,531.36	166.51	111.90	-73.60	496.94	2,458.18	12,794.25	12,651.25	143.00	89.468
17,100.00	6,925.71	6,881.08	6,529.63	168.08	111.89	-73.51	496.95	2,458.15	12,893.86	12,750.78	143.07	90.120
17,200.00	6,925.42	6,879.36	6,527.91	169.65	111.89	-73.43	496.96	2,458.11	12,993.46	12,850.32	143.15	90.771
17,300.00	6,925.14	6,877.65	6,526.20	171.23	111.88	-73.35	496.97	2,458.07	13,093.08	12,949.86	143.22	91.421
17,400.00	6,924.85	6,875.94	6,524.49	172.80	111.88	-73.27	496.98	2,458.03	13,192.70	13,049.41	143.29	92.070
17,500.00	6,924.57	6,874.24	6,522.79	174.37	111.87	-73.19	496.99	2,458.00	13,292.32	13,148.96	143.36	92.718
17,600.00	6,924.28	6,872.55	6,521.10	175.95	111.87	-73.11	497.00	2,457.96	13,391.95	13,248.52	143.44	93.365
17,700.00	6,924.00	6,870.87	6,519.42	177.52	111.87	-73.02	497.01	2,457.92	13,491.59	13,348.08	143.51	94.011
17,800.00	6,923.71	6,869.20	6,517.75	179.10	111.86	-72.94	497.02	2,457.89	13,591.23	13,447.64	143.59	94.656
17,900.00	6,923.43	6,867.53	6,516.08	180.68	111.86	-72.86	497.03	2,457.85	13,690.87	13,547.21	143.66	95.299
18,000.00	6,923.14	6,865.87	6,514.42	182.25	111.85	-72.79	497.04	2,457.82	13,790.52	13,646.79	143.74	95.942
18,100.00	6,922.86	6,864.22	6,512.77	183.83	111.85	-72.71	497.05	2,457.78	13,890.18	13,746.36	143.81	96.584
18,200.00	6,922.57	6,862.57	6,511.12	185.41	111.85	-72.63	497.06	2,457.75	13,989.84	13,845.95	143.89	97.225
18,300.00	6,922.29	6,860.93	6,509.49	186.98	111.84	-72.55	497.07	2,457.71	14,089.50	13,945.53	143.97	97.864
18,400.00	6,922.00	6,859.30	6,507.86	188.56	111.84	-72.47	497.08	2,457.68	14,189.17	14,045.12	144.05	98.503
18,500.00	6,921.71	6,857.68	6,506.23	190.14	111.84	-72.40	497.09	2,457.64	14,288.84	14,144.72	144.13	99.140
18,600.00	6,921.43	1,189.00	1,166.83	191.72	5.31	-6.26	977.05	1,335.33	14,387.47	14,335.81	51.65	278.530
18,700.00	6,921.14	1,189.00	1,166.83	193.30	5.31	-6.26	977.05	1,335.33	14,479.29	14,427.50	51.79	279.592
18,800.00	6,920.86	1,189.00	1,166.83	194.88	5.31	-6.26	977.05	1,335.33	14,571.21	14,519.29	51.92	280.656
18,900.00	6,920.57	1,189.00	1,166.83	196.46	5.31	-6.26	977.05	1,335.33	14,663.24	14,611.19	52.05	281.721
19,000.00	6,920.29	1,189.00	1,166.83	198.04	5.31	-6.26	977.05	1,335.33	14,755.38	14,703.20	52.18	282.788
19,100.00	6,920.00	1,189.00	1,166.83	199.62	5.31	-6.26	977.05	1,335.33	14,847.61	14,795.30	52.31	283.856
19,200.00	6,919.72	1,172.02	1,151.31	201.20	5.25	-6.21	979.81	1,329.02	14,939.85	14,887.41	52.44	284.874
19,300.00	6,919.43	1,158.00	1,138.44	202.78	5.20	-6.18	982.03	1,323.92	15,032.27	14,979.69	52.58	285.883

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:		
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	6,919.15	1,158.00	1,138.44	204.36	5.20	-6.18	982.03	1,323.92	15,124.73	15,072.02		52.71	286.949
19,500.00	6,918.86	1,158.00	1,138.44	205.95	5.20	-6.18	982.03	1,323.92	15,217.28	15,164.44		52.83	288.017
19,600.00	6,918.58	1,158.00	1,138.44	207.53	5.20	-6.18	982.03	1,323.92	15,309.92	15,256.96		52.96	289.085
19,700.00	6,918.29	1,158.00	1,138.44	209.11	5.20	-6.18	982.03	1,323.92	15,402.66	15,349.57		53.08	290.154
19,800.00	6,918.01	1,158.00	1,138.44	210.69	5.20	-6.18	982.03	1,323.92	15,495.48	15,442.28		53.21	291.223
19,900.00	6,917.72	1,139.64	1,121.53	212.28	5.14	-6.13	984.85	1,317.36	15,588.33	15,534.98		53.35	292.180
20,000.00	6,917.44	1,126.00	1,108.93	213.86	5.09	-6.10	986.86	1,312.54	15,681.30	15,627.81		53.48	293.211
20,100.00	6,917.15	1,126.00	1,108.93	215.45	5.09	-6.10	986.86	1,312.54	15,774.31	15,720.71		53.60	294.277
20,200.00	6,916.87	1,126.00	1,108.93	217.03	5.09	-6.10	986.86	1,312.54	15,867.41	15,813.69		53.73	295.344
20,300.00	6,916.58	1,126.00	1,108.93	218.61	5.09	-6.10	986.86	1,312.54	15,960.60	15,906.75		53.85	296.411
20,400.00	6,916.30	1,126.00	1,108.93	220.20	5.09	-6.10	986.86	1,312.54	16,053.86	15,999.89		53.97	297.477
20,500.00	6,916.01	1,126.00	1,108.93	221.78	5.09	-6.10	986.86	1,312.54	16,147.21	16,093.12		54.09	298.544
20,600.00	6,915.73	1,111.49	1,095.48	223.37	5.05	-6.06	988.92	1,307.51	16,240.56	16,186.34		54.22	299.507
20,700.00	6,915.44	1,095.00	1,080.12	224.95	4.99	-6.03	991.15	1,301.92	16,334.09	16,279.73		54.36	300.464
20,800.00	6,915.16	1,095.00	1,080.12	226.54	4.99	-6.03	991.15	1,301.92	16,427.61	16,373.13		54.48	301.526
20,855.45	6,915.00	1,095.00	1,080.12	227.42	4.99	-6.03	991.15	1,301.92	16,479.50	16,424.95		54.55	302.115

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)				
0.00	0.00	0.00	0.00	0.00	0.00	-86.23	978.58	-14,869.35	14,901.65					
100.00	100.00	38.08	38.08	0.25	0.07	-86.23	978.60	-14,869.35	14,901.52	14,901.20	0.32	N/A		
200.00	200.00	138.28	138.28	0.61	0.25	-86.23	978.81	-14,869.33	14,901.51	14,900.66	0.86	N/A		
300.00	300.00	238.48	238.48	0.97	0.43	-86.23	979.27	-14,869.30	14,901.51	14,900.12	1.40	N/A		
400.00	400.00	338.67	338.67	1.33	0.61	-86.23	979.97	-14,869.25	14,901.51	14,899.58	1.93	7,707.925		
444.99	444.99	383.00	382.99	1.49	0.70	-86.23	980.36	-14,869.22	14,901.51	14,899.32	2.19	6,804.086		
500.00	500.00	414.00	413.99	1.68	0.81	-86.23	980.80	-14,869.22	14,901.55	14,899.05	2.50	5,964.487		
600.00	599.98	445.00	444.98	2.04	0.93	-79.61	981.46	-14,869.28	14,901.62	14,898.65	2.97	5,021.908		
700.00	699.84	476.00	475.97	2.41	1.04	-79.62	982.44	-14,869.51	14,901.55	14,898.12	3.44	4,336.626		
800.00	799.45	491.93	491.89	2.77	1.10	-79.62	983.11	-14,869.70	14,901.37	14,897.51	3.85	3,866.850		
900.00	898.70	507.00	506.93	3.13	1.15	-79.63	983.83	-14,869.93	14,901.08	14,896.81	4.27	3,486.953		
1,000.00	997.47	537.00	536.87	3.50	1.26	-79.65	985.62	-14,870.52	14,900.68	14,895.92	4.76	3,132.937		
1,100.00	1,095.62	552.72	552.55	3.89	1.32	-79.67	986.74	-14,870.92	14,900.20	14,895.00	5.20	2,865.346		
1,200.00	1,193.06	568.00	567.77	4.30	1.38	-79.69	987.93	-14,871.37	14,899.66	14,894.00	5.66	2,633.305		
1,245.75	1,237.35	568.00	567.77	4.49	1.38	-79.69	987.93	-14,871.37	14,899.40	14,893.56	5.85	2,547.814		
1,300.00	1,289.78	583.93	583.63	4.72	1.44	-79.70	989.30	-14,871.93	14,899.15	14,893.01	6.14	2,428.408		
1,357.68	1,345.51	599.00	598.63	4.97	1.50	-79.71	990.72	-14,872.54	14,899.09	14,892.65	6.44	2,313.933		
1,400.00	1,386.41	599.00	598.63	5.15	1.50	-79.71	990.72	-14,872.54	14,899.15	14,892.53	6.62	2,250.251		
1,500.00	1,483.04	617.22	616.73	5.59	1.56	-79.72	992.60	-14,873.37	14,899.71	14,892.58	7.13	2,090.728		
1,600.00	1,579.67	630.00	629.42	6.04	1.61	-79.73	994.01	-14,874.00	14,900.82	14,893.21	7.62	1,956.118		
1,700.00	1,676.30	630.00	629.42	6.49	1.61	-79.73	994.01	-14,874.00	14,902.58	14,894.51	8.07	1,847.638		
1,800.00	1,772.93	661.64	660.76	6.95	1.73	-79.75	997.95	-14,875.80	14,904.76	14,896.12	8.64	1,725.600		
1,900.00	1,869.56	691.00	689.73	7.41	1.84	-79.76	1,002.25	-14,877.81	14,907.66	14,898.46	9.20	1,619.831		
2,000.00	1,966.19	691.00	689.73	7.87	1.84	-79.76	1,002.25	-14,877.81	14,911.03	14,901.37	9.66	1,543.639		
2,100.00	2,062.83	691.00	689.73	8.33	1.84	-79.76	1,002.25	-14,877.81	14,915.06	14,904.94	10.12	1,474.144		
2,200.00	2,159.46	722.00	720.19	8.80	1.97	-79.77	1,007.42	-14,880.33	14,919.65	14,908.95	10.70	1,394.543		
2,300.00	2,256.09	722.00	720.19	9.27	1.97	-79.77	1,007.42	-14,880.33	14,924.81	14,913.65	11.16	1,337.507		
2,400.00	2,352.72	738.97	736.81	9.73	2.04	-79.78	1,010.50	-14,881.88	14,930.57	14,918.89	11.69	1,277.451		
2,500.00	2,449.35	753.00	750.51	10.20	2.09	-79.78	1,013.19	-14,883.25	14,936.91	14,924.71	12.21	1,223.792		
2,600.00	2,545.98	753.00	750.51	10.67	2.09	-79.78	1,013.19	-14,883.25	14,943.87	14,931.20	12.67	1,179.768		
2,700.00	2,642.61	783.00	779.68	11.15	2.21	-79.79	1,019.42	-14,886.43	14,951.33	14,938.08	13.25	1,128.158		
2,800.00	2,739.24	783.00	779.68	11.62	2.21	-79.79	1,019.42	-14,886.43	14,959.42	14,945.71	13.71	1,090.803		
2,900.00	2,835.87	799.18	795.34	12.09	2.28	-79.79	1,023.05	-14,888.32	14,968.09	14,953.85	14.24	1,050.767		
3,000.00	2,932.50	814.00	809.63	12.56	2.34	-79.79	1,026.51	-14,890.17	14,977.37	14,962.60	14.77	1,014.090		
3,100.00	3,029.13	814.00	809.63	13.04	2.34	-79.79	1,026.51	-14,890.17	14,987.24	14,972.01	15.23	984.100		
3,200.00	3,125.77	814.00	809.63	13.51	2.34	-79.79	1,026.51	-14,890.17	14,997.77	14,982.08	15.69	955.948		
3,300.00	3,222.40	814.00	809.63	13.99	2.34	-79.79	1,026.51	-14,890.17	15,008.96	14,992.81	16.15	929.479		
3,400.00	3,319.03	844.66	839.03	14.46	2.49	-79.79	1,034.07	-14,894.44	15,020.44	15,003.70	16.75	896.958		
3,500.00	3,415.66	876.00	868.84	14.94	2.64	-79.79	1,042.35	-14,899.43	15,032.91	15,015.57	17.35	866.624		
3,600.00	3,512.29	876.00	868.84	15.42	2.64	-79.79	1,042.35	-14,899.43	15,045.66	15,027.86	17.80	845.127		
3,700.00	3,608.92	876.00	868.84	15.89	2.64	-79.79	1,042.35	-14,899.43	15,059.06	15,040.81	18.26	824.787		
3,800.00	3,705.55	876.00	868.84	16.37	2.64	-79.79	1,042.35	-14,899.43	15,073.12	15,054.40	18.71	805.519		
3,900.00	3,802.18	876.00	868.84	16.84	2.64	-79.79	1,042.35	-14,899.43	15,087.82	15,068.65	19.17	787.245		
4,000.00	3,898.81	907.00	898.04	17.32	2.80	-79.79	1,051.18	-14,904.95	15,103.01	15,083.25	19.77	764.012		
4,100.00	3,995.44	907.00	898.04	17.80	2.80	-79.79	1,051.18	-14,904.95	15,118.81	15,098.59	20.22	747.772		
4,200.00	4,092.07	938.00	926.95	18.28	2.96	-79.78	1,060.68	-14,910.86	15,135.20	15,114.37	20.83	726.756		
4,300.00	4,188.71	938.00	926.95	18.75	2.96	-79.78	1,060.68	-14,910.86	15,152.08	15,130.80	21.27	712.249		
4,400.00	4,285.34	970.00	956.49	19.23	3.14	-79.77	1,071.20	-14,917.22	15,169.53	15,147.64	21.89	692.956		
4,500.00	4,381.97	970.00	956.49	19.71	3.14	-79.77	1,071.20	-14,917.22	15,187.48	15,165.14	22.34	679.949		
4,600.00	4,478.60	1,002.00	985.72	20.19	3.33	-79.76	1,082.43	-14,923.83	15,205.98	15,183.02	22.96	662.303		
4,700.00	4,575.23	1,002.00	985.72	20.67	3.33	-79.76	1,082.43	-14,923.83	15,224.99	15,201.59	23.40	650.597		
4,800.00	4,671.86	1,033.00	1,013.70	21.14	3.52	-79.75	1,093.98	-14,930.48	15,244.53	15,220.51	24.02	634.543		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)					
4,900.00	4,768.49	1,033.00	1,013.70	21.62	3.52	-79.75	1,093.98	-14,930.48	15,264.61	15,240.15	24.46	623.970			
5,000.00	4,865.12	1,064.00	1,041.34	22.10	3.72	-79.73	1,106.25	-14,937.33	15,285.16	15,260.07	25.09	609.155			
5,100.00	4,961.75	1,077.94	1,053.65	22.58	3.82	-79.72	1,111.98	-14,940.47	15,306.25	15,280.64	25.62	597.462			
5,200.00	5,058.38	1,316.00	1,259.59	23.06	5.60	-79.54	1,219.51	-14,992.28	15,326.91	15,299.17	27.74	552.607			
5,300.00	5,155.01	1,347.00	1,286.24	23.54	5.84	-79.51	1,233.88	-14,998.90	15,347.58	15,319.18	28.40	540.353			
5,400.00	5,251.64	1,409.00	1,339.31	24.01	6.34	-79.46	1,263.01	-15,012.31	15,368.58	15,339.27	29.31	524.336			
5,500.00	5,348.28	1,432.30	1,359.12	24.49	6.54	-79.44	1,274.15	-15,017.41	15,389.99	15,360.06	29.93	514.265			
5,600.00	5,444.91	1,470.00	1,391.06	24.97	6.85	-79.41	1,292.31	-15,025.88	15,411.90	15,381.24	30.65	502.775			
5,700.00	5,541.54	1,470.00	1,391.06	25.45	6.85	-79.41	1,292.31	-15,025.88	15,434.23	15,403.15	31.08	496.546			
5,800.00	5,638.17	1,470.00	1,391.06	25.93	6.85	-79.41	1,292.31	-15,025.88	15,457.18	15,425.67	31.51	490.537			
5,900.00	5,734.80	1,532.00	1,443.29	26.41	7.38	-79.35	1,322.33	-15,040.53	15,480.51	15,448.08	32.44	477.275			
6,000.00	5,831.43	1,532.00	1,443.29	26.89	7.38	-79.35	1,322.33	-15,040.53	15,504.31	15,471.45	32.86	471.839			
6,100.00	5,928.06	1,573.02	1,477.69	27.37	7.74	-79.31	1,342.28	-15,050.60	15,528.60	15,494.98	33.62	461.919			
6,200.00	6,024.69	1,595.00	1,496.08	27.85	7.93	-79.29	1,353.01	-15,056.03	15,553.25	15,519.04	34.22	454.531			
6,300.00	6,121.32	6,254.39	5,858.95	28.33	32.52	-79.62	2,448.17	-15,597.63	15,474.38	15,415.97	58.41	264.938			
6,400.00	6,217.95	6,352.02	5,955.54	28.81	32.76	-79.70	2,450.59	-15,598.73	15,470.94	15,411.79	59.15	261.554			
6,500.00	6,314.58	6,449.65	6,054.13	29.29	33.00	-79.79	2,453.00	-15,599.83	15,467.53	15,407.64	59.89	258.255			
6,543.64	6,356.75	6,492.25	6,096.72	29.49	33.11	-79.82	2,454.05	-15,600.31	15,466.05	15,405.84	60.22	256.841			
6,550.00	6,362.90	6,498.46	6,102.93	29.53	33.12	-77.70	2,454.20	-15,600.38	15,465.81	15,405.54	60.26	256.636			
6,600.00	6,411.07	6,547.15	6,151.60	29.77	33.25	-62.26	2,455.40	-15,600.92	15,461.67	15,401.03	60.63	255.001			
6,650.00	6,458.79	6,595.43	6,199.86	30.01	33.37	-49.89	2,456.59	-15,601.47	15,453.65	15,392.65	61.00	253.335			
6,700.00	6,505.76	6,643.00	6,247.41	30.26	33.48	-40.60	2,457.75	-15,602.00	15,441.80	15,380.44	61.36	251.655			
6,750.00	6,551.69	6,689.56	6,293.96	30.50	33.60	-33.73	2,458.90	-15,602.52	15,426.19	15,364.47	61.71	249.972			
6,800.00	6,596.30	6,734.83	6,339.21	30.74	33.71	-28.59	2,460.01	-15,603.02	15,406.91	15,344.86	62.05	248.298			
6,850.00	6,639.32	6,778.53	6,382.90	30.98	33.82	-24.65	2,461.08	-15,603.51	15,384.08	15,321.71	62.37	246.641			
6,900.00	6,680.47	6,820.39	6,424.74	31.21	33.93	-21.55	2,462.11	-15,603.98	15,357.85	15,295.17	62.68	245.013			
6,950.00	6,719.51	6,860.15	6,464.48	31.44	34.03	-19.05	2,463.08	-15,604.42	15,328.37	15,265.40	62.97	243.421			
7,000.00	6,756.20	6,897.56	6,501.88	31.67	34.12	-16.97	2,463.99	-15,604.84	15,295.83	15,232.59	63.24	241.874			
7,050.00	6,790.30	6,932.40	6,536.71	31.90	34.21	-15.19	2,464.84	-15,605.23	15,260.42	15,196.93	63.48	240.379			
7,100.00	6,821.62	6,964.45	6,568.75	32.13	34.29	-13.59	2,465.63	-15,605.59	15,222.36	15,158.65	63.71	238.944			
7,150.00	6,849.95	6,993.51	6,597.80	32.35	34.36	-12.09	2,466.34	-15,605.91	15,181.88	15,117.98	63.90	237.575			
7,200.00	6,875.12	7,019.41	6,623.69	32.58	34.43	-10.58	2,466.97	-15,606.20	15,139.24	15,075.17	64.07	236.277			
7,250.00	6,896.97	7,041.98	6,646.26	32.81	34.48	-8.94	2,467.52	-15,606.45	15,094.69	15,030.48	64.22	235.056			
7,300.00	6,915.38	7,061.09	6,665.36	33.05	34.53	-6.96	2,467.99	-15,606.66	15,048.52	14,984.19	64.33	233.916			
7,350.00	6,930.22	7,076.62	6,680.88	33.29	34.57	-4.21	2,468.36	-15,606.83	15,001.00	14,936.58	64.42	232.859			
7,400.00	6,941.41	7,088.46	6,692.72	33.53	34.60	0.31	2,468.65	-15,606.96	14,952.43	14,887.94	64.48	231.888			
7,450.00	6,948.88	7,096.56	6,700.81	33.79	34.62	9.89	2,468.85	-15,607.05	14,903.10	14,838.59	64.51	231.004			
7,500.00	6,952.57	7,100.85	6,705.11	34.05	34.63	40.85	2,468.95	-15,607.10	14,853.32	14,788.80	64.52	230.208			
7,525.63	6,953.00	7,101.57	6,705.82	34.19	34.63	79.56	2,468.97	-15,607.11	14,827.74	14,763.22	64.52	229.833			
7,600.00	6,952.79	7,102.20	6,706.45	34.61	34.63	79.60	2,468.99	-15,607.12	14,753.47	14,688.98	64.49	228.783			
7,700.00	6,952.50	7,103.04	6,707.29	35.23	34.64	79.66	2,469.01	-15,607.12	14,653.62	14,589.17	64.45	227.368			
7,800.00	6,952.22	7,103.88	6,708.13	35.91	34.64	79.72	2,469.03	-15,607.13	14,553.76	14,489.35	64.41	225.951			
7,900.00	6,951.93	7,104.72	6,708.97	36.65	34.64	79.78	2,469.05	-15,607.14	14,453.91	14,389.54	64.37	224.531			
8,000.00	6,951.65	7,105.56	6,709.81	37.45	34.64	79.84	2,469.07	-15,607.15	14,354.06	14,289.72	64.34	223.108			
8,100.00	6,951.36	7,106.40	6,710.65	38.29	34.64	79.90	2,469.09	-15,607.16	14,254.21	14,189.91	64.30	221.683			
8,200.00	6,951.08	7,107.24	6,711.49	39.19	34.65	79.96	2,469.11	-15,607.17	14,154.36	14,090.10	64.26	220.255			
8,300.00	6,950.79	7,108.08	6,712.33	40.13	34.65	80.02	2,469.13	-15,607.18	14,054.52	13,990.29	64.23	218.824			
8,400.00	6,950.51	7,108.93	6,713.17	41.11	34.65	80.09	2,469.15	-15,607.19	13,954.68	13,890.49	64.19	217.392			
8,500.00	6,950.22	7,109.77	6,714.01	42.12	34.65	80.15	2,469.17	-15,607.20	13,854.84	13,790.68	64.16	215.956			
8,600.00	6,949.94	7,110.61	6,714.85	43.18	34.66	80.21	2,469.19	-15,607.21	13,755.00	13,690.88	64.12	214.519			
8,700.00	6,949.65	7,111.45	6,715.69	44.26	34.66	80.27	2,469.21	-15,607.22	13,655.17	13,591.08	64.09	213.078			
8,800.00	6,949.37	7,112.29	6,716.53	45.38	34.66	80.33	2,469.23	-15,607.23	13,555.34	13,491.28	64.05	211.636			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,949.08	7,113.13	6,717.37	46.53	34.66	80.39	2,469.25	-15,607.24	13,455.51	13,391.49	64.02	210.191
9,000.00	6,948.80	7,113.97	6,718.21	47.70	34.66	80.45	2,469.27	-15,607.25	13,355.68	13,291.70	63.98	208.743
9,100.00	6,948.51	7,114.81	6,719.05	48.89	34.67	80.51	2,469.29	-15,607.26	13,255.85	13,191.91	63.95	207.293
9,200.00	6,948.23	7,115.65	6,719.89	50.11	34.67	80.57	2,469.31	-15,607.26	13,156.03	13,092.12	63.91	205.841
9,300.00	6,947.94	7,116.49	6,720.73	51.35	34.67	80.63	2,469.33	-15,607.27	13,056.21	12,992.33	63.88	204.386
9,400.00	6,947.66	7,117.33	6,721.57	52.61	34.67	80.69	2,469.36	-15,607.28	12,956.39	12,892.55	63.85	202.929
9,500.00	6,947.37	7,118.17	6,722.41	53.89	34.67	80.75	2,469.38	-15,607.29	12,856.58	12,792.77	63.81	201.470
9,600.00	6,947.09	7,119.01	6,723.25	55.18	34.68	80.81	2,469.40	-15,607.30	12,756.77	12,692.99	63.78	200.009
9,700.00	6,946.80	7,119.85	6,724.09	56.49	34.68	80.87	2,469.42	-15,607.31	12,656.96	12,593.21	63.75	198.545
9,800.00	6,946.52	7,120.69	6,724.93	57.81	34.68	80.93	2,469.44	-15,607.32	12,557.15	12,493.44	63.72	197.079
9,900.00	6,946.23	7,121.53	6,725.77	59.15	34.68	80.99	2,469.46	-15,607.33	12,457.35	12,393.67	63.68	195.611
10,000.00	6,945.95	7,122.37	6,726.61	60.50	34.68	81.05	2,469.48	-15,607.34	12,357.55	12,293.90	63.65	194.140
10,100.00	6,945.66	7,123.21	6,727.45	61.87	34.69	81.12	2,469.50	-15,607.35	12,257.76	12,194.14	63.62	192.667
10,200.00	6,945.38	7,124.05	6,728.29	63.24	34.69	81.18	2,469.52	-15,607.36	12,157.96	12,094.37	63.59	191.192
10,300.00	6,945.09	7,124.89	6,729.13	64.63	34.69	81.24	2,469.54	-15,607.37	12,058.17	11,994.61	63.56	189.715
10,400.00	6,944.81	7,125.73	6,729.97	66.02	34.69	81.30	2,469.56	-15,607.38	11,958.39	11,894.86	63.53	188.236
10,500.00	6,944.52	7,126.57	6,730.81	67.42	34.70	81.36	2,469.58	-15,607.39	11,858.61	11,795.11	63.50	186.754
10,600.00	6,944.24	7,127.41	6,731.65	68.84	34.70	81.42	2,469.60	-15,607.40	11,758.83	11,695.36	63.47	185.270
10,700.00	6,943.95	7,128.25	6,732.49	70.26	34.70	81.48	2,469.62	-15,607.40	11,659.05	11,595.61	63.44	183.784
10,800.00	6,943.67	7,129.09	6,733.33	71.68	34.70	81.54	2,469.64	-15,607.41	11,559.28	11,495.87	63.41	182.296
10,900.00	6,943.38	7,129.93	6,734.17	73.12	34.70	81.60	2,469.66	-15,607.42	11,459.51	11,396.13	63.38	180.806
11,000.00	6,943.10	7,130.77	6,735.01	74.56	34.71	81.66	2,469.68	-15,607.43	11,359.75	11,296.40	63.35	179.313
11,100.00	6,942.81	7,131.61	6,735.85	76.01	34.71	81.72	2,469.70	-15,607.44	11,259.99	11,196.67	63.32	177.818
11,200.00	6,942.53	7,132.45	6,736.69	77.46	34.71	81.78	2,469.72	-15,607.45	11,160.24	11,096.94	63.29	176.321
11,300.00	6,942.24	7,133.29	6,737.53	78.92	34.71	81.85	2,469.74	-15,607.46	11,060.49	10,997.22	63.27	174.822
11,400.00	6,941.96	7,134.13	6,738.37	80.39	34.71	81.91	2,469.76	-15,607.47	10,960.74	10,897.50	63.24	173.321
11,500.00	6,941.67	7,134.97	6,739.21	81.86	34.72	81.97	2,469.78	-15,607.48	10,861.00	10,797.79	63.21	171.817
11,600.00	6,941.39	7,135.81	6,740.05	83.33	34.72	82.03	2,469.80	-15,607.49	10,761.26	10,698.08	63.19	170.311
11,700.00	6,941.10	7,136.65	6,740.88	84.81	34.72	82.09	2,469.83	-15,607.50	10,661.53	10,598.37	63.16	168.803
11,800.00	6,940.81	7,137.49	6,741.72	86.30	34.72	82.15	2,469.85	-15,607.51	10,561.80	10,498.67	63.13	167.292
11,900.00	6,940.53	7,138.33	6,742.56	87.79	34.72	82.21	2,469.87	-15,607.52	10,462.08	10,398.97	63.11	165.779
12,000.00	6,940.24	7,139.16	6,743.40	89.28	34.73	82.27	2,469.89	-15,607.53	10,362.37	10,299.28	63.08	164.264
12,100.00	6,939.96	7,140.00	6,744.24	90.77	34.73	82.33	2,469.91	-15,607.53	10,262.66	10,199.60	63.06	162.747
12,200.00	6,939.67	7,140.84	6,745.08	92.27	34.73	82.39	2,469.93	-15,607.54	10,162.95	10,099.92	63.04	161.227
12,300.00	6,939.39	7,141.68	6,745.92	93.78	34.73	82.45	2,469.95	-15,607.55	10,063.25	10,000.24	63.01	159.705
12,400.00	6,939.10	7,142.52	6,746.76	95.28	34.74	82.52	2,469.97	-15,607.56	9,963.56	9,900.57	62.99	158.180
12,500.00	6,938.82	7,143.36	6,747.60	96.79	34.74	82.58	2,469.99	-15,607.57	9,863.87	9,800.90	62.97	156.653
12,600.00	6,938.53	7,144.20	6,748.44	98.30	34.74	82.64	2,470.01	-15,607.58	9,764.19	9,701.24	62.94	155.123
12,700.00	6,938.25	7,145.04	6,749.27	99.82	34.74	82.70	2,470.03	-15,607.59	9,664.51	9,601.59	62.92	153.591
12,800.00	6,937.96	7,145.88	6,750.11	101.34	34.74	82.76	2,470.05	-15,607.60	9,564.85	9,501.94	62.90	152.056
12,900.00	6,937.68	7,146.72	6,750.95	102.86	34.75	82.82	2,470.07	-15,607.61	9,465.19	9,402.30	62.88	150.518
13,000.00	6,937.39	7,147.56	6,751.79	104.38	34.75	82.88	2,470.09	-15,607.62	9,365.53	9,302.67	62.87	148.978
13,100.00	6,937.11	7,148.40	6,752.63	105.91	34.75	82.94	2,470.11	-15,607.63	9,265.89	9,203.04	62.85	147.434
13,200.00	6,936.82	7,149.23	6,753.47	107.43	34.75	83.00	2,470.13	-15,607.64	9,166.25	9,103.42	62.83	145.888
13,300.00	6,936.54	7,150.07	6,754.31	108.96	34.75	83.07	2,470.15	-15,607.65	9,066.62	9,003.80	62.81	144.339
13,400.00	6,936.25	7,150.91	6,755.14	110.49	34.76	83.13	2,470.17	-15,607.66	8,966.99	8,904.19	62.80	142.787
13,500.00	6,935.97	7,151.75	6,755.98	112.03	34.76	83.19	2,470.19	-15,607.67	8,867.38	8,804.59	62.79	141.232
13,600.00	6,935.68	7,152.59	6,756.82	113.56	34.76	83.25	2,470.21	-15,607.67	8,767.77	8,705.00	62.77	139.673
13,700.00	6,935.40	7,153.43	6,757.66	115.10	34.76	83.31	2,470.23	-15,607.68	8,668.18	8,605.41	62.76	138.112
13,800.00	6,935.11	7,154.27	6,758.50	116.64	34.76	83.37	2,470.25	-15,607.69	8,568.59	8,505.84	62.75	136.546
13,900.00	6,934.83	7,155.11	6,759.34	118.18	34.77	83.43	2,470.27	-15,607.70	8,469.01	8,406.27	62.74	134.978
14,000.00	6,934.54	7,155.94	6,760.18	119.72	34.77	83.49	2,470.29	-15,607.71	8,369.44	8,306.71	62.74	133.405

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.43	7,200.34	6,804.56	202.78	34.88	86.75	2,471.37	-15,608.20	3,131.72	3,053.38	78.34	39.977		
19,400.00	6,919.15	7,201.18	6,805.39	204.36	34.88	86.81	2,471.39	-15,608.21	3,034.97	2,955.20	79.77	38.047		
19,500.00	6,918.86	7,202.01	6,806.23	205.95	34.88	86.87	2,471.41	-15,608.22	2,938.43	2,857.10	81.33	36.131		
19,600.00	6,918.58	7,202.85	6,807.06	207.53	34.89	86.93	2,471.44	-15,608.23	2,842.14	2,759.11	83.03	34.231		
19,700.00	6,918.29	7,203.69	6,807.90	209.11	34.89	86.99	2,471.46	-15,608.24	2,746.10	2,661.22	84.89	32.351		
19,800.00	6,918.01	7,204.52	6,808.74	210.69	34.89	87.05	2,471.48	-15,608.25	2,650.37	2,563.45	86.91	30.495		
19,900.00	6,917.72	7,205.36	6,809.57	212.28	34.89	87.12	2,471.50	-15,608.26	2,554.96	2,465.83	89.13	28.666		
20,000.00	6,917.44	7,206.20	6,810.41	213.86	34.89	87.18	2,471.52	-15,608.27	2,459.91	2,368.35	91.56	26.868		
20,100.00	6,917.15	7,207.03	6,811.25	215.45	34.90	87.24	2,471.54	-15,608.28	2,365.27	2,271.06	94.21	25.106		
20,200.00	6,916.87	7,207.87	6,812.08	217.03	34.90	87.30	2,471.56	-15,608.29	2,271.09	2,173.96	97.13	23.382		
20,300.00	6,916.58	7,208.70	6,812.92	218.61	34.90	87.36	2,471.58	-15,608.30	2,177.43	2,077.10	100.33	21.703		
20,400.00	6,916.30	7,209.54	6,813.75	220.20	34.90	87.42	2,471.60	-15,608.31	2,084.36	1,980.50	103.85	20.070		
20,500.00	6,916.01	7,210.38	6,814.59	221.78	34.91	87.48	2,471.62	-15,608.31	1,991.96	1,884.22	107.73	18.490		
20,600.00	6,915.73	7,211.21	6,815.43	223.37	34.91	87.55	2,471.64	-15,608.32	1,900.32	1,788.31	112.02	16.965		
20,700.00	6,915.44	7,212.05	6,816.26	224.95	34.91	87.61	2,471.66	-15,608.33	1,809.58	1,692.83	116.75	15.500		
20,800.00	6,915.16	7,212.89	6,817.10	226.54	34.91	87.67	2,471.68	-15,608.34	1,719.86	1,597.87	121.99	14.098		
20,855.45	6,915.00	7,213.35	6,817.56	227.42	34.91	87.70	2,471.69	-15,608.35	1,670.61	1,545.47	125.14	13.350 CC, ES, 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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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	6,948.80	3,038.00	3,037.79	47.70	56.59	-34.68	-1,087.47	594.17	5,537.14	5,475.77	61.37	90.232
9,100.00	6,948.51	3,038.00	3,037.79	48.89	56.59	-34.68	-1,087.47	594.17	5,589.76	5,527.56	62.20	89.874
9,200.00	6,948.23	3,038.00	3,037.79	50.11	56.59	-34.68	-1,087.47	594.17	5,643.66	5,580.64	63.02	89.552
9,300.00	6,947.94	3,038.00	3,037.79	51.35	56.59	-34.68	-1,087.47	594.17	5,698.81	5,634.97	63.84	89.268
9,400.00	6,947.66	3,038.00	3,037.79	52.61	56.59	-34.68	-1,087.47	594.17	5,755.17	5,690.52	64.65	89.020
9,500.00	6,947.37	3,038.00	3,037.79	53.89	56.59	-34.68	-1,087.47	594.17	5,812.70	5,747.25	65.45	88.810
9,600.00	6,947.09	3,038.00	3,037.79	55.18	56.59	-34.68	-1,087.47	594.17	5,871.37	5,805.13	66.24	88.635
9,700.00	6,946.80	3,038.00	3,037.79	56.49	56.59	-34.68	-1,087.47	594.17	5,931.15	5,864.13	67.02	88.496
9,800.00	6,946.52	3,038.00	3,037.79	57.81	56.59	-34.68	-1,087.47	594.17	5,992.00	5,924.21	67.79	88.392
9,900.00	6,946.23	3,038.00	3,037.79	59.15	56.59	-34.68	-1,087.47	594.17	6,053.89	5,985.34	68.54	88.322
10,000.00	6,945.95	3,038.00	3,037.79	60.50	56.59	-34.68	-1,087.47	594.17	6,116.78	6,047.50	69.29	88.284
10,100.00	6,945.66	3,038.00	3,037.79	61.87	56.59	-34.68	-1,087.47	594.17	6,180.66	6,110.65	70.01	88.279
10,200.00	6,945.38	3,038.00	3,037.79	63.24	56.59	-34.68	-1,087.47	594.17	6,245.48	6,174.76	70.73	88.304
10,300.00	6,945.09	3,038.00	3,037.79	64.63	56.59	-34.68	-1,087.47	594.17	6,311.23	6,239.80	71.43	88.359
10,400.00	6,944.81	3,038.00	3,037.79	66.02	56.59	-34.68	-1,087.47	594.17	6,377.86	6,305.75	72.11	88.442
10,500.00	6,944.52	3,038.00	3,037.79	67.42	56.59	-34.68	-1,087.47	594.17	6,445.36	6,372.57	72.79	88.553
10,600.00	6,944.24	3,038.00	3,037.79	68.84	56.59	-34.68	-1,087.47	594.17	6,513.69	6,440.24	73.44	88.691
10,700.00	6,943.95	3,038.00	3,037.79	70.26	56.59	-34.68	-1,087.47	594.17	6,582.83	6,508.74	74.09	88.854
10,800.00	6,943.67	3,038.00	3,037.79	71.68	56.59	-34.68	-1,087.47	594.17	6,652.75	6,578.04	74.72	89.041
10,900.00	6,943.38	3,038.00	3,037.79	73.12	56.59	-34.68	-1,087.47	594.17	6,723.44	6,648.11	75.33	89.253
11,000.00	6,943.10	3,038.00	3,037.79	74.56	56.59	-34.68	-1,087.47	594.17	6,794.86	6,718.93	75.93	89.486
11,100.00	6,942.81	3,038.00	3,037.79	76.01	56.59	-34.68	-1,087.47	594.17	6,867.00	6,790.48	76.52	89.741
11,200.00	6,942.53	3,038.00	3,037.79	77.46	56.59	-34.68	-1,087.47	594.17	6,939.83	6,862.73	77.09	90.017
11,300.00	6,942.24	3,038.00	3,037.79	78.92	56.59	-34.68	-1,087.47	594.17	7,013.32	6,935.67	77.66	90.313
11,400.00	6,941.96	3,038.00	3,037.79	80.39	56.59	-34.68	-1,087.47	594.17	7,087.47	7,009.27	78.20	90.628
11,500.00	6,941.67	3,038.00	3,037.79	81.86	56.59	-34.68	-1,087.47	594.17	7,162.24	7,083.50	78.74	90.961
11,600.00	6,941.39	3,038.00	3,037.79	83.33	56.59	-34.68	-1,087.47	594.17	7,237.63	7,158.36	79.26	91.312
11,700.00	6,941.10	3,038.00	3,037.79	84.81	56.59	-34.68	-1,087.47	594.17	7,313.60	7,233.83	79.77	91.679
11,800.00	6,940.81	3,038.00	3,037.79	86.30	56.59	-34.68	-1,087.47	594.17	7,390.15	7,309.87	80.27	92.062
11,900.00	6,940.53	3,038.00	3,037.79	87.79	56.59	-34.68	-1,087.47	594.17	7,467.25	7,386.49	80.76	92.461
12,000.00	6,940.24	3,038.00	3,037.79	89.28	56.59	-34.68	-1,087.47	594.17	7,544.89	7,463.65	81.24	92.875
12,100.00	6,939.96	3,038.00	3,037.79	90.77	56.59	-34.68	-1,087.47	594.17	7,623.04	7,541.34	81.70	93.302
12,200.00	6,939.67	3,038.00	3,037.79	92.27	56.59	-34.68	-1,087.47	594.17	7,701.71	7,619.55	82.16	93.744
12,300.00	6,939.39	3,038.00	3,037.79	93.78	56.59	-34.68	-1,087.47	594.17	7,780.86	7,698.26	82.60	94.198
12,400.00	6,939.10	3,038.00	3,037.79	95.28	56.59	-34.68	-1,087.47	594.17	7,860.49	7,777.46	83.04	94.664
12,500.00	6,938.82	3,038.00	3,037.79	96.79	56.59	-34.68	-1,087.47	594.17	7,940.58	7,857.12	83.46	95.143
12,600.00	6,938.53	3,038.00	3,037.79	98.30	56.59	-34.68	-1,087.47	594.17	8,021.12	7,937.25	83.87	95.633
12,700.00	6,938.25	3,038.00	3,037.79	99.82	56.59	-34.68	-1,087.47	594.17	8,102.09	8,017.81	84.28	96.134
12,800.00	6,937.96	3,038.00	3,037.79	101.34	56.59	-34.68	-1,087.47	594.17	8,183.48	8,098.81	84.68	96.645
12,900.00	6,937.68	3,038.00	3,037.79	102.86	56.59	-34.68	-1,087.47	594.17	8,265.28	8,180.22	85.06	97.167
13,000.00	6,937.39	3,038.00	3,037.79	104.38	56.59	-34.68	-1,087.47	594.17	8,347.48	8,262.04	85.44	97.698
13,100.00	6,937.11	3,038.00	3,037.79	105.91	56.59	-34.68	-1,087.47	594.17	8,430.06	8,344.25	85.81	98.239
13,200.00	6,936.82	3,038.00	3,037.79	107.43	56.59	-34.68	-1,087.47	594.17	8,513.02	8,426.84	86.17	98.788
13,300.00	6,936.54	3,038.00	3,037.79	108.96	56.59	-34.68	-1,087.47	594.17	8,596.33	8,509.81	86.53	99.346
13,400.00	6,936.25	3,038.00	3,037.79	110.49	56.59	-34.68	-1,087.47	594.17	8,680.00	8,593.13	86.88	99.912
13,500.00	6,935.97	3,038.00	3,037.79	112.03	56.59	-34.68	-1,087.47	594.17	8,764.02	8,676.80	87.22	100.486
13,600.00	6,935.68	3,038.00	3,037.79	113.56	56.59	-34.68	-1,087.47	594.17	8,848.36	8,760.81	87.55	101.068
13,700.00	6,935.40	3,038.00	3,037.79	115.10	56.59	-34.68	-1,087.47	594.17	8,933.03	8,845.15	87.87	101.656
13,800.00	6,935.11	3,038.00	3,037.79	116.64	56.59	-34.68	-1,087.47	594.17	9,018.01	8,929.82	88.19	102.252
13,900.00	6,934.83	3,038.00	3,037.79	118.18	56.59	-34.68	-1,087.47	594.17	9,103.30	9,014.79	88.51	102.854
14,000.00	6,934.54	3,038.00	3,037.79	119.72	56.59	-34.68	-1,087.47	594.17	9,188.88	9,100.07	88.81	103.463
14,100.00	6,934.26	3,038.00	3,037.79	121.26	56.59	-34.68	-1,087.47	594.17	9,274.75	9,185.64	89.11	104.078

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,919.15	3,038.00	3,037.79	204.36	56.59	-34.68	-1,087.47	594.17	14,095.15	13,995.36	99.79	141.255	
19,500.00	6,918.86	3,038.00	3,037.79	205.95	56.59	-34.68	-1,087.47	594.17	14,189.39	14,089.46	99.93	141.993	
19,600.00	6,918.58	3,038.00	3,037.79	207.53	56.59	-34.68	-1,087.47	594.17	14,283.71	14,183.63	100.07	142.731	
19,700.00	6,918.29	3,038.00	3,037.79	209.11	56.59	-34.68	-1,087.47	594.17	14,378.10	14,277.88	100.22	143.470	
19,800.00	6,918.01	3,038.00	3,037.79	210.69	56.59	-34.68	-1,087.47	594.17	14,472.57	14,372.21	100.36	144.208	
19,900.00	6,917.72	3,038.00	3,037.79	212.28	56.59	-34.68	-1,087.47	594.17	14,567.11	14,466.61	100.50	144.947	
20,000.00	6,917.44	3,038.00	3,037.79	213.86	56.59	-34.68	-1,087.47	594.17	14,661.73	14,561.09	100.64	145.686	
20,100.00	6,917.15	3,038.00	3,037.79	215.45	56.59	-34.68	-1,087.47	594.17	14,756.42	14,655.64	100.78	146.425	
20,200.00	6,916.87	3,038.00	3,037.79	217.03	56.59	-34.68	-1,087.47	594.17	14,851.17	14,750.26	100.92	147.163	
20,300.00	6,916.58	3,038.00	3,037.79	218.61	56.59	-34.68	-1,087.47	594.17	14,946.00	14,844.95	101.05	147.902	
20,400.00	6,916.30	3,038.00	3,037.79	220.20	56.59	-34.68	-1,087.47	594.17	15,040.89	14,939.70	101.19	148.641	
20,500.00	6,916.01	3,038.00	3,037.79	221.78	56.59	-34.68	-1,087.47	594.17	15,135.85	15,034.52	101.33	149.379	
20,600.00	6,915.73	3,038.00	3,037.79	223.37	56.59	-34.68	-1,087.47	594.17	15,230.87	15,129.41	101.46	150.118	
20,700.00	6,915.44	3,038.00	3,037.79	224.95	56.59	-34.68	-1,087.47	594.17	15,325.96	15,224.36	101.59	150.856	
20,800.00	6,915.16	3,038.00	3,037.79	226.54	56.59	-34.68	-1,087.47	594.17	15,421.10	15,319.38	101.73	151.594	
20,855.45	6,915.00	3,038.00	3,037.79	227.42	56.59	-34.68	-1,087.47	594.17	15,473.89	15,372.09	101.80	152.003	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
		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	-10.01	818.07	-144.43	830.84				
100.00	100.00	86.00	86.00	0.25	0.80	-10.01	818.07	-144.43	830.72	829.67	1.05	794.219	
200.00	200.00	186.00	186.00	0.61	1.72	-10.01	818.07	-144.43	830.72	828.39	2.33	356.739	
300.00	300.00	286.00	286.00	0.97	2.64	-10.01	818.07	-144.43	830.72	827.11	3.61	230.031	
400.00	400.00	386.00	386.00	1.33	4.04	-10.01	818.07	-144.43	830.72	825.35	5.37	154.658	
500.00	500.00	486.00	486.00	1.68	6.08	-10.01	818.07	-144.43	830.72	822.96	7.76	106.999	
600.00	599.98	585.98	585.98	2.04	8.11	-3.41	818.07	-144.43	828.98	818.82	10.16	81.621	
700.00	699.84	687.21	687.20	2.41	10.17	-3.43	818.53	-144.43	824.21	811.63	12.58	65.532	
800.00	799.45	788.24	788.23	2.77	12.23	-3.48	818.27	-144.43	815.26	800.26	15.00	54.367	
900.00	898.70	884.77	884.70	3.13	14.34	-3.55	818.07	-144.43	802.89	785.42	17.47	45.947	
1,000.00	997.47	983.53	983.47	3.50	16.69	-3.64	818.07	-144.43	787.28	767.09	20.18	39.007	
1,100.00	1,095.62	1,081.75	1,081.67	3.89	19.02	-3.74	819.38	-144.43	769.52	746.64	22.88	33.632	
1,200.00	1,193.06	1,182.58	1,182.49	4.30	21.41	-3.89	819.14	-144.43	746.85	721.21	25.64	29.125	
1,245.75	1,237.35	1,228.34	1,228.25	4.49	22.49	-3.98	818.87	-144.43	735.20	708.30	26.90	27.330	
1,300.00	1,289.78	1,282.44	1,282.34	4.72	23.78	-4.06	818.44	-144.43	720.86	692.48	28.38	25.399	
1,400.00	1,386.41	1,372.61	1,372.41	5.15	25.84	-4.21	818.07	-144.43	694.79	663.98	30.81	22.553	
1,500.00	1,483.04	1,469.24	1,469.04	5.59	27.98	-4.37	818.07	-144.43	669.11	635.80	33.32	20.082	
1,600.00	1,579.67	1,565.88	1,565.67	6.04	30.12	-4.54	818.07	-144.43	643.45	607.62	35.83	17.956	
1,700.00	1,676.30	1,665.58	1,665.35	6.49	32.33	-4.71	819.46	-144.43	619.17	580.75	38.42	16.117	
1,800.00	1,772.93	1,765.17	1,764.92	6.95	34.54	-4.94	818.70	-144.43	592.79	551.80	41.00	14.460	
1,900.00	1,869.56	1,855.87	1,855.56	7.41	36.43	-5.16	818.07	-144.43	566.49	523.22	43.27	13.093	
2,000.00	1,966.19	1,952.50	1,952.19	7.87	38.23	-5.41	818.07	-144.43	540.85	495.40	45.45	11.899	
2,100.00	2,062.83	2,049.13	2,048.83	8.33	40.04	-5.68	818.07	-144.43	515.23	467.59	47.64	10.816	
2,200.00	2,159.46	2,146.15	2,145.84	8.80	41.85	-5.95	819.00	-144.43	490.53	440.70	49.83	9.844	
2,300.00	2,256.09	2,243.77	2,243.46	9.27	43.67	-6.29	818.81	-144.43	464.74	412.71	52.03	8.931	
2,400.00	2,352.72	2,341.28	2,340.96	9.73	45.49	-6.67	818.41	-144.43	438.77	384.53	54.24	8.090	
2,500.00	2,449.35	2,435.69	2,435.35	10.20	47.35	-7.09	818.07	-144.43	412.86	356.38	56.49	7.309	
2,600.00	2,545.98	2,532.32	2,531.98	10.67	49.40	-7.56	818.07	-144.43	387.32	328.39	58.93	6.573	
2,700.00	2,642.61	2,628.95	2,628.61	11.15	51.46	-8.10	818.07	-144.43	361.81	300.43	61.37	5.895	
2,800.00	2,739.24	2,725.58	2,725.24	11.62	53.52	-8.71	818.07	-144.43	336.33	272.51	63.82	5.270	
2,900.00	2,835.87	2,809.00	2,808.59	12.09	55.29	-9.33	818.07	-144.43	311.17	245.17	66.00	4.715	
2,966.18	2,899.82	2,809.00	2,808.59	12.40	55.29	-9.33	818.07	-144.43	304.05	239.44	64.61	4.706 CC, ES, SF	
3,000.00	2,932.50	2,809.00	2,808.59	12.56	55.29	-9.33	818.07	-144.43	305.93	243.14	62.79	4.872	
3,100.00	3,029.13	2,809.00	2,808.59	13.04	55.29	-9.33	818.07	-144.43	332.20	278.03	54.17	6.132	
3,200.00	3,125.77	2,809.00	2,808.59	13.51	55.29	-9.33	818.07	-144.43	383.57	339.46	44.11	8.696	
3,300.00	3,222.40	2,809.00	2,808.59	13.99	55.29	-9.33	818.07	-144.43	451.54	416.09	35.45	12.739	
3,400.00	3,319.03	2,809.00	2,808.59	14.46	55.29	-9.33	818.07	-144.43	529.77	500.92	28.85	18.364	
3,500.00	3,415.66	2,809.00	2,808.59	14.94	55.29	-9.33	818.07	-144.43	614.34	590.27	24.08	25.518	
3,600.00	3,512.29	2,809.00	2,808.59	15.42	55.29	-9.33	818.07	-144.43	702.98	682.26	20.72	33.922	
3,700.00	3,608.92	2,809.00	2,808.59	15.89	55.29	-9.33	818.07	-144.43	794.32	775.87	18.45	43.047	
3,800.00	3,705.55	2,809.00	2,808.59	16.37	55.29	-9.33	818.07	-144.43	887.53	870.54	17.00	52.222	
3,900.00	3,802.18	2,809.00	2,808.59	16.84	55.29	-9.33	818.07	-144.43	982.08	965.94	16.14	60.838	
4,000.00	3,898.81	2,809.00	2,808.59	17.32	55.29	-9.33	818.07	-144.43	1,077.61	1,061.89	15.72	68.541	
4,100.00	3,995.44	2,809.00	2,808.59	17.80	55.29	-9.33	818.07	-144.43	1,173.89	1,158.29	15.60	75.254	
4,200.00	4,092.07	2,809.00	2,808.59	18.28	55.29	-9.33	818.07	-144.43	1,270.74	1,255.07	15.67	81.086	
4,300.00	4,188.71	2,809.00	2,808.59	18.75	55.29	-9.33	818.07	-144.43	1,368.04	1,352.17	15.87	86.216	
4,400.00	4,285.34	2,809.00	2,808.59	19.23	55.29	-9.33	818.07	-144.43	1,465.71	1,449.57	16.14	90.813	
4,500.00	4,381.97	2,809.00	2,808.59	19.71	55.29	-9.33	818.07	-144.43	1,563.67	1,547.22	16.46	95.018	
4,600.00	4,478.60	2,809.00	2,808.59	20.19	55.29	-9.33	818.07	-144.43	1,661.88	1,645.08	16.80	98.933	
4,700.00	4,575.23	2,809.00	2,808.59	20.67	55.29	-9.33	818.07	-144.43	1,760.28	1,743.13	17.15	102.631	
4,800.00	4,671.86	2,809.00	2,808.59	21.14	55.29	-9.33	818.07	-144.43	1,858.86	1,841.35	17.51	106.162	
4,900.00	4,768.49	2,809.00	2,808.59	21.62	55.29	-9.33	818.07	-144.43	1,957.58	1,939.72	17.87	109.562	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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
5,000.00	4,865.12	2,809.00	2,808.59	22.10	55.29	-9.33	818.07	-144.43	2,056.43	2,038.21	18.22	112.854	
5,100.00	4,961.75	2,809.00	2,808.59	22.58	55.29	-9.33	818.07	-144.43	2,155.38	2,136.81	18.57	116.056	
5,200.00	5,058.38	2,809.00	2,808.59	23.06	55.29	-9.33	818.07	-144.43	2,254.42	2,235.51	18.92	119.179	
5,300.00	5,155.01	2,809.00	2,808.59	23.54	55.29	-9.33	818.07	-144.43	2,353.55	2,334.29	19.25	122.231	
5,400.00	5,251.64	2,809.00	2,808.59	24.01	55.29	-9.33	818.07	-144.43	2,452.74	2,433.16	19.59	125.218	
5,500.00	5,348.28	2,809.00	2,808.59	24.49	55.29	-9.33	818.07	-144.43	2,552.00	2,532.09	19.92	128.144	
5,600.00	5,444.91	2,809.00	2,808.59	24.97	55.29	-9.33	818.07	-144.43	2,651.32	2,631.08	20.24	131.012	
5,700.00	5,541.54	2,809.00	2,808.59	25.45	55.29	-9.33	818.07	-144.43	2,750.68	2,730.13	20.55	133.825	
5,800.00	5,638.17	2,809.00	2,808.59	25.93	55.29	-9.33	818.07	-144.43	2,850.09	2,829.22	20.87	136.583	
5,900.00	5,734.80	2,809.00	2,808.59	26.41	55.29	-9.33	818.07	-144.43	2,949.54	2,928.36	21.18	139.288	
6,000.00	5,831.43	2,809.00	2,808.59	26.89	55.29	-9.33	818.07	-144.43	3,049.02	3,027.54	21.48	141.940	
6,100.00	5,928.06	2,809.00	2,808.59	27.37	55.29	-9.33	818.07	-144.43	3,148.54	3,126.76	21.78	144.542	
6,200.00	6,024.69	2,809.00	2,808.59	27.85	55.29	-9.33	818.07	-144.43	3,248.09	3,226.01	22.08	147.092	
6,300.00	6,121.32	2,809.00	2,808.59	28.33	55.29	-9.33	818.07	-144.43	3,347.66	3,325.28	22.38	149.593	
6,400.00	6,217.95	2,809.00	2,808.59	28.81	55.29	-9.33	818.07	-144.43	3,447.26	3,424.59	22.67	152.043	
6,500.00	6,314.58	2,809.00	2,808.59	29.29	55.29	-9.33	818.07	-144.43	3,546.88	3,523.92	22.97	154.444	
6,543.64	6,356.75	2,809.00	2,808.59	29.49	55.29	-9.33	818.07	-144.43	3,590.36	3,567.27	23.09	155.476	
6,550.00	6,362.90	2,809.00	2,808.59	29.53	55.29	-13.45	818.07	-144.43	3,596.70	3,573.59	23.11	155.626	
6,600.00	6,411.07	2,809.00	2,808.59	29.77	55.29	-29.71	818.07	-144.43	3,646.39	3,623.14	23.26	156.797	
6,650.00	6,458.79	2,809.00	2,808.59	30.01	55.29	-30.26	818.07	-144.43	3,695.67	3,672.27	23.40	157.949	
6,700.00	6,505.76	2,809.00	2,808.59	30.26	55.29	-27.29	818.07	-144.43	3,744.24	3,720.70	23.54	159.067	
6,750.00	6,551.69	2,809.00	2,808.59	30.50	55.29	-24.10	818.07	-144.43	3,791.85	3,768.17	23.68	160.128	
6,800.00	6,596.30	2,809.00	2,808.59	30.74	55.29	-21.35	818.07	-144.43	3,838.23	3,814.41	23.82	161.109	
6,850.00	6,639.32	2,809.00	2,808.59	30.98	55.29	-19.13	818.07	-144.43	3,883.16	3,859.19	23.97	161.984	
6,900.00	6,680.47	2,809.00	2,808.59	31.21	55.29	-17.34	818.07	-144.43	3,926.41	3,902.28	24.13	162.726	
6,950.00	6,719.51	2,809.00	2,808.59	31.44	55.29	-15.91	818.07	-144.43	3,967.77	3,943.48	24.30	163.306	
7,000.00	6,756.20	2,809.00	2,808.59	31.67	55.29	-14.76	818.07	-144.43	4,007.06	3,982.58	24.48	163.698	
7,050.00	6,790.30	2,809.00	2,808.59	31.90	55.29	-13.82	818.07	-144.43	4,044.08	4,019.40	24.68	163.874	
7,100.00	6,821.62	2,809.00	2,808.59	32.13	55.29	-13.06	818.07	-144.43	4,078.69	4,053.79	24.90	163.812	
7,150.00	6,849.95	2,809.00	2,808.59	32.35	55.29	-12.45	818.07	-144.43	4,110.72	4,085.57	25.14	163.489	
7,200.00	6,875.12	2,809.00	2,808.59	32.58	55.29	-11.96	818.07	-144.43	4,140.04	4,114.63	25.42	162.891	
7,250.00	6,896.97	2,809.00	2,808.59	32.81	55.29	-11.57	818.07	-144.43	4,166.54	4,140.82	25.72	162.006	
7,300.00	6,915.38	2,809.00	2,808.59	33.05	55.29	-11.27	818.07	-144.43	4,190.10	4,164.04	26.05	160.830	
7,350.00	6,930.22	2,809.00	2,808.59	33.29	55.29	-11.05	818.07	-144.43	4,210.62	4,184.20	26.42	159.366	
7,400.00	6,941.41	2,809.00	2,808.59	33.53	55.29	-10.90	818.07	-144.43	4,228.04	4,201.21	26.82	157.623	
7,450.00	6,948.88	2,809.00	2,808.59	33.79	55.29	-10.82	818.07	-144.43	4,242.27	4,215.01	27.26	155.617	
7,500.00	6,952.57	2,809.00	2,808.59	34.05	55.29	-10.81	818.07	-144.43	4,253.26	4,225.53	27.73	153.368	
7,525.63	6,953.00	2,809.00	2,808.59	34.19	55.29	-10.83	818.07	-144.43	4,257.63	4,229.64	27.99	152.138	
7,600.00	6,952.79	2,809.00	2,808.59	34.61	55.29	-10.83	818.07	-144.43	4,269.67	4,240.90	28.77	148.394	
7,700.00	6,952.50	2,809.00	2,808.59	35.23	55.29	-10.83	818.07	-144.43	4,287.85	4,257.93	29.92	143.306	
7,800.00	6,952.22	2,809.00	2,808.59	35.91	55.29	-10.83	818.07	-144.43	4,308.28	4,277.12	31.15	138.291	
7,900.00	6,951.93	2,809.00	2,808.59	36.65	55.29	-10.83	818.07	-144.43	4,330.91	4,298.46	32.45	133.446	
8,000.00	6,951.65	2,809.00	2,808.59	37.45	55.29	-10.83	818.07	-144.43	4,355.73	4,321.92	33.81	128.838	
8,100.00	6,951.36	2,809.00	2,808.59	38.29	55.29	-10.83	818.07	-144.43	4,382.69	4,347.49	35.20	124.504	
8,200.00	6,951.08	2,809.00	2,808.59	39.19	55.29	-10.83	818.07	-144.43	4,411.75	4,375.12	36.62	120.465	
8,300.00	6,950.79	2,809.00	2,808.59	40.13	55.29	-10.83	818.07	-144.43	4,442.87	4,404.81	38.06	116.727	
8,400.00	6,950.51	2,809.00	2,808.59	41.11	55.29	-10.83	818.07	-144.43	4,476.01	4,436.50	39.51	113.286	
8,500.00	6,950.22	2,809.00	2,808.59	42.12	55.29	-10.83	818.07	-144.43	4,511.12	4,470.16	40.96	110.132	
8,600.00	6,949.94	2,809.00	2,808.59	43.18	55.29	-10.83	818.07	-144.43	4,548.16	4,505.75	42.41	107.250	
8,700.00	6,949.65	2,809.00	2,808.59	44.26	55.29	-10.83	818.07	-144.43	4,587.08	4,543.24	43.84	104.625	
8,800.00	6,949.37	2,809.00	2,808.59	45.38	55.29	-10.83	818.07	-144.43	4,627.84	4,582.57	45.26	102.240	
8,900.00	6,949.08	2,809.00	2,808.59	46.53	55.29	-10.83	818.07	-144.43	4,670.38	4,623.71	46.67	100.078	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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		
9,000.00	6,948.80	2,809.00	2,808.59	47.70	55.29	-10.83	818.07	-144.43	4,714.66	4,666.61	48.05	98.122		
9,100.00	6,948.51	2,809.00	2,808.59	48.89	55.29	-10.83	818.07	-144.43	4,760.63	4,711.22	49.41	96.357		
9,200.00	6,948.23	2,809.00	2,808.59	50.11	55.29	-10.83	818.07	-144.43	4,808.24	4,757.50	50.74	94.767		
9,300.00	6,947.94	2,809.00	2,808.59	51.35	55.29	-10.83	818.07	-144.43	4,857.44	4,805.40	52.04	93.340		
9,400.00	6,947.66	2,809.00	2,808.59	52.61	55.29	-10.83	818.07	-144.43	4,908.19	4,854.87	53.31	92.061		
9,500.00	6,947.37	2,809.00	2,808.59	53.89	55.29	-10.83	818.07	-144.43	4,960.43	4,905.87	54.56	90.920		
9,600.00	6,947.09	2,809.00	2,808.59	55.18	55.29	-10.83	818.07	-144.43	5,014.12	4,958.35	55.77	89.906		
9,700.00	6,946.80	2,809.00	2,808.59	56.49	55.29	-10.83	818.07	-144.43	5,069.22	5,012.27	56.95	89.008		
9,800.00	6,946.52	2,809.00	2,808.59	57.81	55.29	-10.83	818.07	-144.43	5,125.67	5,067.57	58.10	88.218		
9,900.00	6,946.23	2,809.00	2,808.59	59.15	55.29	-10.83	818.07	-144.43	5,183.45	5,124.22	59.22	87.528		
10,000.00	6,945.95	2,809.00	2,808.59	60.50	55.29	-10.83	818.07	-144.43	5,242.49	5,182.18	60.31	86.930		
10,100.00	6,945.66	2,809.00	2,808.59	61.87	55.29	-10.83	818.07	-144.43	5,302.76	5,241.39	61.36	86.417		
10,200.00	6,945.38	2,809.00	2,808.59	63.24	55.29	-10.83	818.07	-144.43	5,364.21	5,301.83	62.39	85.983		
10,300.00	6,945.09	2,809.00	2,808.59	64.63	55.29	-10.83	818.07	-144.43	5,426.82	5,363.44	63.38	85.623		
10,400.00	6,944.81	2,809.00	2,808.59	66.02	55.29	-10.83	818.07	-144.43	5,490.53	5,426.19	64.34	85.330		
10,500.00	6,944.52	2,809.00	2,808.59	67.42	55.29	-10.83	818.07	-144.43	5,555.31	5,490.03	65.28	85.101		
10,600.00	6,944.24	2,809.00	2,808.59	68.84	55.29	-10.83	818.07	-144.43	5,621.13	5,554.94	66.18	84.931		
10,700.00	6,943.95	2,809.00	2,808.59	70.26	55.29	-10.83	818.07	-144.43	5,687.94	5,620.87	67.06	84.815		
10,800.00	6,943.67	2,809.00	2,808.59	71.68	55.29	-10.83	818.07	-144.43	5,755.71	5,687.80	67.91	84.751		
10,900.00	6,943.38	2,809.00	2,808.59	73.12	55.29	-10.83	818.07	-144.43	5,824.41	5,755.67	68.74	84.735		
11,000.00	6,943.10	2,809.00	2,808.59	74.56	55.29	-10.83	818.07	-144.43	5,894.01	5,824.47	69.53	84.764		
11,100.00	6,942.81	2,809.00	2,808.59	76.01	55.29	-10.83	818.07	-144.43	5,964.47	5,894.16	70.31	84.834		
11,200.00	6,942.53	2,809.00	2,808.59	77.46	55.29	-10.83	818.07	-144.43	6,035.76	5,964.71	71.06	84.944		
11,300.00	6,942.24	2,809.00	2,808.59	78.92	55.29	-10.83	818.07	-144.43	6,107.86	6,036.08	71.78	85.091		
11,400.00	6,941.96	2,809.00	2,808.59	80.39	55.29	-10.83	818.07	-144.43	6,180.74	6,108.26	72.48	85.272		
11,500.00	6,941.67	2,809.00	2,808.59	81.86	55.29	-10.83	818.07	-144.43	6,254.37	6,181.21	73.16	85.486		
11,600.00	6,941.39	2,809.00	2,808.59	83.33	55.29	-10.83	818.07	-144.43	6,328.72	6,254.90	73.82	85.730		
11,700.00	6,941.10	2,809.00	2,808.59	84.81	55.29	-10.83	818.07	-144.43	6,403.77	6,329.31	74.46	86.003		
11,800.00	6,940.81	2,809.00	2,808.59	86.30	55.29	-10.83	818.07	-144.43	6,479.49	6,404.41	75.08	86.303		
11,900.00	6,940.53	2,809.00	2,808.59	87.79	55.29	-10.83	818.07	-144.43	6,555.87	6,480.19	75.68	86.629		
12,000.00	6,940.24	2,809.00	2,808.59	89.28	55.29	-10.83	818.07	-144.43	6,632.87	6,556.61	76.26	86.979		
12,100.00	6,939.96	2,809.00	2,808.59	90.77	55.29	-10.83	818.07	-144.43	6,710.48	6,633.66	76.82	87.352		
12,200.00	6,939.67	2,809.00	2,808.59	92.27	55.29	-10.83	818.07	-144.43	6,788.67	6,711.31	77.37	87.746		
12,300.00	6,939.39	2,809.00	2,808.59	93.78	55.29	-10.83	818.07	-144.43	6,867.43	6,789.54	77.90	88.161		
12,400.00	6,939.10	2,809.00	2,808.59	95.28	55.29	-10.83	818.07	-144.43	6,946.74	6,868.33	78.41	88.595		
12,500.00	6,938.82	2,809.00	2,808.59	96.79	55.29	-10.83	818.07	-144.43	7,026.58	6,947.67	78.91	89.048		
12,600.00	6,938.53	2,809.00	2,808.59	98.30	55.29	-10.83	818.07	-144.43	7,106.92	7,027.53	79.39	89.517		
12,700.00	6,938.25	2,809.00	2,808.59	99.82	55.29	-10.83	818.07	-144.43	7,187.76	7,107.90	79.86	90.003		
12,800.00	6,937.96	2,809.00	2,808.59	101.34	55.29	-10.83	818.07	-144.43	7,269.08	7,188.76	80.32	90.505		
12,900.00	6,937.68	2,809.00	2,808.59	102.86	55.29	-10.83	818.07	-144.43	7,350.85	7,270.09	80.76	91.021		
13,000.00	6,937.39	2,809.00	2,808.59	104.38	55.29	-10.83	818.07	-144.43	7,433.07	7,351.88	81.19	91.551		
13,100.00	6,937.11	2,809.00	2,808.59	105.91	55.29	-10.83	818.07	-144.43	7,515.73	7,434.12	81.61	92.095		
13,200.00	6,936.82	2,809.00	2,808.59	107.43	55.29	-10.83	818.07	-144.43	7,598.80	7,516.78	82.01	92.651		
13,300.00	6,936.54	2,809.00	2,808.59	108.96	55.29	-10.83	818.07	-144.43	7,682.27	7,599.86	82.41	93.220		
13,400.00	6,936.25	2,809.00	2,808.59	110.49	55.29	-10.83	818.07	-144.43	7,766.14	7,683.34	82.80	93.800		
13,500.00	6,935.97	2,809.00	2,808.59	112.03	55.29	-10.83	818.07	-144.43	7,850.38	7,767.21	83.17	94.390		
13,600.00	6,935.68	2,809.00	2,808.59	113.56	55.29	-10.83	818.07	-144.43	7,934.99	7,851.45	83.53	94.991		
13,700.00	6,935.40	2,809.00	2,808.59	115.10	55.29	-10.83	818.07	-144.43	8,019.95	7,936.06	83.89	95.602		
13,800.00	6,935.11	2,809.00	2,808.59	116.64	55.29	-10.83	818.07	-144.43	8,105.25	8,021.02	84.23	96.223		
13,900.00	6,934.83	2,809.00	2,808.59	118.18	55.29	-10.83	818.07	-144.43	8,190.89	8,106.32	84.57	96.852		
14,000.00	6,934.54	2,809.00	2,808.59	119.72	55.29	-10.83	818.07	-144.43	8,276.85	8,191.95	84.90	97.490		
14,100.00	6,934.26	2,809.00	2,808.59	121.26	55.29	-10.83	818.07	-144.43	8,363.12	8,277.90	85.22	98.136		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,933.97	2,809.00	2,808.59	122.81	55.29	-10.83	818.07	-144.43	8,449.70	8,364.16	85.53	98.789	
14,300.00	6,933.69	2,809.00	2,808.59	124.36	55.29	-10.83	818.07	-144.43	8,536.56	8,450.73	85.84	99.451	
14,400.00	6,933.40	2,809.00	2,808.59	125.90	55.29	-10.83	818.07	-144.43	8,623.72	8,537.58	86.13	100.119	
14,500.00	6,933.12	2,809.00	2,808.59	127.45	55.29	-10.83	818.07	-144.43	8,711.15	8,624.72	86.43	100.794	
14,600.00	6,932.83	2,809.00	2,808.59	129.00	55.29	-10.83	818.07	-144.43	8,798.84	8,712.13	86.71	101.475	
14,700.00	6,932.55	2,809.00	2,808.59	130.56	55.29	-10.83	818.07	-144.43	8,886.80	8,799.81	86.99	102.162	
14,800.00	6,932.26	2,809.00	2,808.59	132.11	55.29	-10.83	818.07	-144.43	8,975.01	8,887.75	87.26	102.856	
14,900.00	6,931.98	2,809.00	2,808.59	133.66	55.29	-10.83	818.07	-144.43	9,063.46	8,975.94	87.52	103.554	
15,000.00	6,931.69	2,809.00	2,808.59	135.22	55.29	-10.83	818.07	-144.43	9,152.15	9,064.37	87.78	104.259	
15,100.00	6,931.41	2,809.00	2,808.59	136.77	55.29	-10.83	818.07	-144.43	9,241.07	9,153.04	88.04	104.968	
15,200.00	6,931.12	2,809.00	2,808.59	138.33	55.29	-10.83	818.07	-144.43	9,330.22	9,241.93	88.29	105.682	
15,300.00	6,930.84	2,809.00	2,808.59	139.89	55.29	-10.83	818.07	-144.43	9,419.59	9,331.06	88.53	106.400	
15,400.00	6,930.55	2,809.00	2,808.59	141.45	55.29	-10.83	818.07	-144.43	9,509.16	9,420.39	88.77	107.123	
15,500.00	6,930.27	2,809.00	2,808.59	143.01	55.29	-10.83	818.07	-144.43	9,598.94	9,509.94	89.00	107.851	
15,600.00	6,929.98	2,809.00	2,808.59	144.57	55.29	-10.83	818.07	-144.43	9,688.93	9,599.69	89.23	108.582	
15,700.00	6,929.70	2,809.00	2,808.59	146.13	55.29	-10.83	818.07	-144.43	9,779.10	9,689.65	89.46	109.317	
15,800.00	6,929.41	2,809.00	2,808.59	147.70	55.29	-10.83	818.07	-144.43	9,869.47	9,779.79	89.68	110.055	
15,900.00	6,929.13	2,809.00	2,808.59	149.26	55.29	-10.83	818.07	-144.43	9,960.02	9,870.12	89.89	110.797	
16,000.00	6,928.84	2,809.00	2,808.59	150.82	55.29	-10.83	818.07	-144.43	10,050.75	9,960.64	90.11	111.543	
16,100.00	6,928.56	2,809.00	2,808.59	152.39	55.29	-10.83	818.07	-144.43	10,141.65	10,051.34	90.32	112.291	
16,200.00	6,928.27	2,809.00	2,808.59	153.96	55.29	-10.83	818.07	-144.43	10,232.73	10,142.20	90.52	113.042	
16,300.00	6,927.99	2,809.00	2,808.59	155.52	55.29	-10.83	818.07	-144.43	10,323.96	10,233.24	90.72	113.797	
16,400.00	6,927.70	2,809.00	2,808.59	157.09	55.29	-10.83	818.07	-144.43	10,415.36	10,324.44	90.92	114.553	
16,500.00	6,927.42	2,809.00	2,808.59	158.66	55.29	-10.83	818.07	-144.43	10,506.92	10,415.80	91.12	115.313	
16,600.00	6,927.13	2,809.00	2,808.59	160.23	55.29	-10.83	818.07	-144.43	10,598.63	10,507.32	91.31	116.075	
16,700.00	6,926.85	2,809.00	2,808.59	161.80	55.29	-10.83	818.07	-144.43	10,690.49	10,598.99	91.50	116.839	
16,800.00	6,926.56	2,809.00	2,808.59	163.37	55.29	-10.83	818.07	-144.43	10,782.49	10,690.80	91.68	117.605	
16,900.00	6,926.28	2,809.00	2,808.59	164.94	55.29	-10.83	818.07	-144.43	10,874.63	10,782.76	91.87	118.374	
17,000.00	6,925.99	2,809.00	2,808.59	166.51	55.29	-10.83	818.07	-144.43	10,966.91	10,874.87	92.05	119.144	
17,100.00	6,925.71	2,809.00	2,808.59	168.08	55.29	-10.83	818.07	-144.43	11,059.33	10,967.10	92.23	119.916	
17,200.00	6,925.42	2,809.00	2,808.59	169.65	55.29	-10.83	818.07	-144.43	11,151.87	11,059.47	92.40	120.690	
17,300.00	6,925.14	2,809.00	2,808.59	171.23	55.29	-10.83	818.07	-144.43	11,244.55	11,151.97	92.57	121.465	
17,400.00	6,924.85	2,809.00	2,808.59	172.80	55.29	-10.83	818.07	-144.43	11,337.35	11,244.60	92.74	122.242	
17,500.00	6,924.57	2,809.00	2,808.59	174.37	55.29	-10.83	818.07	-144.43	11,430.27	11,337.35	92.91	123.021	
17,600.00	6,924.28	2,809.00	2,808.59	175.95	55.29	-10.83	818.07	-144.43	11,523.31	11,430.23	93.08	123.801	
17,700.00	6,924.00	2,809.00	2,808.59	177.52	55.29	-10.83	818.07	-144.43	11,616.46	11,523.22	93.24	124.582	
17,800.00	6,923.71	2,809.00	2,808.59	179.10	55.29	-10.83	818.07	-144.43	11,709.73	11,616.32	93.41	125.364	
17,900.00	6,923.43	2,809.00	2,808.59	180.68	55.29	-10.83	818.07	-144.43	11,803.10	11,709.54	93.57	126.147	
18,000.00	6,923.14	2,809.00	2,808.59	182.25	55.29	-10.83	818.07	-144.43	11,896.59	11,802.86	93.72	126.931	
18,100.00	6,922.86	2,809.00	2,808.59	183.83	55.29	-10.83	818.07	-144.43	11,990.18	11,896.30	93.88	127.717	
18,200.00	6,922.57	2,809.00	2,808.59	185.41	55.29	-10.83	818.07	-144.43	12,083.87	11,989.84	94.04	128.503	
18,300.00	6,922.29	2,809.00	2,808.59	186.98	55.29	-10.83	818.07	-144.43	12,177.66	12,083.48	94.19	129.290	
18,400.00	6,922.00	2,809.00	2,808.59	188.56	55.29	-10.83	818.07	-144.43	12,271.56	12,177.22	94.34	130.077	
18,500.00	6,921.71	2,809.00	2,808.59	190.14	55.29	-10.83	818.07	-144.43	12,365.54	12,271.05	94.49	130.866	
18,600.00	6,921.43	2,809.00	2,808.59	191.72	55.29	-10.83	818.07	-144.43	12,459.62	12,364.98	94.64	131.655	
18,700.00	6,921.14	2,809.00	2,808.59	193.30	55.29	-10.83	818.07	-144.43	12,553.80	12,459.01	94.79	132.444	
18,800.00	6,920.86	2,809.00	2,808.59	194.88	55.29	-10.83	818.07	-144.43	12,648.06	12,553.13	94.93	133.234	
18,900.00	6,920.57	2,809.00	2,808.59	196.46	55.29	-10.83	818.07	-144.43	12,742.41	12,647.33	95.08	134.024	
19,000.00	6,920.29	2,809.00	2,808.59	198.04	55.29	-10.83	818.07	-144.43	12,836.84	12,741.62	95.22	134.815	
19,100.00	6,920.00	2,809.00	2,808.59	199.62	55.29	-10.83	818.07	-144.43	12,931.36	12,836.00	95.36	135.606	
19,200.00	6,919.72	2,809.00	2,808.59	201.20	55.29	-10.83	818.07	-144.43	13,025.96	12,930.46	95.50	136.397	
19,300.00	6,919.43	2,809.00	2,808.59	202.78	55.29	-10.83	818.07	-144.43	13,120.64	13,025.00	95.64	137.189	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,919.15	2,809.00	2,808.59	204.36	55.29	-10.83	818.07	-144.43	13,215.40	13,119.62	95.78	137.980	
19,500.00	6,918.86	2,809.00	2,808.59	205.95	55.29	-10.83	818.07	-144.43	13,310.23	13,214.32	95.91	138.772	
19,600.00	6,918.58	2,809.00	2,808.59	207.53	55.29	-10.83	818.07	-144.43	13,405.14	13,309.09	96.05	139.564	
19,700.00	6,918.29	2,809.00	2,808.59	209.11	55.29	-10.83	818.07	-144.43	13,500.13	13,403.94	96.19	140.355	
19,800.00	6,918.01	2,809.00	2,808.59	210.69	55.29	-10.83	818.07	-144.43	13,595.18	13,498.86	96.32	141.147	
19,900.00	6,917.72	2,809.00	2,808.59	212.28	55.29	-10.83	818.07	-144.43	13,690.31	13,593.86	96.45	141.939	
20,000.00	6,917.44	2,809.00	2,808.59	213.86	55.29	-10.83	818.07	-144.43	13,785.50	13,688.92	96.58	142.730	
20,100.00	6,917.15	2,809.00	2,808.59	215.45	55.29	-10.83	818.07	-144.43	13,880.77	13,784.05	96.72	143.522	
20,200.00	6,916.87	2,809.00	2,808.59	217.03	55.29	-10.83	818.07	-144.43	13,976.10	13,879.25	96.85	144.313	
20,300.00	6,916.58	2,809.00	2,808.59	218.61	55.29	-10.83	818.07	-144.43	14,071.49	13,974.51	96.98	145.104	
20,400.00	6,916.30	2,809.00	2,808.59	220.20	55.29	-10.83	818.07	-144.43	14,166.95	14,069.84	97.10	145.894	
20,500.00	6,916.01	2,809.00	2,808.59	221.78	55.29	-10.83	818.07	-144.43	14,262.47	14,165.23	97.23	146.685	
20,600.00	6,915.73	2,809.00	2,808.59	223.37	55.29	-10.83	818.07	-144.43	14,358.05	14,260.69	97.36	147.474	
20,700.00	6,915.44	2,809.00	2,808.59	224.95	55.29	-10.83	818.07	-144.43	14,453.69	14,356.20	97.49	148.264	
20,800.00	6,915.16	2,809.00	2,808.59	226.54	55.29	-10.83	818.07	-144.43	14,549.39	14,451.77	97.61	149.053	
20,855.45	6,915.00	2,809.00	2,808.59	227.42	55.29	-10.83	818.07	-144.43	14,602.48	14,504.80	97.68	149.491	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 (°)	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	86.03	251.10	3,621.69	3,630.49					
100.00	100.00	72.00	72.00	0.25	3.14	86.03	251.10	3,621.69	3,630.39	3,626.99	3.39	1,070.051		
200.00	200.00	172.00	172.00	0.61	7.51	86.03	251.10	3,621.69	3,630.39	3,622.27	8.11	447.394		
300.00	300.00	272.00	272.00	0.97	11.87	86.03	251.10	3,621.69	3,630.39	3,617.55	12.84	282.822		
400.00	400.00	372.00	372.00	1.33	16.23	86.03	251.10	3,621.69	3,630.39	3,612.83	17.56	206.764		
500.00	500.00	472.00	472.00	1.68	20.60	86.03	251.10	3,621.69	3,630.39	3,608.11	22.28	162.945	CC	
600.00	599.98	571.98	571.98	2.04	24.96	92.67	251.10	3,621.69	3,630.47	3,603.47	27.00	134.461		
700.00	699.84	671.84	671.84	2.41	29.31	92.75	251.10	3,621.69	3,630.72	3,599.00	31.72	114.479		
800.00	799.45	771.45	771.45	2.77	33.66	92.88	251.10	3,621.69	3,631.14	3,594.72	36.42	99.696		
900.00	898.70	870.70	870.70	3.13	37.99	93.06	251.10	3,621.69	3,631.78	3,590.66	41.12	88.324		
1,000.00	997.47	969.47	969.47	3.50	42.30	93.28	251.10	3,621.69	3,632.66	3,586.85	45.80	79.309		
1,100.00	1,095.62	1,067.62	1,067.62	3.89	46.58	93.55	251.10	3,621.69	3,633.81	3,583.34	50.47	71.992		
1,200.00	1,193.06	1,165.06	1,165.06	4.30	50.84	93.87	251.10	3,621.69	3,635.31	3,580.18	55.13	65.940		
1,245.75	1,237.35	1,209.35	1,209.35	4.49	52.77	94.03	251.10	3,621.69	3,636.12	3,578.87	57.25	63.509		
1,300.00	1,289.78	1,261.78	1,261.78	4.72	55.06	94.24	251.10	3,621.69	3,637.16	3,577.39	59.77	60.851		
1,400.00	1,386.41	1,358.41	1,358.41	5.15	59.27	94.63	251.10	3,621.69	3,639.22	3,574.80	64.42	56.491		
1,500.00	1,483.04	1,455.04	1,455.04	5.59	63.49	95.02	251.10	3,621.69	3,641.46	3,572.38	69.08	52.716		
1,600.00	1,579.67	1,551.67	1,551.67	6.04	67.70	95.41	251.10	3,621.69	3,643.88	3,570.14	73.74	49.415		
1,700.00	1,676.30	1,648.30	1,648.30	6.49	71.92	95.80	251.10	3,621.69	3,646.48	3,568.07	78.41	46.507		
1,800.00	1,772.93	1,744.93	1,744.93	6.95	76.14	96.19	251.10	3,621.69	3,649.26	3,566.18	83.08	43.926		
1,900.00	1,869.56	1,841.56	1,841.56	7.41	80.35	96.57	251.10	3,621.69	3,652.22	3,564.47	87.75	41.621		
2,000.00	1,966.19	1,938.19	1,938.19	7.87	84.57	96.96	251.10	3,621.69	3,655.35	3,562.93	92.43	39.549		
2,100.00	2,062.83	2,034.83	2,034.83	8.33	88.79	97.35	251.10	3,621.69	3,658.67	3,561.57	97.10	37.678		
2,200.00	2,159.46	2,131.46	2,131.46	8.80	93.00	97.73	251.10	3,621.69	3,662.16	3,560.38	101.78	35.981		
2,300.00	2,256.09	2,228.09	2,228.09	9.27	97.22	98.12	251.10	3,621.69	3,665.83	3,559.37	106.46	34.434		
2,400.00	2,352.72	2,324.72	2,324.72	9.73	101.44	98.50	251.10	3,621.69	3,669.68	3,558.54	111.14	33.018		
2,500.00	2,449.35	2,421.35	2,421.35	10.20	105.65	98.89	251.10	3,621.69	3,673.71	3,557.88	115.82	31.718		
2,600.00	2,545.98	2,517.98	2,517.98	10.67	109.87	99.27	251.10	3,621.69	3,677.91	3,557.40	120.50	30.521		
2,700.00	2,642.61	2,614.61	2,614.61	11.15	114.08	99.65	251.10	3,621.69	3,682.28	3,557.09	125.19	29.414		
2,800.00	2,739.24	2,711.24	2,711.24	11.62	118.30	100.04	251.10	3,621.69	3,686.83	3,556.96	129.87	28.389	ES	
2,900.00	2,835.87	2,807.87	2,807.87	12.09	122.52	100.42	251.10	3,621.69	3,691.55	3,557.00	134.55	27.436		
3,000.00	2,932.50	2,904.50	2,904.50	12.56	126.73	100.80	251.10	3,621.69	3,696.45	3,557.22	139.23	26.548		
3,100.00	3,029.13	3,001.13	3,001.13	13.04	130.95	101.17	251.10	3,621.69	3,701.52	3,557.60	143.92	25.720		
3,200.00	3,125.77	3,097.77	3,097.77	13.51	135.17	101.55	251.10	3,621.69	3,706.76	3,558.16	148.60	24.945		
3,300.00	3,222.40	3,194.40	3,194.40	13.99	139.38	101.93	251.10	3,621.69	3,712.17	3,558.89	153.28	24.218		
3,400.00	3,319.03	3,291.03	3,291.03	14.46	143.60	102.30	251.10	3,621.69	3,717.75	3,559.79	157.96	23.536		
3,500.00	3,415.66	3,387.66	3,387.66	14.94	147.81	102.68	251.10	3,621.69	3,723.51	3,560.86	162.65	22.893		
3,600.00	3,512.29	3,484.29	3,484.29	15.42	152.03	103.05	251.10	3,621.69	3,729.43	3,562.10	167.33	22.288		
3,700.00	3,608.92	3,580.92	3,580.92	15.89	156.25	103.42	251.10	3,621.69	3,735.51	3,563.51	172.01	21.717		
3,800.00	3,705.55	3,677.55	3,677.55	16.37	160.46	103.80	251.10	3,621.69	3,741.77	3,565.08	176.69	21.177		
3,900.00	3,802.18	3,774.18	3,774.18	16.84	164.68	104.17	251.10	3,621.69	3,748.19	3,566.82	181.37	20.666		
4,000.00	3,898.81	3,870.81	3,870.81	17.32	168.90	104.53	251.10	3,621.69	3,754.78	3,568.73	186.05	20.182		
4,100.00	3,995.44	3,967.44	3,967.44	17.80	173.11	104.90	251.10	3,621.69	3,761.53	3,570.80	190.73	19.722		
4,200.00	4,092.07	4,064.07	4,064.07	18.28	177.33	105.27	251.10	3,621.69	3,768.45	3,573.04	195.41	19.285		
4,300.00	4,188.71	4,160.71	4,160.71	18.75	181.55	105.63	251.10	3,621.69	3,775.53	3,575.44	200.08	18.870		
4,400.00	4,285.34	4,257.34	4,257.34	19.23	185.76	106.00	251.10	3,621.69	3,782.77	3,578.00	204.76	18.474		
4,500.00	4,381.97	4,353.97	4,353.97	19.71	189.98	106.36	251.10	3,621.69	3,790.17	3,580.73	209.44	18.097		
4,600.00	4,478.60	4,450.60	4,450.60	20.19	194.19	106.72	251.10	3,621.69	3,797.73	3,583.61	214.11	17.737		
4,700.00	4,575.23	4,547.23	4,547.23	20.67	198.41	107.08	251.10	3,621.69	3,805.45	3,586.66	218.79	17.393		
4,800.00	4,671.86	4,643.86	4,643.86	21.14	202.63	107.44	251.10	3,621.69	3,813.33	3,589.86	223.47	17.065		
4,900.00	4,768.49	4,740.49	4,740.49	21.62	206.84	107.80	251.10	3,621.69	3,821.36	3,593.22	228.14	16.750		
5,000.00	4,865.12	4,837.12	4,837.12	22.10	211.06	108.15	251.10	3,621.69	3,829.56	3,596.74	232.81	16.449		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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							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		
5,100.00	4,961.75	4,933.75	4,933.75	22.58	215.28	108.51	251.10	3,621.69	3,837.90	3,600.42	237.49	16.161		
5,200.00	5,058.38	5,030.38	5,030.38	23.06	219.49	108.86	251.10	3,621.69	3,846.40	3,604.24	242.16	15.884		
5,300.00	5,155.01	5,127.01	5,127.01	23.54	223.71	109.21	251.10	3,621.69	3,855.06	3,608.23	246.83	15.618		
5,400.00	5,251.64	5,223.64	5,223.64	24.01	227.92	109.56	251.10	3,621.69	3,863.86	3,612.36	251.50	15.363		
5,500.00	5,348.28	5,320.28	5,320.28	24.49	232.14	109.91	251.10	3,621.69	3,872.82	3,616.65	256.17	15.118		
5,600.00	5,444.91	5,416.91	5,416.91	24.97	236.36	110.25	251.10	3,621.69	3,881.93	3,621.09	260.84	14.882		
5,700.00	5,541.54	5,513.54	5,513.54	25.45	240.57	110.60	251.10	3,621.69	3,891.18	3,625.68	265.51	14.656		
5,800.00	5,638.17	5,610.17	5,610.17	25.93	244.79	110.94	251.10	3,621.69	3,900.59	3,630.41	270.18	14.437		
5,900.00	5,734.80	5,706.80	5,706.80	26.41	249.01	111.28	251.10	3,621.69	3,910.14	3,635.30	274.84	14.227		
6,000.00	5,831.43	5,803.43	5,803.43	26.89	253.22	111.62	251.10	3,621.69	3,919.84	3,640.33	279.51	14.024		
6,100.00	5,928.06	5,900.06	5,900.06	27.37	257.44	111.96	251.10	3,621.69	3,929.68	3,645.50	284.17	13.828		
6,200.00	6,024.69	5,996.69	5,996.69	27.85	261.66	112.30	251.10	3,621.69	3,939.66	3,650.82	288.84	13.640		
6,300.00	6,121.32	6,093.32	6,093.32	28.33	265.87	112.64	251.10	3,621.69	3,949.79	3,656.29	293.50	13.457		
6,400.00	6,217.95	6,189.95	6,189.95	28.81	270.09	112.97	251.10	3,621.69	3,960.06	3,661.89	298.17	13.281		
6,500.00	6,314.58	6,286.58	6,286.58	29.29	274.30	113.30	251.10	3,621.69	3,970.47	3,667.64	302.83	13.111		
6,543.64	6,356.75	6,328.75	6,328.75	29.49	276.14	113.45	251.10	3,621.69	3,975.05	3,670.19	304.86	13.039		
6,550.00	6,362.90	6,334.90	6,334.90	29.53	276.41	115.61	251.10	3,621.69	3,975.75	3,670.60	305.16	13.029		
6,600.00	6,411.07	6,383.07	6,383.07	29.77	278.51	131.43	251.10	3,621.69	3,983.38	3,675.90	307.48	12.955		
6,650.00	6,458.79	6,430.79	6,430.79	30.01	280.60	144.25	251.10	3,621.69	3,994.71	3,684.94	309.77	12.896		
6,700.00	6,505.76	6,477.76	6,477.76	30.26	282.65	154.07	251.10	3,621.69	4,009.68	3,697.65	312.03	12.850		
6,750.00	6,551.69	6,523.69	6,523.69	30.50	284.65	161.56	251.10	3,621.69	4,028.18	3,713.95	314.23	12.819		
6,800.00	6,596.30	6,568.30	6,568.30	30.74	286.60	167.43	251.10	3,621.69	4,050.08	3,733.73	316.35	12.802		
6,850.00	6,639.32	6,611.32	6,611.32	30.98	288.47	172.22	251.10	3,621.69	4,075.25	3,756.85	318.39	12.799 SF		
6,900.00	6,680.47	6,652.47	6,652.47	31.21	290.27	176.32	251.10	3,621.69	4,103.53	3,783.18	320.34	12.810		
6,950.00	6,719.51	6,691.51	6,691.51	31.44	291.97	-179.98	251.10	3,621.69	4,134.73	3,812.56	322.18	12.834		
7,000.00	6,756.20	6,728.20	6,728.20	31.67	293.57	-176.47	251.10	3,621.69	4,168.68	3,844.78	323.89	12.870		
7,050.00	6,790.30	6,762.30	6,762.30	31.90	295.06	-172.96	251.10	3,621.69	4,205.15	3,879.67	325.48	12.920		
7,100.00	6,821.62	6,793.62	6,793.62	32.13	296.43	-169.25	251.10	3,621.69	4,243.93	3,917.01	326.92	12.981		
7,150.00	6,849.95	6,821.95	6,821.95	32.35	297.66	-165.13	251.10	3,621.69	4,284.78	3,956.56	328.22	13.055		
7,200.00	6,875.12	6,847.12	6,847.12	32.58	298.76	-160.34	251.10	3,621.69	4,327.46	3,998.10	329.36	13.139		
7,250.00	6,896.97	6,868.97	6,868.97	32.81	299.72	-154.53	251.10	3,621.69	4,371.70	4,041.37	330.33	13.234		
7,300.00	6,915.38	6,887.38	6,887.38	33.05	300.52	-147.26	251.10	3,621.69	4,417.24	4,086.11	331.13	13.340		
7,350.00	6,930.22	6,902.22	6,902.22	33.29	301.17	-138.00	251.10	3,621.69	4,463.82	4,132.05	331.77	13.455		
7,400.00	6,941.41	6,913.41	6,913.41	33.53	301.65	-126.29	251.10	3,621.69	4,511.14	4,178.92	332.22	13.579		
7,450.00	6,948.88	6,920.88	6,920.88	33.79	301.98	-112.24	251.10	3,621.69	4,558.93	4,226.44	332.50	13.711		
7,500.00	6,952.57	6,924.57	6,924.57	34.05	302.14	-97.04	251.10	3,621.69	4,606.90	4,274.31	332.59	13.851		
7,525.63	6,953.00	6,925.00	6,925.00	34.19	302.16	-89.46	251.10	3,621.69	4,631.47	4,298.89	332.58	13.926		
7,600.00	6,952.79	6,924.79	6,924.79	34.61	302.15	-89.45	251.10	3,621.69	4,702.72	4,370.27	332.46	14.145		
7,700.00	6,952.50	6,924.50	6,924.50	35.23	302.14	-89.44	251.10	3,621.69	4,798.68	4,466.38	332.31	14.441		
7,800.00	6,952.22	6,924.22	6,924.22	35.91	302.13	-89.42	251.10	3,621.69	4,894.81	4,562.64	332.17	14.736		
7,900.00	6,951.93	6,923.93	6,923.93	36.65	302.11	-89.41	251.10	3,621.69	4,991.08	4,659.04	332.03	15.032		
8,000.00	6,951.65	6,923.65	6,923.65	37.45	302.10	-89.40	251.10	3,621.69	5,087.50	4,755.59	331.91	15.328		
8,100.00	6,951.36	6,923.36	6,923.36	38.29	302.09	-89.39	251.10	3,621.69	5,184.05	4,852.25	331.80	15.624		
8,200.00	6,951.08	6,923.08	6,923.08	39.19	302.08	-89.38	251.10	3,621.69	5,280.73	4,949.04	331.69	15.921		
8,300.00	6,950.79	6,922.79	6,922.79	40.13	302.06	-89.36	251.10	3,621.69	5,377.53	5,045.95	331.59	16.218		
8,400.00	6,950.51	6,922.51	6,922.51	41.11	302.05	-89.35	251.10	3,621.69	5,474.45	5,142.96	331.49	16.515		
8,500.00	6,950.22	6,922.22	6,922.22	42.12	302.04	-89.34	251.10	3,621.69	5,571.48	5,240.08	331.40	16.812		
8,600.00	6,949.94	6,921.94	6,921.94	43.18	302.03	-89.33	251.10	3,621.69	5,668.61	5,337.29	331.32	17.109		
8,700.00	6,949.65	6,921.65	6,921.65	44.26	302.01	-89.31	251.10	3,621.69	5,765.84	5,434.60	331.24	17.407		
8,800.00	6,949.37	6,921.37	6,921.37	45.38	302.00	-89.30	251.10	3,621.69	5,863.16	5,531.99	331.17	17.704		
8,900.00	6,949.08	6,921.08	6,921.08	46.53	301.99	-89.29	251.10	3,621.69	5,960.57	5,629.47	331.10	18.002		
9,000.00	6,948.80	6,920.80	6,920.80	47.70	301.98	-89.28	251.10	3,621.69	6,058.06	5,727.02	331.04	18.300		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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)				
9,100.00	6,948.51	6,920.51	6,920.51	48.89	301.96	-89.27	251.10	3,621.69	6,155.64	5,824.66	330.98	18.598		
9,200.00	6,948.23	6,920.23	6,920.23	50.11	301.95	-89.25	251.10	3,621.69	6,253.29	5,922.36	330.93	18.896		
9,300.00	6,947.94	6,919.94	6,919.94	51.35	301.94	-89.24	251.10	3,621.69	6,351.01	6,020.14	330.88	19.195		
9,400.00	6,947.66	6,919.66	6,919.66	52.61	301.93	-89.23	251.10	3,621.69	6,448.81	6,117.98	330.83	19.493		
9,500.00	6,947.37	6,919.37	6,919.37	53.89	301.91	-89.22	251.10	3,621.69	6,546.67	6,215.88	330.79	19.791		
9,600.00	6,947.09	6,919.09	6,919.09	55.18	301.90	-89.20	251.10	3,621.69	6,644.59	6,313.85	330.75	20.090		
9,700.00	6,946.80	6,918.80	6,918.80	56.49	301.89	-89.19	251.10	3,621.69	6,742.58	6,411.87	330.71	20.388		
9,800.00	6,946.52	6,918.52	6,918.52	57.81	301.88	-89.18	251.10	3,621.69	6,840.62	6,509.94	330.68	20.687		
9,900.00	6,946.23	6,918.23	6,918.23	59.15	301.86	-89.17	251.10	3,621.69	6,938.72	6,608.07	330.65	20.985		
10,000.00	6,945.95	6,917.95	6,917.95	60.50	301.85	-89.16	251.10	3,621.69	7,036.88	6,706.25	330.62	21.284		
10,100.00	6,945.66	6,917.66	6,917.66	61.87	301.84	-89.14	251.10	3,621.69	7,135.08	6,804.48	330.60	21.582		
10,200.00	6,945.38	6,917.38	6,917.38	63.24	301.83	-89.13	251.10	3,621.69	7,233.33	6,902.76	330.58	21.881		
10,300.00	6,945.09	6,917.09	6,917.09	64.63	301.82	-89.12	251.10	3,621.69	7,331.63	7,001.07	330.56	22.179		
10,400.00	6,944.81	6,916.81	6,916.81	66.02	301.80	-89.11	251.10	3,621.69	7,429.98	7,099.44	330.54	22.478		
10,500.00	6,944.52	6,916.52	6,916.52	67.42	301.79	-89.09	251.10	3,621.69	7,528.37	7,197.84	330.53	22.777		
10,600.00	6,944.24	6,916.24	6,916.24	68.84	301.78	-89.08	251.10	3,621.69	7,626.80	7,296.28	330.52	23.075		
10,700.00	6,943.95	6,915.95	6,915.95	70.26	301.77	-89.07	251.10	3,621.69	7,725.27	7,394.76	330.51	23.374		
10,800.00	6,943.67	6,915.67	6,915.67	71.68	301.75	-89.06	251.10	3,621.69	7,823.78	7,493.28	330.50	23.672		
10,900.00	6,943.38	6,915.38	6,915.38	73.12	301.74	-89.05	251.10	3,621.69	7,922.33	7,591.83	330.50	23.971		
11,000.00	6,943.10	6,915.10	6,915.10	74.56	301.73	-89.03	251.10	3,621.69	8,020.92	7,690.42	330.50	24.269		
11,100.00	6,942.81	6,914.81	6,914.81	76.01	301.72	-89.02	251.10	3,621.69	8,119.53	7,789.04	330.50	24.568		
11,200.00	6,942.53	6,914.53	6,914.53	77.46	301.70	-89.01	251.10	3,621.69	8,218.19	7,887.69	330.50	24.866		
11,300.00	6,942.24	6,914.24	6,914.24	78.92	301.69	-89.00	251.10	3,621.69	8,316.87	7,986.37	330.50	25.164		
11,400.00	6,941.96	6,913.96	6,913.96	80.39	301.68	-88.98	251.10	3,621.69	8,415.59	8,085.08	330.50	25.463		
11,500.00	6,941.67	6,913.67	6,913.67	81.86	301.67	-88.97	251.10	3,621.69	8,514.33	8,183.82	330.51	25.761		
11,600.00	6,941.39	6,913.39	6,913.39	83.33	301.65	-88.96	251.10	3,621.69	8,613.11	8,282.59	330.52	26.059		
11,700.00	6,941.10	6,913.10	6,913.10	84.81	301.64	-88.95	251.10	3,621.69	8,711.91	8,381.38	330.53	26.357		
11,800.00	6,940.81	6,912.81	6,912.81	86.30	301.63	-88.94	251.10	3,621.69	8,810.74	8,480.20	330.54	26.655		
11,900.00	6,940.53	6,912.53	6,912.53	87.79	301.62	-88.92	251.10	3,621.69	8,909.59	8,579.04	330.55	26.954		
12,000.00	6,940.24	6,912.24	6,912.24	89.28	301.60	-88.91	251.10	3,621.69	9,008.47	8,677.90	330.57	27.251		
12,100.00	6,939.96	6,911.96	6,911.96	90.77	301.59	-88.90	251.10	3,621.69	9,107.38	8,776.79	330.58	27.549		
12,200.00	6,939.67	6,911.67	6,911.67	92.27	301.58	-88.89	251.10	3,621.69	9,206.31	8,875.70	330.60	27.847		
12,300.00	6,939.39	6,911.39	6,911.39	93.78	301.57	-88.87	251.10	3,621.69	9,305.26	8,974.64	330.62	28.145		
12,400.00	6,939.10	6,911.10	6,911.10	95.28	301.55	-88.86	251.10	3,621.69	9,404.23	9,073.59	330.64	28.442		
12,500.00	6,938.82	6,910.82	6,910.82	96.79	301.54	-88.85	251.10	3,621.69	9,503.23	9,172.56	330.66	28.740		
12,600.00	6,938.53	6,910.53	6,910.53	98.30	301.53	-88.84	251.10	3,621.69	9,602.24	9,271.56	330.69	29.037		
12,700.00	6,938.25	6,910.25	6,910.25	99.82	301.52	-88.83	251.10	3,621.69	9,701.28	9,370.57	330.71	29.335		
12,800.00	6,937.96	6,909.96	6,909.96	101.34	301.50	-88.81	251.10	3,621.69	9,800.33	9,469.60	330.73	29.632		
12,900.00	6,937.68	6,909.68	6,909.68	102.86	301.49	-88.80	251.10	3,621.69	9,899.41	9,568.65	330.76	29.929		
13,000.00	6,937.39	6,909.39	6,909.39	104.38	301.48	-88.79	251.10	3,621.69	9,998.50	9,667.71	330.79	30.226		
13,100.00	6,937.11	6,909.11	6,909.11	105.91	301.47	-88.78	251.10	3,621.69	10,097.61	9,766.79	330.82	30.523		
13,200.00	6,936.82	6,908.82	6,908.82	107.43	301.45	-88.76	251.10	3,621.69	10,196.74	9,865.89	330.85	30.820		
13,300.00	6,936.54	6,908.54	6,908.54	108.96	301.44	-88.75	251.10	3,621.69	10,295.88	9,965.01	330.88	31.117		
13,400.00	6,936.25	6,908.25	6,908.25	110.49	301.43	-88.74	251.10	3,621.69	10,395.05	10,064.13	330.91	31.413		
13,500.00	6,935.97	6,907.97	6,907.97	112.03	301.42	-88.73	251.10	3,621.69	10,494.22	10,163.28	330.95	31.710		
13,600.00	6,935.68	6,907.68	6,907.68	113.56	301.40	-88.72	251.10	3,621.69	10,593.42	10,262.44	330.98	32.006		
13,700.00	6,935.40	6,907.40	6,907.40	115.10	301.39	-88.70	251.10	3,621.69	10,692.62	10,361.61	331.02	32.303		
13,800.00	6,935.11	6,907.11	6,907.11	116.64	301.38	-88.69	251.10	3,621.69	10,791.85	10,460.79	331.05	32.599		
13,900.00	6,934.83	6,906.83	6,906.83	118.18	301.37	-88.68	251.10	3,621.69	10,891.08	10,559.99	331.09	32.895		
14,000.00	6,934.54	6,906.54	6,906.54	119.72	301.35	-88.67	251.10	3,621.69	10,990.33	10,659.21	331.13	33.191		
14,100.00	6,934.26	6,906.26	6,906.26	121.26	301.34	-88.65	251.10	3,621.69	11,089.60	10,758.43	331.17	33.486		
14,200.00	6,933.97	6,905.97	6,905.97	122.81	301.33	-88.64	251.10	3,621.69	11,188.87	10,857.67	331.21	33.782		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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					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	6,933.69	6,905.69	6,905.69	124.36	301.32	-88.63	251.10	3,621.69	11,288.16	10,956.92	331.25	34.078			
14,400.00	6,933.40	6,905.40	6,905.40	125.90	301.31	-88.62	251.10	3,621.69	11,387.47	11,056.18	331.29	34.373			
14,500.00	6,933.12	6,905.12	6,905.12	127.45	301.29	-88.61	251.10	3,621.69	11,486.78	11,155.45	331.33	34.668			
14,600.00	6,932.83	6,904.83	6,904.83	129.00	301.28	-88.59	251.10	3,621.69	11,586.11	11,254.73	331.38	34.963			
14,700.00	6,932.55	6,904.55	6,904.55	130.56	301.27	-88.58	251.10	3,621.69	11,685.44	11,354.02	331.42	35.258			
14,800.00	6,932.26	6,904.26	6,904.26	132.11	301.26	-88.57	251.10	3,621.69	11,784.79	11,453.32	331.47	35.553			
14,900.00	6,931.98	6,903.98	6,903.98	133.66	301.24	-88.56	251.10	3,621.69	11,884.15	11,552.64	331.52	35.848			
15,000.00	6,931.69	6,903.69	6,903.69	135.22	301.23	-88.55	251.10	3,621.69	11,983.52	11,651.96	331.56	36.142			
15,100.00	6,931.41	6,903.41	6,903.41	136.77	301.22	-88.53	251.10	3,621.69	12,082.90	11,751.29	331.61	36.437			
15,200.00	6,931.12	6,903.12	6,903.12	138.33	301.21	-88.52	251.10	3,621.69	12,182.30	11,850.63	331.66	36.731			
15,300.00	6,930.84	6,902.84	6,902.84	139.89	301.19	-88.51	251.10	3,621.69	12,281.70	11,949.98	331.71	37.025			
15,400.00	6,930.55	6,902.55	6,902.55	141.45	301.18	-88.50	251.10	3,621.69	12,381.11	12,049.34	331.76	37.319			
15,500.00	6,930.27	6,902.27	6,902.27	143.01	301.17	-88.48	251.10	3,621.69	12,480.53	12,148.71	331.81	37.613			
15,600.00	6,929.98	6,901.98	6,901.98	144.57	301.16	-88.47	251.10	3,621.69	12,579.96	12,248.09	331.87	37.907			
15,700.00	6,929.70	6,901.70	6,901.70	146.13	301.14	-88.46	251.10	3,621.69	12,679.39	12,347.47	331.92	38.200			
15,800.00	6,929.41	6,901.41	6,901.41	147.70	301.13	-88.45	251.10	3,621.69	12,778.84	12,446.87	331.97	38.493			
15,900.00	6,929.13	6,901.13	6,901.13	149.26	301.12	-88.44	251.10	3,621.69	12,878.30	12,546.27	332.03	38.787			
16,000.00	6,928.84	6,900.84	6,900.84	150.82	301.11	-88.42	251.10	3,621.69	12,977.76	12,645.67	332.08	39.080			
16,100.00	6,928.56	6,900.56	6,900.56	152.39	301.09	-88.41	251.10	3,621.69	13,077.23	12,745.09	332.14	39.373			
16,200.00	6,928.27	6,900.27	6,900.27	153.96	301.08	-88.40	251.10	3,621.69	13,176.71	12,844.51	332.20	39.665			
16,300.00	6,927.99	6,899.99	6,899.99	155.52	301.07	-88.39	251.10	3,621.69	13,276.20	12,943.94	332.26	39.958			
16,400.00	6,927.70	6,899.70	6,899.70	157.09	301.06	-88.37	251.10	3,621.69	13,375.69	13,043.38	332.31	40.250			
16,500.00	6,927.42	6,899.42	6,899.42	158.66	301.04	-88.36	251.10	3,621.69	13,475.20	13,142.82	332.37	40.542			
16,600.00	6,927.13	6,899.13	6,899.13	160.23	301.03	-88.35	251.10	3,621.69	13,574.71	13,242.27	332.43	40.834			
16,700.00	6,926.85	6,898.85	6,898.85	161.80	301.02	-88.34	251.10	3,621.69	13,674.22	13,341.73	332.49	41.126			
16,800.00	6,926.56	6,898.56	6,898.56	163.37	301.01	-88.33	251.10	3,621.69	13,773.75	13,441.19	332.55	41.418			
16,900.00	6,926.28	6,898.28	6,898.28	164.94	300.99	-88.31	251.10	3,621.69	13,873.28	13,540.66	332.62	41.710			
17,000.00	6,925.99	6,897.99	6,897.99	166.51	300.98	-88.30	251.10	3,621.69	13,972.82	13,640.14	332.68	42.001			
17,100.00	6,925.71	6,897.71	6,897.71	168.08	300.97	-88.29	251.10	3,621.69	14,072.36	13,739.62	332.74	42.292			
17,200.00	6,925.42	6,897.42	6,897.42	169.65	300.96	-88.28	251.10	3,621.69	14,171.91	13,839.11	332.80	42.583			
17,300.00	6,925.14	6,897.14	6,897.14	171.23	300.94	-88.26	251.10	3,621.69	14,271.47	13,938.60	332.87	42.874			
17,400.00	6,924.85	6,896.85	6,896.85	172.80	300.93	-88.25	251.10	3,621.69	14,371.03	14,038.10	332.93	43.165			
17,500.00	6,924.57	6,896.57	6,896.57	174.37	300.92	-88.24	251.10	3,621.69	14,470.60	14,137.60	333.00	43.455			
17,600.00	6,924.28	6,896.28	6,896.28	175.95	300.91	-88.23	251.10	3,621.69	14,570.18	14,237.11	333.07	43.746			
17,700.00	6,924.00	6,896.00	6,896.00	177.52	300.89	-88.22	251.10	3,621.69	14,669.76	14,336.62	333.13	44.036			
17,800.00	6,923.71	6,895.71	6,895.71	179.10	300.88	-88.20	251.10	3,621.69	14,769.34	14,436.14	333.20	44.326			
17,900.00	6,923.43	6,895.43	6,895.43	180.68	300.87	-88.19	251.10	3,621.69	14,868.94	14,535.67	333.27	44.616			
18,000.00	6,923.14	6,895.14	6,895.14	182.25	300.86	-88.18	251.10	3,621.69	14,968.53	14,635.20	333.34	44.905			
18,100.00	6,922.86	6,894.86	6,894.86	183.83	300.84	-88.17	251.10	3,621.69	15,068.14	14,734.73	333.41	45.195			
18,200.00	6,922.57	6,894.57	6,894.57	185.41	300.83	-88.15	251.10	3,621.69	15,167.74	14,834.27	333.47	45.484			
18,300.00	6,922.29	6,894.29	6,894.29	186.98	300.82	-88.14	251.10	3,621.69	15,267.36	14,933.81	333.55	45.773			
18,400.00	6,922.00	6,894.00	6,894.00	188.56	300.81	-88.13	251.10	3,621.69	15,366.98	15,033.36	333.62	46.062			
18,500.00	6,921.71	6,893.71	6,893.71	190.14	300.80	-88.12	251.10	3,621.69	15,466.60	15,132.91	333.69	46.351			
18,600.00	6,921.43	6,893.43	6,893.43	191.72	300.78	-88.11	251.10	3,621.69	15,566.23	15,232.47	333.76	46.639			
18,700.00	6,921.14	6,893.14	6,893.14	193.30	300.77	-88.09	251.10	3,621.69	15,665.86	15,332.03	333.83	46.927			
18,800.00	6,920.86	6,892.86	6,892.86	194.88	300.76	-88.08	251.10	3,621.69	15,765.50	15,431.59	333.90	47.216			
18,900.00	6,920.57	6,892.57	6,892.57	196.46	300.75	-88.07	251.10	3,621.69	15,865.14	15,531.16	333.98	47.504			
19,000.00	6,920.29	6,892.29	6,892.29	198.04	300.73	-88.06	251.10	3,621.69	15,964.78	15,630.73	334.05	47.791			
19,100.00	6,920.00	6,892.00	6,892.00	199.62	300.72	-88.04	251.10	3,621.69	16,064.43	15,730.31	334.13	48.079			
19,200.00	6,919.72	6,891.72	6,891.72	201.20	300.71	-88.03	251.10	3,621.69	16,164.09	15,829.89	334.20	48.366			
19,300.00	6,919.43	6,891.43	6,891.43	202.78	300.70	-88.02	251.10	3,621.69	16,263.75	15,929.47	334.28	48.654			
19,400.00	6,919.15	6,891.15	6,891.15	204.36	300.68	-88.01	251.10	3,621.69	16,363.41	16,029.06	334.35	48.941			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)				
19,500.00	6,918.86	6,890.86	6,890.86	205.95	300.67	-88.00	251.10	3,621.69	16,463.08	16,128.65	334.43	49.227		
19,600.00	6,918.58	6,890.58	6,890.58	207.53	300.66	-87.98	251.10	3,621.69	16,562.75	16,228.25	334.51	49.514		
19,700.00	6,918.29	6,890.29	6,890.29	209.11	300.65	-87.97	251.10	3,621.69	16,662.43	16,327.84	334.58	49.800		
19,800.00	6,918.01	6,890.01	6,890.01	210.69	300.63	-87.96	251.10	3,621.69	16,762.11	16,427.44	334.66	50.087		
19,900.00	6,917.72	6,889.72	6,889.72	212.28	300.62	-87.95	251.10	3,621.69	16,861.79	16,527.05	334.74	50.373		
20,000.00	6,917.44	6,889.44	6,889.44	213.86	300.61	-87.93	251.10	3,621.69	16,961.48	16,626.66	334.82	50.659		
20,100.00	6,917.15	6,889.15	6,889.15	215.45	300.60	-87.92	251.10	3,621.69	17,061.17	16,726.27	334.90	50.944		
20,200.00	6,916.87	6,888.87	6,888.87	217.03	300.58	-87.91	251.10	3,621.69	17,160.86	16,825.88	334.98	51.230		
20,300.00	6,916.58	6,888.58	6,888.58	218.61	300.57	-87.90	251.10	3,621.69	17,260.56	16,925.50	335.06	51.515		
20,400.00	6,916.30	6,888.30	6,888.30	220.20	300.56	-87.89	251.10	3,621.69	17,360.26	17,025.12	335.14	51.800		
20,500.00	6,916.01	6,888.01	6,888.01	221.78	300.55	-87.87	251.10	3,621.69	17,459.96	17,124.74	335.22	52.085		
20,600.00	6,915.73	6,887.73	6,887.73	223.37	300.53	-87.86	251.10	3,621.69	17,559.67	17,224.37	335.30	52.370		
20,700.00	6,915.44	6,887.44	6,887.44	224.95	300.52	-87.85	251.10	3,621.69	17,659.38	17,324.00	335.38	52.654		
20,800.00	6,915.16	6,887.16	6,887.16	226.54	300.51	-87.84	251.10	3,621.69	17,759.10	17,423.63	335.47	52.938		
20,855.45	6,915.00	6,887.00	6,887.00	227.42	300.50	-87.83	251.10	3,621.69	17,814.39	17,478.88	335.51	53.096		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		
0.00	0.00	312.72	312.72	0.00	4.24	82.58	1,001.20	7,692.00	7,756.88					
100.00	100.00	411.01	411.00	0.25	6.52	82.58	1,001.16	7,692.00	7,756.88	7,750.11	6.77	1,145.836		
200.00	200.00	514.54	514.52	0.61	9.02	82.58	1,001.64	7,691.99	7,756.94	7,747.31	9.63	805.906		
300.00	300.00	611.10	611.00	0.97	11.48	82.58	1,001.16	7,692.00	7,756.88	7,744.43	12.44	623.379		
400.00	400.00	711.10	711.00	1.33	14.61	82.58	1,001.16	7,692.00	7,756.88	7,740.94	15.94	486.762		
500.00	500.00	814.22	814.09	1.68	17.84	82.57	1,002.75	7,691.99	7,757.08	7,737.55	19.53	397.273		
600.00	599.98	924.52	924.36	2.04	21.30	89.21	1,001.84	7,691.99	7,756.95	7,733.61	23.34	332.341		
700.00	699.84	1,011.23	1,010.84	2.41	24.25	89.25	1,001.16	7,692.00	7,756.78	7,730.13	26.65	291.039		
800.00	799.45	1,110.85	1,110.45	2.77	27.93	89.32	1,001.16	7,692.00	7,756.67	7,725.98	30.69	252.728		
850.50	849.63	1,161.02	1,160.63	2.95	29.78	89.36	1,001.16	7,692.00	7,756.60	7,723.87	32.73	236.988		
900.00	898.70	1,215.35	1,214.90	3.13	31.79	89.40	1,003.19	7,691.99	7,756.79	7,721.87	34.92	222.142		
1,000.00	997.47	1,325.85	1,325.35	3.50	35.87	89.54	1,001.92	7,691.99	7,756.50	7,717.12	39.37	196.991		
1,100.00	1,095.62	1,407.48	1,406.62	3.89	39.01	89.67	1,001.16	7,692.00	7,756.25	7,713.35	42.90	180.788		
1,160.40	1,154.57	1,466.42	1,465.57	4.14	41.36	89.76	1,001.16	7,692.00	7,756.18	7,710.69	45.50	170.479		
1,200.00	1,193.06	1,509.37	1,508.46	4.30	43.07	89.83	1,002.70	7,691.99	7,756.33	7,708.96	47.37	163.745		
1,245.75	1,237.35	1,564.39	1,563.46	4.49	45.27	89.93	1,002.11	7,691.99	7,756.25	7,706.49	49.75	155.897		
1,300.00	1,289.78	1,629.11	1,628.13	4.72	47.85	90.07	1,000.59	7,692.00	7,756.09	7,703.53	52.56	147.560		
1,307.20	1,296.74	1,637.67	1,636.67	4.75	48.19	90.09	1,000.32	7,692.00	7,756.07	7,703.14	52.93	146.522 CC		
1,400.00	1,386.41	1,698.60	1,697.41	5.15	50.64	90.20	1,001.16	7,692.00	7,756.16	7,700.37	55.79	139.033		
1,500.00	1,483.04	1,803.21	1,801.95	5.59	54.83	90.38	1,002.79	7,691.99	7,756.47	7,696.05	60.42	128.374		
1,600.00	1,579.67	1,916.78	1,915.44	6.04	59.38	90.61	1,000.54	7,692.00	7,756.49	7,691.07	65.42	118.563		
1,604.45	1,583.97	1,896.55	1,894.97	6.06	58.57	90.57	1,001.16	7,692.00	7,756.52	7,691.89	64.63	120.006		
1,700.00	1,676.30	1,988.88	1,987.30	6.49	62.53	90.75	1,001.16	7,692.00	7,756.82	7,687.80	69.02	112.388		
1,800.00	1,772.93	2,097.71	2,096.05	6.95	67.19	90.95	1,002.21	7,691.99	7,757.32	7,683.19	74.13	104.642		
1,900.00	1,869.56	2,182.55	2,180.56	7.41	70.96	91.11	1,001.16	7,692.00	7,757.68	7,679.32	78.36	98.997		
2,000.00	1,966.19	2,280.22	2,278.17	7.87	75.53	91.29	1,003.08	7,691.99	7,758.42	7,675.02	83.40	93.024		
2,100.00	2,062.83	2,396.37	2,394.23	8.33	80.98	91.52	1,001.29	7,692.00	7,758.93	7,669.62	89.31	86.877		
2,200.00	2,159.46	2,472.95	2,470.46	8.80	84.39	91.67	1,001.16	7,692.00	7,759.62	7,666.44	93.18	83.273		
2,300.00	2,256.09	2,579.36	2,576.76	9.27	89.11	91.86	1,002.72	7,691.99	7,760.57	7,662.20	98.37	78.892		
2,400.00	2,352.72	2,666.64	2,663.72	9.73	92.84	92.03	1,001.16	7,692.00	7,761.34	7,658.77	102.57	75.672		
2,500.00	2,449.35	2,763.71	2,760.76	10.20	96.50	92.21	1,002.67	7,691.99	7,762.44	7,655.74	106.70	72.751		
2,600.00	2,545.98	2,874.57	2,871.54	10.67	100.68	92.43	1,001.19	7,692.00	7,763.41	7,652.06	111.35	69.719		
2,700.00	2,642.61	2,956.80	2,953.61	11.15	104.11	92.58	1,001.16	7,692.00	7,764.56	7,649.30	115.25	67.370		
2,800.00	2,739.24	3,053.43	3,050.24	11.62	108.15	92.77	1,001.16	7,692.00	7,765.80	7,646.04	119.76	64.845		
2,900.00	2,835.87	3,153.38	3,150.13	12.09	112.32	92.94	1,003.25	7,691.99	7,767.26	7,642.85	124.40	62.436		
3,000.00	2,932.50	3,254.76	3,251.46	12.56	116.55	93.14	1,002.03	7,691.99	7,768.59	7,639.48	129.11	60.171		
3,100.00	3,029.13	3,343.96	3,340.13	13.04	120.52	93.32	1,001.16	7,692.00	7,770.04	7,636.49	133.54	58.183		
3,200.00	3,125.77	3,440.59	3,436.77	13.51	125.07	93.50	1,001.16	7,692.00	7,771.62	7,633.04	138.57	56.082		
3,300.00	3,222.40	3,537.22	3,533.40	13.99	129.63	93.68	1,001.16	7,692.00	7,773.29	7,629.68	143.61	54.130		
3,400.00	3,319.03	3,574.00	3,569.63	14.46	131.36	93.75	1,001.16	7,692.00	7,775.27	7,629.47	145.81	53.325 ES		
3,500.00	3,415.66	3,574.00	3,569.63	14.94	131.36	93.75	1,001.16	7,692.00	7,778.46	7,632.21	146.26	53.184		
3,600.00	3,512.29	3,574.00	3,569.63	15.42	131.36	93.75	1,001.16	7,692.00	7,782.93	7,636.25	146.68	53.060		
3,700.00	3,608.92	3,574.00	3,569.63	15.89	131.36	93.75	1,001.16	7,692.00	7,788.69	7,641.60	147.08	52.954		
3,800.00	3,705.55	3,574.00	3,569.63	16.37	131.36	93.75	1,001.16	7,692.00	7,795.72	7,648.25	147.46	52.866		
3,900.00	3,802.18	3,574.00	3,569.63	16.84	131.36	93.75	1,001.16	7,692.00	7,804.02	7,656.20	147.82	52.794		
4,000.00	3,898.81	3,574.00	3,569.63	17.32	131.36	93.75	1,001.16	7,692.00	7,813.60	7,665.45	148.15	52.739		
4,100.00	3,995.44	3,574.00	3,569.63	17.80	131.36	93.75	1,001.16	7,692.00	7,824.45	7,675.98	148.47	52.702		
4,200.00	4,092.07	3,574.00	3,569.63	18.28	131.36	93.75	1,001.16	7,692.00	7,836.55	7,687.80	148.76	52.681		
4,300.00	4,188.71	3,574.00	3,569.63	18.75	131.36	93.75	1,001.16	7,692.00	7,849.91	7,700.89	149.02	52.676 SF		
4,400.00	4,285.34	3,574.00	3,569.63	19.23	131.36	93.75	1,001.16	7,692.00	7,864.52	7,715.26	149.27	52.688		
4,500.00	4,381.97	3,574.00	3,569.63	19.71	131.36	93.75	1,001.16	7,692.00	7,880.37	7,730.89	149.49	52.716		
4,600.00	4,478.60	3,574.00	3,569.63	20.19	131.36	93.75	1,001.16	7,692.00	7,897.46	7,747.77	149.69	52.759		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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
4,700.00	4,575.23	3,574.00	3,569.63	20.67	131.36	93.75	1,001.16	7,692.00	7,915.77	7,765.91	149.87	52.819
4,800.00	4,671.86	3,574.00	3,569.63	21.14	131.36	93.75	1,001.16	7,692.00	7,935.30	7,785.28	150.02	52.894
4,900.00	4,768.49	3,574.00	3,569.63	21.62	131.36	93.75	1,001.16	7,692.00	7,956.04	7,805.88	150.16	52.984
5,000.00	4,865.12	3,574.00	3,569.63	22.10	131.36	93.75	1,001.16	7,692.00	7,977.98	7,827.71	150.27	53.090
5,100.00	4,961.75	3,574.00	3,569.63	22.58	131.36	93.75	1,001.16	7,692.00	8,001.11	7,850.75	150.37	53.211
5,200.00	5,058.38	3,574.00	3,569.63	23.06	131.36	93.75	1,001.16	7,692.00	8,025.42	7,874.98	150.44	53.346
5,300.00	5,155.01	3,574.00	3,569.63	23.54	131.36	93.75	1,001.16	7,692.00	8,050.90	7,900.41	150.49	53.497
5,400.00	5,251.64	3,574.00	3,569.63	24.01	131.36	93.75	1,001.16	7,692.00	8,077.53	7,927.01	150.53	53.662
5,500.00	5,348.28	3,574.00	3,569.63	24.49	131.36	93.75	1,001.16	7,692.00	8,105.31	7,954.77	150.54	53.841
5,600.00	5,444.91	3,574.00	3,569.63	24.97	131.36	93.75	1,001.16	7,692.00	8,134.23	7,983.69	150.54	54.034
5,700.00	5,541.54	3,574.00	3,569.63	25.45	131.36	93.75	1,001.16	7,692.00	8,164.27	8,013.75	150.52	54.242
5,800.00	5,638.17	3,574.00	3,569.63	25.93	131.36	93.75	1,001.16	7,692.00	8,195.42	8,044.94	150.48	54.463
5,900.00	5,734.80	3,574.00	3,569.63	26.41	131.36	93.75	1,001.16	7,692.00	8,227.66	8,077.24	150.42	54.698
6,000.00	5,831.43	3,574.00	3,569.63	26.89	131.36	93.75	1,001.16	7,692.00	8,261.00	8,110.65	150.35	54.946
6,100.00	5,928.06	3,574.00	3,569.63	27.37	131.36	93.75	1,001.16	7,692.00	8,295.40	8,145.14	150.26	55.208
6,200.00	6,024.69	3,574.00	3,569.63	27.85	131.36	93.75	1,001.16	7,692.00	8,330.86	8,180.71	150.15	55.483
6,300.00	6,121.32	3,574.00	3,569.63	28.33	131.36	93.75	1,001.16	7,692.00	8,367.36	8,217.33	150.03	55.771
6,400.00	6,217.95	3,574.00	3,569.63	28.81	131.36	93.75	1,001.16	7,692.00	8,404.90	8,255.01	149.90	56.071
6,500.00	6,314.58	3,574.00	3,569.63	29.29	131.36	93.75	1,001.16	7,692.00	8,443.46	8,293.71	149.75	56.385
6,543.64	6,356.75	3,574.00	3,569.63	29.49	131.36	93.75	1,001.16	7,692.00	8,460.60	8,310.92	149.68	56.525
6,550.00	6,362.90	3,574.00	3,569.63	29.53	131.36	95.86	1,001.16	7,692.00	8,463.14	8,313.47	149.67	56.546
6,600.00	6,411.07	3,574.00	3,569.63	29.77	131.36	111.20	1,001.16	7,692.00	8,485.27	8,335.67	149.59	56.722
6,650.00	6,458.79	3,574.00	3,569.63	30.01	131.36	123.42	1,001.16	7,692.00	8,511.06	8,361.53	149.52	56.921
6,700.00	6,505.76	3,574.00	3,569.63	30.26	131.36	132.49	1,001.16	7,692.00	8,540.32	8,390.86	149.46	57.142
6,750.00	6,551.69	3,574.00	3,569.63	30.50	131.36	139.07	1,001.16	7,692.00	8,572.85	8,423.45	149.40	57.382
6,800.00	6,596.30	3,574.00	3,569.63	30.74	131.36	143.83	1,001.16	7,692.00	8,608.39	8,459.05	149.34	57.641
6,850.00	6,639.32	3,574.00	3,569.63	30.98	131.36	147.26	1,001.16	7,692.00	8,646.71	8,497.41	149.30	57.917
6,900.00	6,680.47	3,574.00	3,569.63	31.21	131.36	149.70	1,001.16	7,692.00	8,687.52	8,538.26	149.25	58.206
6,950.00	6,719.51	3,574.00	3,569.63	31.44	131.36	151.31	1,001.16	7,692.00	8,730.54	8,581.32	149.22	58.508
7,000.00	6,756.20	3,574.00	3,569.63	31.67	131.36	152.16	1,001.16	7,692.00	8,775.48	8,626.28	149.20	58.819
7,050.00	6,790.30	3,574.00	3,569.63	31.90	131.36	152.16	1,001.16	7,692.00	8,822.02	8,672.84	149.18	59.137
7,100.00	6,821.62	3,574.00	3,569.63	32.13	131.36	150.95	1,001.16	7,692.00	8,869.87	8,720.70	149.17	59.460
7,150.00	6,849.95	3,574.00	3,569.63	32.35	131.36	147.36	1,001.16	7,692.00	8,918.71	8,769.53	149.18	59.785
7,200.00	6,875.12	3,574.00	3,569.63	32.58	131.36	136.69	1,001.16	7,692.00	8,968.22	8,819.03	149.20	60.110
7,250.00	6,896.97	3,574.00	3,569.63	32.81	131.36	88.85	1,001.16	7,692.00	9,018.09	8,868.87	149.22	60.433
7,300.00	6,915.38	3,574.00	3,569.63	33.05	131.36	18.29	1,001.16	7,692.00	9,068.01	8,918.75	149.27	60.751
7,350.00	6,930.22	3,574.00	3,569.63	33.29	131.36	1.84	1,001.16	7,692.00	9,117.67	8,968.35	149.32	61.061
7,400.00	6,941.41	3,574.00	3,569.63	33.53	131.36	-3.71	1,001.16	7,692.00	9,166.78	9,017.39	149.39	61.362
7,450.00	6,948.88	3,574.00	3,569.63	33.79	131.36	-6.41	1,001.16	7,692.00	9,215.03	9,065.56	149.47	61.650
7,500.00	6,952.57	3,574.00	3,569.63	34.05	131.36	-8.02	1,001.16	7,692.00	9,262.16	9,112.58	149.57	61.924
7,525.63	6,953.00	3,574.00	3,569.63	34.19	131.36	-8.63	1,001.16	7,692.00	9,285.79	9,136.16	149.63	62.058
7,600.00	6,952.79	3,574.00	3,569.63	34.61	131.36	-8.63	1,001.16	7,692.00	9,353.83	9,204.02	149.81	62.439
7,700.00	6,952.50	3,574.00	3,569.63	35.23	131.36	-8.63	1,001.16	7,692.00	9,445.48	9,295.43	150.05	62.951
7,800.00	6,952.22	3,574.00	3,569.63	35.91	131.36	-8.63	1,001.16	7,692.00	9,537.29	9,387.01	150.28	63.463
7,900.00	6,951.93	3,574.00	3,569.63	36.65	131.36	-8.63	1,001.16	7,692.00	9,629.27	9,478.75	150.51	63.977
8,000.00	6,951.65	3,574.00	3,569.63	37.45	131.36	-8.63	1,001.16	7,692.00	9,721.40	9,570.66	150.74	64.491
8,100.00	6,951.36	3,574.00	3,569.63	38.29	131.36	-8.63	1,001.16	7,692.00	9,813.69	9,662.72	150.97	65.006
8,200.00	6,951.08	3,574.00	3,569.63	39.19	131.36	-8.63	1,001.16	7,692.00	9,906.13	9,754.94	151.19	65.522
8,300.00	6,950.79	3,574.00	3,569.63	40.13	131.36	-8.63	1,001.16	7,692.00	9,998.71	9,847.30	151.41	66.038
8,400.00	6,950.51	3,574.00	3,569.63	41.11	131.36	-8.63	1,001.16	7,692.00	10,091.44	9,939.81	151.62	66.556
8,500.00	6,950.22	3,574.00	3,569.63	42.12	131.36	-8.63	1,001.16	7,692.00	10,184.30	10,032.46	151.84	67.074
8,600.00	6,949.94	3,574.00	3,569.63	43.18	131.36	-8.63	1,001.16	7,692.00	10,277.30	10,125.25	152.05	67.592

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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							
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
8,700.00	6,949.65	3,574.00	3,569.63	44.26	131.36	-8.63	1,001.16	7,692.00	10,370.42	10,218.17	152.26	68.111	
8,800.00	6,949.37	3,574.00	3,569.63	45.38	131.36	-8.63	1,001.16	7,692.00	10,463.68	10,311.22	152.46	68.631	
8,900.00	6,949.08	3,574.00	3,569.63	46.53	131.36	-8.63	1,001.16	7,692.00	10,557.06	10,404.39	152.67	69.151	
9,000.00	6,948.80	3,574.00	3,569.63	47.70	131.36	-8.63	1,001.16	7,692.00	10,650.55	10,497.69	152.87	69.672	
9,100.00	6,948.51	3,574.00	3,569.63	48.89	131.36	-8.63	1,001.16	7,692.00	10,744.17	10,591.10	153.07	70.193	
9,200.00	6,948.23	3,574.00	3,569.63	50.11	131.36	-8.63	1,001.16	7,692.00	10,837.90	10,684.64	153.26	70.714	
9,300.00	6,947.94	3,574.00	3,569.63	51.35	131.36	-8.63	1,001.16	7,692.00	10,931.74	10,778.28	153.46	71.237	
9,400.00	6,947.66	3,574.00	3,569.63	52.61	131.36	-8.63	1,001.16	7,692.00	11,025.69	10,872.04	153.65	71.759	
9,500.00	6,947.37	3,574.00	3,569.63	53.89	131.36	-8.63	1,001.16	7,692.00	11,119.74	10,965.90	153.84	72.282	
9,600.00	6,947.09	3,574.00	3,569.63	55.18	131.36	-8.63	1,001.16	7,692.00	11,213.90	11,059.87	154.03	72.805	
9,700.00	6,946.80	3,574.00	3,569.63	56.49	131.36	-8.63	1,001.16	7,692.00	11,308.16	11,153.94	154.21	73.328	
9,800.00	6,946.52	3,574.00	3,569.63	57.81	131.36	-8.63	1,001.16	7,692.00	11,402.51	11,248.11	154.40	73.852	
9,900.00	6,946.23	3,574.00	3,569.63	59.15	131.36	-8.63	1,001.16	7,692.00	11,496.96	11,342.38	154.58	74.376	
10,000.00	6,945.95	3,574.00	3,569.63	60.50	131.36	-8.63	1,001.16	7,692.00	11,591.50	11,436.75	154.76	74.901	
10,100.00	6,945.66	3,574.00	3,569.63	61.87	131.36	-8.63	1,001.16	7,692.00	11,686.14	11,531.20	154.94	75.425	
10,200.00	6,945.38	3,574.00	3,569.63	63.24	131.36	-8.63	1,001.16	7,692.00	11,780.86	11,625.75	155.11	75.950	
10,300.00	6,945.09	3,574.00	3,569.63	64.63	131.36	-8.63	1,001.16	7,692.00	11,875.67	11,720.38	155.29	76.475	
10,400.00	6,944.81	3,574.00	3,569.63	66.02	131.36	-8.63	1,001.16	7,692.00	11,970.57	11,815.11	155.46	77.000	
10,500.00	6,944.52	3,574.00	3,569.63	67.42	131.36	-8.63	1,001.16	7,692.00	12,065.54	11,909.91	155.63	77.526	
10,600.00	6,944.24	3,574.00	3,569.63	68.84	131.36	-8.63	1,001.16	7,692.00	12,160.60	12,004.80	155.80	78.051	
10,700.00	6,943.95	3,574.00	3,569.63	70.26	131.36	-8.63	1,001.16	7,692.00	12,255.74	12,099.76	155.97	78.577	
10,800.00	6,943.67	3,574.00	3,569.63	71.68	131.36	-8.63	1,001.16	7,692.00	12,350.95	12,194.81	156.14	79.103	
10,900.00	6,943.38	3,574.00	3,569.63	73.12	131.36	-8.63	1,001.16	7,692.00	12,446.24	12,289.93	156.30	79.629	
11,000.00	6,943.10	3,574.00	3,569.63	74.56	131.36	-8.63	1,001.16	7,692.00	12,541.60	12,385.13	156.47	80.155	
11,100.00	6,942.81	3,574.00	3,569.63	76.01	131.36	-8.63	1,001.16	7,692.00	12,637.03	12,480.40	156.63	80.681	
11,200.00	6,942.53	3,574.00	3,569.63	77.46	131.36	-8.63	1,001.16	7,692.00	12,732.53	12,575.74	156.79	81.207	
11,300.00	6,942.24	3,574.00	3,569.63	78.92	131.36	-8.63	1,001.16	7,692.00	12,828.10	12,671.15	156.95	81.733	
11,400.00	6,941.96	3,574.00	3,569.63	80.39	131.36	-8.63	1,001.16	7,692.00	12,923.74	12,766.63	157.11	82.259	
11,500.00	6,941.67	3,574.00	3,569.63	81.86	131.36	-8.63	1,001.16	7,692.00	13,019.45	12,862.18	157.27	82.785	
11,600.00	6,941.39	3,574.00	3,569.63	83.33	131.36	-8.63	1,001.16	7,692.00	13,115.21	12,957.79	157.42	83.312	
11,700.00	6,941.10	3,574.00	3,569.63	84.81	131.36	-8.63	1,001.16	7,692.00	13,211.05	13,053.47	157.58	83.838	
11,800.00	6,940.81	3,574.00	3,569.63	86.30	131.36	-8.63	1,001.16	7,692.00	13,306.94	13,149.21	157.73	84.364	
11,900.00	6,940.53	3,574.00	3,569.63	87.79	131.36	-8.63	1,001.16	7,692.00	13,402.89	13,245.00	157.89	84.890	
12,000.00	6,940.24	3,574.00	3,569.63	89.28	131.36	-8.63	1,001.16	7,692.00	13,498.90	13,340.86	158.04	85.416	
12,100.00	6,939.96	3,574.00	3,569.63	90.77	131.36	-8.63	1,001.16	7,692.00	13,594.97	13,436.78	158.19	85.942	
12,200.00	6,939.67	3,574.00	3,569.63	92.27	131.36	-8.63	1,001.16	7,692.00	13,691.09	13,532.76	158.34	86.468	
12,300.00	6,939.39	3,574.00	3,569.63	93.78	131.36	-8.63	1,001.16	7,692.00	13,787.27	13,628.79	158.49	86.994	
12,400.00	6,939.10	3,574.00	3,569.63	95.28	131.36	-8.63	1,001.16	7,692.00	13,883.51	13,724.87	158.63	87.519	
12,500.00	6,938.82	3,574.00	3,569.63	96.79	131.36	-8.63	1,001.16	7,692.00	13,979.80	13,821.01	158.78	88.045	
12,600.00	6,938.53	3,574.00	3,569.63	98.30	131.36	-8.63	1,001.16	7,692.00	14,076.13	13,917.21	158.93	88.570	
12,700.00	6,938.25	3,574.00	3,569.63	99.82	131.36	-8.63	1,001.16	7,692.00	14,172.52	14,013.45	159.07	89.095	
12,800.00	6,937.96	3,574.00	3,569.63	101.34	131.36	-8.63	1,001.16	7,692.00	14,268.96	14,109.75	159.22	89.620	
12,900.00	6,937.68	3,574.00	3,569.63	102.86	131.36	-8.63	1,001.16	7,692.00	14,365.45	14,206.09	159.36	90.145	
13,000.00	6,937.39	3,574.00	3,569.63	104.38	131.36	-8.63	1,001.16	7,692.00	14,461.99	14,302.48	159.50	90.670	
13,100.00	6,937.11	3,574.00	3,569.63	105.91	131.36	-8.63	1,001.16	7,692.00	14,558.57	14,398.92	159.64	91.195	
13,200.00	6,936.82	3,574.00	3,569.63	107.43	131.36	-8.63	1,001.16	7,692.00	14,655.20	14,495.41	159.78	91.719	
13,300.00	6,936.54	3,574.00	3,569.63	108.96	131.36	-8.63	1,001.16	7,692.00	14,751.87	14,591.94	159.92	92.243	
13,400.00	6,936.25	3,574.00	3,569.63	110.49	131.36	-8.63	1,001.16	7,692.00	14,848.59	14,688.52	160.06	92.767	
13,500.00	6,935.97	3,574.00	3,569.63	112.03	131.36	-8.63	1,001.16	7,692.00	14,945.35	14,785.14	160.20	93.291	
13,600.00	6,935.68	3,574.00	3,569.63	113.56	131.36	-8.63	1,001.16	7,692.00	15,042.15	14,881.81	160.34	93.814	
13,700.00	6,935.40	3,574.00	3,569.63	115.10	131.36	-8.63	1,001.16	7,692.00	15,138.99	14,978.52	160.48	94.337	
13,800.00	6,935.11	3,574.00	3,569.63	116.64	131.36	-8.63	1,001.16	7,692.00	15,235.88	15,075.26	160.61	94.860	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		
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	
13,900.00	6,934.83	3,574.00	3,569.63	118.18	131.36	-8.63	1,001.16	7,692.00	15,332.80	15,172.05	160.75	95.383		
14,000.00	6,934.54	3,574.00	3,569.63	119.72	131.36	-8.63	1,001.16	7,692.00	15,429.77	15,268.88	160.89	95.905		
14,100.00	6,934.26	3,574.00	3,569.63	121.26	131.36	-8.63	1,001.16	7,692.00	15,526.77	15,365.75	161.02	96.428		
14,200.00	6,933.97	3,574.00	3,569.63	122.81	131.36	-8.63	1,001.16	7,692.00	15,623.81	15,462.66	161.15	96.949		
14,300.00	6,933.69	3,574.00	3,569.63	124.36	131.36	-8.63	1,001.16	7,692.00	15,720.89	15,559.60	161.29	97.471		
14,400.00	6,933.40	3,574.00	3,569.63	125.90	131.36	-8.63	1,001.16	7,692.00	15,818.00	15,656.58	161.42	97.992		
14,500.00	6,933.12	3,574.00	3,569.63	127.45	131.36	-8.63	1,001.16	7,692.00	15,915.15	15,753.60	161.55	98.513		
14,600.00	6,932.83	3,574.00	3,569.63	129.00	131.36	-8.63	1,001.16	7,692.00	16,012.34	15,850.65	161.69	99.034		
14,700.00	6,932.55	3,574.00	3,569.63	130.56	131.36	-8.63	1,001.16	7,692.00	16,109.56	15,947.74	161.82	99.554		
14,800.00	6,932.26	3,574.00	3,569.63	132.11	131.36	-8.63	1,001.16	7,692.00	16,206.81	16,044.86	161.95	100.074		
14,900.00	6,931.98	3,574.00	3,569.63	133.66	131.36	-8.63	1,001.16	7,692.00	16,304.09	16,142.02	162.08	100.593		
15,000.00	6,931.69	3,574.00	3,569.63	135.22	131.36	-8.63	1,001.16	7,692.00	16,401.41	16,239.20	162.21	101.113		
15,100.00	6,931.41	3,574.00	3,569.63	136.77	131.36	-8.63	1,001.16	7,692.00	16,498.76	16,336.43	162.34	101.632		
15,200.00	6,931.12	3,574.00	3,569.63	138.33	131.36	-8.63	1,001.16	7,692.00	16,596.15	16,433.68	162.47	102.150		
15,300.00	6,930.84	3,574.00	3,569.63	139.89	131.36	-8.63	1,001.16	7,692.00	16,693.56	16,530.96	162.60	102.668		
15,400.00	6,930.55	3,574.00	3,569.63	141.45	131.36	-8.63	1,001.16	7,692.00	16,791.00	16,628.28	162.73	103.186		
15,500.00	6,930.27	3,574.00	3,569.63	143.01	131.36	-8.63	1,001.16	7,692.00	16,888.48	16,725.62	162.85	103.703		
15,600.00	6,929.98	3,574.00	3,569.63	144.57	131.36	-8.63	1,001.16	7,692.00	16,985.98	16,823.00	162.98	104.220		
15,700.00	6,929.70	3,574.00	3,569.63	146.13	131.36	-8.63	1,001.16	7,692.00	17,083.51	16,920.40	163.11	104.737		
15,800.00	6,929.41	3,574.00	3,569.63	147.70	131.36	-8.63	1,001.16	7,692.00	17,181.07	17,017.84	163.24	105.253		
15,900.00	6,929.13	3,574.00	3,569.63	149.26	131.36	-8.63	1,001.16	7,692.00	17,278.66	17,115.30	163.36	105.769		
16,000.00	6,928.84	3,574.00	3,569.63	150.82	131.36	-8.63	1,001.16	7,692.00	17,376.28	17,212.79	163.49	106.284		
16,100.00	6,928.56	3,574.00	3,569.63	152.39	131.36	-8.63	1,001.16	7,692.00	17,473.92	17,310.31	163.62	106.799		
16,200.00	6,928.27	3,574.00	3,569.63	153.96	131.36	-8.63	1,001.16	7,692.00	17,571.59	17,407.85	163.74	107.313		
16,300.00	6,927.99	3,574.00	3,569.63	155.52	131.36	-8.63	1,001.16	7,692.00	17,669.29	17,505.42	163.87	107.828		
16,400.00	6,927.70	3,574.00	3,569.63	157.09	131.36	-8.63	1,001.16	7,692.00	17,767.01	17,603.02	163.99	108.341		
16,500.00	6,927.42	3,574.00	3,569.63	158.66	131.36	-8.63	1,001.16	7,692.00	17,864.75	17,700.64	164.12	108.854		
16,600.00	6,927.13	3,574.00	3,569.63	160.23	131.36	-8.63	1,001.16	7,692.00	17,962.52	17,798.28	164.24	109.367		
16,700.00	6,926.85	3,574.00	3,569.63	161.80	131.36	-8.63	1,001.16	7,692.00	18,060.32	17,895.95	164.37	109.879		
16,800.00	6,926.56	3,574.00	3,569.63	163.37	131.36	-8.63	1,001.16	7,692.00	18,158.14	17,993.65	164.49	110.391		
16,900.00	6,926.28	3,574.00	3,569.63	164.94	131.36	-8.63	1,001.16	7,692.00	18,255.98	18,091.37	164.61	110.902		
17,000.00	6,925.99	3,574.00	3,569.63	166.51	131.36	-8.63	1,001.16	7,692.00	18,353.85	18,189.11	164.74	111.413		
17,100.00	6,925.71	3,574.00	3,569.63	168.08	131.36	-8.63	1,001.16	7,692.00	18,451.74	18,286.88	164.86	111.924		
17,200.00	6,925.42	3,574.00	3,569.63	169.65	131.36	-8.63	1,001.16	7,692.00	18,549.65	18,384.67	164.98	112.434		
17,300.00	6,925.14	3,574.00	3,569.63	171.23	131.36	-8.63	1,001.16	7,692.00	18,647.58	18,482.48	165.11	112.943		
17,400.00	6,924.85	3,574.00	3,569.63	172.80	131.36	-8.63	1,001.16	7,692.00	18,745.54	18,580.31	165.23	113.452		
17,500.00	6,924.57	3,574.00	3,569.63	174.37	131.36	-8.63	1,001.16	7,692.00	18,843.52	18,678.16	165.35	113.960		
17,600.00	6,924.28	3,574.00	3,569.63	175.95	131.36	-8.63	1,001.16	7,692.00	18,941.51	18,776.04	165.47	114.468		
17,700.00	6,924.00	3,574.00	3,569.63	177.52	131.36	-8.63	1,001.16	7,692.00	19,039.53	18,873.94	165.60	114.976		
17,800.00	6,923.71	3,574.00	3,569.63	179.10	131.36	-8.63	1,001.16	7,692.00	19,137.57	18,971.85	165.72	115.483		
17,900.00	6,923.43	3,574.00	3,569.63	180.68	131.36	-8.63	1,001.16	7,692.00	19,235.63	19,069.79	165.84	115.989		
18,000.00	6,923.14	3,574.00	3,569.63	182.25	131.36	-8.63	1,001.16	7,692.00	19,333.71	19,167.75	165.96	116.495		
18,100.00	6,922.86	3,574.00	3,569.63	183.83	131.36	-8.63	1,001.16	7,692.00	19,431.81	19,265.73	166.08	117.001		
18,200.00	6,922.57	3,574.00	3,569.63	185.41	131.36	-8.63	1,001.16	7,692.00	19,529.93	19,363.72	166.20	117.505		
18,300.00	6,922.29	3,574.00	3,569.63	186.98	131.36	-8.63	1,001.16	7,692.00	19,628.07	19,461.74	166.33	118.010		
18,400.00	6,922.00	3,574.00	3,569.63	188.56	131.36	-8.63	1,001.16	7,692.00	19,726.22	19,559.78	166.45	118.514		
18,500.00	6,921.71	3,574.00	3,569.63	190.14	131.36	-8.63	1,001.16	7,692.00	19,824.40	19,657.83	166.57	119.017		
18,600.00	6,921.43	3,574.00	3,569.63	191.72	131.36	-8.63	1,001.16	7,692.00	19,922.59	19,755.90	166.69	119.520		
18,700.00	6,921.14	3,574.00	3,569.63	193.30	131.36	-8.63	1,001.16	7,692.00	20,020.80	19,853.99	166.81	120.022		
18,800.00	6,920.86	3,574.00	3,569.63	194.88	131.36	-8.63	1,001.16	7,692.00	20,119.03	19,952.10	166.93	120.524		
18,900.00	6,920.57	3,574.00	3,569.63	196.46	131.36	-8.63	1,001.16	7,692.00	20,217.28	20,050.22	167.05	121.025		
19,000.00	6,920.29	3,574.00	3,569.63	198.04	131.36	-8.63	1,001.16	7,692.00	20,315.54	20,148.37	167.17	121.525		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		Reference 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
19,100.00	6,920.00	3,574.00	3,569.63	199.62	131.36	-8.63	1,001.16	7,692.00	20,413.82	20,246.53	167.29	122.025	
19,200.00	6,919.72	3,574.00	3,569.63	201.20	131.36	-8.63	1,001.16	7,692.00	20,512.11	20,344.70	167.41	122.525	
19,300.00	6,919.43	3,574.00	3,569.63	202.78	131.36	-8.63	1,001.16	7,692.00	20,610.43	20,442.89	167.53	123.024	
19,400.00	6,919.15	3,574.00	3,569.63	204.36	131.36	-8.63	1,001.16	7,692.00	20,708.76	20,541.10	167.65	123.522	
19,500.00	6,918.86	3,574.00	3,569.63	205.95	131.36	-8.63	1,001.16	7,692.00	20,807.10	20,639.33	167.77	124.020	
19,600.00	6,918.58	3,574.00	3,569.63	207.53	131.36	-8.63	1,001.16	7,692.00	20,905.46	20,737.57	167.89	124.517	
19,700.00	6,918.29	3,574.00	3,569.63	209.11	131.36	-8.63	1,001.16	7,692.00	21,003.84	20,835.82	168.01	125.014	
19,800.00	6,918.01	3,574.00	3,569.63	210.69	131.36	-8.63	1,001.16	7,692.00	21,102.23	20,934.10	168.13	125.510	
19,900.00	6,917.72	3,574.00	3,569.63	212.28	131.36	-8.63	1,001.16	7,692.00	21,200.63	21,032.38	168.25	126.005	
20,000.00	6,917.44	3,574.00	3,569.63	213.86	131.36	-8.63	1,001.16	7,692.00	21,299.06	21,130.68	168.37	126.500	
20,100.00	6,917.15	3,574.00	3,569.63	215.45	131.36	-8.63	1,001.16	7,692.00	21,397.49	21,229.00	168.49	126.995	
20,200.00	6,916.87	3,574.00	3,569.63	217.03	131.36	-8.63	1,001.16	7,692.00	21,495.94	21,327.33	168.61	127.488	
20,300.00	6,916.58	3,574.00	3,569.63	218.61	131.36	-8.63	1,001.16	7,692.00	21,594.41	21,425.68	168.73	127.982	
20,400.00	6,916.30	3,574.00	3,569.63	220.20	131.36	-8.63	1,001.16	7,692.00	21,692.88	21,524.03	168.85	128.474	
20,500.00	6,916.01	3,574.00	3,569.63	221.78	131.36	-8.63	1,001.16	7,692.00	21,791.38	21,622.41	168.97	128.966	
20,600.00	6,915.73	3,574.00	3,569.63	223.37	131.36	-8.63	1,001.16	7,692.00	21,889.88	21,720.79	169.09	129.458	
20,700.00	6,915.44	3,574.00	3,569.63	224.95	131.36	-8.63	1,001.16	7,692.00	21,988.40	21,819.19	169.21	129.948	
20,800.00	6,915.16	3,574.00	3,569.63	226.54	131.36	-8.63	1,001.16	7,692.00	22,086.94	21,917.61	169.33	130.439	
20,855.45	6,915.00	3,574.00	3,569.63	227.42	131.36	-8.63	1,001.16	7,692.00	22,141.58	21,972.18	169.39	130.710	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)	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	165.55	-19.29	4.97	19.92				
100.00	100.00	100.00	100.00	0.25	0.25	165.55	-19.29	4.97	19.92	19.42	0.50	39.699	
200.00	200.00	200.00	200.00	0.61	0.61	165.55	-19.29	4.97	19.92	18.70	1.22	16.347	
300.00	300.00	300.00	300.00	0.97	0.97	165.55	-19.29	4.97	19.92	17.99	1.94	10.292	
400.00	400.00	400.00	400.00	1.33	1.33	165.55	-19.29	4.97	19.92	17.27	2.65	7.511	
500.00	500.00	500.00	500.00	1.68	1.68	165.55	-19.29	4.97	19.92	16.55	3.37	5.913	CC, ES
600.00	599.98	599.52	599.50	2.04	2.03	176.43	-20.57	3.80	22.66	18.59	4.07	5.565	
700.00	699.84	699.15	699.06	2.41	2.36	-177.35	-23.30	1.30	30.32	25.55	4.77	6.355	
800.00	799.45	798.48	798.32	2.77	2.70	-174.17	-26.03	-1.21	41.64	36.17	5.47	7.607	
900.00	898.70	897.36	897.14	3.13	3.05	-172.79	-28.75	-3.70	56.47	50.29	6.18	9.137	
1,000.00	997.47	995.68	995.38	3.50	3.39	-172.34	-31.46	-6.18	74.73	67.84	6.89	10.848	
1,100.00	1,095.62	1,093.30	1,092.93	3.89	3.74	-172.33	-34.15	-8.64	96.38	88.78	7.60	12.684	
1,200.00	1,193.06	1,190.11	1,189.68	4.30	4.08	-172.51	-36.81	-11.08	121.39	113.08	8.31	14.610	
1,245.75	1,237.35	1,234.10	1,233.64	4.49	4.24	-172.63	-38.02	-12.19	133.95	125.31	8.64	15.510	
1,300.00	1,289.78	1,286.15	1,285.65	4.72	4.42	-172.80	-39.45	-13.50	149.26	140.24	9.02	16.549	
1,400.00	1,386.41	1,382.08	1,381.52	5.15	4.76	-173.03	-42.09	-15.92	177.47	167.75	9.72	18.253	
1,500.00	1,483.04	1,478.02	1,477.39	5.59	5.11	-173.20	-44.73	-18.34	205.69	195.26	10.43	19.718	
1,600.00	1,579.67	1,573.95	1,573.26	6.04	5.45	-173.33	-47.37	-20.76	233.91	222.76	11.14	20.991	
1,700.00	1,676.30	1,669.89	1,669.12	6.49	5.79	-173.43	-50.01	-23.18	262.13	250.27	11.86	22.106	
1,800.00	1,772.93	1,765.82	1,764.99	6.95	6.14	-173.51	-52.65	-25.60	290.35	277.77	12.57	23.090	
1,900.00	1,869.56	1,861.76	1,860.86	7.41	6.48	-173.58	-55.29	-28.01	318.57	305.27	13.29	23.964	
2,000.00	1,966.19	1,957.69	1,956.73	7.87	6.83	-173.63	-57.93	-30.43	346.79	332.77	14.01	24.746	
2,100.00	2,062.83	2,053.63	2,052.60	8.33	7.18	-173.68	-60.57	-32.85	375.01	360.27	14.74	25.448	
2,200.00	2,159.46	2,149.56	2,148.46	8.80	7.52	-173.72	-63.21	-35.27	403.23	387.77	15.46	26.083	
2,300.00	2,256.09	2,245.50	2,244.33	9.27	7.87	-173.76	-65.85	-37.69	431.45	415.27	16.18	26.660	
2,400.00	2,352.72	2,341.43	2,340.20	9.73	8.21	-173.79	-68.48	-40.11	459.67	442.76	16.91	27.185	
2,500.00	2,449.35	2,437.37	2,436.07	10.20	8.56	-173.81	-71.12	-42.53	487.89	470.26	17.63	27.666	
2,600.00	2,545.98	2,533.30	2,531.94	10.67	8.91	-173.84	-73.76	-44.94	516.11	497.75	18.36	28.108	
2,700.00	2,642.61	2,629.24	2,627.80	11.15	9.25	-173.86	-76.40	-47.36	544.34	525.25	19.09	28.516	
2,800.00	2,739.24	2,725.17	2,723.67	11.62	9.60	-173.88	-79.04	-49.78	572.56	552.74	19.82	28.892	
2,900.00	2,835.87	2,821.11	2,819.54	12.09	9.95	-173.90	-81.68	-52.20	600.78	580.23	20.55	29.241	
3,000.00	2,932.50	2,917.04	2,915.41	12.56	10.29	-173.92	-84.32	-54.62	629.00	607.73	21.27	29.566	
3,100.00	3,029.13	3,012.98	3,011.28	13.04	10.64	-173.93	-86.96	-57.04	657.22	635.22	22.00	29.868	
3,200.00	3,125.77	3,108.91	3,107.14	13.51	10.99	-173.94	-89.60	-59.46	685.45	662.71	22.73	30.151	
3,300.00	3,222.40	3,204.85	3,203.01	13.99	11.33	-173.96	-92.24	-61.88	713.67	690.20	23.46	30.415	
3,400.00	3,319.03	3,300.78	3,298.88	14.46	11.68	-173.97	-94.88	-64.29	741.89	717.69	24.19	30.663	
3,500.00	3,415.66	3,396.72	3,394.75	14.94	12.03	-173.98	-97.52	-66.71	770.11	745.19	24.93	30.896	
3,600.00	3,512.29	3,492.65	3,490.62	15.42	12.38	-173.99	-100.16	-69.13	798.33	772.68	25.66	31.116	
3,700.00	3,608.92	3,588.59	3,586.48	15.89	12.72	-174.00	-102.80	-71.55	826.56	800.17	26.39	31.323	
3,800.00	3,705.55	3,684.52	3,682.35	16.37	13.07	-174.01	-105.44	-73.97	854.78	827.66	27.12	31.518	
3,900.00	3,802.18	3,780.46	3,778.22	16.84	13.42	-174.02	-108.08	-76.39	883.00	855.15	27.85	31.703	
4,000.00	3,898.81	3,876.39	3,874.09	17.32	13.77	-174.02	-110.72	-78.81	911.22	882.64	28.58	31.878	
4,100.00	3,995.44	3,972.33	3,969.96	17.80	14.11	-174.03	-113.35	-81.23	939.44	910.13	29.32	32.045	
4,200.00	4,092.07	4,068.26	4,065.82	18.28	14.46	-174.04	-115.99	-83.64	967.67	937.62	30.05	32.203	
4,300.00	4,188.71	4,164.20	4,161.69	18.75	14.81	-174.04	-118.63	-86.06	995.89	965.11	30.78	32.353	
4,400.00	4,285.34	4,260.13	4,257.56	19.23	15.16	-174.05	-121.27	-88.48	1,024.11	992.59	31.52	32.496	
4,500.00	4,381.97	4,356.07	4,353.43	19.71	15.50	-174.05	-123.91	-90.90	1,052.33	1,020.08	32.25	32.632	
4,600.00	4,478.60	4,452.00	4,449.30	20.19	15.85	-174.06	-126.55	-93.32	1,080.55	1,047.57	32.98	32.762	
4,700.00	4,575.23	4,547.94	4,545.17	20.67	16.20	-174.07	-129.19	-95.74	1,108.78	1,075.06	33.72	32.887	
4,800.00	4,671.86	4,643.87	4,641.03	21.14	16.55	-174.07	-131.83	-98.16	1,137.00	1,102.55	34.45	33.005	
4,900.00	4,768.49	4,739.80	4,736.90	21.62	16.89	-174.08	-134.47	-100.58	1,165.22	1,130.04	35.18	33.119	
5,000.00	4,865.12	4,835.74	4,832.77	22.10	17.24	-174.08	-137.11	-102.99	1,193.44	1,157.53	35.92	33.228	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	Warning
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	4,961.75	4,931.67	4,928.64	22.58	17.59	-174.08	-139.75	-105.41	1,221.66	1,185.01	36.65	33.333	
5,200.00	5,058.38	5,027.61	5,024.51	23.06	17.94	-174.09	-142.39	-107.83	1,249.89	1,212.50	37.39	33.433	
5,300.00	5,155.01	5,123.54	5,120.37	23.54	18.28	-174.09	-145.03	-110.25	1,278.11	1,239.99	38.12	33.529	
5,400.00	5,251.64	5,219.48	5,216.24	24.01	18.63	-174.10	-147.67	-112.67	1,306.33	1,267.48	38.85	33.621	
5,500.00	5,348.28	5,315.41	5,312.11	24.49	18.98	-174.10	-150.31	-115.09	1,334.55	1,294.96	39.59	33.710	
5,600.00	5,444.91	5,411.35	5,407.98	24.97	19.33	-174.10	-152.95	-117.51	1,362.78	1,322.45	40.32	33.796	
5,700.00	5,541.54	5,507.28	5,503.85	25.45	19.68	-174.11	-155.59	-119.92	1,391.00	1,349.94	41.06	33.878	
5,800.00	5,638.17	5,603.22	5,599.71	25.93	20.02	-174.11	-158.22	-122.34	1,419.22	1,377.43	41.79	33.958	
5,900.00	5,734.80	5,699.15	5,695.58	26.41	20.37	-174.11	-160.86	-124.76	1,447.44	1,404.91	42.53	34.034	
6,000.00	5,831.43	5,795.09	5,791.45	26.89	20.72	-174.11	-163.50	-127.18	1,475.66	1,432.40	43.26	34.108	
6,100.00	5,928.06	5,891.02	5,887.32	27.37	21.07	-174.12	-166.14	-129.60	1,503.89	1,459.89	44.00	34.179	
6,200.00	6,024.69	5,986.96	5,983.19	27.85	21.41	-174.12	-168.78	-132.02	1,532.11	1,487.37	44.74	34.248	
6,300.00	6,121.32	6,082.89	6,079.05	28.33	21.76	-174.12	-171.42	-134.44	1,560.33	1,514.86	45.47	34.315	
6,400.00	6,217.95	6,178.83	6,174.92	28.81	22.11	-174.13	-174.06	-136.86	1,588.55	1,542.35	46.21	34.379	
6,500.00	6,314.58	6,274.76	6,270.79	29.29	22.46	-174.13	-176.70	-139.27	1,616.78	1,569.83	46.94	34.441	
6,543.64	6,356.75	6,316.63	6,312.63	29.49	22.61	-174.13	-177.85	-140.33	1,629.09	1,581.83	47.26	34.468	
6,550.00	6,362.90	6,322.73	6,318.72	29.53	22.63	-171.84	-178.02	-140.48	1,630.89	1,583.58	47.31	34.472	
6,600.00	6,411.07	6,372.80	6,368.71	29.77	22.82	-155.11	-179.39	-142.83	1,644.99	1,597.30	47.70	34.489	
6,650.00	6,458.79	6,423.83	6,419.32	30.01	23.00	-141.49	-180.76	-149.13	1,658.98	1,610.88	48.09	34.495	
6,700.00	6,505.76	6,475.09	6,469.48	30.26	23.19	-131.01	-182.10	-159.51	1,672.75	1,624.26	48.49	34.493	
6,750.00	6,551.69	6,526.62	6,518.91	30.50	23.39	-123.00	-183.40	-173.99	1,686.24	1,637.33	48.90	34.482	
6,800.00	6,596.30	6,578.44	6,567.27	30.74	23.58	-116.78	-184.65	-192.53	1,699.34	1,650.03	49.31	34.459	
6,850.00	6,639.32	6,630.58	6,614.25	30.98	23.78	-111.85	-185.85	-215.09	1,711.99	1,662.26	49.73	34.423	
6,900.00	6,680.47	6,683.06	6,659.50	31.21	23.98	-107.84	-186.98	-241.59	1,724.10	1,673.94	50.16	34.372	
6,950.00	6,719.51	6,735.86	6,702.68	31.44	24.19	-104.54	-188.04	-271.94	1,735.59	1,685.00	50.60	34.303	
7,000.00	6,756.20	6,789.00	6,743.45	31.67	24.40	-101.77	-189.01	-305.99	1,746.40	1,695.36	51.04	34.213	
7,050.00	6,790.30	6,842.47	6,781.46	31.90	24.62	-99.42	-189.89	-343.56	1,756.46	1,704.95	51.51	34.100	
7,100.00	6,821.62	6,896.23	6,816.37	32.13	24.85	-97.43	-190.67	-384.41	1,765.69	1,713.70	51.99	33.961	
7,150.00	6,849.95	6,950.25	6,847.85	32.35	25.10	-95.74	-191.34	-428.29	1,774.05	1,721.56	52.49	33.795	
7,200.00	6,875.12	7,004.49	6,875.61	32.58	25.37	-94.31	-191.89	-474.87	1,781.48	1,728.46	53.02	33.598	
7,250.00	6,896.97	7,058.91	6,899.37	32.81	25.65	-93.11	-192.33	-523.80	1,787.93	1,734.36	53.58	33.372	
7,300.00	6,915.38	7,113.42	6,918.91	33.05	25.94	-92.12	-192.63	-574.68	1,793.36	1,739.21	54.15	33.116	
7,350.00	6,930.22	7,167.98	6,934.03	33.29	26.25	-91.32	-192.81	-627.08	1,797.75	1,742.99	54.76	32.831	
7,400.00	6,941.41	7,222.50	6,944.61	33.53	26.58	-90.71	-192.86	-680.55	1,801.05	1,745.67	55.38	32.520	
7,450.00	6,948.88	7,276.91	6,950.57	33.79	26.92	-90.27	-192.78	-734.61	1,803.25	1,747.23	56.03	32.185	
7,500.00	6,952.57	7,330.36	6,951.98	34.05	27.26	-90.00	-192.58	-788.02	1,804.35	1,747.67	56.68	31.833	
7,525.63	6,953.00	7,355.98	6,951.92	34.19	27.44	-89.97	-192.46	-813.65	1,804.51	1,747.49	57.01	31.651	
7,600.00	6,952.79	7,430.35	6,951.75	34.61	27.96	-89.97	-192.12	-888.01	1,804.57	1,746.54	58.03	31.100	
7,700.00	6,952.50	7,530.35	6,951.53	35.23	28.73	-89.97	-191.65	-988.01	1,804.66	1,745.15	59.51	30.326	
7,800.00	6,952.22	7,630.35	6,951.31	35.91	29.57	-89.97	-191.19	-1,088.01	1,804.74	1,743.62	61.13	29.525	
7,900.00	6,951.93	7,730.35	6,951.08	36.65	30.47	-89.97	-190.73	-1,188.01	1,804.83	1,741.97	62.86	28.710	
8,000.00	6,951.65	7,830.35	6,950.86	37.45	31.42	-89.97	-190.27	-1,288.01	1,804.92	1,740.20	64.71	27.891	
8,100.00	6,951.36	7,930.35	6,950.63	38.29	32.43	-89.98	-189.81	-1,388.01	1,805.01	1,738.34	66.67	27.075	
8,200.00	6,951.08	8,030.35	6,950.41	39.19	33.48	-89.98	-189.34	-1,488.01	1,805.09	1,736.38	68.71	26.270	
8,300.00	6,950.79	8,130.35	6,950.18	40.13	34.57	-89.98	-188.88	-1,588.01	1,805.18	1,734.33	70.85	25.480	
8,400.00	6,950.51	8,230.35	6,949.96	41.11	35.70	-89.98	-188.42	-1,688.00	1,805.27	1,732.21	73.06	24.711	
8,500.00	6,950.22	8,330.35	6,949.73	42.12	36.87	-89.98	-187.96	-1,788.00	1,805.35	1,730.01	75.34	23.963	
8,600.00	6,949.94	8,430.35	6,949.51	43.18	38.07	-89.99	-187.50	-1,888.00	1,805.44	1,727.75	77.69	23.240	
8,700.00	6,949.65	8,530.35	6,949.28	44.26	39.30	-89.99	-187.04	-1,988.00	1,805.53	1,725.44	80.09	22.543	
8,800.00	6,949.37	8,630.35	6,949.06	45.38	40.55	-89.99	-186.57	-2,088.00	1,805.61	1,723.06	82.55	21.872	
8,900.00	6,949.08	8,730.35	6,948.83	46.53	41.83	-89.99	-186.11	-2,188.00	1,805.70	1,720.64	85.06	21.228	
9,000.00	6,948.80	8,830.35	6,948.61	47.70	43.13	-89.99	-185.65	-2,288.00	1,805.79	1,718.17	87.62	20.610	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	
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)				
9,100.00	6,948.51	8,930.35	6,948.38	48.89	44.45	-90.00	-185.19	-2,387.99	1,805.88	1,715.66	90.22	20.017		
9,200.00	6,948.23	9,030.35	6,948.16	50.11	45.78	-90.00	-184.73	-2,487.99	1,805.96	1,713.11	92.85	19.450		
9,300.00	6,947.94	9,130.35	6,947.94	51.35	47.14	-90.00	-184.26	-2,587.99	1,806.05	1,710.53	95.52	18.908		
9,400.00	6,947.66	9,230.35	6,947.71	52.61	48.51	-90.00	-183.80	-2,687.99	1,806.14	1,707.92	98.22	18.389		
9,500.00	6,947.37	9,330.35	6,947.49	53.89	49.89	-90.00	-183.34	-2,787.99	1,806.22	1,705.27	100.95	17.892		
9,600.00	6,947.09	9,430.35	6,947.26	55.18	51.29	-90.01	-182.88	-2,887.99	1,806.31	1,702.60	103.71	17.417		
9,700.00	6,946.80	9,530.35	6,947.04	56.49	52.69	-90.01	-182.42	-2,987.99	1,806.40	1,699.91	106.49	16.963		
9,800.00	6,946.52	9,630.35	6,946.81	57.81	54.11	-90.01	-181.96	-3,087.98	1,806.49	1,697.19	109.30	16.528		
9,900.00	6,946.23	9,730.35	6,946.59	59.15	55.54	-90.01	-181.49	-3,187.98	1,806.57	1,694.45	112.12	16.112		
10,000.00	6,945.95	9,830.35	6,946.36	60.50	56.98	-90.01	-181.03	-3,287.98	1,806.66	1,691.69	114.97	15.714		
10,100.00	6,945.66	9,930.35	6,946.14	61.87	58.42	-90.01	-180.57	-3,387.98	1,806.75	1,688.91	117.84	15.333		
10,200.00	6,945.38	10,030.35	6,945.91	63.24	59.88	-90.02	-180.11	-3,487.98	1,806.83	1,686.11	120.72	14.967		
10,300.00	6,945.09	10,130.35	6,945.69	64.63	61.34	-90.02	-179.65	-3,587.98	1,806.92	1,683.30	123.62	14.617		
10,400.00	6,944.81	10,230.35	6,945.46	66.02	62.81	-90.02	-179.18	-3,687.98	1,807.01	1,680.48	126.53	14.281		
10,500.00	6,944.52	10,330.35	6,945.24	67.42	64.28	-90.02	-178.72	-3,787.98	1,807.09	1,677.64	129.46	13.959		
10,600.00	6,944.24	10,430.35	6,945.01	68.84	65.76	-90.02	-178.26	-3,887.97	1,807.18	1,674.79	132.40	13.650		
10,700.00	6,943.95	10,530.35	6,944.79	70.26	67.25	-90.03	-177.80	-3,987.97	1,807.27	1,671.92	135.35	13.353		
10,800.00	6,943.67	10,630.35	6,944.57	71.68	68.74	-90.03	-177.34	-4,087.97	1,807.36	1,669.05	138.31	13.067		
10,900.00	6,943.38	10,730.35	6,944.34	73.12	70.23	-90.03	-176.88	-4,187.97	1,807.44	1,666.16	141.28	12.793		
11,000.00	6,943.10	10,830.35	6,944.12	74.56	71.73	-90.03	-176.41	-4,287.97	1,807.53	1,663.26	144.27	12.529		
11,100.00	6,942.81	10,930.35	6,943.89	76.01	73.24	-90.03	-175.95	-4,387.97	1,807.62	1,660.36	147.26	12.275		
11,200.00	6,942.53	11,030.35	6,943.67	77.46	74.75	-90.04	-175.49	-4,487.97	1,807.70	1,657.44	150.26	12.030		
11,300.00	6,942.24	11,130.35	6,943.44	78.92	76.26	-90.04	-175.03	-4,587.96	1,807.79	1,654.52	153.27	11.795		
11,400.00	6,941.96	11,230.35	6,943.22	80.39	77.78	-90.04	-174.57	-4,687.96	1,807.88	1,651.59	156.29	11.568		
11,500.00	6,941.67	11,330.35	6,942.99	81.86	79.30	-90.04	-174.10	-4,787.96	1,807.97	1,648.65	159.31	11.349		
11,600.00	6,941.39	11,430.35	6,942.77	83.33	80.82	-90.04	-173.64	-4,887.96	1,808.05	1,645.71	162.34	11.137		
11,700.00	6,941.10	11,530.35	6,942.54	84.81	82.35	-90.05	-173.18	-4,987.96	1,808.14	1,642.76	165.38	10.933		
11,800.00	6,940.81	11,630.35	6,942.32	86.30	83.88	-90.05	-172.72	-5,087.96	1,808.23	1,639.80	168.42	10.736		
11,900.00	6,940.53	11,730.35	6,942.09	87.79	85.41	-90.05	-172.26	-5,187.96	1,808.31	1,636.84	171.47	10.546		
12,000.00	6,940.24	11,830.35	6,941.87	89.28	86.94	-90.05	-171.80	-5,287.95	1,808.40	1,633.87	174.53	10.362		
12,100.00	6,939.96	11,930.35	6,941.64	90.77	88.48	-90.05	-171.33	-5,387.95	1,808.49	1,630.90	177.59	10.183		
12,200.00	6,939.67	12,030.35	6,941.42	92.27	90.02	-90.06	-170.87	-5,487.95	1,808.58	1,627.92	180.66	10.011		
12,300.00	6,939.39	12,130.35	6,941.20	93.78	91.56	-90.06	-170.41	-5,587.95	1,808.66	1,624.94	183.73	9.844		
12,400.00	6,939.10	12,230.35	6,940.97	95.28	93.10	-90.06	-169.95	-5,687.95	1,808.75	1,621.95	186.80	9.683		
12,500.00	6,938.82	12,330.35	6,940.75	96.79	94.64	-90.06	-169.49	-5,787.95	1,808.84	1,618.96	189.88	9.526		
12,600.00	6,938.53	12,430.35	6,940.52	98.30	96.19	-90.06	-169.02	-5,887.95	1,808.92	1,615.96	192.96	9.374		
12,700.00	6,938.25	12,530.35	6,940.30	99.82	97.74	-90.06	-168.56	-5,987.94	1,809.01	1,612.96	196.05	9.227		
12,800.00	6,937.96	12,630.35	6,940.07	101.34	99.29	-90.07	-168.10	-6,087.94	1,809.10	1,609.96	199.14	9.085		
12,900.00	6,937.68	12,730.35	6,939.85	102.86	100.84	-90.07	-167.64	-6,187.94	1,809.19	1,606.95	202.24	8.946		
13,000.00	6,937.39	12,830.35	6,939.62	104.38	102.40	-90.07	-167.18	-6,287.94	1,809.27	1,603.94	205.33	8.811		
13,100.00	6,937.11	12,930.35	6,939.40	105.91	103.95	-90.07	-166.72	-6,387.94	1,809.36	1,600.93	208.43	8.681		
13,200.00	6,936.82	13,030.35	6,939.17	107.43	105.51	-90.07	-166.25	-6,487.94	1,809.45	1,597.91	211.54	8.554		
13,300.00	6,936.54	13,130.35	6,938.95	108.96	107.06	-90.08	-165.79	-6,587.94	1,809.53	1,594.89	214.64	8.430		
13,400.00	6,936.25	13,230.35	6,938.72	110.49	108.62	-90.08	-165.33	-6,687.94	1,809.62	1,591.87	217.75	8.310		
13,500.00	6,935.97	13,330.35	6,938.50	112.03	110.18	-90.08	-164.87	-6,787.93	1,809.71	1,588.84	220.87	8.194		
13,600.00	6,935.68	13,430.35	6,938.27	113.56	111.74	-90.08	-164.41	-6,887.93	1,809.80	1,585.81	223.98	8.080		
13,700.00	6,935.40	13,530.35	6,938.05	115.10	113.31	-90.08	-163.94	-6,987.93	1,809.88	1,582.78	227.10	7.970		
13,800.00	6,935.11	13,630.35	6,937.83	116.64	114.87	-90.09	-163.48	-7,087.93	1,809.97	1,579.75	230.22	7.862		
13,900.00	6,934.83	13,730.35	6,937.60	118.18	116.43	-90.09	-163.02	-7,187.93	1,810.06	1,576.72	233.34	7.757		
14,000.00	6,934.54	13,830.35	6,937.38	119.72	118.00	-90.09	-162.56	-7,287.93	1,810.14	1,573.68	236.46	7.655		
14,100.00	6,934.26	13,930.35	6,937.15	121.26	119.57	-90.09	-162.10	-7,387.93	1,810.23	1,570.64	239.59	7.555		
14,200.00	6,933.97	14,030.35	6,936.93	122.81	121.13	-90.09	-161.64	-7,487.92	1,810.32	1,567.60	242.72	7.458		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
Measured Depth (usft)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset 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	
14,300.00	6,933.69	14,130.35	6,936.70	124.36	122.70	-90.10	-161.17	-7,587.92	1,810.41	1,564.56	245.85	7.364		
14,400.00	6,933.40	14,230.35	6,936.48	125.90	124.27	-90.10	-160.71	-7,687.92	1,810.49	1,561.51	248.98	7.272		
14,500.00	6,933.12	14,330.35	6,936.25	127.45	125.84	-90.10	-160.25	-7,787.92	1,810.58	1,558.46	252.12	7.182		
14,600.00	6,932.83	14,430.35	6,936.03	129.00	127.41	-90.10	-159.79	-7,887.92	1,810.67	1,555.42	255.25	7.094		
14,700.00	6,932.55	14,530.35	6,935.80	130.56	128.98	-90.10	-159.33	-7,987.92	1,810.75	1,552.36	258.39	7.008		
14,800.00	6,932.26	14,630.35	6,935.58	132.11	130.56	-90.10	-158.86	-8,087.92	1,810.84	1,549.31	261.53	6.924		
14,900.00	6,931.98	14,730.35	6,935.35	133.66	132.13	-90.11	-158.40	-8,187.91	1,810.93	1,546.26	264.67	6.842		
15,000.00	6,931.69	14,830.35	6,935.13	135.22	133.70	-90.11	-157.94	-8,287.91	1,811.02	1,543.20	267.81	6.762		
15,100.00	6,931.41	14,930.35	6,934.90	136.77	135.28	-90.11	-157.48	-8,387.91	1,811.10	1,540.15	270.96	6.684		
15,200.00	6,931.12	15,030.35	6,934.68	138.33	136.85	-90.11	-157.02	-8,487.91	1,811.19	1,537.09	274.10	6.608		
15,300.00	6,930.84	15,130.35	6,934.46	139.89	138.43	-90.11	-156.56	-8,587.91	1,811.28	1,534.03	277.25	6.533		
15,400.00	6,930.55	15,230.35	6,934.23	141.45	140.01	-90.12	-156.09	-8,687.91	1,811.36	1,530.97	280.39	6.460		
15,500.00	6,930.27	15,330.35	6,934.01	143.01	141.58	-90.12	-155.63	-8,787.91	1,811.45	1,527.91	283.54	6.389		
15,600.00	6,929.98	15,430.35	6,933.78	144.57	143.16	-90.12	-155.17	-8,887.91	1,811.54	1,524.85	286.69	6.319		
15,700.00	6,929.70	15,530.35	6,933.56	146.13	144.74	-90.12	-154.71	-8,987.90	1,811.63	1,521.78	289.85	6.250		
15,800.00	6,929.41	15,630.35	6,933.33	147.70	146.32	-90.12	-154.25	-9,087.90	1,811.71	1,518.72	293.00	6.183		
15,900.00	6,929.13	15,730.35	6,933.11	149.26	147.89	-90.13	-153.78	-9,187.90	1,811.80	1,515.65	296.15	6.118		
16,000.00	6,928.84	15,830.35	6,932.88	150.82	149.47	-90.13	-153.32	-9,287.90	1,811.89	1,512.58	299.31	6.054		
16,100.00	6,928.56	15,930.34	6,932.66	152.39	151.05	-90.13	-152.86	-9,387.90	1,811.98	1,509.51	302.46	5.991		
16,200.00	6,928.27	16,030.34	6,932.43	153.96	152.63	-90.13	-152.40	-9,487.90	1,812.06	1,506.44	305.62	5.929		
16,300.00	6,927.99	16,130.34	6,932.21	155.52	154.22	-90.13	-151.94	-9,587.90	1,812.15	1,503.37	308.78	5.869		
16,400.00	6,927.70	16,230.34	6,931.98	157.09	155.80	-90.14	-151.48	-9,687.89	1,812.24	1,500.30	311.93	5.810		
16,500.00	6,927.42	16,330.34	6,931.76	158.66	157.38	-90.14	-151.01	-9,787.89	1,812.32	1,497.23	315.09	5.752		
16,600.00	6,927.13	16,430.34	6,931.53	160.23	158.96	-90.14	-150.55	-9,887.89	1,812.41	1,494.16	318.25	5.695		
16,700.00	6,926.85	16,530.34	6,931.31	161.80	160.54	-90.14	-150.09	-9,987.89	1,812.50	1,491.08	321.42	5.639		
16,800.00	6,926.56	16,630.34	6,931.09	163.37	162.13	-90.14	-149.63	-10,087.89	1,812.59	1,488.01	324.58	5.584		
16,900.00	6,926.28	16,730.34	6,930.86	164.94	163.71	-90.14	-149.17	-10,187.89	1,812.67	1,484.93	327.74	5.531		
17,000.00	6,925.99	16,830.34	6,930.64	166.51	165.29	-90.15	-148.70	-10,287.89	1,812.76	1,481.86	330.91	5.478		
17,100.00	6,925.71	16,930.34	6,930.41	168.08	166.88	-90.15	-148.24	-10,387.88	1,812.85	1,478.78	334.07	5.427		
17,200.00	6,925.42	17,030.34	6,930.19	169.65	168.46	-90.15	-147.78	-10,487.88	1,812.93	1,475.70	337.23	5.376		
17,300.00	6,925.14	17,130.34	6,929.96	171.23	170.05	-90.15	-147.32	-10,587.88	1,813.02	1,472.62	340.40	5.326		
17,400.00	6,924.85	17,230.34	6,929.74	172.80	171.63	-90.15	-146.86	-10,687.88	1,813.11	1,469.54	343.57	5.277		
17,500.00	6,924.57	17,330.34	6,929.51	174.37	173.22	-90.16	-146.40	-10,787.88	1,813.20	1,466.46	346.74	5.229		
17,600.00	6,924.28	17,430.34	6,929.29	175.95	174.80	-90.16	-145.93	-10,887.88	1,813.28	1,463.38	349.90	5.182		
17,700.00	6,924.00	17,530.34	6,929.06	177.52	176.39	-90.16	-145.47	-10,987.88	1,813.37	1,460.30	353.07	5.136		
17,800.00	6,923.71	17,630.34	6,928.84	179.10	177.97	-90.16	-145.01	-11,087.87	1,813.46	1,457.22	356.24	5.091		
17,900.00	6,923.43	17,730.34	6,928.61	180.68	179.56	-90.16	-144.55	-11,187.87	1,813.55	1,454.13	359.41	5.046		
18,000.00	6,923.14	17,830.34	6,928.39	182.25	181.15	-90.17	-144.09	-11,287.87	1,813.63	1,451.05	362.58	5.002		
18,100.00	6,922.86	17,930.34	6,928.16	183.83	182.73	-90.17	-143.62	-11,387.87	1,813.72	1,447.97	365.75	4.959		
18,200.00	6,922.57	18,030.34	6,927.94	185.41	184.32	-90.17	-143.16	-11,487.87	1,813.81	1,444.88	368.93	4.916		
18,300.00	6,922.29	18,130.34	6,927.72	186.98	185.91	-90.17	-142.70	-11,587.87	1,813.89	1,441.80	372.10	4.875		
18,400.00	6,922.00	18,230.34	6,927.49	188.56	187.50	-90.17	-142.24	-11,687.87	1,813.98	1,438.71	375.27	4.834		
18,500.00	6,921.71	18,330.34	6,927.27	190.14	189.08	-90.18	-141.78	-11,787.87	1,814.07	1,435.63	378.44	4.793		
18,600.00	6,921.43	18,430.34	6,927.04	191.72	190.67	-90.18	-141.32	-11,887.86	1,814.16	1,432.54	381.62	4.754		
18,700.00	6,921.14	18,530.34	6,926.82	193.30	192.26	-90.18	-140.85	-11,987.86	1,814.24	1,429.45	384.79	4.715		
18,800.00	6,920.86	18,630.34	6,926.59	194.88	193.85	-90.18	-140.39	-12,087.86	1,814.33	1,426.36	387.97	4.677		
18,900.00	6,920.57	18,730.34	6,926.37	196.46	195.44	-90.18	-139.93	-12,187.86	1,814.42	1,423.28	391.14	4.639		
19,000.00	6,920.29	18,830.34	6,926.14	198.04	197.03	-90.18	-139.47	-12,287.86	1,814.51	1,420.19	394.32	4.602		
19,100.00	6,920.00	18,930.34	6,925.92	199.62	198.62	-90.19	-139.01	-12,387.86	1,814.59	1,417.10	397.49	4.565		
19,200.00	6,919.72	19,030.34	6,925.69	201.20	200.21	-90.19	-138.54	-12,487.86	1,814.68	1,414.01	400.67	4.529		
19,300.00	6,919.43	19,130.34	6,925.47	202.78	201.79	-90.19	-138.08	-12,587.85	1,814.77	1,410.92	403.85	4.494		
19,400.00	6,919.15	19,230.34	6,925.24	204.36	203.38	-90.19	-137.62	-12,687.85	1,814.85	1,407.83	407.03	4.459		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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:	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	6,918.86	19,330.34	6,925.02	205.95	204.97	-90.19	-137.16	-12,787.85	1,814.94	1,404.74	410.20	4.424	
19,600.00	6,918.58	19,430.34	6,924.79	207.53	206.57	-90.20	-136.70	-12,887.85	1,815.03	1,401.65	413.38	4.391	
19,700.00	6,918.29	19,530.34	6,924.57	209.11	208.16	-90.20	-136.24	-12,987.85	1,815.12	1,398.56	416.56	4.357	
19,800.00	6,918.01	19,630.34	6,924.35	210.69	209.75	-90.20	-135.77	-13,087.85	1,815.20	1,395.46	419.74	4.325	
19,900.00	6,917.72	19,730.34	6,924.12	212.28	211.34	-90.20	-135.31	-13,187.85	1,815.29	1,392.37	422.92	4.292	
20,000.00	6,917.44	19,830.34	6,923.90	213.86	212.93	-90.20	-134.85	-13,287.84	1,815.38	1,389.28	426.10	4.260	
20,100.00	6,917.15	19,930.34	6,923.67	215.45	214.52	-90.21	-134.39	-13,387.84	1,815.47	1,386.19	429.28	4.229	
20,200.00	6,916.87	20,030.34	6,923.45	217.03	216.11	-90.21	-133.93	-13,487.84	1,815.55	1,383.09	432.46	4.198	
20,300.00	6,916.58	20,130.34	6,923.22	218.61	217.70	-90.21	-133.46	-13,587.84	1,815.64	1,380.00	435.64	4.168	
20,400.00	6,916.30	20,230.34	6,923.00	220.20	219.29	-90.21	-133.00	-13,687.84	1,815.73	1,376.90	438.82	4.138	
20,500.00	6,916.01	20,330.34	6,922.77	221.78	220.88	-90.21	-132.54	-13,787.84	1,815.81	1,373.81	442.00	4.108	
20,600.00	6,915.73	20,430.34	6,922.55	223.37	222.48	-90.22	-132.08	-13,887.84	1,815.90	1,370.72	445.19	4.079	
20,700.00	6,915.44	20,530.34	6,922.32	224.95	224.07	-90.22	-131.62	-13,987.84	1,815.99	1,367.62	448.37	4.050	
20,800.00	6,915.16	20,630.34	6,922.10	226.54	225.66	-90.22	-131.16	-14,087.83	1,816.08	1,364.52	451.55	4.022	
20,802.50	6,915.15	20,632.84	6,922.09	226.58	225.70	-90.22	-131.14	-14,090.33	1,816.08	1,364.45	451.63	4.021	
20,855.45	6,915.00	20,674.13	6,922.00	227.42	226.36	-90.22	-130.95	-14,131.62	1,816.16	1,363.14	453.02	4.009 SF	

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

SDT
Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 #720H - 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)	Reference (usft)	Offset (usft)	Highside Toolface (°)	+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	165.14	-38.59	10.24	39.92				
100.00	100.00	100.00	100.00	0.25	0.25	165.14	-38.59	10.24	39.92	39.42	0.50	79.551	
200.00	200.00	200.00	200.00	0.61	0.61	165.14	-38.59	10.24	39.92	38.70	1.22	32.757	
300.00	300.00	300.00	300.00	0.97	0.97	165.14	-38.59	10.24	39.92	37.99	1.94	20.624	
400.00	400.00	400.00	400.00	1.33	1.33	165.14	-38.59	10.24	39.92	37.27	2.65	15.050	
500.00	500.00	500.00	500.00	1.68	1.68	165.14	-38.59	10.24	39.92	36.55	3.37	11.848	CC
600.00	599.98	601.36	601.34	2.04	2.05	171.40	-36.80	10.28	39.95	35.86	4.09	9.767	
700.00	699.84	702.71	702.54	2.41	2.42	170.36	-31.42	10.40	40.05	35.24	4.81	8.328	
800.00	799.45	804.05	803.48	2.77	2.78	168.63	-22.47	10.59	40.23	34.71	5.52	7.285	
900.00	898.70	905.37	904.02	3.13	3.15	166.25	-9.96	10.85	40.55	34.31	6.24	6.503	
1,000.00	997.47	1,006.68	1,004.04	3.50	3.53	163.26	6.09	11.20	41.05	34.10	6.95	5.906	ES
1,100.00	1,095.62	1,107.96	1,103.40	3.89	3.92	159.72	25.67	11.61	41.82	34.14	7.68	5.448	
1,200.00	1,193.06	1,209.21	1,201.98	4.30	4.33	155.73	48.73	12.11	42.91	34.49	8.42	5.098	
1,245.75	1,237.35	1,255.38	1,246.66	4.49	4.53	153.80	60.39	12.36	43.55	34.79	8.77	4.967	
1,300.00	1,289.78	1,309.60	1,299.06	4.72	4.76	151.68	74.33	12.65	44.55	35.34	9.20	4.840	
1,400.00	1,386.41	1,409.54	1,395.63	5.15	5.19	148.03	100.03	13.20	46.53	36.50	10.02	4.642	
1,500.00	1,483.04	1,509.48	1,492.21	5.59	5.63	144.68	125.72	13.75	48.68	37.82	10.86	4.482	
1,600.00	1,579.67	1,609.42	1,588.79	6.04	6.08	141.63	151.42	14.30	50.99	39.26	11.72	4.350	
1,700.00	1,676.30	1,709.35	1,685.36	6.49	6.53	138.85	177.12	14.85	53.42	40.83	12.60	4.241	
1,800.00	1,772.93	1,809.29	1,781.94	6.95	6.99	136.31	202.82	15.40	55.97	42.49	13.48	4.151	
1,900.00	1,869.56	1,909.23	1,878.52	7.41	7.45	134.01	228.52	15.95	58.63	44.24	14.38	4.076	
2,000.00	1,966.19	2,009.17	1,975.09	7.87	7.91	131.90	254.22	16.49	61.36	46.07	15.29	4.012	
2,100.00	2,062.83	2,109.11	2,071.67	8.33	8.37	129.98	279.92	17.04	64.18	47.97	16.21	3.959	
2,200.00	2,159.46	2,209.04	2,168.24	8.80	8.83	128.22	305.61	17.59	67.06	49.92	17.14	3.913	
2,300.00	2,256.09	2,308.98	2,264.82	9.27	9.30	126.60	331.31	18.14	70.00	51.93	18.07	3.874	
2,400.00	2,352.72	2,408.92	2,361.40	9.73	9.77	125.12	357.01	18.69	72.99	53.98	19.00	3.841	
2,500.00	2,449.35	2,508.86	2,457.97	10.20	10.24	123.75	382.71	19.24	76.02	56.08	19.94	3.812	
2,600.00	2,545.98	2,608.80	2,554.55	10.67	10.71	122.49	408.41	19.79	79.09	58.21	20.88	3.787	
2,700.00	2,642.61	2,708.74	2,651.12	11.15	11.18	121.33	434.11	20.34	82.20	60.38	21.83	3.766	
2,800.00	2,739.24	2,808.67	2,747.70	11.62	11.65	120.25	459.81	20.88	85.35	62.57	22.78	3.747	
2,900.00	2,835.87	2,908.61	2,844.28	12.09	12.12	119.24	485.50	21.43	88.51	64.79	23.73	3.731	
3,000.00	2,932.50	3,008.55	2,940.85	12.56	12.59	118.31	511.20	21.98	91.71	67.03	24.68	3.717	
3,100.00	3,029.13	3,108.49	3,037.43	13.04	13.07	117.44	536.90	22.53	94.93	69.30	25.63	3.704	
3,200.00	3,125.77	3,208.43	3,134.00	13.51	13.54	116.63	562.60	23.08	98.16	71.58	26.58	3.693	
3,300.00	3,222.40	3,308.37	3,230.58	13.99	14.01	115.87	588.30	23.63	101.42	73.88	27.54	3.683	
3,400.00	3,319.03	3,408.30	3,327.16	14.46	14.49	115.15	614.00	24.18	104.69	76.20	28.49	3.675	
3,500.00	3,415.66	3,508.24	3,423.73	14.94	14.96	114.48	639.70	24.73	107.98	78.53	29.45	3.667	
3,600.00	3,512.29	3,608.18	3,520.31	15.42	15.44	113.85	665.40	25.27	111.28	80.88	30.40	3.660	
3,700.00	3,608.92	3,708.12	3,616.88	15.89	15.91	113.26	691.09	25.82	114.60	83.24	31.36	3.654	
3,800.00	3,705.55	3,808.06	3,713.46	16.37	16.39	112.70	716.79	26.37	117.92	85.60	32.32	3.649	
3,900.00	3,802.18	3,907.99	3,810.04	16.84	16.87	112.17	742.49	26.92	121.26	87.98	33.28	3.644	
4,000.00	3,898.81	4,007.93	3,906.61	17.32	17.34	111.67	768.19	27.47	124.61	90.37	34.24	3.640	
4,100.00	3,995.44	4,107.87	4,003.19	17.80	17.82	111.19	793.89	28.02	127.96	92.77	35.19	3.636	
4,200.00	4,092.07	4,207.81	4,099.76	18.28	18.29	110.74	819.59	28.57	131.33	95.18	36.15	3.633	
4,300.00	4,188.71	4,307.75	4,196.34	18.75	18.77	110.31	845.29	29.12	134.70	97.59	37.11	3.630	
4,400.00	4,285.34	4,407.69	4,292.92	19.23	19.25	109.90	870.98	29.66	138.08	100.01	38.07	3.627	
4,500.00	4,381.97	4,507.62	4,389.49	19.71	19.72	109.52	896.68	30.21	141.46	102.43	39.03	3.625	
4,600.00	4,478.60	4,607.56	4,486.07	20.19	20.20	109.15	922.38	30.76	144.86	104.87	39.99	3.622	
4,700.00	4,575.23	4,707.50	4,582.64	20.67	20.68	108.79	948.08	31.31	148.25	107.30	40.95	3.620	
4,800.00	4,671.86	4,807.44	4,679.22	21.14	21.16	108.46	973.78	31.86	151.66	109.75	41.91	3.619	
4,900.00	4,768.49	4,907.38	4,775.80	21.62	21.63	108.13	999.48	32.41	155.06	112.20	42.87	3.617	
5,000.00	4,865.12	5,007.31	4,872.37	22.10	22.11	107.83	1,025.18	32.96	158.48	114.65	43.83	3.616	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 #720H - 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		
5,100.00	4,961.75	5,107.25	4,968.95	22.58	22.59	107.53	1,050.87	33.51	161.89	117.11	44.79	3.615			
5,200.00	5,058.38	5,207.19	5,065.52	23.06	23.07	107.25	1,076.57	34.05	165.32	119.57	45.75	3.614			
5,300.00	5,155.01	5,307.13	5,162.10	23.54	23.54	106.98	1,102.27	34.60	168.74	122.03	46.71	3.613			
5,400.00	5,251.64	5,407.07	5,258.68	24.01	24.02	106.71	1,127.97	35.15	172.17	124.50	47.67	3.612			
5,500.00	5,348.28	5,507.01	5,355.25	24.49	24.50	106.46	1,153.67	35.70	175.60	126.97	48.63	3.611			
5,600.00	5,444.91	5,606.94	5,451.83	24.97	24.98	106.22	1,179.37	36.25	179.04	129.45	49.59	3.610			
5,700.00	5,541.54	5,706.88	5,548.40	25.45	25.46	105.99	1,205.07	36.80	182.47	131.93	50.55	3.610			
5,800.00	5,638.17	5,806.82	5,644.98	25.93	25.93	105.77	1,230.76	37.35	185.92	134.41	51.51	3.609			
5,900.00	5,734.80	5,906.76	5,741.56	26.41	26.41	105.55	1,256.46	37.90	189.36	136.89	52.47	3.609			
6,000.00	5,831.43	6,006.70	5,838.13	26.89	26.89	105.34	1,282.16	38.44	192.81	139.38	53.43	3.609			
6,100.00	5,928.06	6,106.63	5,934.71	27.37	27.37	105.14	1,307.86	38.99	196.26	141.87	54.39	3.608			
6,200.00	6,024.69	6,206.57	6,031.28	27.85	27.85	104.95	1,333.56	39.54	199.71	144.36	55.35	3.608			
6,300.00	6,121.32	6,306.51	6,127.86	28.33	28.33	104.76	1,359.26	40.09	203.16	146.85	56.31	3.608			
6,400.00	6,217.95	6,406.45	6,224.44	28.81	28.80	104.58	1,384.96	40.64	206.62	149.35	57.27	3.608			
6,500.00	6,314.58	6,506.39	6,321.01	29.29	29.28	104.41	1,410.65	41.19	210.07	151.84	58.23	3.608 SF			
6,543.64	6,356.75	6,542.94	6,356.33	29.49	29.46	104.33	1,420.05	41.75	212.06	153.49	58.56	3.621			
6,550.00	6,362.90	6,550.00	6,363.15	29.53	29.49	106.44	1,421.86	42.06	212.56	153.92	58.64	3.625			
6,600.00	6,411.07	6,584.65	6,396.53	29.77	29.66	121.79	1,430.70	44.74	220.16	161.39	58.77	3.746			
6,650.00	6,458.79	6,620.01	6,430.42	30.01	29.82	133.99	1,439.65	49.40	234.34	175.56	58.78	3.986			
6,700.00	6,505.76	6,650.00	6,458.93	30.26	29.96	143.11	1,447.15	54.88	254.71	196.21	58.50	4.354			
6,750.00	6,551.69	6,683.06	6,490.04	30.50	30.12	149.74	1,455.31	62.51	280.68	222.26	58.42	4.805			
6,800.00	6,596.30	6,709.76	6,514.87	30.74	30.24	154.75	1,461.81	69.90	311.72	253.60	58.12	5.364			
6,850.00	6,639.32	6,732.95	6,536.17	30.98	30.34	158.64	1,467.36	77.17	347.14	289.36	57.78	6.008			
6,900.00	6,680.47	6,750.00	6,551.67	31.21	30.42	161.89	1,471.39	83.03	386.30	329.01	57.29	6.743			
6,950.00	6,719.51	6,768.84	6,568.60	31.44	30.50	164.59	1,475.79	90.00	428.52	371.39	57.12	7.501			
7,000.00	6,756.20	6,781.82	6,580.16	31.67	30.56	167.24	1,478.79	95.11	473.24	416.38	56.85	8.324			
7,050.00	6,790.30	6,800.00	6,596.17	31.90	30.64	169.68	1,482.93	102.66	520.01	462.98	57.03	9.118			
7,100.00	6,821.62	6,800.00	6,596.17	32.13	30.64	173.81	1,482.93	102.66	568.00	511.49	56.51	10.051			
7,150.00	6,849.95	6,800.00	6,596.17	32.35	30.64	-178.75	1,482.93	102.66	617.12	560.92	56.19	10.982			
7,200.00	6,875.12	6,800.00	6,596.17	32.58	30.64	-155.65	1,482.93	102.66	666.85	610.80	56.05	11.898			
7,250.00	6,896.97	6,800.00	6,596.17	32.81	30.64	-67.99	1,482.93	102.66	716.79	660.75	56.05	12.790			
7,300.00	6,915.38	6,800.00	6,596.17	33.05	30.64	-35.04	1,482.93	102.66	766.63	710.47	56.16	13.650			
7,350.00	6,930.22	6,800.00	6,596.17	33.29	30.64	-26.57	1,482.93	102.66	816.10	759.72	56.37	14.476			
7,400.00	6,941.41	6,800.00	6,596.17	33.53	30.64	-22.84	1,482.93	102.66	864.98	808.33	56.66	15.267			
7,450.00	6,948.88	6,800.00	6,596.17	33.79	30.64	-20.78	1,482.93	102.66	913.10	856.10	57.00	16.020			
7,500.00	6,952.57	6,800.00	6,596.17	34.05	30.64	-19.51	1,482.93	102.66	960.30	902.92	57.38	16.736			
7,525.63	6,953.00	6,781.27	6,579.67	34.19	30.55	-18.86	1,478.66	94.88	983.63	926.58	57.05	17.242			
7,600.00	6,952.79	6,769.97	6,569.61	34.61	30.51	-18.76	1,476.06	90.44	1,051.93	994.58	57.36	18.341			
7,700.00	6,952.50	6,750.00	6,551.67	35.23	30.42	-18.58	1,471.39	83.03	1,144.59	1,087.02	57.57	19.883			
7,800.00	6,952.22	6,750.00	6,551.67	35.91	30.42	-18.58	1,471.39	83.03	1,237.96	1,179.80	58.16	21.285			
7,900.00	6,951.93	6,732.43	6,535.70	36.65	30.34	-18.44	1,467.24	77.00	1,331.94	1,273.65	58.29	22.851			
8,000.00	6,951.65	6,722.20	6,526.33	37.45	30.29	-18.36	1,464.80	73.70	1,426.53	1,368.01	58.52	24.377			
8,100.00	6,951.36	6,700.00	6,505.83	38.29	30.19	-18.19	1,459.44	67.07	1,521.79	1,463.29	58.49	26.017			
8,200.00	6,951.08	6,700.00	6,505.83	39.19	30.19	-18.19	1,459.44	67.07	1,617.12	1,558.30	58.83	27.490			
8,300.00	6,950.79	6,700.00	6,505.83	40.13	30.19	-18.19	1,459.44	67.07	1,713.00	1,653.89	59.11	28.981			
8,400.00	6,950.51	6,700.00	6,505.83	41.11	30.19	-18.19	1,459.44	67.07	1,809.31	1,749.96	59.35	30.485			
8,500.00	6,950.22	6,700.00	6,505.83	42.12	30.19	-18.19	1,459.44	67.07	1,906.01	1,846.45	59.56	32.001			
8,600.00	6,949.94	6,676.36	6,483.77	43.18	30.09	-18.04	1,453.67	60.83	2,002.45	1,943.02	59.43	33.694			
8,700.00	6,949.65	6,670.61	6,478.37	44.26	30.06	-18.00	1,452.25	59.44	2,099.45	2,039.91	59.53	35.265			
8,800.00	6,949.37	6,650.00	6,458.93	45.38	29.96	-17.88	1,447.15	54.88	2,196.89	2,137.45	59.44	36.960			
8,900.00	6,949.08	6,650.00	6,458.93	46.53	29.96	-17.88	1,447.15	54.88	2,294.15	2,234.56	59.59	38.497			
9,000.00	6,948.80	6,650.00	6,458.93	47.70	29.96	-17.88	1,447.15	54.88	2,391.64	2,331.91	59.73	40.040			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 #720H - 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	6,948.51	6,650.00	6,458.93	48.89	29.96	-17.88	1,447.15	54.88	2,489.33	2,429.47	59.86	41.588
9,200.00	6,948.23	6,650.00	6,458.93	50.11	29.96	-17.88	1,447.15	54.88	2,587.19	2,527.22	59.97	43.140
9,300.00	6,947.94	6,650.00	6,458.93	51.35	29.96	-17.88	1,447.15	54.88	2,685.21	2,625.13	60.08	44.696
9,400.00	6,947.66	6,650.00	6,458.93	52.61	29.96	-17.88	1,447.15	54.88	2,783.37	2,723.20	60.17	46.255
9,500.00	6,947.37	6,650.00	6,458.93	53.89	29.96	-17.88	1,447.15	54.88	2,881.66	2,821.40	60.27	47.816
9,600.00	6,947.09	6,650.00	6,458.93	55.18	29.96	-17.88	1,447.15	54.88	2,980.06	2,919.71	60.35	49.379
9,700.00	6,946.80	6,650.00	6,458.93	56.49	29.96	-17.88	1,447.15	54.88	3,078.57	3,018.14	60.43	50.944
9,800.00	6,946.52	6,626.76	6,436.86	57.81	29.86	-17.75	1,441.34	50.51	3,176.66	3,116.37	60.29	52.690
9,900.00	6,946.23	6,623.97	6,434.20	59.15	29.84	-17.73	1,440.64	50.05	3,275.22	3,214.88	60.34	54.279
10,000.00	6,945.95	6,621.32	6,431.67	60.50	29.83	-17.72	1,439.98	49.61	3,373.85	3,313.46	60.39	55.868
10,100.00	6,945.66	6,600.00	6,411.28	61.87	29.73	-17.61	1,434.60	46.52	3,472.87	3,412.60	60.27	57.622
10,200.00	6,945.38	6,600.00	6,411.28	63.24	29.73	-17.61	1,434.60	46.52	3,571.55	3,511.21	60.34	59.190
10,300.00	6,945.09	6,600.00	6,411.28	64.63	29.73	-17.61	1,434.60	46.52	3,670.30	3,609.89	60.41	60.758
10,400.00	6,944.81	6,600.00	6,411.28	66.02	29.73	-17.61	1,434.60	46.52	3,769.11	3,708.64	60.47	62.325
10,500.00	6,944.52	6,600.00	6,411.28	67.42	29.73	-17.61	1,434.60	46.52	3,867.99	3,807.45	60.54	63.893
10,600.00	6,944.24	6,600.00	6,411.28	68.84	29.73	-17.61	1,434.60	46.52	3,966.92	3,906.32	60.60	65.460
10,700.00	6,943.95	6,600.00	6,411.28	70.26	29.73	-17.61	1,434.60	46.52	4,065.90	4,005.24	60.66	67.027
10,800.00	6,943.67	6,600.00	6,411.28	71.68	29.73	-17.61	1,434.60	46.52	4,164.94	4,104.22	60.72	68.592
10,900.00	6,943.38	6,600.00	6,411.28	73.12	29.73	-17.61	1,434.60	46.52	4,264.01	4,203.24	60.78	70.157
11,000.00	6,943.10	6,600.00	6,411.28	74.56	29.73	-17.61	1,434.60	46.52	4,363.14	4,302.30	60.84	71.720
11,100.00	6,942.81	6,600.00	6,411.28	76.01	29.73	-17.61	1,434.60	46.52	4,462.29	4,401.40	60.89	73.282
11,200.00	6,942.53	6,600.00	6,411.28	77.46	29.73	-17.61	1,434.60	46.52	4,561.49	4,500.54	60.95	74.843
11,300.00	6,942.24	6,600.00	6,411.28	78.92	29.73	-17.61	1,434.60	46.52	4,660.72	4,599.72	61.00	76.402
11,400.00	6,941.96	6,600.00	6,411.28	80.39	29.73	-17.61	1,434.60	46.52	4,759.98	4,698.93	61.06	77.960
11,500.00	6,941.67	6,600.00	6,411.28	81.86	29.73	-17.61	1,434.60	46.52	4,859.28	4,798.17	61.11	79.516
11,600.00	6,941.39	6,600.00	6,411.28	83.33	29.73	-17.61	1,434.60	46.52	4,958.60	4,897.43	61.16	81.070
11,700.00	6,941.10	6,600.00	6,411.28	84.81	29.73	-17.61	1,434.60	46.52	5,057.95	4,996.73	61.22	82.621
11,800.00	6,940.81	6,600.00	6,411.28	86.30	29.73	-17.61	1,434.60	46.52	5,157.32	5,096.05	61.27	84.171
11,900.00	6,940.53	6,600.00	6,411.28	87.79	29.73	-17.61	1,434.60	46.52	5,256.72	5,195.39	61.32	85.719
12,000.00	6,940.24	6,600.00	6,411.28	89.28	29.73	-17.61	1,434.60	46.52	5,356.14	5,294.76	61.38	87.265
12,100.00	6,939.96	6,600.00	6,411.28	90.77	29.73	-17.61	1,434.60	46.52	5,455.58	5,394.15	61.43	88.808
12,200.00	6,939.67	6,600.00	6,411.28	92.27	29.73	-17.61	1,434.60	46.52	5,555.04	5,493.55	61.48	90.349
12,300.00	6,939.39	6,600.00	6,411.28	93.78	29.73	-17.61	1,434.60	46.52	5,654.52	5,592.98	61.54	91.887
12,400.00	6,939.10	6,600.00	6,411.28	95.28	29.73	-17.61	1,434.60	46.52	5,754.02	5,692.42	61.59	93.423
12,500.00	6,938.82	6,600.00	6,411.28	96.79	29.73	-17.61	1,434.60	46.52	5,853.53	5,791.89	61.64	94.956
12,600.00	6,938.53	6,600.00	6,411.28	98.30	29.73	-17.61	1,434.60	46.52	5,953.06	5,891.36	61.70	96.487
12,700.00	6,938.25	6,600.00	6,411.28	99.82	29.73	-17.61	1,434.60	46.52	6,052.61	5,990.86	61.75	98.014
12,800.00	6,937.96	6,600.00	6,411.28	101.34	29.73	-17.61	1,434.60	46.52	6,152.17	6,090.36	61.81	99.539
12,900.00	6,937.68	6,600.00	6,411.28	102.86	29.73	-17.61	1,434.60	46.52	6,251.74	6,189.88	61.86	101.061
13,000.00	6,937.39	6,576.80	6,388.98	104.38	29.62	-17.51	1,428.70	43.97	6,350.87	6,289.11	61.75	102.842
13,100.00	6,937.11	6,575.96	6,388.17	105.91	29.61	-17.50	1,428.49	43.89	6,450.44	6,388.63	61.80	104.370
13,200.00	6,936.82	6,575.14	6,387.39	107.43	29.61	-17.50	1,428.28	43.82	6,550.02	6,488.16	61.85	105.895
13,300.00	6,936.54	6,574.35	6,386.62	108.96	29.61	-17.49	1,428.08	43.75	6,649.61	6,587.70	61.90	107.417
13,400.00	6,936.25	6,573.57	6,385.88	110.49	29.60	-17.49	1,427.88	43.68	6,749.21	6,687.25	61.96	108.935
13,500.00	6,935.97	6,550.00	6,363.15	112.03	29.49	-17.39	1,421.86	42.06	6,849.27	6,787.42	61.85	110.736
13,600.00	6,935.68	6,550.00	6,363.15	113.56	29.49	-17.39	1,421.86	42.06	6,948.86	6,886.95	61.91	112.241
13,700.00	6,935.40	6,550.00	6,363.15	115.10	29.49	-17.39	1,421.86	42.06	7,048.47	6,986.50	61.97	113.743
13,800.00	6,935.11	6,550.00	6,363.15	116.64	29.49	-17.39	1,421.86	42.06	7,148.09	7,086.06	62.03	115.241
13,900.00	6,934.83	6,550.00	6,363.15	118.18	29.49	-17.39	1,421.86	42.06	7,247.71	7,185.63	62.09	116.736
14,000.00	6,934.54	6,550.00	6,363.15	119.72	29.49	-17.39	1,421.86	42.06	7,347.35	7,285.21	62.15	118.228
14,100.00	6,934.26	6,550.00	6,363.15	121.26	29.49	-17.39	1,421.86	42.06	7,447.00	7,384.79	62.21	119.717
14,200.00	6,933.97	6,550.00	6,363.15	122.81	29.49	-17.39	1,421.86	42.06	7,546.66	7,484.39	62.27	121.201

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 #720H - 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)	Reference Vertical Depth (usft)	Measured Depth (usft)	Offset Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
14,300.00	6,933.69	6,550.00	6,363.15	124.36	29.49	-17.39	1,421.86	42.06	7,646.32	7,584.00	62.33	122.683		
14,400.00	6,933.40	6,550.00	6,363.15	125.90	29.49	-17.39	1,421.86	42.06	7,746.00	7,683.61	62.39	124.161		
14,500.00	6,933.12	6,550.00	6,363.15	127.45	29.49	-17.39	1,421.86	42.06	7,845.68	7,783.23	62.45	125.635		
14,600.00	6,932.83	6,550.00	6,363.15	129.00	29.49	-17.39	1,421.86	42.06	7,945.37	7,882.86	62.51	127.105		
14,700.00	6,932.55	6,550.00	6,363.15	130.56	29.49	-17.39	1,421.86	42.06	8,045.07	7,982.50	62.57	128.572		
14,800.00	6,932.26	6,550.00	6,363.15	132.11	29.49	-17.39	1,421.86	42.06	8,144.77	8,082.14	62.64	130.035		
14,900.00	6,931.98	6,550.00	6,363.15	133.66	29.49	-17.39	1,421.86	42.06	8,244.49	8,181.79	62.70	131.495		
15,000.00	6,931.69	6,550.00	6,363.15	135.22	29.49	-17.39	1,421.86	42.06	8,344.21	8,281.44	62.76	132.951		
15,100.00	6,931.41	6,550.00	6,363.15	136.77	29.49	-17.39	1,421.86	42.06	8,443.93	8,381.11	62.83	134.402		
15,200.00	6,931.12	6,550.00	6,363.15	138.33	29.49	-17.39	1,421.86	42.06	8,543.66	8,480.77	62.89	135.851		
15,300.00	6,930.84	6,550.00	6,363.15	139.89	29.49	-17.39	1,421.86	42.06	8,643.40	8,580.45	62.96	137.295		
15,400.00	6,930.55	6,550.00	6,363.15	141.45	29.49	-17.39	1,421.86	42.06	8,743.15	8,680.13	63.02	138.735		
15,500.00	6,930.27	6,550.00	6,363.15	143.01	29.49	-17.39	1,421.86	42.06	8,842.90	8,779.81	63.09	140.172		
15,600.00	6,929.98	6,550.00	6,363.15	144.57	29.49	-17.39	1,421.86	42.06	8,942.66	8,879.50	63.15	141.604		
15,700.00	6,929.70	6,550.00	6,363.15	146.13	29.49	-17.39	1,421.86	42.06	9,042.42	8,979.20	63.22	143.032		
15,800.00	6,929.41	6,550.00	6,363.15	147.70	29.49	-17.39	1,421.86	42.06	9,142.18	9,078.90	63.29	144.457		
15,900.00	6,929.13	6,550.00	6,363.15	149.26	29.49	-17.39	1,421.86	42.06	9,241.96	9,178.60	63.35	145.877		
16,000.00	6,928.84	6,550.00	6,363.15	150.82	29.49	-17.39	1,421.86	42.06	9,341.73	9,278.31	63.42	147.294		
16,100.00	6,928.56	6,550.00	6,363.15	152.39	29.49	-17.39	1,421.86	42.06	9,441.51	9,378.02	63.49	148.706		
16,200.00	6,928.27	6,550.00	6,363.15	153.96	29.49	-17.39	1,421.86	42.06	9,541.30	9,477.74	63.56	150.115		
16,300.00	6,927.99	6,550.00	6,363.15	155.52	29.49	-17.39	1,421.86	42.06	9,641.09	9,577.46	63.63	151.519		
16,400.00	6,927.70	6,550.00	6,363.15	157.09	29.49	-17.39	1,421.86	42.06	9,740.88	9,677.18	63.70	152.919		
16,500.00	6,927.42	6,550.00	6,363.15	158.66	29.49	-17.39	1,421.86	42.06	9,840.68	9,776.91	63.77	154.315		
16,600.00	6,927.13	6,550.00	6,363.15	160.23	29.49	-17.39	1,421.86	42.06	9,940.49	9,876.65	63.84	155.707		
16,700.00	6,926.85	6,550.00	6,363.15	161.80	29.49	-17.39	1,421.86	42.06	10,040.29	9,976.38	63.91	157.094		
16,800.00	6,926.56	6,550.00	6,363.15	163.37	29.49	-17.39	1,421.86	42.06	10,140.10	10,076.12	63.98	158.478		
16,900.00	6,926.28	6,550.00	6,363.15	164.94	29.49	-17.39	1,421.86	42.06	10,239.92	10,175.86	64.06	159.857		
17,000.00	6,925.99	6,550.00	6,363.15	166.51	29.49	-17.39	1,421.86	42.06	10,339.74	10,275.61	64.13	161.232		
17,100.00	6,925.71	6,550.00	6,363.15	168.08	29.49	-17.39	1,421.86	42.06	10,439.56	10,375.35	64.20	162.603		
17,200.00	6,925.42	6,550.00	6,363.15	169.65	29.49	-17.39	1,421.86	42.06	10,539.38	10,475.11	64.28	163.969		
17,300.00	6,925.14	6,550.00	6,363.15	171.23	29.49	-17.39	1,421.86	42.06	10,639.21	10,574.86	64.35	165.331		
17,400.00	6,924.85	6,550.00	6,363.15	172.80	29.49	-17.39	1,421.86	42.06	10,739.04	10,674.62	64.43	166.689		
17,500.00	6,924.57	6,550.00	6,363.15	174.37	29.49	-17.39	1,421.86	42.06	10,838.88	10,774.38	64.50	168.043		
17,600.00	6,924.28	6,550.00	6,363.15	175.95	29.49	-17.39	1,421.86	42.06	10,938.71	10,874.14	64.58	169.392		
17,700.00	6,924.00	6,550.00	6,363.15	177.52	29.49	-17.39	1,421.86	42.06	11,038.55	10,973.90	64.65	170.737		
17,800.00	6,923.71	6,550.00	6,363.15	179.10	29.49	-17.39	1,421.86	42.06	11,138.40	11,073.67	64.73	172.078		
17,900.00	6,923.43	6,550.00	6,363.15	180.68	29.49	-17.39	1,421.86	42.06	11,238.24	11,173.44	64.81	173.414		
18,000.00	6,923.14	6,550.00	6,363.15	182.25	29.49	-17.39	1,421.86	42.06	11,338.09	11,273.21	64.88	174.746		
18,100.00	6,922.86	6,550.00	6,363.15	183.83	29.49	-17.39	1,421.86	42.06	11,437.94	11,372.98	64.96	176.074		
18,200.00	6,922.57	6,550.00	6,363.15	185.41	29.49	-17.39	1,421.86	42.06	11,537.80	11,472.76	65.04	177.397		
18,300.00	6,922.29	6,550.00	6,363.15	186.98	29.49	-17.39	1,421.86	42.06	11,637.65	11,572.54	65.12	178.716		
18,400.00	6,922.00	6,550.00	6,363.15	188.56	29.49	-17.39	1,421.86	42.06	11,737.51	11,672.32	65.20	180.030		
18,500.00	6,921.71	6,550.00	6,363.15	190.14	29.49	-17.39	1,421.86	42.06	11,837.37	11,772.10	65.28	181.340		
18,600.00	6,921.43	6,550.00	6,363.15	191.72	29.49	-17.39	1,421.86	42.06	11,937.24	11,871.88	65.36	182.646		
18,700.00	6,921.14	6,550.00	6,363.15	193.30	29.49	-17.39	1,421.86	42.06	12,037.10	11,971.67	65.44	183.947		
18,800.00	6,920.86	6,550.00	6,363.15	194.88	29.49	-17.39	1,421.86	42.06	12,136.97	12,071.45	65.52	185.244		
18,900.00	6,920.57	6,550.00	6,363.15	196.46	29.49	-17.39	1,421.86	42.06	12,236.84	12,171.24	65.60	186.537		
19,000.00	6,920.29	6,550.00	6,363.15	198.04	29.49	-17.39	1,421.86	42.06	12,336.71	12,271.03	65.68	187.825		
19,100.00	6,920.00	6,550.00	6,363.15	199.62	29.49	-17.39	1,421.86	42.06	12,436.59	12,370.82	65.76	189.109		
19,200.00	6,919.72	6,550.00	6,363.15	201.20	29.49	-17.39	1,421.86	42.06	12,536.46	12,470.62	65.85	190.388		
19,300.00	6,919.43	6,550.00	6,363.15	202.78	29.49	-17.39	1,421.86	42.06	12,636.34	12,570.41	65.93	191.663		
19,400.00	6,919.15	6,550.00	6,363.15	204.36	29.49	-17.39	1,421.86	42.06	12,736.22	12,670.21	66.01	192.933		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 #720H - 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		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	6,918.86	6,550.00	6,363.15	205.95	29.49	-17.39	1,421.86	42.06	12,836.11	12,770.01	66.10	194.199	
19,600.00	6,918.58	6,550.00	6,363.15	207.53	29.49	-17.39	1,421.86	42.06	12,935.99	12,869.81	66.18	195.461	
19,700.00	6,918.29	6,550.00	6,363.15	209.11	29.49	-17.39	1,421.86	42.06	13,035.88	12,969.61	66.27	196.718	
19,800.00	6,918.01	6,550.00	6,363.15	210.69	29.49	-17.39	1,421.86	42.06	13,135.76	13,069.41	66.35	197.970	
19,900.00	6,917.72	6,550.00	6,363.15	212.28	29.49	-17.39	1,421.86	42.06	13,235.65	13,169.21	66.44	199.219	
20,000.00	6,917.44	6,550.00	6,363.15	213.86	29.49	-17.39	1,421.86	42.06	13,335.54	13,269.02	66.52	200.463	
20,100.00	6,917.15	6,550.00	6,363.15	215.45	29.49	-17.39	1,421.86	42.06	13,435.44	13,368.82	66.61	201.702	
20,200.00	6,916.87	6,550.00	6,363.15	217.03	29.49	-17.39	1,421.86	42.06	13,535.33	13,468.63	66.70	202.937	
20,300.00	6,916.58	6,550.00	6,363.15	218.61	29.49	-17.39	1,421.86	42.06	13,635.22	13,568.44	66.78	204.167	
20,400.00	6,916.30	6,550.00	6,363.15	220.20	29.49	-17.39	1,421.86	42.06	13,735.12	13,668.25	66.87	205.394	
20,500.00	6,916.01	6,550.00	6,363.15	221.78	29.49	-17.39	1,421.86	42.06	13,835.02	13,768.06	66.96	206.615	
20,600.00	6,915.73	6,550.00	6,363.15	223.37	29.49	-17.39	1,421.86	42.06	13,934.92	13,867.87	67.05	207.833	
20,700.00	6,915.44	6,550.00	6,363.15	224.95	29.49	-17.39	1,421.86	42.06	14,034.82	13,967.68	67.14	209.045	
20,800.00	6,915.16	6,550.00	6,363.15	226.54	29.49	-17.39	1,421.86	42.06	14,134.72	14,067.50	67.23	210.254	
20,855.45	6,915.00	6,550.00	6,363.15	227.42	29.49	-17.39	1,421.86	42.06	14,190.12	14,122.85	67.28	210.922	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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
0.00	0.00	0.00	0.00	0.00	0.00	165.01	-57.88	15.50	59.92				
100.00	100.00	100.00	100.00	0.25	0.25	165.01	-57.88	15.50	59.92	59.42	0.50	119.400	
200.00	200.00	200.00	200.00	0.61	0.61	165.01	-57.88	15.50	59.92	58.70	1.22	49.165	
300.00	300.00	300.00	300.00	0.97	0.97	165.01	-57.88	15.50	59.92	57.99	1.94	30.956	
400.00	400.00	400.00	400.00	1.33	1.33	165.01	-57.88	15.50	59.92	57.27	2.65	22.589	
500.00	500.00	500.00	500.00	1.68	1.68	165.01	-57.88	15.50	59.92	56.55	3.37	17.783	CC, ES
600.00	599.98	600.65	600.65	2.04	2.05	171.44	-56.88	15.69	60.74	56.65	4.09	14.855	
700.00	699.84	700.56	700.55	2.41	2.40	171.65	-55.68	15.92	64.81	60.01	4.81	13.481	
800.00	799.45	800.27	800.25	2.77	2.76	172.21	-54.49	16.14	72.34	66.82	5.53	13.088	SF
900.00	898.70	899.66	899.63	3.13	3.12	172.97	-53.29	16.37	83.33	77.08	6.25	13.337	
1,000.00	997.47	998.60	998.56	3.50	3.47	173.76	-52.11	16.59	97.76	90.79	6.97	14.030	
1,100.00	1,095.62	1,096.97	1,096.93	3.89	3.82	174.52	-50.92	16.81	115.64	107.95	7.69	15.041	
1,200.00	1,193.06	1,194.66	1,194.61	4.30	4.17	175.18	-49.75	17.03	136.95	128.54	8.41	16.287	
1,245.75	1,237.35	1,239.09	1,239.03	4.49	4.33	175.46	-49.22	17.14	147.83	139.09	8.74	16.913	
1,300.00	1,289.78	1,291.67	1,291.61	4.72	4.52	175.76	-48.59	17.25	161.16	152.03	9.13	17.654	
1,400.00	1,386.41	1,388.59	1,388.53	5.15	4.87	176.21	-47.42	17.47	185.73	175.89	9.84	18.870	
1,500.00	1,483.04	1,485.52	1,485.45	5.59	5.22	176.56	-46.26	17.69	210.32	199.76	10.56	19.916	
1,600.00	1,579.67	1,582.44	1,582.36	6.04	5.56	176.83	-45.10	17.91	234.91	223.63	11.28	20.824	
1,700.00	1,676.30	1,679.36	1,679.28	6.49	5.91	177.05	-43.93	18.13	259.50	247.50	12.00	21.619	
1,800.00	1,772.93	1,776.29	1,776.20	6.95	6.26	177.23	-42.77	18.35	284.10	271.37	12.73	22.321	
1,900.00	1,869.56	1,873.21	1,873.11	7.41	6.61	177.38	-41.60	18.57	308.70	295.25	13.45	22.945	
2,000.00	1,966.19	1,970.14	1,970.03	7.87	6.95	177.51	-40.44	18.79	333.30	319.12	14.18	23.503	
2,100.00	2,062.83	2,067.06	2,066.95	8.33	7.30	177.63	-39.28	19.01	357.91	343.00	14.91	24.004	
2,200.00	2,159.46	2,163.98	2,163.86	8.80	7.65	177.73	-38.11	19.23	382.51	366.87	15.64	24.457	
2,300.00	2,256.09	2,260.91	2,260.78	9.27	8.00	177.81	-36.95	19.45	407.12	390.74	16.37	24.869	
2,400.00	2,352.72	2,357.83	2,357.70	9.73	8.34	177.89	-35.79	19.67	431.72	414.62	17.10	25.245	
2,500.00	2,449.35	2,454.76	2,454.61	10.20	8.69	177.96	-34.62	19.89	456.33	438.49	17.83	25.588	
2,600.00	2,545.98	2,551.68	2,551.53	10.67	9.04	178.02	-33.46	20.10	480.93	462.37	18.57	25.904	
2,700.00	2,642.61	2,648.60	2,648.45	11.15	9.39	178.07	-32.29	20.32	505.54	486.24	19.30	26.195	
2,800.00	2,739.24	2,745.53	2,745.36	11.62	9.73	178.12	-31.13	20.54	530.15	510.12	20.03	26.465	
2,900.00	2,835.87	2,842.45	2,842.28	12.09	10.08	178.17	-29.97	20.76	554.76	533.99	20.77	26.714	
3,000.00	2,932.50	2,939.38	2,939.20	12.56	10.43	178.21	-28.80	20.98	579.37	557.87	21.50	26.947	
3,100.00	3,029.13	3,036.30	3,036.11	13.04	10.78	178.25	-27.64	21.20	603.98	581.74	22.24	27.163	
3,200.00	3,125.77	3,133.22	3,133.03	13.51	11.12	178.29	-26.48	21.42	628.59	605.62	22.97	27.365	
3,300.00	3,222.40	3,230.15	3,229.95	13.99	11.47	178.32	-25.31	21.64	653.19	629.49	23.71	27.555	
3,400.00	3,319.03	3,327.07	3,326.86	14.46	11.82	178.35	-24.15	21.86	677.80	653.36	24.44	27.733	
3,500.00	3,415.66	3,424.00	3,423.78	14.94	12.17	178.38	-22.98	22.08	702.41	677.24	25.18	27.900	
3,600.00	3,512.29	3,520.92	3,520.70	15.42	12.51	178.40	-21.82	22.30	727.02	701.11	25.91	28.057	
3,700.00	3,608.92	3,617.84	3,617.61	15.89	12.86	178.43	-20.66	22.52	751.63	724.99	26.65	28.205	
3,800.00	3,705.55	3,714.77	3,714.53	16.37	13.21	178.45	-19.49	22.74	776.24	748.86	27.38	28.346	
3,900.00	3,802.18	3,811.69	3,811.45	16.84	13.56	178.47	-18.33	22.96	800.85	772.73	28.12	28.478	
4,000.00	3,898.81	3,908.62	3,908.36	17.32	13.90	178.49	-17.17	23.17	825.46	796.61	28.86	28.604	
4,100.00	3,995.44	4,005.54	4,005.28	17.80	14.25	178.51	-16.00	23.39	850.08	820.48	29.60	28.723	
4,200.00	4,092.07	4,102.46	4,102.20	18.28	14.60	178.53	-14.84	23.61	874.69	844.35	30.33	28.837	
4,300.00	4,188.71	4,199.39	4,199.11	18.75	14.95	178.55	-13.67	23.83	899.30	868.23	31.07	28.945	
4,400.00	4,285.34	4,296.31	4,296.03	19.23	15.29	178.56	-12.51	24.05	923.91	892.10	31.81	29.047	
4,500.00	4,381.97	4,393.24	4,392.95	19.71	15.64	178.58	-11.35	24.27	948.52	915.97	32.54	29.145	
4,600.00	4,478.60	4,490.16	4,489.86	20.19	15.99	178.59	-10.18	24.49	973.13	939.85	33.28	29.239	
4,700.00	4,575.23	4,587.08	4,586.78	20.67	16.34	178.61	-9.02	24.71	997.74	963.72	34.02	29.328	
4,800.00	4,671.86	4,684.01	4,683.70	21.14	16.68	178.62	-7.86	24.93	1,022.35	987.59	34.76	29.414	
4,900.00	4,768.49	4,780.93	4,780.61	21.62	17.03	178.63	-6.69	25.15	1,046.96	1,011.47	35.50	29.496	
5,000.00	4,865.12	4,877.86	4,877.53	22.10	17.38	178.64	-5.53	25.37	1,071.57	1,035.34	36.23	29.574	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	4,961.75	4,974.78	4,974.45	22.58	17.73	178.66	-4.36	25.59	1,096.18	1,059.21	36.97	29.649			
5,200.00	5,058.38	5,071.70	5,071.36	23.06	18.07	178.67	-3.20	25.81	1,120.79	1,083.08	37.71	29.721			
5,300.00	5,155.01	5,168.63	5,168.28	23.54	18.42	178.68	-2.04	26.03	1,145.41	1,106.96	38.45	29.790			
5,400.00	5,251.64	5,265.55	5,265.20	24.01	18.77	178.69	-0.87	26.24	1,170.02	1,130.83	39.19	29.857			
5,500.00	5,348.28	5,362.48	5,362.11	24.49	19.12	178.70	0.29	26.46	1,194.63	1,154.70	39.93	29.921			
5,600.00	5,444.91	5,459.40	5,459.03	24.97	19.46	178.71	1.45	26.68	1,219.24	1,178.57	40.66	29.983			
5,700.00	5,541.54	5,556.32	5,555.95	25.45	19.81	178.72	2.62	26.90	1,243.85	1,202.45	41.40	30.042			
5,800.00	5,638.17	5,653.25	5,652.86	25.93	20.16	178.72	3.78	27.12	1,268.46	1,226.32	42.14	30.099			
5,900.00	5,734.80	5,750.17	5,749.78	26.41	20.51	178.73	4.95	27.34	1,293.07	1,250.19	42.88	30.154			
6,000.00	5,831.43	5,847.10	5,846.70	26.89	20.86	178.74	6.11	27.56	1,317.68	1,274.06	43.62	30.208			
6,100.00	5,928.06	5,944.02	5,943.61	27.37	21.20	178.75	7.27	27.78	1,342.30	1,297.93	44.36	30.259			
6,200.00	6,024.69	6,040.94	6,040.53	27.85	21.55	178.76	8.44	28.00	1,366.91	1,321.81	45.10	30.309			
6,300.00	6,121.32	6,137.87	6,137.45	28.33	21.90	178.76	9.60	28.22	1,391.52	1,345.68	45.84	30.357			
6,400.00	6,217.95	6,234.79	6,234.36	28.81	22.25	178.77	10.76	28.44	1,416.13	1,369.55	46.58	30.403			
6,500.00	6,314.58	6,327.12	6,326.69	29.29	22.58	178.77	11.87	28.76	1,440.77	1,393.48	47.29	30.469			
6,543.64	6,356.75	6,357.63	6,357.16	29.49	22.68	178.72	12.19	30.14	1,451.81	1,404.29	47.52	30.549			
6,550.00	6,362.90	6,362.05	6,361.57	29.53	22.70	-179.02	12.23	30.46	1,453.46	1,405.90	47.56	30.561			
6,600.00	6,411.07	6,400.00	6,399.30	29.77	22.83	-162.55	12.56	34.47	1,466.92	1,419.07	47.85	30.657			
6,650.00	6,458.79	6,428.76	6,427.70	30.01	22.93	-149.16	12.76	39.00	1,481.33	1,433.26	48.07	30.816			
6,700.00	6,505.76	6,459.04	6,457.34	30.26	23.04	-138.94	12.91	45.15	1,496.70	1,448.41	48.30	30.989			
6,750.00	6,551.69	6,486.55	6,484.00	30.50	23.13	-131.12	13.01	51.95	1,513.08	1,464.58	48.50	31.199			
6,800.00	6,596.30	6,510.98	6,507.40	30.74	23.22	-124.98	13.07	58.95	1,530.51	1,481.84	48.67	31.447			
6,850.00	6,639.32	6,532.17	6,527.47	30.98	23.29	-119.95	13.09	65.75	1,549.00	1,500.19	48.81	31.736			
6,900.00	6,680.47	6,550.00	6,544.17	31.21	23.35	-115.63	13.09	71.98	1,568.58	1,519.66	48.91	32.069			
6,950.00	6,719.51	6,564.95	6,558.04	31.44	23.40	-111.77	13.07	77.57	1,589.22	1,540.23	48.99	32.441			
7,000.00	6,756.20	6,576.79	6,568.93	31.67	23.45	-108.20	13.05	82.22	1,610.88	1,561.84	49.03	32.854			
7,050.00	6,790.30	6,585.85	6,577.20	31.90	23.48	-104.78	13.03	85.92	1,633.47	1,584.42	49.05	33.304			
7,100.00	6,821.62	6,600.00	6,590.01	32.13	23.53	-101.76	12.99	91.92	1,656.93	1,607.81	49.12	33.735			
7,150.00	6,849.95	6,600.00	6,590.01	32.35	23.53	-98.35	12.99	91.92	1,681.03	1,631.98	49.05	34.273			
7,200.00	6,875.12	6,600.00	6,590.01	32.58	23.53	-95.06	12.99	91.92	1,705.71	1,656.73	48.98	34.821			
7,250.00	6,896.97	6,600.00	6,590.01	32.81	23.53	-91.89	12.99	91.92	1,730.80	1,681.88	48.93	35.374			
7,300.00	6,915.38	6,600.00	6,590.01	33.05	23.53	-88.85	12.99	91.92	1,756.13	1,707.25	48.89	35.924			
7,350.00	6,930.22	6,600.00	6,590.01	33.29	23.53	-85.96	12.99	91.92	1,781.54	1,732.68	48.85	36.466			
7,400.00	6,941.41	6,600.00	6,590.01	33.53	23.53	-83.21	12.99	91.92	1,806.86	1,758.02	48.84	36.996			
7,450.00	6,948.88	6,584.28	6,575.77	33.79	23.47	-80.11	13.04	85.27	1,831.78	1,783.11	48.67	37.638			
7,500.00	6,952.57	6,577.59	6,569.66	34.05	23.45	-77.52	13.05	82.54	1,856.32	1,807.71	48.61	38.186			
7,525.63	6,953.00	6,573.78	6,566.17	34.19	23.43	-76.27	13.06	81.02	1,868.67	1,820.08	48.59	38.461			
7,600.00	6,952.79	6,550.00	6,544.17	34.61	23.35	-75.53	13.09	71.98	1,905.40	1,857.01	48.39	39.377			
7,700.00	6,952.50	6,550.00	6,544.17	35.23	23.35	-75.53	13.09	71.98	1,957.65	1,909.16	48.49	40.371			
7,800.00	6,952.22	6,550.00	6,544.17	35.91	23.35	-75.53	13.09	71.98	2,013.52	1,964.91	48.60	41.428			
7,900.00	6,951.93	6,526.26	6,521.90	36.65	23.27	-74.78	13.09	63.79	2,072.28	2,023.80	48.47	42.751			
8,000.00	6,951.65	6,500.00	6,496.91	37.45	23.18	-73.95	13.05	55.69	2,134.26	2,085.93	48.33	44.160			
8,100.00	6,951.36	6,500.00	6,496.91	38.29	23.18	-73.95	13.05	55.69	2,198.55	2,150.09	48.47	45.361			
8,200.00	6,951.08	6,500.00	6,496.91	39.19	23.18	-73.95	13.05	55.69	2,265.44	2,216.83	48.60	46.609			
8,300.00	6,950.79	6,500.00	6,496.91	40.13	23.18	-73.95	13.05	55.69	2,334.69	2,285.95	48.74	47.900			
8,400.00	6,950.51	6,500.00	6,496.91	41.11	23.18	-73.95	13.05	55.69	2,406.10	2,357.23	48.87	49.230			
8,500.00	6,950.22	6,477.32	6,475.08	42.12	23.10	-73.23	12.98	49.54	2,479.08	2,430.28	48.80	50.800			
8,600.00	6,949.94	6,471.21	6,469.17	43.18	23.08	-73.04	12.96	48.02	2,554.01	2,505.13	48.88	52.250			
8,700.00	6,949.65	6,450.00	6,448.52	44.26	23.00	-72.36	12.87	43.16	2,630.76	2,581.93	48.83	53.877			
8,800.00	6,949.37	6,450.00	6,448.52	45.38	23.00	-72.36	12.87	43.16	2,708.68	2,659.72	48.96	55.323			
8,900.00	6,949.08	6,450.00	6,448.52	46.53	23.00	-72.36	12.87	43.16	2,788.01	2,738.92	49.09	56.795			
9,000.00	6,948.80	6,450.00	6,448.52	47.70	23.00	-72.36	12.87	43.16	2,868.63	2,819.41	49.21	58.290			

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		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	6,948.51	6,450.00	6,448.52	48.89	23.00	-72.36	12.87	43.16	2,950.43	2,901.10	49.33	59.808		
9,200.00	6,948.23	6,450.00	6,448.52	50.11	23.00	-72.36	12.87	43.16	3,033.33	2,983.88	49.45	61.346		
9,300.00	6,947.94	6,450.00	6,448.52	51.35	23.00	-72.36	12.87	43.16	3,117.23	3,067.67	49.56	62.902		
9,400.00	6,947.66	6,450.00	6,448.52	52.61	23.00	-72.36	12.87	43.16	3,202.05	3,152.39	49.66	64.474		
9,500.00	6,947.37	6,450.00	6,448.52	53.89	23.00	-72.36	12.87	43.16	3,287.73	3,237.97	49.77	66.062		
9,600.00	6,947.09	6,428.04	6,426.98	55.18	22.93	-71.67	12.75	38.87	3,373.79	3,324.07	49.72	67.860		
9,700.00	6,946.80	6,424.96	6,423.95	56.49	22.92	-71.57	12.73	38.33	3,460.86	3,411.07	49.80	69.501		
9,800.00	6,946.52	6,422.04	6,421.08	57.81	22.91	-71.47	12.71	37.82	3,548.60	3,498.73	49.87	71.151		
9,900.00	6,946.23	6,400.00	6,399.30	59.15	22.83	-70.78	12.56	34.47	3,637.27	3,587.45	49.83	72.999		
10,000.00	6,945.95	6,400.00	6,399.30	60.50	22.83	-70.78	12.56	34.47	3,726.13	3,676.21	49.92	74.640		
10,100.00	6,945.66	6,400.00	6,399.30	61.87	22.83	-70.78	12.56	34.47	3,815.53	3,765.52	50.01	76.289		
10,200.00	6,945.38	6,400.00	6,399.30	63.24	22.83	-70.78	12.56	34.47	3,905.45	3,855.35	50.10	77.946		
10,300.00	6,945.09	6,400.00	6,399.30	64.63	22.83	-70.78	12.56	34.47	3,995.85	3,945.66	50.19	79.611		
10,400.00	6,944.81	6,400.00	6,399.30	66.02	22.83	-70.78	12.56	34.47	4,086.70	4,036.42	50.28	81.282		
10,500.00	6,944.52	6,400.00	6,399.30	67.42	22.83	-70.78	12.56	34.47	4,177.96	4,127.60	50.36	82.959		
10,600.00	6,944.24	6,400.00	6,399.30	68.84	22.83	-70.78	12.56	34.47	4,269.62	4,219.17	50.44	84.641		
10,700.00	6,943.95	6,400.00	6,399.30	70.26	22.83	-70.78	12.56	34.47	4,361.64	4,311.12	50.52	86.328		
10,800.00	6,943.67	6,400.00	6,399.30	71.68	22.83	-70.78	12.56	34.47	4,454.01	4,403.40	50.60	88.018		
10,900.00	6,943.38	6,400.00	6,399.30	73.12	22.83	-70.78	12.56	34.47	4,546.70	4,496.01	50.68	89.712		
11,000.00	6,943.10	6,400.00	6,399.30	74.56	22.83	-70.78	12.56	34.47	4,639.69	4,588.93	50.76	91.410		
11,100.00	6,942.81	6,400.00	6,399.30	76.01	22.83	-70.78	12.56	34.47	4,732.97	4,682.13	50.83	93.109		
11,200.00	6,942.53	6,400.00	6,399.30	77.46	22.83	-70.78	12.56	34.47	4,826.51	4,775.61	50.91	94.811		
11,300.00	6,942.24	6,400.00	6,399.30	78.92	22.83	-70.78	12.56	34.47	4,920.32	4,869.34	50.98	96.514		
11,400.00	6,941.96	6,400.00	6,399.30	80.39	22.83	-70.78	12.56	34.47	5,014.36	4,963.30	51.05	98.219		
11,500.00	6,941.67	6,400.00	6,399.30	81.86	22.83	-70.78	12.56	34.47	5,108.62	5,057.50	51.12	99.925		
11,600.00	6,941.39	6,400.00	6,399.30	83.33	22.83	-70.78	12.56	34.47	5,203.11	5,151.91	51.20	101.632		
11,700.00	6,941.10	6,400.00	6,399.30	84.81	22.83	-70.78	12.56	34.47	5,297.79	5,246.52	51.27	103.338		
11,800.00	6,940.81	6,400.00	6,399.30	86.30	22.83	-70.78	12.56	34.47	5,392.67	5,341.33	51.34	105.045		
11,900.00	6,940.53	6,400.00	6,399.30	87.79	22.83	-70.78	12.56	34.47	5,487.72	5,436.32	51.41	106.752		
12,000.00	6,940.24	6,400.00	6,399.30	89.28	22.83	-70.78	12.56	34.47	5,582.95	5,531.48	51.48	108.458		
12,100.00	6,939.96	6,400.00	6,399.30	90.77	22.83	-70.78	12.56	34.47	5,678.35	5,626.80	51.54	110.164		
12,200.00	6,939.67	6,400.00	6,399.30	92.27	22.83	-70.78	12.56	34.47	5,773.90	5,722.29	51.61	111.868		
12,300.00	6,939.39	6,400.00	6,399.30	93.78	22.83	-70.78	12.56	34.47	5,869.60	5,817.92	51.68	113.571		
12,400.00	6,939.10	6,400.00	6,399.30	95.28	22.83	-70.78	12.56	34.47	5,965.44	5,913.69	51.75	115.273		
12,500.00	6,938.82	6,376.65	6,376.11	96.79	22.75	-70.04	12.37	31.73	6,060.95	6,009.24	51.71	117.202		
12,600.00	6,938.53	6,375.68	6,375.14	98.30	22.75	-70.01	12.36	31.64	6,157.01	6,105.24	51.78	118.911		
12,700.00	6,938.25	6,374.73	6,374.20	99.82	22.74	-69.98	12.35	31.55	6,253.20	6,201.36	51.84	120.617		
12,800.00	6,937.96	6,373.81	6,373.28	101.34	22.74	-69.95	12.34	31.46	6,349.50	6,297.59	51.91	122.321		
12,900.00	6,937.68	6,372.92	6,372.40	102.86	22.74	-69.92	12.34	31.38	6,445.91	6,393.94	51.97	124.023		
13,000.00	6,937.39	6,350.00	6,349.55	104.38	22.66	-69.20	12.12	29.66	6,542.84	6,490.90	51.94	125.960		
13,100.00	6,937.11	6,350.00	6,349.55	105.91	22.66	-69.20	12.12	29.66	6,639.43	6,587.42	52.01	127.647		
13,200.00	6,936.82	6,350.00	6,349.55	107.43	22.66	-69.20	12.12	29.66	6,736.12	6,684.04	52.08	129.332		
13,300.00	6,936.54	6,350.00	6,349.55	108.96	22.66	-69.20	12.12	29.66	6,832.91	6,780.75	52.15	131.014		
13,400.00	6,936.25	6,350.00	6,349.55	110.49	22.66	-69.20	12.12	29.66	6,929.78	6,877.56	52.22	132.694		
13,500.00	6,935.97	6,350.00	6,349.55	112.03	22.66	-69.20	12.12	29.66	7,026.75	6,974.45	52.29	134.369		
13,600.00	6,935.68	6,350.00	6,349.55	113.56	22.66	-69.20	12.12	29.66	7,123.80	7,071.43	52.36	136.042		
13,700.00	6,935.40	6,350.00	6,349.55	115.10	22.66	-69.20	12.12	29.66	7,220.92	7,168.49	52.44	137.712		
13,800.00	6,935.11	6,350.00	6,349.55	116.64	22.66	-69.20	12.12	29.66	7,318.13	7,265.62	52.51	139.377		
13,900.00	6,934.83	6,350.00	6,349.55	118.18	22.66	-69.20	12.12	29.66	7,415.41	7,362.83	52.58	141.040		
14,000.00	6,934.54	6,350.00	6,349.55	119.72	22.66	-69.20	12.12	29.66	7,512.76	7,460.11	52.65	142.698		
14,100.00	6,934.26	6,350.00	6,349.55	121.26	22.66	-69.20	12.12	29.66	7,610.18	7,557.46	52.72	144.353		
14,200.00	6,933.97	6,350.00	6,349.55	122.81	22.66	-69.20	12.12	29.66	7,707.67	7,654.88	52.79	146.004		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	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)	Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.00	6,933.69	6,350.00	6,349.55	124.36	22.66	-69.20	12.12	29.66	7,805.22	7,752.35	52.86	147.651		
14,400.00	6,933.40	6,350.00	6,349.55	125.90	22.66	-69.20	12.12	29.66	7,902.83	7,849.89	52.93	149.294		
14,500.00	6,933.12	6,350.00	6,349.55	127.45	22.66	-69.20	12.12	29.66	8,000.50	7,947.49	53.01	150.933		
14,600.00	6,932.83	6,350.00	6,349.55	129.00	22.66	-69.20	12.12	29.66	8,098.22	8,045.14	53.08	152.567		
14,700.00	6,932.55	6,350.00	6,349.55	130.56	22.66	-69.20	12.12	29.66	8,196.01	8,142.85	53.15	154.198		
14,800.00	6,932.26	6,350.00	6,349.55	132.11	22.66	-69.20	12.12	29.66	8,293.84	8,240.61	53.23	155.824		
14,900.00	6,931.98	6,350.00	6,349.55	133.66	22.66	-69.20	12.12	29.66	8,391.73	8,338.43	53.30	157.445		
15,000.00	6,931.69	6,350.00	6,349.55	135.22	22.66	-69.20	12.12	29.66	8,489.66	8,436.29	53.37	159.062		
15,100.00	6,931.41	6,350.00	6,349.55	136.77	22.66	-69.20	12.12	29.66	8,587.64	8,534.20	53.45	160.674		
15,200.00	6,931.12	6,350.00	6,349.55	138.33	22.66	-69.20	12.12	29.66	8,685.67	8,632.15	53.52	162.282		
15,300.00	6,930.84	6,350.00	6,349.55	139.89	22.66	-69.20	12.12	29.66	8,783.75	8,730.15	53.60	163.885		
15,400.00	6,930.55	6,350.00	6,349.55	141.45	22.66	-69.20	12.12	29.66	8,881.86	8,828.19	53.67	165.483		
15,500.00	6,930.27	6,350.00	6,349.55	143.01	22.66	-69.20	12.12	29.66	8,980.02	8,926.27	53.75	167.077		
15,600.00	6,929.98	6,350.00	6,349.55	144.57	22.66	-69.20	12.12	29.66	9,078.22	9,024.39	53.82	168.665		
15,700.00	6,929.70	6,350.00	6,349.55	146.13	22.66	-69.20	12.12	29.66	9,176.45	9,122.55	53.90	170.249		
15,800.00	6,929.41	6,350.00	6,349.55	147.70	22.66	-69.20	12.12	29.66	9,274.73	9,220.75	53.98	171.828		
15,900.00	6,929.13	6,350.00	6,349.55	149.26	22.66	-69.20	12.12	29.66	9,373.04	9,318.98	54.05	173.401		
16,000.00	6,928.84	6,350.00	6,349.55	150.82	22.66	-69.20	12.12	29.66	9,471.38	9,417.25	54.13	174.970		
16,100.00	6,928.56	6,350.00	6,349.55	152.39	22.66	-69.20	12.12	29.66	9,569.76	9,515.56	54.21	176.534		
16,200.00	6,928.27	6,350.00	6,349.55	153.96	22.66	-69.20	12.12	29.66	9,668.18	9,613.89	54.29	178.092		
16,300.00	6,927.99	6,350.00	6,349.55	155.52	22.66	-69.20	12.12	29.66	9,766.62	9,712.26	54.37	179.645		
16,400.00	6,927.70	6,350.00	6,349.55	157.09	22.66	-69.20	12.12	29.66	9,865.10	9,810.66	54.45	181.193		
16,500.00	6,927.42	6,350.00	6,349.55	158.66	22.66	-69.20	12.12	29.66	9,963.61	9,909.08	54.52	182.736		
16,600.00	6,927.13	6,350.00	6,349.55	160.23	22.66	-69.20	12.12	29.66	10,062.15	10,007.54	54.60	184.274		
16,700.00	6,926.85	6,350.00	6,349.55	161.80	22.66	-69.20	12.12	29.66	10,160.71	10,106.03	54.68	185.806		
16,800.00	6,926.56	6,350.00	6,349.55	163.37	22.66	-69.20	12.12	29.66	10,259.31	10,204.54	54.77	187.333		
16,900.00	6,926.28	6,350.00	6,349.55	164.94	22.66	-69.20	12.12	29.66	10,357.93	10,303.08	54.85	188.854		
17,000.00	6,925.99	6,350.00	6,349.55	166.51	22.66	-69.20	12.12	29.66	10,456.57	10,401.64	54.93	190.371		
17,100.00	6,925.71	6,350.00	6,349.55	168.08	22.66	-69.20	12.12	29.66	10,555.24	10,500.23	55.01	191.881		
17,200.00	6,925.42	6,350.00	6,349.55	169.65	22.66	-69.20	12.12	29.66	10,653.94	10,598.85	55.09	193.387		
17,300.00	6,925.14	6,350.00	6,349.55	171.23	22.66	-69.20	12.12	29.66	10,752.66	10,697.49	55.17	194.887		
17,400.00	6,924.85	6,350.00	6,349.55	172.80	22.66	-69.20	12.12	29.66	10,851.41	10,796.15	55.26	196.381		
17,500.00	6,924.57	6,350.00	6,349.55	174.37	22.66	-69.20	12.12	29.66	10,950.17	10,894.83	55.34	197.870		
17,600.00	6,924.28	6,350.00	6,349.55	175.95	22.66	-69.20	12.12	29.66	11,048.96	10,993.54	55.42	199.353		
17,700.00	6,924.00	6,350.00	6,349.55	177.52	22.66	-69.20	12.12	29.66	11,147.77	11,092.26	55.51	200.831		
17,800.00	6,923.71	6,350.00	6,349.55	179.10	22.66	-69.20	12.12	29.66	11,246.60	11,191.01	55.59	202.303		
17,900.00	6,923.43	6,350.00	6,349.55	180.68	22.66	-69.20	12.12	29.66	11,345.46	11,289.78	55.68	203.770		
18,000.00	6,923.14	6,350.00	6,349.55	182.25	22.66	-69.20	12.12	29.66	11,444.33	11,388.57	55.76	205.231		
18,100.00	6,922.86	6,350.00	6,349.55	183.83	22.66	-69.20	12.12	29.66	11,543.22	11,487.37	55.85	206.687		
18,200.00	6,922.57	6,350.00	6,349.55	185.41	22.66	-69.20	12.12	29.66	11,642.13	11,586.20	55.94	208.136		
18,300.00	6,922.29	6,350.00	6,349.55	186.98	22.66	-69.20	12.12	29.66	11,741.06	11,685.04	56.02	209.581		
18,400.00	6,922.00	6,350.00	6,349.55	188.56	22.66	-69.20	12.12	29.66	11,840.01	11,783.90	56.11	211.019		
18,500.00	6,921.71	6,350.00	6,349.55	190.14	22.66	-69.20	12.12	29.66	11,938.97	11,882.78	56.20	212.452		
18,600.00	6,921.43	6,350.00	6,349.55	191.72	22.66	-69.20	12.12	29.66	12,037.95	11,981.67	56.28	213.880		
18,700.00	6,921.14	6,350.00	6,349.55	193.30	22.66	-69.20	12.12	29.66	12,136.95	12,080.58	56.37	215.302		
18,800.00	6,920.86	6,350.00	6,349.55	194.88	22.66	-69.20	12.12	29.66	12,235.97	12,179.51	56.46	216.718		
18,900.00	6,920.57	6,350.00	6,349.55	196.46	22.66	-69.20	12.12	29.66	12,335.00	12,278.45	56.55	218.128		
19,000.00	6,920.29	6,350.00	6,349.55	198.04	22.66	-69.20	12.12	29.66	12,434.04	12,377.41	56.64	219.533		
19,100.00	6,920.00	6,350.00	6,349.55	199.62	22.66	-69.20	12.12	29.66	12,533.11	12,476.38	56.73	220.932		
19,200.00	6,919.72	6,350.00	6,349.55	201.20	22.66	-69.20	12.12	29.66	12,632.18	12,575.36	56.82	222.325		
19,300.00	6,919.43	6,350.00	6,349.55	202.78	22.66	-69.20	12.12	29.66	12,731.27	12,674.36	56.91	223.713		
19,400.00	6,919.15	6,350.00	6,349.55	204.36	22.66	-69.20	12.12	29.66	12,830.38	12,773.38	57.00	225.095		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	6,918.86	6,350.00	6,349.55	205.95	22.66	-69.20	12.12	29.66	12,929.49	12,872.40	57.09	226.472	
19,600.00	6,918.58	6,350.00	6,349.55	207.53	22.66	-69.20	12.12	29.66	13,028.63	12,971.44	57.18	227.843	
19,700.00	6,918.29	6,350.00	6,349.55	209.11	22.66	-69.20	12.12	29.66	13,127.77	13,070.50	57.27	229.208	
19,800.00	6,918.01	6,350.00	6,349.55	210.69	22.66	-69.20	12.12	29.66	13,226.93	13,169.56	57.37	230.567	
19,900.00	6,917.72	6,350.00	6,349.55	212.28	22.66	-69.20	12.12	29.66	13,326.10	13,268.64	57.46	231.921	
20,000.00	6,917.44	6,350.00	6,349.55	213.86	22.66	-69.20	12.12	29.66	13,425.28	13,367.73	57.55	233.269	
20,100.00	6,917.15	6,350.00	6,349.55	215.45	22.66	-69.20	12.12	29.66	13,524.48	13,466.83	57.65	234.611	
20,200.00	6,916.87	6,350.00	6,349.55	217.03	22.66	-69.20	12.12	29.66	13,623.68	13,565.94	57.74	235.948	
20,300.00	6,916.58	6,350.00	6,349.55	218.61	22.66	-69.20	12.12	29.66	13,722.90	13,665.07	57.83	237.279	
20,400.00	6,916.30	6,350.00	6,349.55	220.20	22.66	-69.20	12.12	29.66	13,822.13	13,764.20	57.93	238.605	
20,500.00	6,916.01	6,350.00	6,349.55	221.78	22.66	-69.20	12.12	29.66	13,921.37	13,863.35	58.02	239.925	
20,600.00	6,915.73	6,350.00	6,349.55	223.37	22.66	-69.20	12.12	29.66	14,020.62	13,962.50	58.12	241.239	
20,700.00	6,915.44	6,350.00	6,349.55	224.95	22.66	-69.20	12.12	29.66	14,119.89	14,061.67	58.21	242.548	
20,800.00	6,915.16	6,350.00	6,349.55	226.54	22.66	-69.20	12.12	29.66	14,219.16	14,160.85	58.31	243.851	
20,855.45	6,915.00	6,350.00	6,349.55	227.42	22.66	-69.20	12.12	29.66	14,274.21	14,215.85	58.36	244.571	

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

SDT

Anticollision Report

Company:	Logos Operating LLC	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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 (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	164.94	-77.18	20.76	79.92				
100.00	100.00	100.00	100.00	0.25	0.25	164.94	-77.18	20.76	79.92	79.42	0.50	159.250	
200.00	200.00	200.00	200.00	0.61	0.61	164.94	-77.18	20.76	79.92	78.70	1.22	65.573	
300.00	300.00	300.00	300.00	0.97	0.97	164.94	-77.18	20.76	79.92	77.99	1.94	41.287	
400.00	400.00	400.00	400.00	1.33	1.33	164.94	-77.18	20.76	79.92	77.27	2.65	30.128	
500.00	500.00	500.00	500.00	1.68	1.68	164.94	-77.18	20.76	79.92	76.55	3.37	23.718 CC, ES	
600.00	599.98	597.25	597.23	2.04	2.02	171.99	-78.83	20.79	83.30	79.23	4.06	20.505	
700.00	699.84	693.82	693.67	2.41	2.34	173.12	-83.73	20.86	93.42	88.67	4.75	19.678 SF	
800.00	799.45	789.04	788.55	2.77	2.67	174.54	-91.74	20.99	110.27	104.84	5.43	20.302	
900.00	898.70	882.29	881.16	3.13	2.99	175.91	-102.64	21.15	133.75	127.64	6.11	21.901	
1,000.00	997.47	972.99	970.85	3.50	3.33	177.09	-116.13	21.36	163.71	156.94	6.77	24.185	
1,100.00	1,095.62	1,060.65	1,057.07	3.89	3.66	178.05	-131.86	21.60	199.92	192.51	7.41	26.966	
1,200.00	1,193.06	1,144.81	1,139.38	4.30	4.00	178.80	-149.43	21.87	242.12	234.08	8.04	30.125	
1,245.75	1,237.35	1,182.24	1,175.81	4.49	4.15	179.10	-158.02	22.00	263.34	255.02	8.32	31.652	
1,300.00	1,289.78	1,229.93	1,222.16	4.72	4.35	179.43	-169.23	22.17	289.17	280.50	8.67	33.343	
1,400.00	1,386.41	1,317.83	1,307.59	5.15	4.73	179.91	-189.90	22.48	336.80	327.47	9.33	36.103	
1,500.00	1,483.04	1,405.72	1,393.03	5.59	5.11	-179.73	-210.57	22.80	384.44	374.45	9.99	38.481	
1,600.00	1,579.67	1,493.62	1,478.46	6.04	5.49	-179.45	-231.24	23.11	432.09	421.44	10.66	40.544	
1,700.00	1,676.30	1,581.52	1,563.89	6.49	5.88	-179.22	-251.90	23.43	479.75	468.42	11.33	42.346	
1,800.00	1,772.93	1,669.42	1,649.33	6.95	6.28	-179.04	-272.57	23.74	527.42	515.41	12.01	43.932	
1,900.00	1,869.56	1,757.32	1,734.76	7.41	6.68	-178.88	-293.24	24.06	575.08	562.40	12.68	45.337	
2,000.00	1,966.19	1,845.22	1,820.19	7.87	7.08	-178.75	-313.91	24.38	622.75	609.39	13.37	46.590	
2,100.00	2,062.83	1,933.12	1,905.63	8.33	7.48	-178.64	-334.58	24.69	670.42	656.37	14.05	47.712	
2,200.00	2,159.46	2,021.01	1,991.06	8.80	7.88	-178.54	-355.24	25.01	718.10	703.36	14.74	48.724	
2,300.00	2,256.09	2,108.91	2,076.50	9.27	8.29	-178.46	-375.91	25.32	765.77	750.35	15.43	49.639	
2,400.00	2,352.72	2,196.81	2,161.93	9.73	8.69	-178.38	-396.58	25.64	813.45	797.33	16.12	50.471	
2,500.00	2,449.35	2,284.71	2,247.36	10.20	9.10	-178.31	-417.25	25.95	861.13	844.32	16.81	51.230	
2,600.00	2,545.98	2,372.61	2,332.80	10.67	9.51	-178.25	-437.92	26.27	908.80	891.30	17.50	51.925	
2,700.00	2,642.61	2,460.51	2,418.23	11.15	9.92	-178.20	-458.58	26.58	956.48	938.29	18.20	52.563	
2,800.00	2,739.24	2,548.41	2,503.66	11.62	10.33	-178.15	-479.25	26.90	1,004.16	985.27	18.89	53.152	
2,900.00	2,835.87	2,636.30	2,589.10	12.09	10.74	-178.11	-499.92	27.21	1,051.84	1,032.25	19.59	53.697	
3,000.00	2,932.50	2,724.20	2,674.53	12.56	11.15	-178.07	-520.59	27.53	1,099.52	1,079.23	20.29	54.201	
3,100.00	3,029.13	2,812.10	2,759.96	13.04	11.56	-178.03	-541.26	27.84	1,147.20	1,126.22	20.98	54.670	
3,200.00	3,125.77	2,900.00	2,845.40	13.51	11.97	-178.00	-561.92	28.16	1,194.88	1,173.20	21.68	55.107	
3,300.00	3,222.40	2,987.90	2,930.83	13.99	12.38	-177.96	-582.59	28.47	1,242.56	1,220.18	22.38	55.515	
3,400.00	3,319.03	3,075.80	3,016.26	14.46	12.79	-177.94	-603.26	28.79	1,290.24	1,267.16	23.08	55.897	
3,500.00	3,415.66	3,163.70	3,101.70	14.94	13.21	-177.91	-623.93	29.10	1,337.93	1,314.14	23.78	56.254	
3,600.00	3,512.29	3,251.59	3,187.13	15.42	13.62	-177.88	-644.60	29.42	1,385.61	1,361.12	24.48	56.590	
3,700.00	3,608.92	3,339.49	3,272.57	15.89	14.03	-177.86	-665.26	29.73	1,433.29	1,408.10	25.19	56.906	
3,800.00	3,705.55	3,427.39	3,358.00	16.37	14.45	-177.84	-685.93	30.05	1,480.97	1,455.08	25.89	57.204	
3,900.00	3,802.18	3,515.29	3,443.43	16.84	14.86	-177.82	-706.60	30.37	1,528.65	1,502.06	26.59	57.485	
4,000.00	3,898.81	3,603.19	3,528.87	17.32	15.28	-177.80	-727.27	30.68	1,576.34	1,549.04	27.30	57.750	
4,100.00	3,995.44	3,691.09	3,614.30	17.80	15.69	-177.78	-747.94	31.00	1,624.02	1,596.02	28.00	58.001	
4,200.00	4,092.07	3,778.99	3,699.73	18.28	16.11	-177.76	-768.60	31.31	1,671.70	1,643.00	28.70	58.239	
4,300.00	4,188.71	3,866.89	3,785.17	18.75	16.52	-177.75	-789.27	31.63	1,719.38	1,689.98	29.41	58.465	
4,400.00	4,285.34	3,954.78	3,870.60	19.23	16.94	-177.73	-809.94	31.94	1,767.07	1,736.95	30.11	58.679	
4,500.00	4,381.97	4,042.68	3,956.03	19.71	17.35	-177.72	-830.61	32.26	1,814.75	1,783.93	30.82	58.883	
4,600.00	4,478.60	4,130.58	4,041.47	20.19	17.77	-177.70	-851.28	32.57	1,862.43	1,830.91	31.53	59.077	
4,700.00	4,575.23	4,218.48	4,126.90	20.67	18.18	-177.69	-871.94	32.89	1,910.12	1,877.89	32.23	59.262	
4,800.00	4,671.86	4,306.38	4,212.34	21.14	18.60	-177.68	-892.61	33.20	1,957.80	1,924.86	32.94	59.438	
4,900.00	4,768.49	4,394.28	4,297.77	21.62	19.01	-177.66	-913.28	33.52	2,005.48	1,971.84	33.65	59.606	
5,000.00	4,865.12	4,482.18	4,383.20	22.10	19.43	-177.65	-933.95	33.83	2,053.17	2,018.81	34.35	59.767	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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		Minimum Separation (usft)	Separation Factor
							+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Warning
5,100.00	4,961.75	4,570.07	4,468.64	22.58	19.84	-177.64	-954.62	34.15	2,100.85	2,065.79	35.06	59.921
5,200.00	5,058.38	4,657.97	4,554.07	23.06	20.26	-177.63	-975.28	34.46	2,148.53	2,112.77	35.77	60.067
5,300.00	5,155.01	4,745.87	4,639.50	23.54	20.68	-177.62	-995.95	34.78	2,196.22	2,159.74	36.48	60.208
5,400.00	5,251.64	4,833.77	4,724.94	24.01	21.09	-177.61	-1,016.62	35.09	2,243.90	2,206.72	37.19	60.343
5,500.00	5,348.28	4,921.67	4,810.37	24.49	21.51	-177.60	-1,037.29	35.41	2,291.59	2,253.69	37.90	60.472
5,600.00	5,444.91	5,009.57	4,895.80	24.97	21.92	-177.59	-1,057.96	35.73	2,339.27	2,300.66	38.60	60.596
5,700.00	5,541.54	5,097.47	4,981.24	25.45	22.34	-177.59	-1,078.62	36.04	2,386.95	2,347.64	39.31	60.715
5,800.00	5,638.17	5,185.36	5,066.67	25.93	22.76	-177.58	-1,099.29	36.36	2,434.64	2,394.61	40.02	60.829
5,900.00	5,734.80	5,273.26	5,152.11	26.41	23.17	-177.57	-1,119.96	36.67	2,482.32	2,441.59	40.73	60.938
6,000.00	5,831.43	5,361.16	5,237.54	26.89	23.59	-177.56	-1,140.63	36.99	2,530.00	2,488.56	41.45	61.044
6,100.00	5,928.06	5,449.06	5,322.97	27.37	24.01	-177.55	-1,161.30	37.30	2,577.69	2,535.53	42.16	61.145
6,200.00	6,024.69	5,536.96	5,408.41	27.85	24.42	-177.55	-1,181.96	37.62	2,625.37	2,582.50	42.87	61.243
6,300.00	6,121.32	5,624.86	5,493.84	28.33	24.84	-177.54	-1,202.63	37.93	2,673.06	2,629.48	43.58	61.337
6,400.00	6,217.95	5,712.76	5,579.27	28.81	25.26	-177.53	-1,223.30	38.25	2,720.74	2,676.45	44.29	61.427
6,500.00	6,314.58	5,800.65	5,664.71	29.29	25.67	-177.53	-1,243.97	38.56	2,768.42	2,723.42	45.00	61.514
6,543.64	6,356.75	5,839.01	5,701.99	29.49	25.85	-177.53	-1,252.99	38.70	2,789.23	2,743.92	45.32	61.551
6,550.00	6,362.90	5,844.60	5,707.42	29.53	25.88	-175.09	-1,254.30	38.72	2,792.27	2,746.91	45.36	61.557
6,600.00	6,411.07	5,888.41	5,750.00	29.77	26.09	-157.23	-1,264.60	38.88	2,816.24	2,770.52	45.72	61.601
6,650.00	6,458.79	5,931.78	5,792.15	30.01	26.29	-142.53	-1,274.80	39.03	2,840.31	2,794.23	46.07	61.648
6,700.00	6,505.76	5,974.45	5,833.63	30.26	26.50	-131.03	-1,284.83	39.19	2,864.35	2,817.93	46.42	61.699
6,750.00	6,551.69	6,016.16	5,874.17	30.50	26.69	-122.06	-1,294.64	39.34	2,888.27	2,841.50	46.77	61.754
6,800.00	6,596.30	6,056.65	5,913.53	30.74	26.89	-114.94	-1,304.16	39.48	2,911.96	2,864.85	47.11	61.815
6,850.00	6,639.32	6,095.67	5,951.45	30.98	27.07	-109.16	-1,313.34	39.62	2,935.34	2,887.90	47.44	61.880
6,900.00	6,680.47	6,132.99	5,987.72	31.21	27.25	-104.36	-1,322.11	39.75	2,958.33	2,910.58	47.75	61.950
6,950.00	6,719.51	6,168.36	6,022.10	31.44	27.42	-100.29	-1,330.43	39.88	2,980.88	2,932.82	48.06	62.025
7,000.00	6,756.20	6,201.57	6,054.38	31.67	27.57	-96.78	-1,338.24	40.00	3,002.93	2,954.58	48.35	62.106
7,050.00	6,790.30	6,232.42	6,084.36	31.90	27.72	-93.72	-1,345.49	40.11	3,024.43	2,975.80	48.63	62.191
7,100.00	6,821.62	6,260.71	6,111.86	32.13	27.85	-91.01	-1,352.14	40.21	3,045.33	2,996.44	48.90	62.281
7,150.00	6,849.95	6,286.28	6,136.72	32.35	27.98	-88.58	-1,358.16	40.30	3,065.60	3,016.45	49.15	62.376
7,200.00	6,875.12	6,308.97	6,158.76	32.58	28.08	-86.40	-1,363.49	40.39	3,085.19	3,035.80	49.38	62.474
7,250.00	6,896.97	6,328.63	6,177.87	32.81	28.18	-84.42	-1,368.11	40.46	3,104.05	3,054.45	49.60	62.577
7,300.00	6,915.38	6,345.14	6,193.92	33.05	28.26	-82.62	-1,372.00	40.52	3,122.15	3,072.35	49.81	62.682
7,350.00	6,930.22	6,358.40	6,206.81	33.29	28.32	-80.98	-1,375.11	40.56	3,139.44	3,089.45	50.00	62.791
7,400.00	6,941.41	6,368.34	6,216.47	33.53	28.37	-79.48	-1,377.45	40.60	3,155.87	3,105.70	50.17	62.903
7,450.00	6,948.88	6,374.88	6,222.83	33.79	28.40	-78.11	-1,378.99	40.62	3,171.38	3,121.05	50.32	63.018
7,500.00	6,952.57	6,377.99	6,225.85	34.05	28.41	-76.86	-1,379.72	40.63	3,185.90	3,135.44	50.46	63.136
7,525.63	6,953.00	6,378.25	6,226.10	34.19	28.41	-76.28	-1,379.78	40.63	3,192.95	3,142.43	50.52	63.198
7,600.00	6,952.79	6,377.68	6,225.55	34.61	28.41	-76.27	-1,379.65	40.63	3,213.78	3,163.07	50.71	63.373
7,700.00	6,952.50	6,376.92	6,224.81	35.23	28.41	-76.25	-1,379.47	40.63	3,244.28	3,193.28	51.00	63.616
7,800.00	6,952.22	6,376.15	6,224.06	35.91	28.40	-76.24	-1,379.29	40.63	3,277.54	3,226.23	51.31	63.873
7,900.00	6,951.93	6,375.39	6,223.32	36.65	28.40	-76.23	-1,379.11	40.62	3,313.49	3,261.83	51.66	64.146
8,000.00	6,951.65	6,374.62	6,222.58	37.45	28.39	-76.21	-1,378.93	40.62	3,352.03	3,300.01	52.02	64.439
8,100.00	6,951.36	6,373.86	6,221.83	38.29	28.39	-76.20	-1,378.75	40.62	3,393.09	3,340.69	52.40	64.753
8,200.00	6,951.08	6,373.09	6,221.09	39.19	28.39	-76.18	-1,378.57	40.62	3,436.56	3,383.77	52.80	65.092
8,300.00	6,950.79	6,372.33	6,220.35	40.13	28.38	-76.17	-1,378.39	40.61	3,482.37	3,429.17	53.20	65.457
8,400.00	6,950.51	6,371.56	6,219.60	41.11	28.38	-76.15	-1,378.21	40.61	3,530.41	3,476.80	53.61	65.849
8,500.00	6,950.22	6,370.80	6,218.86	42.12	28.38	-76.14	-1,378.03	40.61	3,580.60	3,526.57	54.03	66.270
8,600.00	6,949.94	6,370.03	6,218.12	43.18	28.37	-76.13	-1,377.85	40.60	3,632.86	3,578.41	54.45	66.720
8,700.00	6,949.65	6,369.27	6,217.37	44.26	28.37	-76.11	-1,377.67	40.60	3,687.08	3,632.21	54.87	67.200
8,800.00	6,949.37	6,368.50	6,216.63	45.38	28.37	-76.10	-1,377.49	40.60	3,743.19	3,687.91	55.28	67.710
8,900.00	6,949.08	6,367.74	6,215.89	46.53	28.36	-76.08	-1,377.31	40.60	3,801.10	3,745.41	55.69	68.249
9,000.00	6,948.80	6,366.97	6,215.14	47.70	28.36	-76.07	-1,377.13	40.59	3,860.74	3,804.64	56.10	68.818

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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
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	
9,100.00	6,948.51	6,366.21	6,214.40	48.89	28.36	-76.05	-1,376.95	40.59	3,922.02	3,865.52	56.50	69.417		
9,200.00	6,948.23	6,365.44	6,213.66	50.11	28.35	-76.04	-1,376.77	40.59	3,984.86	3,927.97	56.89	70.044		
9,300.00	6,947.94	6,364.68	6,212.91	51.35	28.35	-76.03	-1,376.59	40.59	4,049.20	3,991.93	57.27	70.699		
9,400.00	6,947.66	6,363.91	6,212.17	52.61	28.34	-76.01	-1,376.41	40.58	4,114.97	4,057.32	57.65	71.380		
9,500.00	6,947.37	6,363.15	6,211.43	53.89	28.34	-76.00	-1,376.23	40.58	4,182.09	4,124.08	58.01	72.089		
9,600.00	6,947.09	6,362.38	6,210.68	55.18	28.34	-75.98	-1,376.05	40.58	4,250.50	4,192.13	58.37	72.822		
9,700.00	6,946.80	6,361.62	6,209.94	56.49	28.33	-75.97	-1,375.87	40.57	4,320.15	4,261.43	58.71	73.580		
9,800.00	6,946.52	6,360.85	6,209.20	57.81	28.33	-75.95	-1,375.69	40.57	4,390.97	4,331.92	59.05	74.361		
9,900.00	6,946.23	6,360.09	6,208.45	59.15	28.33	-75.94	-1,375.51	40.57	4,462.90	4,403.53	59.37	75.165		
10,000.00	6,945.95	6,359.33	6,207.71	60.50	28.32	-75.93	-1,375.33	40.57	4,535.90	4,476.21	59.69	75.991		
10,100.00	6,945.66	6,358.56	6,206.97	61.87	28.32	-75.91	-1,375.15	40.56	4,609.91	4,549.92	60.00	76.837		
10,200.00	6,945.38	6,357.80	6,206.22	63.24	28.32	-75.90	-1,374.97	40.56	4,684.89	4,624.60	60.29	77.703		
10,300.00	6,945.09	6,357.03	6,205.48	64.63	28.31	-75.88	-1,374.79	40.56	4,760.79	4,700.21	60.58	78.587		
10,400.00	6,944.81	6,356.27	6,204.74	66.02	28.31	-75.87	-1,374.61	40.56	4,837.56	4,776.70	60.86	79.490		
10,500.00	6,944.52	6,355.50	6,203.99	67.42	28.30	-75.85	-1,374.43	40.55	4,915.17	4,854.04	61.13	80.409		
10,600.00	6,944.24	6,354.74	6,203.25	68.84	28.30	-75.84	-1,374.25	40.55	4,993.57	4,932.19	61.39	81.345		
10,700.00	6,943.95	6,353.97	6,202.51	70.26	28.30	-75.83	-1,374.07	40.55	5,072.74	5,011.10	61.64	82.297		
10,800.00	6,943.67	6,353.21	6,201.76	71.68	28.29	-75.81	-1,373.89	40.54	5,152.63	5,090.74	61.88	83.263		
10,900.00	6,943.38	6,352.44	6,201.02	73.12	28.29	-75.80	-1,373.71	40.54	5,233.21	5,171.09	62.12	84.243		
11,000.00	6,943.10	6,351.68	6,200.28	74.56	28.29	-75.78	-1,373.53	40.54	5,314.45	5,252.10	62.35	85.237		
11,100.00	6,942.81	6,350.91	6,199.53	76.01	28.28	-75.77	-1,373.35	40.54	5,396.32	5,333.75	62.57	86.243		
11,200.00	6,942.53	6,350.15	6,198.79	77.46	28.28	-75.76	-1,373.17	40.53	5,478.79	5,416.00	62.79	87.262		
11,300.00	6,942.24	6,349.38	6,198.05	78.92	28.28	-75.74	-1,372.99	40.53	5,561.83	5,498.84	62.99	88.291		
11,400.00	6,941.96	6,348.62	6,197.30	80.39	28.27	-75.73	-1,372.81	40.53	5,645.43	5,582.23	63.20	89.332		
11,500.00	6,941.67	6,347.85	6,196.56	81.86	28.27	-75.71	-1,372.63	40.53	5,729.55	5,666.16	63.39	90.382		
11,600.00	6,941.39	6,347.09	6,195.82	83.33	28.26	-75.70	-1,372.45	40.52	5,814.18	5,750.59	63.58	91.443		
11,700.00	6,941.10	6,346.32	6,195.07	84.81	28.26	-75.68	-1,372.27	40.52	5,899.28	5,835.52	63.77	92.512		
11,800.00	6,940.81	6,345.56	6,194.33	86.30	28.26	-75.67	-1,372.09	40.52	5,984.85	5,920.90	63.95	93.591		
11,900.00	6,940.53	6,344.79	6,193.59	87.79	28.25	-75.66	-1,371.91	40.51	6,070.86	6,006.74	64.12	94.677		
12,000.00	6,940.24	6,344.03	6,192.84	89.28	28.25	-75.64	-1,371.73	40.51	6,157.29	6,093.00	64.29	95.772		
12,100.00	6,939.96	6,343.26	6,192.10	90.77	28.25	-75.63	-1,371.55	40.51	6,244.12	6,179.67	64.46	96.874		
12,200.00	6,939.67	6,342.50	6,191.36	92.27	28.24	-75.61	-1,371.37	40.51	6,331.35	6,266.73	64.62	97.983		
12,300.00	6,939.39	6,341.73	6,190.61	93.78	28.24	-75.60	-1,371.20	40.50	6,418.94	6,354.17	64.77	99.098		
12,400.00	6,939.10	6,340.97	6,189.87	95.28	28.24	-75.58	-1,371.02	40.50	6,506.90	6,441.97	64.93	100.220		
12,500.00	6,938.82	6,340.20	6,189.13	96.79	28.23	-75.57	-1,370.84	40.50	6,595.19	6,530.12	65.08	101.347		
12,600.00	6,938.53	6,339.44	6,188.38	98.30	28.23	-75.56	-1,370.66	40.50	6,683.82	6,618.60	65.22	102.480		
12,700.00	6,938.25	6,338.68	6,187.64	99.82	28.22	-75.54	-1,370.48	40.49	6,772.76	6,707.40	65.36	103.619		
12,800.00	6,937.96	6,337.91	6,186.90	101.34	28.22	-75.53	-1,370.30	40.49	6,862.01	6,796.51	65.50	104.762		
12,900.00	6,937.68	6,337.15	6,186.15	102.86	28.22	-75.51	-1,370.12	40.49	6,951.55	6,885.91	65.64	105.910		
13,000.00	6,937.39	6,336.38	6,185.41	104.38	28.21	-75.50	-1,369.94	40.48	7,041.37	6,975.60	65.77	107.063		
13,100.00	6,937.11	6,335.62	6,184.67	105.91	28.21	-75.48	-1,369.76	40.48	7,131.46	7,065.57	65.90	108.219		
13,200.00	6,936.82	6,334.85	6,183.92	107.43	28.21	-75.47	-1,369.58	40.48	7,221.82	7,155.79	66.03	109.380		
13,300.00	6,936.54	6,334.09	6,183.18	108.96	28.20	-75.46	-1,369.40	40.48	7,312.42	7,246.27	66.15	110.544		
13,400.00	6,936.25	6,333.32	6,182.44	110.49	28.20	-75.44	-1,369.22	40.47	7,403.27	7,337.00	66.27	111.711		
13,500.00	6,935.97	6,332.56	6,181.69	112.03	28.20	-75.43	-1,369.04	40.47	7,494.35	7,427.95	66.39	112.881		
13,600.00	6,935.68	6,331.79	6,180.95	113.56	28.19	-75.41	-1,368.86	40.47	7,585.65	7,519.14	66.51	114.055		
13,700.00	6,935.40	6,331.03	6,180.21	115.10	28.19	-75.40	-1,368.68	40.46	7,677.17	7,610.55	66.62	115.231		
13,800.00	6,935.11	6,330.26	6,179.46	116.64	28.18	-75.38	-1,368.50	40.46	7,768.90	7,702.16	66.74	116.410		
13,900.00	6,934.83	6,329.50	6,178.72	118.18	28.18	-75.37	-1,368.32	40.46	7,860.83	7,793.98	66.85	117.591		
14,000.00	6,934.54	6,328.73	6,177.98	119.72	28.18	-75.36	-1,368.14	40.46	7,952.96	7,886.00	66.96	118.774		
14,100.00	6,934.26	6,327.97	6,177.23	121.26	28.17	-75.34	-1,367.96	40.45	8,045.27	7,978.20	67.07	119.959		
14,200.00	6,933.97	6,327.20	6,176.49	122.81	28.17	-75.33	-1,367.78	40.45	8,137.77	8,070.59	67.17	121.146		

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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	
14,300.00	6,933.69	6,326.44	6,175.75	124.36	28.17	-75.31	-1,367.60	40.45	8,230.44	8,163.16	67.28	122.335	
14,400.00	6,933.40	6,325.67	6,175.00	125.90	28.16	-75.30	-1,367.42	40.45	8,323.28	8,255.89	67.38	123.525	
14,500.00	6,933.12	6,324.91	6,174.26	127.45	28.16	-75.29	-1,367.24	40.44	8,416.28	8,348.80	67.48	124.717	
14,600.00	6,932.83	6,324.14	6,173.52	129.00	28.16	-75.27	-1,367.06	40.44	8,509.44	8,441.86	67.58	125.910	
14,700.00	6,932.55	6,323.38	6,172.77	130.56	28.15	-75.26	-1,366.88	40.44	8,602.76	8,535.08	67.68	127.103	
14,800.00	6,932.26	6,322.61	6,172.03	132.11	28.15	-75.24	-1,366.70	40.43	8,696.22	8,628.44	67.78	128.298	
14,900.00	6,931.98	6,321.85	6,171.28	133.66	28.14	-75.23	-1,366.52	40.43	8,789.83	8,721.95	67.88	129.494	
15,000.00	6,931.69	6,321.08	6,170.54	135.22	28.14	-75.21	-1,366.34	40.43	8,883.58	8,815.61	67.97	130.690	
15,100.00	6,931.41	6,320.32	6,169.80	136.77	28.14	-75.20	-1,366.16	40.43	8,977.46	8,909.39	68.07	131.887	
15,200.00	6,931.12	6,319.55	6,169.05	138.33	28.13	-75.19	-1,365.98	40.42	9,071.48	9,003.31	68.16	133.084	
15,300.00	6,930.84	6,318.79	6,168.31	139.89	28.13	-75.17	-1,365.80	40.42	9,165.62	9,097.36	68.26	134.282	
15,400.00	6,930.55	6,318.03	6,167.57	141.45	28.13	-75.16	-1,365.62	40.42	9,259.88	9,191.53	68.35	135.480	
15,500.00	6,930.27	6,317.26	6,166.82	143.01	28.12	-75.14	-1,365.44	40.42	9,354.26	9,285.82	68.44	136.678	
15,600.00	6,929.98	6,316.50	6,166.08	144.57	28.12	-75.13	-1,365.26	40.41	9,448.76	9,380.23	68.53	137.876	
15,700.00	6,929.70	6,315.73	6,165.34	146.13	28.12	-75.11	-1,365.08	40.41	9,543.37	9,474.75	68.62	139.074	
15,800.00	6,929.41	6,314.97	6,164.59	147.70	28.11	-75.10	-1,364.90	40.41	9,638.09	9,569.38	68.71	140.272	
15,900.00	6,929.13	6,314.20	6,163.85	149.26	28.11	-75.09	-1,364.72	40.40	9,732.91	9,664.11	68.80	141.470	
16,000.00	6,928.84	6,313.44	6,163.11	150.82	28.10	-75.07	-1,364.54	40.40	9,827.84	9,758.95	68.89	142.667	
16,100.00	6,928.56	6,312.67	6,162.36	152.39	28.10	-75.06	-1,364.36	40.40	9,922.86	9,853.89	68.97	143.864	
16,200.00	6,928.27	6,311.91	6,161.62	153.96	28.10	-75.04	-1,364.18	40.40	10,017.99	9,948.93	69.06	145.061	
16,300.00	6,927.99	6,311.14	6,160.88	155.52	28.09	-75.03	-1,364.00	40.39	10,113.20	10,044.06	69.15	146.257	
16,400.00	6,927.70	6,310.38	6,160.13	157.09	28.09	-75.01	-1,363.82	40.39	10,208.51	10,139.28	69.23	147.452	
16,500.00	6,927.42	6,309.61	6,159.39	158.66	28.09	-75.00	-1,363.64	40.39	10,303.91	10,234.59	69.32	148.647	
16,600.00	6,927.13	6,308.85	6,158.65	160.23	28.08	-74.99	-1,363.46	40.39	10,399.39	10,329.99	69.40	149.840	
16,700.00	6,926.85	6,308.08	6,157.90	161.80	28.08	-74.97	-1,363.28	40.38	10,494.96	10,425.47	69.49	151.033	
16,800.00	6,926.56	6,307.32	6,157.16	163.37	28.08	-74.96	-1,363.10	40.38	10,590.61	10,521.04	69.57	152.225	
16,900.00	6,926.28	6,306.55	6,156.42	164.94	28.07	-74.94	-1,362.92	40.38	10,686.34	10,616.68	69.66	153.416	
17,000.00	6,925.99	6,305.79	6,155.67	166.51	28.07	-74.93	-1,362.74	40.37	10,782.14	10,712.40	69.74	154.606	
17,100.00	6,925.71	6,305.02	6,154.93	168.08	28.06	-74.91	-1,362.56	40.37	10,878.03	10,808.20	69.82	155.795	
17,200.00	6,925.42	6,304.26	6,154.19	169.65	28.06	-74.90	-1,362.38	40.37	10,973.98	10,904.08	69.91	156.983	
17,300.00	6,925.14	6,303.49	6,153.44	171.23	28.06	-74.89	-1,362.20	40.37	11,070.01	11,000.02	69.99	158.170	
17,400.00	6,924.85	6,302.73	6,152.70	172.80	28.05	-74.87	-1,362.02	40.36	11,166.10	11,096.03	70.07	159.355	
17,500.00	6,924.57	6,301.96	6,151.96	174.37	28.05	-74.86	-1,361.84	40.36	11,262.27	11,192.12	70.15	160.539	
17,600.00	6,924.28	6,301.20	6,151.21	175.95	28.05	-74.84	-1,361.66	40.36	11,358.50	11,288.27	70.24	161.721	
17,700.00	6,924.00	6,300.43	6,150.47	177.52	28.04	-74.83	-1,361.48	40.36	11,454.80	11,384.48	70.32	162.902	
17,800.00	6,923.71	6,299.67	6,149.73	179.10	28.04	-74.82	-1,361.30	40.35	11,551.15	11,480.75	70.40	164.082	
17,900.00	6,923.43	6,298.90	6,148.98	180.68	28.04	-74.80	-1,361.12	40.35	11,647.57	11,577.09	70.48	165.260	
18,000.00	6,923.14	6,298.14	6,148.24	182.25	28.03	-74.79	-1,360.94	40.35	11,744.05	11,673.49	70.56	166.436	
18,100.00	6,922.86	6,297.38	6,147.50	183.83	28.03	-74.77	-1,360.76	40.34	11,840.59	11,769.95	70.64	167.611	
18,200.00	6,922.57	6,296.61	6,146.75	185.41	28.02	-74.76	-1,360.58	40.34	11,937.18	11,866.46	70.72	168.784	
18,300.00	6,922.29	6,295.85	6,146.01	186.98	28.02	-74.74	-1,360.40	40.34	12,033.84	11,963.03	70.81	169.956	
18,400.00	6,922.00	6,295.08	6,145.27	188.56	28.02	-74.73	-1,360.23	40.34	12,130.54	12,059.65	70.89	171.126	
18,500.00	6,921.71	6,294.32	6,144.52	190.14	28.01	-74.72	-1,360.05	40.33	12,227.30	12,156.33	70.97	172.294	
18,600.00	6,921.43	6,293.55	6,143.78	191.72	28.01	-74.70	-1,359.87	40.33	12,324.11	12,253.06	71.05	173.460	
18,700.00	6,921.14	6,292.79	6,143.04	193.30	28.01	-74.69	-1,359.69	40.33	12,420.97	12,349.84	71.13	174.624	
18,800.00	6,920.86	6,292.02	6,142.29	194.88	28.00	-74.67	-1,359.51	40.32	12,517.88	12,446.66	71.21	175.786	
18,900.00	6,920.57	6,291.26	6,141.55	196.46	28.00	-74.66	-1,359.33	40.32	12,614.83	12,543.54	71.29	176.947	
19,000.00	6,920.29	6,290.49	6,140.81	198.04	28.00	-74.64	-1,359.15	40.32	12,711.84	12,640.46	71.37	178.105	
19,100.00	6,920.00	6,289.73	6,140.06	199.62	27.99	-74.63	-1,358.97	40.32	12,808.89	12,737.43	71.45	179.262	
19,200.00	6,919.72	6,288.96	6,139.32	201.20	27.99	-74.62	-1,358.79	40.31	12,905.98	12,834.45	71.53	180.416	
19,300.00	6,919.43	6,288.20	6,138.58	202.78	27.99	-74.60	-1,358.61	40.31	13,003.12	12,931.51	71.62	181.569	
19,400.00	6,919.15	6,287.43	6,137.83	204.36	27.98	-74.59	-1,358.43	40.31	13,100.30	13,028.61	71.70	182.719	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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)			
19,500.00	6,918.86	6,286.67	6,137.09	205.95	27.98	-74.57	-1,358.25	40.31	13,197.53	13,125.75	71.78	183.867	
19,600.00	6,918.58	6,285.90	6,136.35	207.53	27.97	-74.56	-1,358.07	40.30	13,294.79	13,222.94	71.86	185.013	
19,700.00	6,918.29	6,285.14	6,135.60	209.11	27.97	-74.54	-1,357.89	40.30	13,392.10	13,320.16	71.94	186.157	
19,800.00	6,918.01	6,284.37	6,134.86	210.69	27.97	-74.53	-1,357.71	40.30	13,489.44	13,417.42	72.02	187.299	
19,900.00	6,917.72	6,283.61	6,134.12	212.28	27.96	-74.52	-1,357.53	40.29	13,586.83	13,514.73	72.10	188.438	
20,000.00	6,917.44	6,282.84	6,133.37	213.86	27.96	-74.50	-1,357.35	40.29	13,684.25	13,612.07	72.18	189.575	
20,100.00	6,917.15	6,282.08	6,132.63	215.45	27.96	-74.49	-1,357.17	40.29	13,781.71	13,709.44	72.27	190.710	
20,200.00	6,916.87	6,281.31	6,131.89	217.03	27.95	-74.47	-1,356.99	40.29	13,879.20	13,806.86	72.35	191.842	
20,300.00	6,916.58	6,280.55	6,131.14	218.61	27.95	-74.46	-1,356.81	40.28	13,976.73	13,904.30	72.43	192.973	
20,400.00	6,916.30	6,279.78	6,130.40	220.20	27.95	-74.44	-1,356.63	40.28	14,074.30	14,001.79	72.51	194.100	
20,500.00	6,916.01	6,279.02	6,129.66	221.78	27.94	-74.43	-1,356.45	40.28	14,171.89	14,099.30	72.59	195.226	
20,600.00	6,915.73	6,278.25	6,128.91	223.37	27.94	-74.42	-1,356.27	40.28	14,269.53	14,196.85	72.67	196.349	
20,700.00	6,915.44	6,277.49	6,128.17	224.95	27.93	-74.40	-1,356.09	40.27	14,367.19	14,294.43	72.76	197.470	
20,800.00	6,915.16	6,276.73	6,127.43	226.54	27.93	-74.39	-1,355.91	40.27	14,464.89	14,392.05	72.84	198.588	
20,855.45	6,915.00	6,276.30	6,127.01	227.42	27.93	-74.38	-1,355.81	40.27	14,519.07	14,446.19	72.88	199.207	

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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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

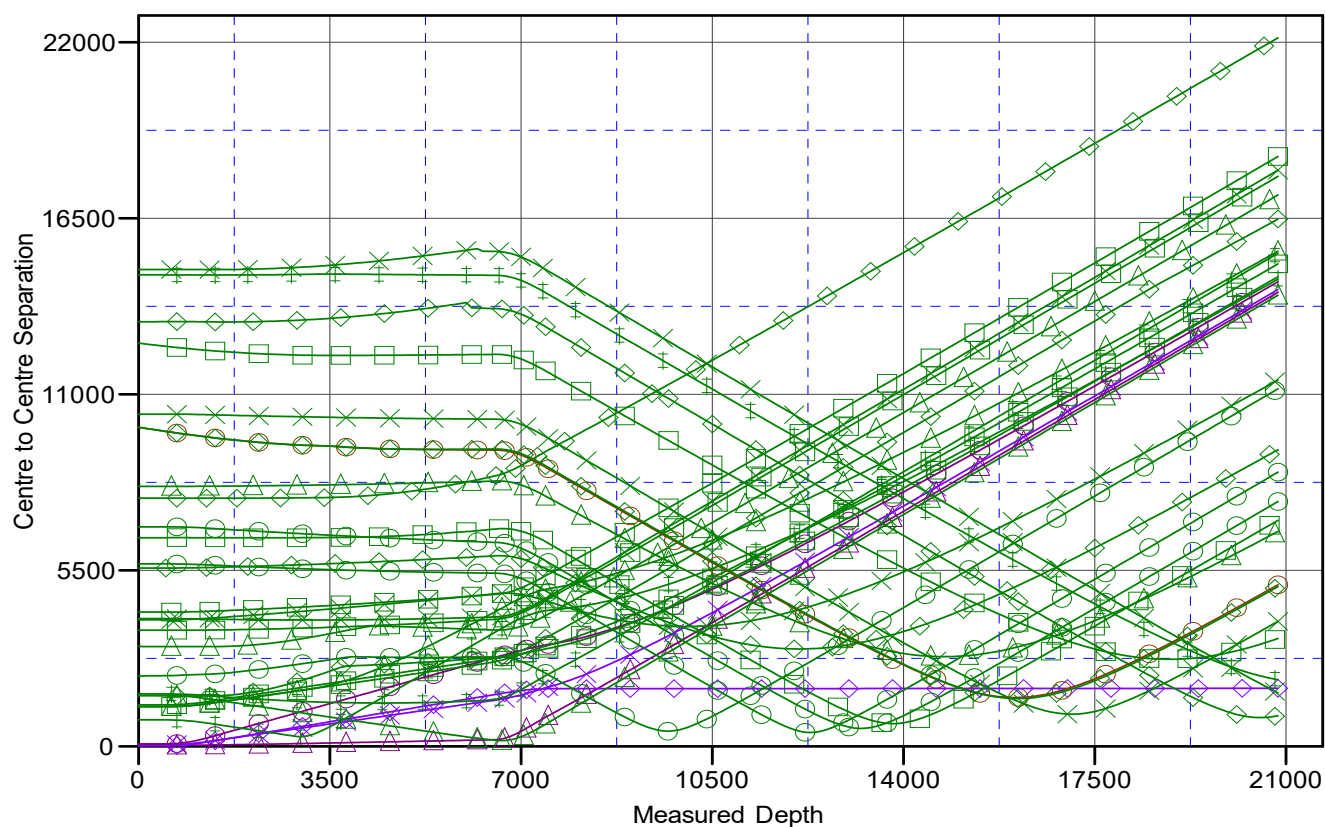
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit #712H - Slot B02

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 #720H, OH, Prelim #1 V0	(O) RU 022B, OH, OH-SVY V0	(O) RU 251, OH, OH-TD V0
(X) Rosa Unit #714H, 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 #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
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

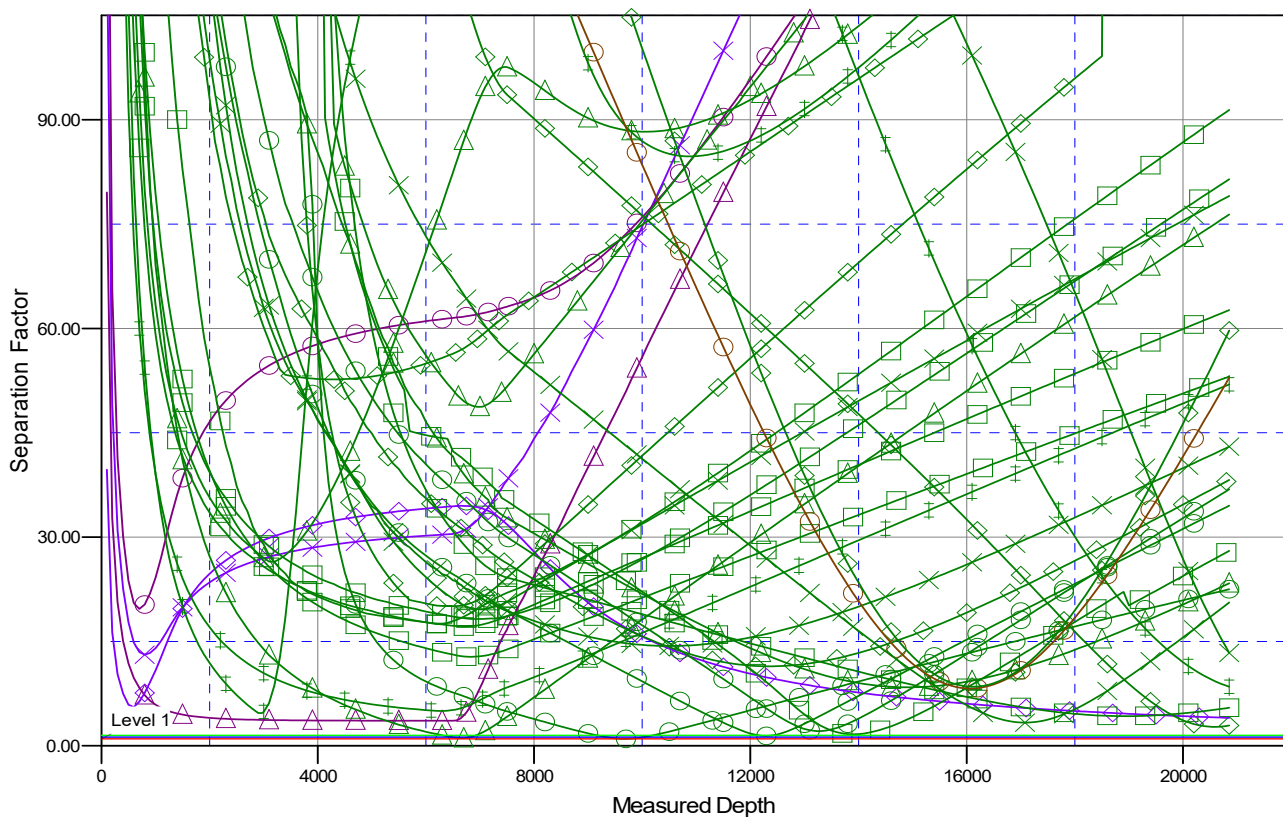
Central Meridian is -107.833334

Coordinates are relative to: Rosa Unit #712H - Slot B02

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 #723H, OH, Prelim #1 V0	(C) RU 022B, OH, OH-SVY V0	(C) RU 251, OH, OH-TD V0
Rosa Unit #714H, OH, Prelim #1 V0	(C) RU 005C, 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 #712H - Slot B02

OH

Plan: Prelim #1

Standard Planning Report

26 September, 2024

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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 #712H - Slot B02					
Well Position	+N/-S	0.00 usft	Northing:	2,147,537.00 usft	Latitude:	36.900861
	+E/-W	0.00 usft	Easting:	2,851,880.90 usft	Longitude:	-107.392859
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	49,574.80044608

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	270.26

Plan Survey Tool Program			Date	9/26/2024	
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	20,855.45	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	
1,245.75	14.91	353.39	1,237.35	95.88	-11.11	2.00	2.00	0.00	353.39	
6,543.64	14.91	353.39	6,356.75	1,450.40	-168.12	0.00	0.00	0.00	0.00	
7,525.63	90.16	270.31	6,953.00	1,612.03	-805.31	9.00	7.66	-8.46	-83.26	RU 712H POE-5
20,855.45	90.16	270.31	6,915.00	1,685.19	-14,134.88	0.00	0.00	0.00	0.00	RU 712H PBHL-5

SDT Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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	353.39	599.98	1.73	-0.20	0.21	2.00	2.00	0.00
700.00	4.00	353.39	699.84	6.93	-0.80	0.83	2.00	2.00	0.00
800.00	6.00	353.39	799.45	15.59	-1.81	1.88	2.00	2.00	0.00
900.00	8.00	353.39	898.70	27.69	-3.21	3.34	2.00	2.00	0.00
1,000.00	10.00	353.39	997.47	43.23	-5.01	5.21	2.00	2.00	0.00
1,100.00	12.00	353.39	1,095.62	62.19	-7.21	7.49	2.00	2.00	0.00
1,200.00	14.00	353.39	1,193.06	84.53	-9.80	10.18	2.00	2.00	0.00
1,245.75	14.91	353.39	1,237.35	95.88	-11.11	11.55	2.00	2.00	0.00
Start 5297.89 hold at 1245.75 MD									
1,300.00	14.91	353.39	1,289.78	109.75	-12.72	13.22	0.00	0.00	0.00
1,400.00	14.91	353.39	1,386.41	135.31	-15.69	16.30	0.00	0.00	0.00
1,500.00	14.91	353.39	1,483.04	160.88	-18.65	19.38	0.00	0.00	0.00
1,600.00	14.91	353.39	1,579.67	186.45	-21.61	22.46	0.00	0.00	0.00
1,700.00	14.91	353.39	1,676.30	212.02	-24.58	25.54	0.00	0.00	0.00
1,800.00	14.91	353.39	1,772.93	237.58	-27.54	28.62	0.00	0.00	0.00
1,900.00	14.91	353.39	1,869.56	263.15	-30.50	31.70	0.00	0.00	0.00
2,000.00	14.91	353.39	1,966.19	288.72	-33.47	34.78	0.00	0.00	0.00
2,100.00	14.91	353.39	2,062.83	314.29	-36.43	37.86	0.00	0.00	0.00
2,200.00	14.91	353.39	2,159.46	339.85	-39.39	40.94	0.00	0.00	0.00
2,300.00	14.91	353.39	2,256.09	365.42	-42.36	44.02	0.00	0.00	0.00
2,400.00	14.91	353.39	2,352.72	390.99	-45.32	47.10	0.00	0.00	0.00
2,486.19	14.91	353.39	2,436.00	413.02	-47.88	49.75	0.00	0.00	0.00
Ojo Alamo									
2,500.00	14.91	353.39	2,449.35	416.55	-48.29	50.18	0.00	0.00	0.00
2,600.00	14.91	353.39	2,545.98	442.12	-51.25	53.25	0.00	0.00	0.00
2,600.02	14.91	353.39	2,546.00	442.13	-51.25	53.26	0.00	0.00	0.00
Kirtland									
2,700.00	14.91	353.39	2,642.61	467.69	-54.21	56.33	0.00	0.00	0.00
2,800.00	14.91	353.39	2,739.24	493.26	-57.18	59.41	0.00	0.00	0.00
2,900.00	14.91	353.39	2,835.87	518.82	-60.14	62.49	0.00	0.00	0.00
2,945.67	14.91	353.39	2,880.00	530.50	-61.49	63.90	0.00	0.00	0.00
Fruitland									
3,000.00	14.91	353.39	2,932.50	544.39	-63.10	65.57	0.00	0.00	0.00
3,100.00	14.91	353.39	3,029.13	569.96	-66.07	68.65	0.00	0.00	0.00
3,106.07	14.91	353.39	3,035.00	571.51	-66.25	68.84	0.00	0.00	0.00
T/Coals									
3,200.00	14.91	353.39	3,125.77	595.53	-69.03	71.73	0.00	0.00	0.00
3,261.30	14.91	353.39	3,185.00	611.20	-70.85	73.62	0.00	0.00	0.00
T/Coals									
3,300.00	14.91	353.39	3,222.40	621.09	-71.99	74.81	0.00	0.00	0.00
3,400.00	14.91	353.39	3,319.03	646.66	-74.96	77.89	0.00	0.00	0.00
3,440.33	14.91	353.39	3,358.00	656.97	-76.15	79.13	0.00	0.00	0.00
Pictured Cliffs									
3,500.00	14.91	353.39	3,415.66	672.23	-77.92	80.97	0.00	0.00	0.00
3,548.99	14.91	353.39	3,463.00	684.75	-79.37	82.48	0.00	0.00	0.00
Lewis									

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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	14.91	353.39	3,512.29	697.79	-80.89	84.05	0.00	0.00	0.00
3,700.00	14.91	353.39	3,608.92	723.36	-83.85	87.13	0.00	0.00	0.00
3,800.00	14.91	353.39	3,705.55	748.93	-86.81	90.21	0.00	0.00	0.00
3,900.00	14.91	353.39	3,802.18	774.50	-89.78	93.29	0.00	0.00	0.00
4,000.00	14.91	353.39	3,898.81	800.06	-92.74	96.37	0.00	0.00	0.00
4,100.00	14.91	353.39	3,995.44	825.63	-95.70	99.45	0.00	0.00	0.00
4,200.00	14.91	353.39	4,092.07	851.20	-98.67	102.53	0.00	0.00	0.00
4,300.00	14.91	353.39	4,188.71	876.77	-101.63	105.61	0.00	0.00	0.00
4,400.00	14.91	353.39	4,285.34	902.33	-104.59	108.69	0.00	0.00	0.00
4,500.00	14.91	353.39	4,381.97	927.90	-107.56	111.77	0.00	0.00	0.00
4,600.00	14.91	353.39	4,478.60	953.47	-110.52	114.85	0.00	0.00	0.00
4,700.00	14.91	353.39	4,575.23	979.04	-113.49	117.93	0.00	0.00	0.00
4,712.18	14.91	353.39	4,587.00	982.15	-113.85	118.30	0.00	0.00	0.00
Chacra									
4,800.00	14.91	353.39	4,671.86	1,004.60	-116.45	121.01	0.00	0.00	0.00
4,900.00	14.91	353.39	4,768.49	1,030.17	-119.41	124.09	0.00	0.00	0.00
5,000.00	14.91	353.39	4,865.12	1,055.74	-122.38	127.17	0.00	0.00	0.00
5,100.00	14.91	353.39	4,961.75	1,081.30	-125.34	130.25	0.00	0.00	0.00
5,200.00	14.91	353.39	5,058.38	1,106.87	-128.30	133.33	0.00	0.00	0.00
5,203.74	14.91	353.39	5,062.00	1,107.83	-128.42	133.44	0.00	0.00	0.00
U/Cliff House									
5,300.00	14.91	353.39	5,155.01	1,132.44	-131.27	136.41	0.00	0.00	0.00
5,400.00	14.91	353.39	5,251.64	1,158.01	-134.23	139.48	0.00	0.00	0.00
5,500.00	14.91	353.39	5,348.28	1,183.57	-137.20	142.56	0.00	0.00	0.00
5,517.31	14.91	353.39	5,365.00	1,188.00	-137.71	143.10	0.00	0.00	0.00
Cliff House									
5,558.70	14.91	353.39	5,405.00	1,198.58	-138.93	144.37	0.00	0.00	0.00
Menefee									
5,600.00	14.91	353.39	5,444.91	1,209.14	-140.16	145.64	0.00	0.00	0.00
5,700.00	14.91	353.39	5,541.54	1,234.71	-143.12	148.72	0.00	0.00	0.00
5,795.69	14.91	353.39	5,634.00	1,259.17	-145.96	151.67	0.00	0.00	0.00
Point Lookout									
5,800.00	14.91	353.39	5,638.17	1,260.28	-146.09	151.80	0.00	0.00	0.00
5,900.00	14.91	353.39	5,734.80	1,285.84	-149.05	154.88	0.00	0.00	0.00
6,000.00	14.91	353.39	5,831.43	1,311.41	-152.01	157.96	0.00	0.00	0.00
6,100.00	14.91	353.39	5,928.06	1,336.98	-154.98	161.04	0.00	0.00	0.00
6,200.00	14.91	353.39	6,024.69	1,362.54	-157.94	164.12	0.00	0.00	0.00
6,300.00	14.91	353.39	6,121.32	1,388.11	-160.90	167.20	0.00	0.00	0.00
6,351.41	14.91	353.39	6,171.00	1,401.26	-162.43	168.78	0.00	0.00	0.00
Mancos									
6,400.00	14.91	353.39	6,217.95	1,413.68	-163.87	170.28	0.00	0.00	0.00
6,500.00	14.91	353.39	6,314.58	1,439.25	-166.83	173.36	0.00	0.00	0.00
6,543.64	14.91	353.39	6,356.75	1,450.40	-168.12	174.70	0.00	0.00	0.00
Start DLS 9.00 TFO -83.26									
6,550.00	14.99	351.19	6,362.90	1,452.03	-168.35	174.93	9.00	1.22	-34.56
6,600.00	16.29	335.15	6,411.07	1,464.79	-172.29	178.93	9.00	2.59	-32.09
6,650.00	18.59	322.18	6,458.79	1,477.46	-180.12	186.83	9.00	4.60	-25.92
6,700.00	21.57	312.33	6,505.76	1,489.95	-191.81	198.57	9.00	5.96	-19.71
6,750.00	24.99	304.91	6,551.69	1,502.19	-207.27	214.09	9.00	6.84	-14.84
6,800.00	28.70	299.24	6,596.30	1,514.10	-226.42	233.29	9.00	7.41	-11.35
6,850.00	32.59	294.79	6,639.32	1,525.62	-249.13	256.05	9.00	7.78	-8.90
6,900.00	36.60	291.21	6,680.47	1,536.66	-275.26	282.23	9.00	8.03	-7.16
6,950.00	40.71	288.25	6,719.51	1,547.17	-304.66	311.68	9.00	8.21	-5.91

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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	44.88	285.76	6,756.20	1,557.07	-337.13	344.20	9.00	8.34	-5.00
7,031.50	47.53	284.36	6,778.00	1,562.97	-359.09	366.18	9.00	8.42	-4.42
Black Top									
7,050.00	49.09	283.60	6,790.30	1,566.31	-372.49	379.60	9.00	8.46	-4.13
7,100.00	53.34	281.71	6,821.62	1,574.82	-410.51	417.66	9.00	8.50	-3.79
7,150.00	57.62	280.01	6,849.95	1,582.57	-450.97	458.14	9.00	8.56	-3.39
7,200.00	61.92	278.47	6,875.12	1,589.49	-493.60	500.80	9.00	8.60	-3.08
7,250.00	66.23	277.04	6,896.97	1,595.55	-538.14	545.38	9.00	8.63	-2.85
7,300.00	70.56	275.71	6,915.38	1,600.70	-584.33	591.59	9.00	8.65	-2.66
7,350.00	74.89	274.45	6,930.22	1,604.92	-631.87	639.15	9.00	8.67	-2.52
7,400.00	79.24	273.24	6,941.41	1,608.18	-680.48	687.78	9.00	8.68	-2.42
7,450.00	83.58	272.06	6,948.88	1,610.47	-729.86	737.16	9.00	8.69	-2.35
7,500.00	87.93	270.90	6,952.57	1,611.75	-779.69	787.00	9.00	8.70	-2.31
7,525.63	90.16	270.31	6,953.00	1,612.03	-805.31	812.62	9.00	8.70	-2.30
Start 13329.82 hold at 7525.63 MD									
7,600.00	90.16	270.31	6,952.79	1,612.43	-879.68	886.99	0.00	0.00	0.00
7,700.00	90.16	270.31	6,952.50	1,612.98	-979.68	986.99	0.00	0.00	0.00
7,800.00	90.16	270.31	6,952.22	1,613.53	-1,079.68	1,086.99	0.00	0.00	0.00
7,900.00	90.16	270.31	6,951.93	1,614.08	-1,179.68	1,186.99	0.00	0.00	0.00
8,000.00	90.16	270.31	6,951.65	1,614.63	-1,279.68	1,286.99	0.00	0.00	0.00
8,100.00	90.16	270.31	6,951.36	1,615.18	-1,379.67	1,386.99	0.00	0.00	0.00
8,200.00	90.16	270.31	6,951.08	1,615.73	-1,479.67	1,486.99	0.00	0.00	0.00
8,300.00	90.16	270.31	6,950.79	1,616.28	-1,579.67	1,586.99	0.00	0.00	0.00
8,400.00	90.16	270.31	6,950.51	1,616.83	-1,679.67	1,686.99	0.00	0.00	0.00
8,500.00	90.16	270.31	6,950.22	1,617.37	-1,779.67	1,786.99	0.00	0.00	0.00
8,600.00	90.16	270.31	6,949.94	1,617.92	-1,879.66	1,886.99	0.00	0.00	0.00
8,700.00	90.16	270.31	6,949.65	1,618.47	-1,979.66	1,986.99	0.00	0.00	0.00
8,800.00	90.16	270.31	6,949.37	1,619.02	-2,079.66	2,086.99	0.00	0.00	0.00
8,900.00	90.16	270.31	6,949.08	1,619.57	-2,179.66	2,186.99	0.00	0.00	0.00
9,000.00	90.16	270.31	6,948.80	1,620.12	-2,279.66	2,286.99	0.00	0.00	0.00
9,100.00	90.16	270.31	6,948.51	1,620.67	-2,379.65	2,386.98	0.00	0.00	0.00
9,200.00	90.16	270.31	6,948.23	1,621.22	-2,479.65	2,486.98	0.00	0.00	0.00
9,300.00	90.16	270.31	6,947.94	1,621.77	-2,579.65	2,586.98	0.00	0.00	0.00
9,400.00	90.16	270.31	6,947.66	1,622.31	-2,679.65	2,686.98	0.00	0.00	0.00
9,500.00	90.16	270.31	6,947.37	1,622.86	-2,779.65	2,786.98	0.00	0.00	0.00
9,600.00	90.16	270.31	6,947.09	1,623.41	-2,879.65	2,886.98	0.00	0.00	0.00
9,700.00	90.16	270.31	6,946.80	1,623.96	-2,979.64	2,986.98	0.00	0.00	0.00
9,800.00	90.16	270.31	6,946.52	1,624.51	-3,079.64	3,086.98	0.00	0.00	0.00
9,900.00	90.16	270.31	6,946.23	1,625.06	-3,179.64	3,186.98	0.00	0.00	0.00
10,000.00	90.16	270.31	6,945.95	1,625.61	-3,279.64	3,286.98	0.00	0.00	0.00
10,100.00	90.16	270.31	6,945.66	1,626.16	-3,379.64	3,386.98	0.00	0.00	0.00
10,200.00	90.16	270.31	6,945.38	1,626.71	-3,479.63	3,486.98	0.00	0.00	0.00
10,300.00	90.16	270.31	6,945.09	1,627.25	-3,579.63	3,586.98	0.00	0.00	0.00
10,400.00	90.16	270.31	6,944.81	1,627.80	-3,679.63	3,686.98	0.00	0.00	0.00
10,500.00	90.16	270.31	6,944.52	1,628.35	-3,779.63	3,786.98	0.00	0.00	0.00
10,600.00	90.16	270.31	6,944.24	1,628.90	-3,879.63	3,886.98	0.00	0.00	0.00
10,700.00	90.16	270.31	6,943.95	1,629.45	-3,979.62	3,986.98	0.00	0.00	0.00
10,800.00	90.16	270.31	6,943.67	1,630.00	-4,079.62	4,086.98	0.00	0.00	0.00
10,900.00	90.16	270.31	6,943.38	1,630.55	-4,179.62	4,186.98	0.00	0.00	0.00
11,000.00	90.16	270.31	6,943.10	1,631.10	-4,279.62	4,286.98	0.00	0.00	0.00
11,100.00	90.16	270.31	6,942.81	1,631.65	-4,379.62	4,386.98	0.00	0.00	0.00
11,200.00	90.16	270.31	6,942.53	1,632.20	-4,479.61	4,486.98	0.00	0.00	0.00
11,300.00	90.16	270.31	6,942.24	1,632.74	-4,579.61	4,586.97	0.00	0.00	0.00
11,400.00	90.16	270.31	6,941.96	1,633.29	-4,679.61	4,686.97	0.00	0.00	0.00

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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	90.16	270.31	6,941.67	1,633.84	-4,779.61	4,786.97	0.00	0.00	0.00	
11,600.00	90.16	270.31	6,941.39	1,634.39	-4,879.61	4,886.97	0.00	0.00	0.00	
11,700.00	90.16	270.31	6,941.10	1,634.94	-4,979.61	4,986.97	0.00	0.00	0.00	
11,800.00	90.16	270.31	6,940.81	1,635.49	-5,079.60	5,086.97	0.00	0.00	0.00	
11,900.00	90.16	270.31	6,940.53	1,636.04	-5,179.60	5,186.97	0.00	0.00	0.00	
12,000.00	90.16	270.31	6,940.24	1,636.59	-5,279.60	5,286.97	0.00	0.00	0.00	
12,100.00	90.16	270.31	6,939.96	1,637.14	-5,379.60	5,386.97	0.00	0.00	0.00	
12,200.00	90.16	270.31	6,939.67	1,637.68	-5,479.60	5,486.97	0.00	0.00	0.00	
12,300.00	90.16	270.31	6,939.39	1,638.23	-5,579.59	5,586.97	0.00	0.00	0.00	
12,400.00	90.16	270.31	6,939.10	1,638.78	-5,679.59	5,686.97	0.00	0.00	0.00	
12,500.00	90.16	270.31	6,938.82	1,639.33	-5,779.59	5,786.97	0.00	0.00	0.00	
12,600.00	90.16	270.31	6,938.53	1,639.88	-5,879.59	5,886.97	0.00	0.00	0.00	
12,700.00	90.16	270.31	6,938.25	1,640.43	-5,979.59	5,986.97	0.00	0.00	0.00	
12,800.00	90.16	270.31	6,937.96	1,640.98	-6,079.58	6,086.97	0.00	0.00	0.00	
12,900.00	90.16	270.31	6,937.68	1,641.53	-6,179.58	6,186.97	0.00	0.00	0.00	
13,000.00	90.16	270.31	6,937.39	1,642.08	-6,279.58	6,286.97	0.00	0.00	0.00	
13,100.00	90.16	270.31	6,937.11	1,642.62	-6,379.58	6,386.97	0.00	0.00	0.00	
13,200.00	90.16	270.31	6,936.82	1,643.17	-6,479.58	6,486.97	0.00	0.00	0.00	
13,300.00	90.16	270.31	6,936.54	1,643.72	-6,579.57	6,586.97	0.00	0.00	0.00	
13,400.00	90.16	270.31	6,936.25	1,644.27	-6,679.57	6,686.97	0.00	0.00	0.00	
13,500.00	90.16	270.31	6,935.97	1,644.82	-6,779.57	6,786.96	0.00	0.00	0.00	
13,600.00	90.16	270.31	6,935.68	1,645.37	-6,879.57	6,886.96	0.00	0.00	0.00	
13,700.00	90.16	270.31	6,935.40	1,645.92	-6,979.57	6,986.96	0.00	0.00	0.00	
13,800.00	90.16	270.31	6,935.11	1,646.47	-7,079.56	7,086.96	0.00	0.00	0.00	
13,900.00	90.16	270.31	6,934.83	1,647.02	-7,179.56	7,186.96	0.00	0.00	0.00	
14,000.00	90.16	270.31	6,934.54	1,647.56	-7,279.56	7,286.96	0.00	0.00	0.00	
14,100.00	90.16	270.31	6,934.26	1,648.11	-7,379.56	7,386.96	0.00	0.00	0.00	
14,200.00	90.16	270.31	6,933.97	1,648.66	-7,479.56	7,486.96	0.00	0.00	0.00	
14,300.00	90.16	270.31	6,933.69	1,649.21	-7,579.56	7,586.96	0.00	0.00	0.00	
14,400.00	90.16	270.31	6,933.40	1,649.76	-7,679.55	7,686.96	0.00	0.00	0.00	
14,500.00	90.16	270.31	6,933.12	1,650.31	-7,779.55	7,786.96	0.00	0.00	0.00	
14,600.00	90.16	270.31	6,932.83	1,650.86	-7,879.55	7,886.96	0.00	0.00	0.00	
14,700.00	90.16	270.31	6,932.55	1,651.41	-7,979.55	7,986.96	0.00	0.00	0.00	
14,800.00	90.16	270.31	6,932.26	1,651.96	-8,079.55	8,086.96	0.00	0.00	0.00	
14,900.00	90.16	270.31	6,931.98	1,652.50	-8,179.54	8,186.96	0.00	0.00	0.00	
15,000.00	90.16	270.31	6,931.69	1,653.05	-8,279.54	8,286.96	0.00	0.00	0.00	
15,100.00	90.16	270.31	6,931.41	1,653.60	-8,379.54	8,386.96	0.00	0.00	0.00	
15,200.00	90.16	270.31	6,931.12	1,654.15	-8,479.54	8,486.96	0.00	0.00	0.00	
15,300.00	90.16	270.31	6,930.84	1,654.70	-8,579.54	8,586.96	0.00	0.00	0.00	
15,400.00	90.16	270.31	6,930.55	1,655.25	-8,679.53	8,686.96	0.00	0.00	0.00	
15,500.00	90.16	270.31	6,930.27	1,655.80	-8,779.53	8,786.96	0.00	0.00	0.00	
15,600.00	90.16	270.31	6,929.98	1,656.35	-8,879.53	8,886.96	0.00	0.00	0.00	
15,700.00	90.16	270.31	6,929.70	1,656.90	-8,979.53	8,986.95	0.00	0.00	0.00	
15,800.00	90.16	270.31	6,929.41	1,657.44	-9,079.53	9,086.95	0.00	0.00	0.00	
15,900.00	90.16	270.31	6,929.13	1,657.99	-9,179.52	9,186.95	0.00	0.00	0.00	
16,000.00	90.16	270.31	6,928.84	1,658.54	-9,279.52	9,286.95	0.00	0.00	0.00	
16,100.00	90.16	270.31	6,928.56	1,659.09	-9,379.52	9,386.95	0.00	0.00	0.00	
16,200.00	90.16	270.31	6,928.27	1,659.64	-9,479.52	9,486.95	0.00	0.00	0.00	
16,300.00	90.16	270.31	6,927.99	1,660.19	-9,579.52	9,586.95	0.00	0.00	0.00	
16,400.00	90.16	270.31	6,927.70	1,660.74	-9,679.52	9,686.95	0.00	0.00	0.00	
16,500.00	90.16	270.31	6,927.42	1,661.29	-9,779.51	9,786.95	0.00	0.00	0.00	
16,600.00	90.16	270.31	6,927.13	1,661.84	-9,879.51	9,886.95	0.00	0.00	0.00	
16,700.00	90.16	270.31	6,926.85	1,662.38	-9,979.51	9,986.95	0.00	0.00	0.00	
16,800.00	90.16	270.31	6,926.56	1,662.93	-10,079.51	10,086.95	0.00	0.00	0.00	

SDT

Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	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	90.16	270.31	6,926.28	1,663.48	-10,179.51	10,186.95	0.00	0.00	0.00
17,000.00	90.16	270.31	6,925.99	1,664.03	-10,279.50	10,286.95	0.00	0.00	0.00
17,100.00	90.16	270.31	6,925.71	1,664.58	-10,379.50	10,386.95	0.00	0.00	0.00
17,200.00	90.16	270.31	6,925.42	1,665.13	-10,479.50	10,486.95	0.00	0.00	0.00
17,300.00	90.16	270.31	6,925.14	1,665.68	-10,579.50	10,586.95	0.00	0.00	0.00
17,400.00	90.16	270.31	6,924.85	1,666.23	-10,679.50	10,686.95	0.00	0.00	0.00
17,500.00	90.16	270.31	6,924.57	1,666.78	-10,779.49	10,786.95	0.00	0.00	0.00
17,600.00	90.16	270.31	6,924.28	1,667.32	-10,879.49	10,886.95	0.00	0.00	0.00
17,700.00	90.16	270.31	6,924.00	1,667.87	-10,979.49	10,986.95	0.00	0.00	0.00
17,800.00	90.16	270.31	6,923.71	1,668.42	-11,079.49	11,086.95	0.00	0.00	0.00
17,900.00	90.16	270.31	6,923.43	1,668.97	-11,179.49	11,186.95	0.00	0.00	0.00
18,000.00	90.16	270.31	6,923.14	1,669.52	-11,279.48	11,286.94	0.00	0.00	0.00
18,100.00	90.16	270.31	6,922.86	1,670.07	-11,379.48	11,386.94	0.00	0.00	0.00
18,200.00	90.16	270.31	6,922.57	1,670.62	-11,479.48	11,486.94	0.00	0.00	0.00
18,300.00	90.16	270.31	6,922.29	1,671.17	-11,579.48	11,586.94	0.00	0.00	0.00
18,400.00	90.16	270.31	6,922.00	1,671.72	-11,679.48	11,686.94	0.00	0.00	0.00
18,500.00	90.16	270.31	6,921.71	1,672.26	-11,779.48	11,786.94	0.00	0.00	0.00
18,600.00	90.16	270.31	6,921.43	1,672.81	-11,879.47	11,886.94	0.00	0.00	0.00
18,700.00	90.16	270.31	6,921.14	1,673.36	-11,979.47	11,986.94	0.00	0.00	0.00
18,800.00	90.16	270.31	6,920.86	1,673.91	-12,079.47	12,086.94	0.00	0.00	0.00
18,900.00	90.16	270.31	6,920.57	1,674.46	-12,179.47	12,186.94	0.00	0.00	0.00
19,000.00	90.16	270.31	6,920.29	1,675.01	-12,279.47	12,286.94	0.00	0.00	0.00
19,100.00	90.16	270.31	6,920.00	1,675.56	-12,379.46	12,386.94	0.00	0.00	0.00
19,200.00	90.16	270.31	6,919.72	1,676.11	-12,479.46	12,486.94	0.00	0.00	0.00
19,300.00	90.16	270.31	6,919.43	1,676.66	-12,579.46	12,586.94	0.00	0.00	0.00
19,400.00	90.16	270.31	6,919.15	1,677.20	-12,679.46	12,686.94	0.00	0.00	0.00
19,500.00	90.16	270.31	6,918.86	1,677.75	-12,779.46	12,786.94	0.00	0.00	0.00
19,600.00	90.16	270.31	6,918.58	1,678.30	-12,879.45	12,886.94	0.00	0.00	0.00
19,700.00	90.16	270.31	6,918.29	1,678.85	-12,979.45	12,986.94	0.00	0.00	0.00
19,800.00	90.16	270.31	6,918.01	1,679.40	-13,079.45	13,086.94	0.00	0.00	0.00
19,900.00	90.16	270.31	6,917.72	1,679.95	-13,179.45	13,186.94	0.00	0.00	0.00
20,000.00	90.16	270.31	6,917.44	1,680.50	-13,279.45	13,286.94	0.00	0.00	0.00
20,100.00	90.16	270.31	6,917.15	1,681.05	-13,379.44	13,386.94	0.00	0.00	0.00
20,200.00	90.16	270.31	6,916.87	1,681.60	-13,479.44	13,486.93	0.00	0.00	0.00
20,300.00	90.16	270.31	6,916.58	1,682.14	-13,579.44	13,586.93	0.00	0.00	0.00
20,400.00	90.16	270.31	6,916.30	1,682.69	-13,679.44	13,686.93	0.00	0.00	0.00
20,500.00	90.16	270.31	6,916.01	1,683.24	-13,779.44	13,786.93	0.00	0.00	0.00
20,600.00	90.16	270.31	6,915.73	1,683.79	-13,879.44	13,886.93	0.00	0.00	0.00
20,700.00	90.16	270.31	6,915.44	1,684.34	-13,979.43	13,986.93	0.00	0.00	0.00
20,800.00	90.16	270.31	6,915.16	1,684.89	-14,079.43	14,086.93	0.00	0.00	0.00
20,855.45	90.16	270.31	6,915.00	1,685.19	-14,134.88	14,142.38	0.00	0.00	0.00
TD at 20855.45									

SDT
Planning Report

Database:	EDM 5000 Multi User Db	Local Co-ordinate Reference:	Well Rosa Unit #712H - Slot B02
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 #712H	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Prelim #1		

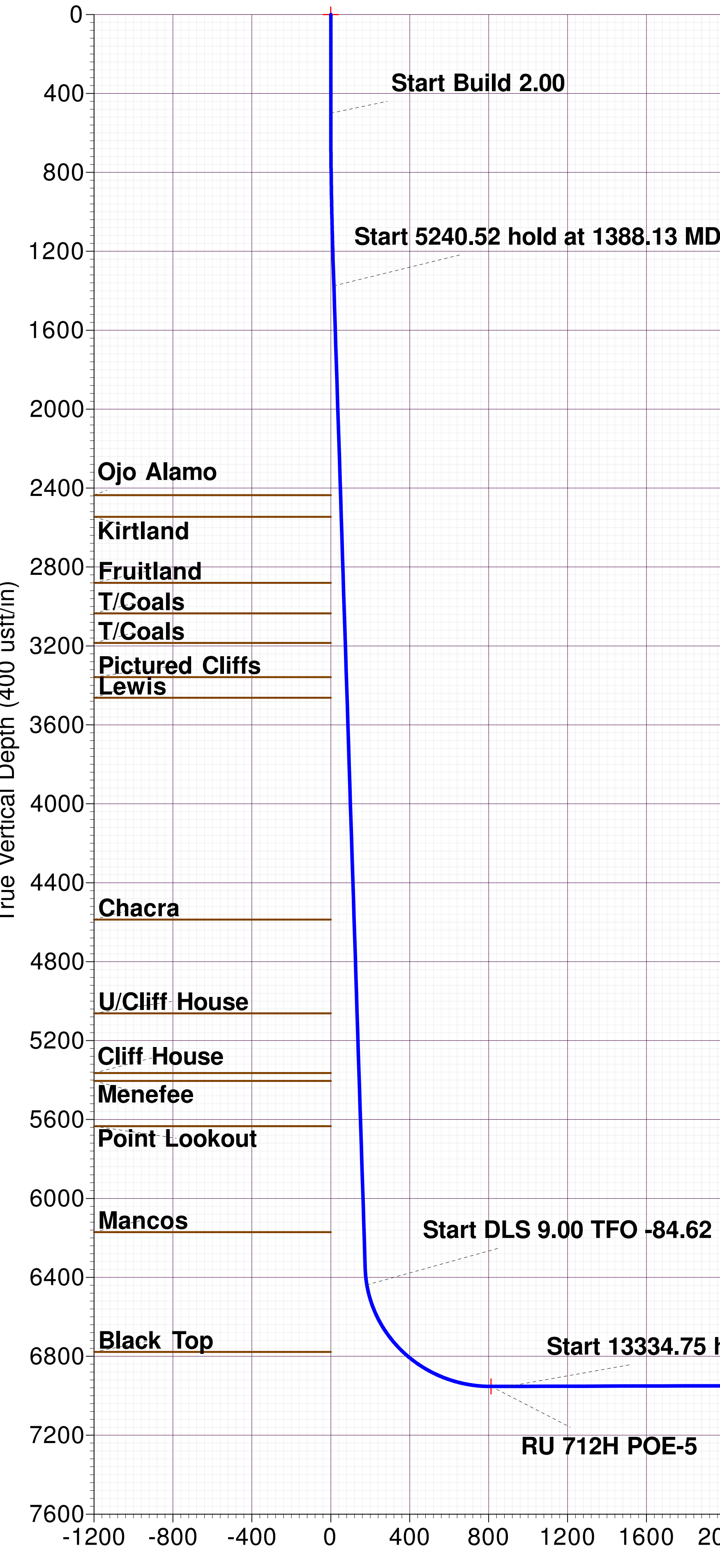
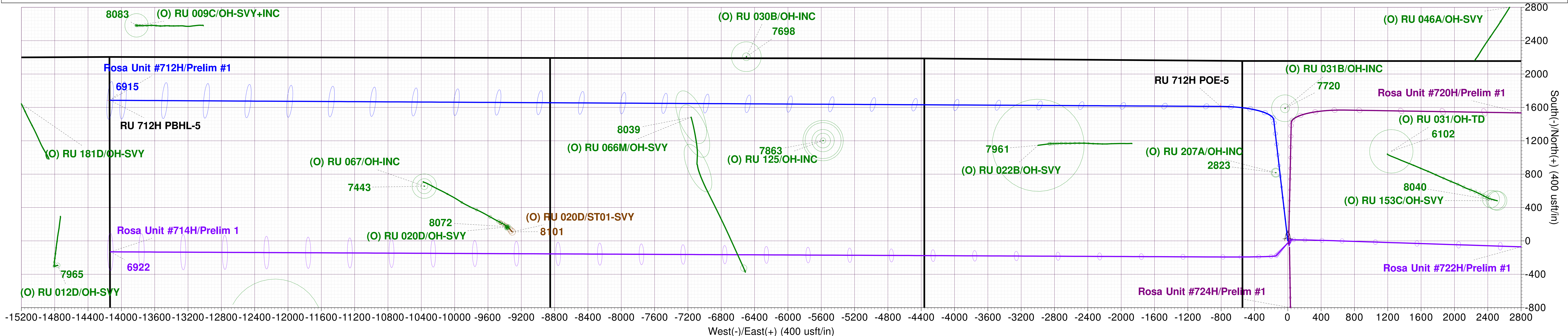
Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
RU 712H SHL-5	0.00	0.00	0.00	0.00	0.00	2,147,537.00	2,851,880.91	36.900861	-107.392859
- plan hits target center									
- Point									
Interp @ 6356.75 (Rosa	0.00	0.00	6,356.75	1,450.40	-168.13	2,148,986.61	2,851,706.08	36.904845	-107.393434
- plan hits target center									
- Point									
RU 712H PBHL-5	0.00	0.00	6,915.00	1,685.19	-14,134.88	2,149,156.92	2,837,738.39	36.905480	-107.441204
- plan hits target center									
- Point									
RU 712H POE-5	0.00	0.00	6,953.00	1,612.03	-805.31	2,149,145.29	2,851,068.16	36.905289	-107.395614
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth					
(usft)	(usft)	Name	Lithology	Dip	Dip Direction	
				(°)	(°)	
2,486.19	2,436.00	Ojo Alamo				
2,600.02	2,546.00	Kirtland				
2,945.67	2,880.00	Fruitland				
3,106.07	3,035.00	T/Coals				
3,261.30	3,185.00	T/Coals				
3,440.33	3,358.00	Pictured Cliffs				
3,548.99	3,463.00	Lewis				
4,712.18	4,587.00	Chacra				
5,203.74	5,062.00	U/Cliff House				
5,517.31	5,365.00	Cliff House				
5,558.70	5,405.00	Menefee				
5,795.69	5,634.00	Point Lookout				
6,351.41	6,171.00	Mancos				
7,031.50	6,778.00	Black Top				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment
500.00	500.00	0.00	0.00	Start Build 2.00
1,245.75	1,237.35	95.88	-11.11	Start 5297.89 hold at 1245.75 MD
6,543.64	6,356.75	1,450.40	-168.12	Start DLS 9.00 TFO -83.26
7,525.63	6,953.00	1,612.03	-805.31	Start 13329.82 hold at 7525.63 MD
20,855.45	6,915.00	1,685.19	-14,134.88	TD at 20855.45



County: Rio Arriba, NM (NAD83)
Site: Rosa Pad 26 - 5 Well
Well: Rosa Unit #712H
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	Start Build 2.00
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	1245.75	14.91	353.39	1237.35	95.88	-11.11	2.00	353.39	11.55	
4	6543.64	14.91	353.39	6356.75	1450.40	-168.12	0.00	0.00	174.70	
5	7525.63	90.16	270.31	6953.00	1612.03	-805.31	9.00	-83.26	812.62	
6	20855.45	90.16	270.31	6915.00	1685.19	-14134.88	0.00	0.00	14142.38	

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
RU 712H SHL-5	0.00	0.00	0.00	2147537.00	2851880.90	36.900861	-107.392859	
RU 712H PBHL-5	6915.00	1685.19	-14134.88	2149156.92	2837738.39	36.905480	-107.441204	
RU 712H POE-5	6953.00	1612.03	-805.31	2149145.29	2851068.15	36.905289	-107.395613	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2436.00	2486.19	Ojo Alamo
2546.00	2600.02	Kirtland
2880.00	2945.67	Fruitland
3035.00	3106.07	T/Coals
3185.00	3261.30	T/Coals
3358.00	3440.33	Pictured Cliffs
3463.00	3548.99	Lewis
4587.00	4712.18	Chacra
5062.00	5203.74	U/Cliff House
5365.00	5517.31	Cliff House
5405.00	5558.70	Menefee
5634.00	5795.69	Point Lookout
6171.00	6351.41	Mancos
6778.00	7031.50	Black Top

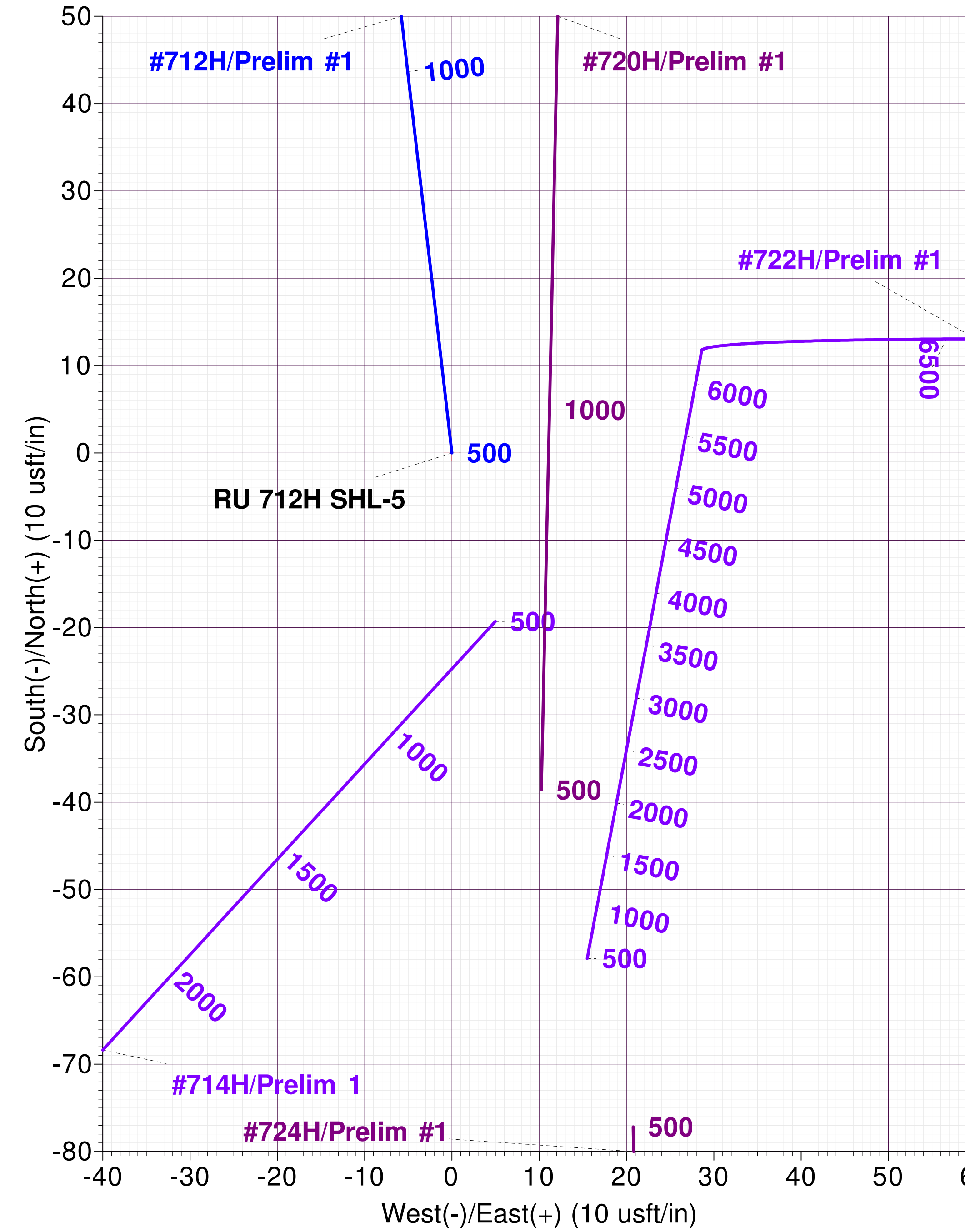
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Azimuths to True North
Magnetic North: 8.55°

Magnetic Field
Strength: 49574.8nT
Dip Angle: 63.46°
Date: 1/11/2023
Model: IGRF2015

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 712H	GL Elevation:	6,300'
Surface Location:	Sec 17, T31N, R5W 2156' FNL, 544' FWL (36.900861° N, -107.392859° W – NAD83)	KB:	30'
Bottom Hole Location:	Sec 14, T31N, R6W 519' FNL, 7' FWL (36.905480° N, -107.441204° W – NAD83)	Measured Depth:	20,855' (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	2486'	2436'	*POINT LOOKOUT	5796'	5634'
KIRTLAND	2600'	2546'	*MANCOS	6351'	6171'
*FRUITLAND	2946'	2880'	KICKOFF POINT	6544'	6357'
*PICTURED CLIFFS	3440'	3358'	LANDING POINT	7526'	6953'
LEWIS	3549'	3463'	TD	20855'	6915'
CHACRA	4712'	4587'			
*CLIFF HOUSE	5517'	5365'			
MENEFEE	5559'	5405'			

* 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:** 6,953' TVD x 0.43 = 2,990 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"	3,490'	13.375"	54.5 LBS	J-55 or equiv	LTC/BTC
INTERMEDIATE	12.25"	6,426'	9.625"	43.5 LBS	N-80 or equiv	LTC/BTC
PRODUCTION	8.5"	20,855'	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	2,890	600	0.6947	1.3	575	102	1.10	523	15.8
Stage 1 Lead - OH	320	2,570	0.6947	1.3	2,321	413	1.90	1222	12.4
Stage 2 Lead - Cased	-	320	1.019	1	326	58	1.90	172	12.4
					3,223	574		1916	

Set Depth 3490

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	5,926	500	0.3132	1.3	220	39	1.10	200	15.8
Stage 1 Lead	4,787	1,139	0.3132	1.3	464	83	1.90	244	12.4
					684	122		444	
Stage 2 Tail	4,187	600	0.3132	1.3	244	44	1.58	155	13.2
Stage 2 Lead	3,390	797	0.3132	1.3	325	58	1.90	171	12.4
Stage 2 Lead - Cased	3,290	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	3,490	75	0.3132	1.3	31	5	1.58	19	13.2
Stage 3 Tail - Cased	2,990	500	0.3490	1	175	31	1.58	110	13.2
Stage 3 Lead - Cased	-	2,990	0.3490	1	1,044	186	1.90	549	12.4
Contingency Stage 3 Totals					1,249	222		679	

Set Depth 6426



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	6,326	100	0.2531	1	25	5	1.98	13	13.2
Open Hole Lead	6,426	14,429	0.2291	1.15	3,807	678	1.98	1,923	13.2
					3,832	683		1,935	

Set depth 20855

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 * 6,953' TVD = 1530 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**

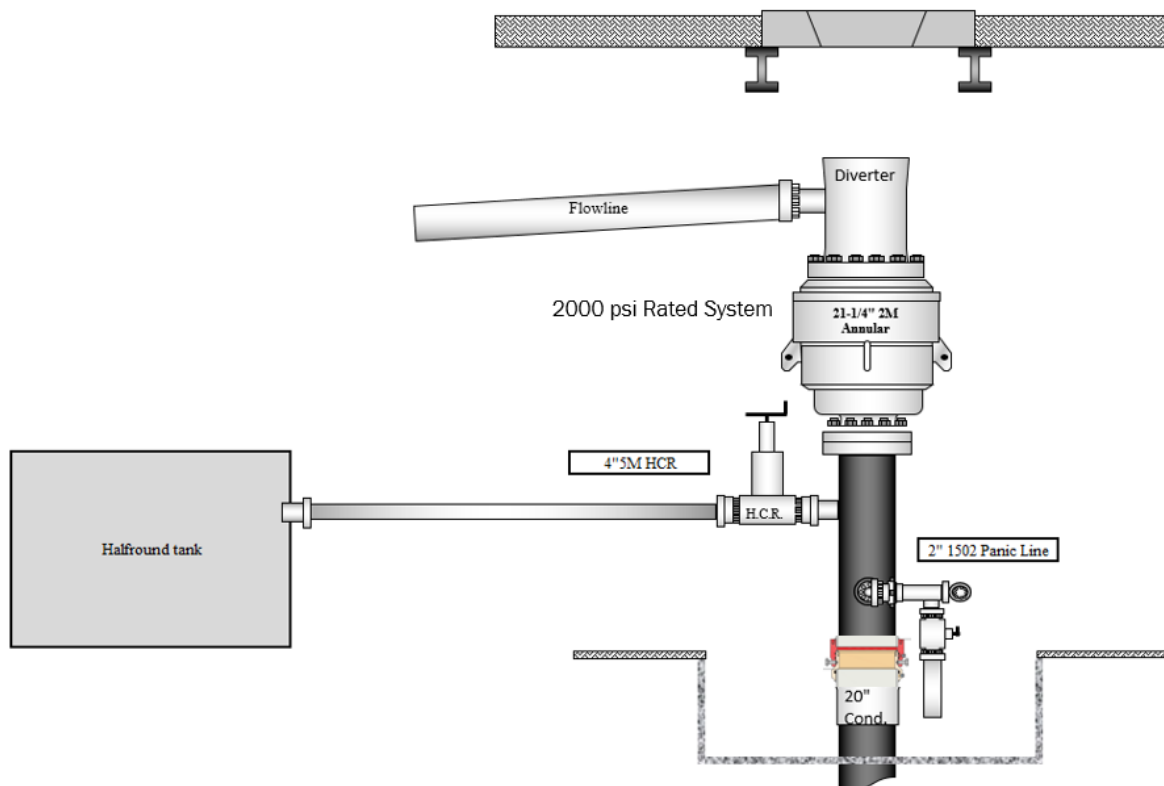
2-7/8", 6.5#, J-55 or L-80, EUE tubing will be run once volumes and pressures dictate. Due to the extremely high initial flow rates and pressures seen in offset wells, tubing will be installed once it is safe to do so, typically 12-36 months after completion.

*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

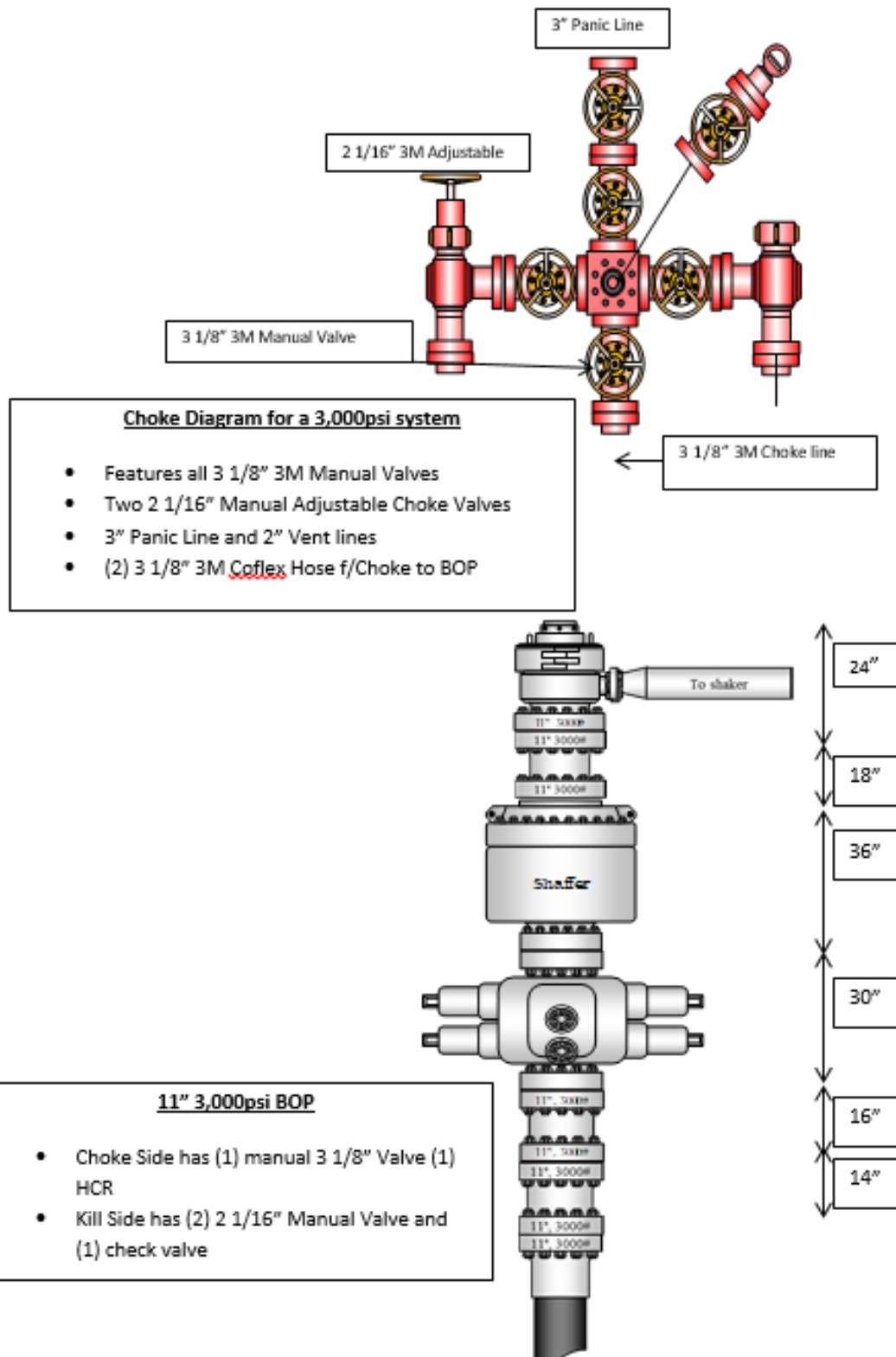
Surface Hole Diverter:





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 387914

CONDITIONS

Operator: LOGOS OPERATING, LLC 2010 Afton Place Farmington, NM 87401	OGRID: 289408
	Action Number: 387914
	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