

NM OIL CONSERVATION
ARTESIA DISTRICT

Intent ☒ As Drilled ☐

DEC 12 2018

RECEIVED

API # 30-015-45534		
Operator Name: COG Operating LLC	Property Name: SRO 5 State Com	Well Number 507H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	5	26S	28E		255	North	2225	East	Eddy
Latitude 32.078231					Longitude -104.107999			NAD 83	

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	5	26S	28E		100	North	2310	East	Eddy
Latitude 32.078657					Longitude -104.108278			NAD 83	

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
O	8	26S	28E		100	South	2310	East	Eddy
Latitude 32.050092					Longitude -104.108527			NAD 83	

Is this well the defining well for the Horizontal Spacing Unit? ☐ Y

Is this well an infill well? ☐ N

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name: COG Operating LLC	Property Name: SRO 5 State Com	Well Number 507H

KZ 06/29/2018

SRO 5 State Com #507H

Casing and Cement

<u>String</u>	<u>Hole Size</u>	<u>Csg OD</u>	<u>PPF</u>	<u>Depth</u>	<u>Sx Cement</u>	<u>TOC</u>
Surface	17-1/2"	13-3/8"	54.5#	680'	500	0'
Intermediate 2	12-1/4"	9-5/8"	40#	2,400'	900	0'
Production	8-3/4"	5-1/2"	17#	18,200'	3,300	2,000'

Well Plan

Drill 17-1/2" hole to 680' into the Rustler. Run 13-3/8" 54.5# J55 STC casing to TD and cement to surface in one stage. Will set in Rustler and cover water depth.

Drill 12-1/4" hole to ~2,400' with Brine. Run 9-5/8" 40# J-55 casing to TD and cement to surface in one stage.

Drill 8-3/4" vertical hole, curve & lateral to 18,200' with Cut Brine. Run 5-1/2" 17# P110 BTC casing to TD and cement to 2,000' in one stage.

Well Control

After setting 13-3/8" casing and installing 3000 psi casing head, NU 13-5/8" Cameron BOP. Test annular and casing to 1500 psi and other BOP equipment to 3000 psi.

After setting 9-5/8" casing and installing 3000 psi casing spool, NU 13-5/8" Cameron BOP. Test annular to 1500 psi and other BOP equipment to 3000 psi.



CONCHO

NM OIL CONSERVATION
ARTESIA DISTRICT

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COG Operating L L C

Eddy County, NM (NAD 27 NME)

Sec. 05, T 26 S. , R 28 E

SRO 5 State Com 507H

Wellbore #1

Plan #1

30-015-45534

Anticollision Report

10 December, 2018



INTEGRITY
DIRECTIONAL



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S., R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Com 507H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well SRO 5 State Com 507H
TVD Reference: KB=30' @ 3039.40usft (Nabors 894)
MD Reference: KB=30' @ 3039.40usft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Reference	Plan #1
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria
Interpolation Method:	Stations
Depth Range:	Unlimited
Results Limited by:	Maximum center-center distance of 19,999.96 u
Warning Levels Evaluated at:	2.00 Sigma
Error Model:	ISCWSA
Scan Method:	Closest Approach 3D
Error Surface:	Circular Conic
Casing Method:	Not applied

Survey Tool Program		Date	12/10/2018	
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	18,200.24	Plan #1 (Wellbore #1)	MWD	MWD - Standard

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						
Sec. 05, T 26 S., R 28 E						
SRO 5 State Com 506H - Wellbore #1 - Plan #1	5,566.30	5,567.40	30.10	5.37	1.217	Level 2, CC
SRO 5 State Com 506H - Wellbore #1 - Plan #1	5,600.00	5,601.09	30.10	5.22	1.210	Level 2, ES, SF

Offset Design		Sec. 05, T 26 S. , R 28 E - SRO 5 State Com 506H - Wellbore #1 - Plan #1								Offset Site Error:		0.00 usft	
Survey Program: 0-MWD										Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference	Offset		Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
0.00	0.00	1.10	1.10	0.00	0.00	89.81	0.10	30.10	30.10				
100.00	100.00	101.10	101.10	0.08	0.08	89.81	0.10	30.10	30.10	29.94	0.16	188.351	
200.00	200.00	201.10	201.10	0.30	0.31	89.81	0.10	30.10	30.10	29.49	0.61	49.398	
300.00	300.00	301.10	301.10	0.53	0.53	89.81	0.10	30.10	30.10	29.04	1.06	28.427	
400.00	400.00	401.10	401.10	0.75	0.76	89.81	0.10	30.10	30.10	28.59	1.51	19.955	
500.00	500.00	501.10	501.10	0.98	0.98	89.81	0.10	30.10	30.10	28.14	1.96	15.373	
600.00	600.00	601.10	601.10	1.20	1.20	89.81	0.10	30.10	30.10	27.69	2.41	12.503	
700.00	700.00	701.10	701.10	1.43	1.43	89.81	0.10	30.10	30.10	27.24	2.86	10.536	
800.00	800.00	801.10	801.10	1.65	1.65	89.81	0.10	30.10	30.10	26.79	3.31	9.103	
900.00	900.00	901.10	901.10	1.88	1.88	89.81	0.10	30.10	30.10	26.34	3.76	8.014	
1,000.00	1,000.00	1,001.10	1,001.10	2.10	2.10	89.81	0.10	30.10	30.10	25.89	4.21	7.157	
1,100.00	1,100.00	1,101.10	1,101.10	2.33	2.33	89.81	0.10	30.10	30.10	25.45	4.66	6.466	
1,200.00	1,200.00	1,201.10	1,201.10	2.55	2.55	89.81	0.10	30.10	30.10	25.00	5.10	5.897	
1,300.00	1,300.00	1,301.10	1,301.10	2.78	2.78	89.81	0.10	30.10	30.10	24.55	5.55	5.419	
1,400.00	1,400.00	1,401.10	1,401.10	3.00	3.00	89.81	0.10	30.10	30.10	24.10	6.00	5.014	
1,500.00	1,500.00	1,501.10	1,501.10	3.23	3.23	89.81	0.10	30.10	30.10	23.65	6.45	4.664	
1,600.00	1,600.00	1,601.10	1,601.10	3.45	3.45	89.81	0.10	30.10	30.10	23.20	6.90	4.361	
1,700.00	1,700.00	1,701.10	1,701.10	3.67	3.68	89.81	0.10	30.10	30.10	22.75	7.35	4.094	
1,800.00	1,800.00	1,801.10	1,801.10	3.90	3.90	89.81	0.10	30.10	30.10	22.30	7.80	3.858	
1,900.00	1,900.00	1,901.10	1,901.10	4.12	4.13	89.81	0.10	30.10	30.10	21.85	8.25	3.648	
2,000.00	2,000.00	2,001.10	2,001.10	4.35	4.35	89.81	0.10	30.10	30.10	21.40	8.70	3.459	
2,100.00	2,100.00	2,101.10	2,101.10	4.57	4.58	89.81	0.10	30.10	30.10	20.95	9.15	3.289	
2,200.00	2,200.00	2,201.10	2,201.10	4.80	4.80	89.81	0.10	30.10	30.10	20.50	9.60	3.135	
2,300.00	2,300.00	2,301.10	2,301.10	5.02	5.03	89.81	0.10	30.10	30.10	20.05	10.05	2.995	
2,400.00	2,400.00	2,401.10	2,401.10	5.25	5.25	89.81	0.10	30.10	30.10	19.60	10.50	2.867	

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



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S., R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Com 507H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well SRO 5 State Com 507H
TVD Reference: KB=30' @ 3039.40usft (Nabors 894)
MD Reference: KB=30' @ 3039.40usft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 05, T 26 S., R 28 E - SRO 5 State Com 506H - Wellbore #1 - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-MWD													Offset Well Error: 0.00 usft
Reference		Offset		Semi Major Axis			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	
2,500.00	2,500.00	2,501.10	2,501.10	5.47	5.48	89.81	0.10	30.10	30.10	19.15	10.95	2.749	
2,600.00	2,600.00	2,601.10	2,601.10	5.70	5.70	89.81	0.10	30.10	30.10	18.70	11.40	2.641	
2,700.00	2,700.00	2,701.10	2,701.10	5.92	5.93	89.81	0.10	30.10	30.10	18.25	11.85	2.541	
2,800.00	2,800.00	2,801.10	2,801.10	6.15	6.15	89.81	0.10	30.10	30.10	17.80	12.30	2.448	
2,900.00	2,900.00	2,901.10	2,901.10	6.37	6.37	89.81	0.10	30.10	30.10	17.35	12.75	2.361	
3,000.00	3,000.00	3,001.10	3,001.10	6.60	6.60	89.81	0.10	30.10	30.10	16.90	13.20	2.281	
3,100.00	3,100.00	3,101.10	3,101.10	6.82	6.82	89.81	0.10	30.10	30.10	16.45	13.65	2.206	
3,200.00	3,200.00	3,201.10	3,201.10	7.05	7.05	89.81	0.10	30.10	30.10	16.00	14.10	2.135	
3,300.00	3,300.00	3,301.10	3,301.10	7.27	7.27	89.81	0.10	30.10	30.10	15.56	14.54	2.069	
3,400.00	3,400.00	3,401.10	3,401.10	7.50	7.50	89.81	0.10	30.10	30.10	15.11	14.99	2.007	
3,500.00	3,500.00	3,501.10	3,501.10	7.72	7.72	89.81	0.10	30.10	30.10	14.66	15.44	1.949	
3,600.00	3,600.00	3,601.10	3,601.10	7.95	7.95	89.81	0.10	30.10	30.10	14.21	15.89	1.894	
3,700.00	3,700.00	3,701.10	3,701.10	8.17	8.17	89.81	0.10	30.10	30.10	13.76	16.34	1.842	
3,800.00	3,800.00	3,801.10	3,801.10	8.40	8.40	89.81	0.10	30.10	30.10	13.31	16.79	1.792	
3,900.00	3,900.00	3,901.10	3,901.10	8.62	8.62	89.81	0.10	30.10	30.10	12.86	17.24	1.746	
4,000.00	4,000.00	4,001.10	4,001.10	8.84	8.85	89.81	0.10	30.10	30.10	12.41	17.69	1.701	
4,100.00	4,100.00	4,101.10	4,101.10	9.07	9.07	89.81	0.10	30.10	30.10	11.96	18.14	1.659	
4,200.00	4,200.00	4,201.10	4,201.10	9.29	9.30	89.81	0.10	30.10	30.10	11.51	18.59	1.619	
4,300.00	4,300.00	4,301.10	4,301.10	9.52	9.52	89.81	0.10	30.10	30.10	11.06	19.04	1.581	
4,400.00	4,400.00	4,401.10	4,401.10	9.74	9.75	89.81	0.10	30.10	30.10	10.61	19.49	1.544	
4,500.00	4,500.00	4,501.10	4,501.10	9.97	9.97	89.81	0.10	30.10	30.10	10.16	19.94	1.510	
4,600.00	4,600.00	4,601.10	4,601.10	10.19	10.20	89.81	0.10	30.10	30.10	9.71	20.39	1.476 Level 3	
4,700.00	4,700.00	4,701.10	4,701.10	10.42	10.42	89.81	0.10	30.10	30.10	9.26	20.84	1.444 Level 3	
4,800.00	4,800.00	4,801.10	4,801.10	10.64	10.65	89.81	0.10	30.10	30.10	8.81	21.29	1.414 Level 3	
4,900.00	4,900.00	4,901.10	4,901.10	10.87	10.87	89.81	0.10	30.10	30.10	8.36	21.74	1.385 Level 3	
5,000.00	5,000.00	5,001.10	5,001.10	11.09	11.09	89.81	0.10	30.10	30.10	7.91	22.19	1.357 Level 3	
5,100.00	5,100.00	5,101.10	5,101.10	11.32	11.32	89.81	0.10	30.10	30.10	7.46	22.64	1.330 Level 3	
5,200.00	5,200.00	5,201.10	5,201.10	11.54	11.54	89.81	0.10	30.10	30.10	7.01	23.09	1.304 Level 3	
5,300.00	5,300.00	5,301.10	5,301.10	11.77	11.77	89.81	0.10	30.10	30.10	6.56	23.54	1.279 Level 3	
5,400.00	5,400.00	5,401.10	5,401.10	11.99	11.99	89.81	0.10	30.10	30.10	6.12	23.99	1.255 Level 3	
5,500.00	5,500.00	5,501.10	5,501.10	12.22	12.22	89.81	0.10	30.10	30.10	5.67	24.43	1.232 Level 2	
5,566.30	5,566.30	5,567.40	5,567.40	12.37	12.37	89.81	0.10	30.10	30.10	5.37	24.73	1.217 Level 2, CC	
5,600.00	5,600.00	5,601.09	5,601.09	12.44	12.44	89.81	0.10	30.10	30.10	5.22	24.88	1.210 Level 2, ES, SF	
5,700.00	5,699.98	5,700.00	5,699.98	12.66	12.66	119.81	1.17	31.48	32.35	7.03	25.32	1.277 Level 3	
5,800.00	5,799.84	5,799.03	5,798.87	12.89	12.87	121.58	4.35	35.55	39.06	13.30	25.76	1.516	
5,900.00	5,899.45	5,897.25	5,896.72	13.11	13.09	123.45	9.57	42.25	50.24	24.04	26.20	1.918	
5,915.17	5,914.53	5,912.08	5,911.46	13.14	13.12	123.71	10.54	43.49	52.33	26.06	26.26	1.992	
6,000.00	5,998.85	5,994.69	5,993.44	13.33	13.30	124.28	16.79	51.51	65.18	38.54	26.64	2.447	
6,100.00	6,098.25	6,091.33	6,088.93	13.56	13.52	123.24	25.94	63.25	82.58	55.50	27.08	3.050	
6,200.00	6,197.64	6,189.47	6,185.61	13.79	13.75	121.88	36.30	76.54	101.33	73.79	27.54	3.680	
6,300.00	6,297.04	6,287.68	6,282.36	14.02	13.98	120.95	46.66	89.84	120.12	92.11	28.00	4.289	
6,400.00	6,396.43	6,385.88	6,379.10	14.25	14.23	120.26	57.03	103.13	138.92	110.45	28.48	4.878	
6,500.00	6,495.83	6,484.08	6,475.85	14.49	14.47	119.74	67.40	116.43	157.75	128.79	28.96	5.447	
6,600.00	6,595.22	6,582.29	6,572.59	14.73	14.72	119.33	77.76	129.73	176.58	147.13	29.45	5.996	
6,700.00	6,694.62	6,680.49	6,669.34	14.97	14.98	119.00	88.13	143.03	195.42	165.47	29.95	6.525	
6,800.00	6,794.02	6,778.69	6,766.08	15.21	15.24	118.73	98.49	156.33	214.26	183.81	30.45	7.036	
6,900.00	6,893.41	6,876.90	6,862.83	15.45	15.51	118.50	108.86	169.63	233.11	202.15	30.96	7.528	
7,000.00	6,992.81	6,975.10	6,959.57	15.70	15.78	118.31	119.23	182.92	251.97	220.48	31.48	8.004	
7,100.00	7,092.20	7,073.31	7,056.32	15.95	16.06	118.14	129.59	196.22	270.82	238.81	32.00	8.462	
7,200.00	7,191.60	7,171.51	7,153.06	16.20	16.34	117.99	139.96	209.52	289.68	257.14	32.53	8.904	
7,300.00	7,290.99	7,269.71	7,249.81	16.45	16.62	117.86	150.32	222.82	308.53	275.47	33.07	9.330	
7,374.67	7,365.21	7,340.37	7,319.43	16.64	16.82	117.83	157.55	232.46	322.70	289.24	33.46	9.645	

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Anticollision Report



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Offset Design													Sec. 05, T 26 S., R 28 E - SRO 5 State Com 506H - Wellbore #1 - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Minimum Separation (usft)	Separation Factor	Warning					
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)				Between Centres (usft)	Between Ellipses (usft)			
7,400.00	7,390.43	7,361.75	7,340.52	16.69	16.87	135.30	158.82	235.66	327.82	294.26	33.57	9.767				
7,450.00	7,440.34	7,403.64	7,381.82	16.78	16.97	-146.63	159.11	242.60	338.76	305.01	33.75	10.037				
7,500.00	7,490.10	7,445.14	7,422.51	16.86	17.07	-112.71	156.50	250.32	350.70	316.78	33.93	10.337				
7,550.00	7,539.32	7,486.28	7,462.40	16.93	17.16	-102.35	151.09	258.77	363.55	329.46	34.09	10.665				
7,600.00	7,587.63	7,527.11	7,501.36	16.99	17.25	-97.22	142.97	267.88	377.19	342.95	34.24	11.017				
7,650.00	7,634.66	7,567.67	7,539.23	17.05	17.33	-93.95	132.23	277.61	391.54	357.16	34.38	11.390				
7,700.00	7,680.07	7,608.02	7,575.90	17.10	17.42	-91.56	118.95	287.91	406.49	371.98	34.51	11.778				
7,750.00	7,723.49	7,650.00	7,612.80	17.15	17.50	-89.70	102.46	299.23	421.96	387.31	34.65	12.177				
7,800.00	7,764.60	7,688.31	7,645.19	17.20	17.59	-88.07	85.11	310.04	437.84	403.06	34.78	12.587				
7,850.00	7,803.09	7,728.40	7,677.61	17.25	17.68	-86.70	64.68	321.80	454.05	419.13	34.92	13.001				
7,900.00	7,838.66	7,768.56	7,708.42	17.30	17.77	-85.50	41.99	333.98	470.49	435.42	35.07	13.415				
7,950.00	7,871.05	7,808.88	7,737.51	17.36	17.88	-84.43	17.08	346.54	487.07	451.83	35.24	13.823				
8,000.00	7,900.00	7,850.00	7,765.15	17.45	18.00	-83.49	-10.40	359.64	503.69	468.24	35.45	14.209				
8,050.00	7,925.30	7,890.35	7,790.12	17.59	18.14	-82.62	-39.25	372.71	520.28	484.55	35.73	14.561				
8,100.00	7,946.75	7,931.71	7,813.40	17.78	18.30	-81.87	-70.63	386.26	536.74	500.66	36.08	14.876				
8,150.00	7,964.20	7,973.64	7,834.46	18.01	18.49	-81.22	-104.14	400.08	552.97	516.47	36.50	15.151				
8,200.00	7,977.50	8,016.25	7,853.14	18.28	18.71	-80.66	-139.75	414.14	568.89	531.91	36.98	15.382				
8,250.00	7,986.56	8,059.68	7,869.24	18.58	18.97	-80.21	-177.46	428.41	584.41	546.86	37.55	15.565				
8,300.00	7,991.30	8,104.04	7,882.53	18.91	19.27	-79.85	-217.24	442.83	599.43	561.25	38.18	15.699				
8,328.82	7,992.06	8,130.09	7,888.82	19.12	19.46	-79.70	-241.10	451.19	607.82	569.24	38.58	15.753				
8,400.00	7,992.16	8,196.71	7,899.70	19.69	20.00	-81.07	-303.38	472.07	628.52	588.83	39.69	15.837				
8,500.00	7,992.29	8,322.40	7,903.06	20.59	21.14	-81.86	-423.71	507.91	656.94	615.21	41.73	15.744				
8,600.00	7,992.42	8,504.66	7,903.22	21.60	22.90	-82.27	-602.63	541.99	675.73	631.22	44.51	15.183				
8,700.00	7,992.55	8,690.90	7,903.37	22.72	24.82	-82.39	-788.40	553.08	681.79	634.25	47.54	14.341				
8,800.00	7,992.68	8,790.90	7,903.45	23.93	25.93	-82.38	-888.40	552.70	681.63	631.77	49.85	13.672				
8,900.00	7,992.81	8,890.90	7,903.53	25.21	27.10	-82.38	-988.40	552.33	681.47	629.16	52.31	13.027				
9,000.00	7,992.94	8,990.90	7,903.61	26.55	28.35	-82.37	-1,088.40	551.95	681.31	626.41	54.90	12.410				
9,100.00	7,993.07	9,090.90	7,903.69	27.95	29.65	-82.37	-1,188.40	551.57	681.15	623.55	57.60	11.825				
9,200.00	7,993.21	9,190.90	7,903.77	29.40	31.01	-82.36	-1,288.40	551.20	681.00	620.60	60.40	11.275				
9,300.00	7,993.34	9,290.90	7,903.85	30.88	32.41	-82.35	-1,388.40	550.82	680.84	617.55	63.29	10.758				
9,400.00	7,993.47	9,390.90	7,903.93	32.40	33.84	-82.35	-1,488.40	550.45	680.68	614.44	66.24	10.275				
9,500.00	7,993.60	9,490.90	7,904.01	33.95	35.32	-82.34	-1,588.40	550.07	680.52	611.25	69.27	9.824				
9,600.00	7,993.73	9,590.90	7,904.09	35.53	36.82	-82.34	-1,688.39	549.70	680.36	608.01	72.35	9.404				
9,700.00	7,993.86	9,690.90	7,904.17	37.13	38.36	-82.33	-1,788.39	549.32	680.21	604.72	75.48	9.011				
9,800.00	7,993.99	9,790.90	7,904.25	38.74	39.92	-82.32	-1,888.39	548.94	680.05	601.39	78.66	8.645				
9,900.00	7,994.12	9,890.89	7,904.33	40.38	41.50	-82.32	-1,988.39	548.57	679.89	598.01	81.88	8.304				
10,000.00	7,994.25	9,990.89	7,904.41	42.03	43.09	-82.31	-2,088.39	548.19	679.73	594.60	85.13	7.985				
10,100.00	7,994.38	10,090.89	7,904.49	43.70	44.71	-82.31	-2,188.39	547.82	679.57	591.16	88.41	7.687				
10,200.00	7,994.52	10,190.89	7,904.58	45.38	46.34	-82.30	-2,288.39	547.44	679.42	587.70	91.72	7.408				
10,300.00	7,994.65	10,290.89	7,904.66	47.07	47.99	-82.29	-2,388.39	547.06	679.26	584.20	95.05	7.146				
10,400.00	7,994.78	10,390.89	7,904.74	48.76	49.64	-82.29	-2,488.39	546.69	679.10	580.69	98.41	6.901				
10,500.00	7,994.91	10,490.89	7,904.82	50.47	51.31	-82.28	-2,588.39	546.31	678.94	577.15	101.79	6.670				
10,600.00	7,995.04	10,590.89	7,904.90	52.19	52.99	-82.27	-2,688.39	545.94	678.78	573.60	105.18	6.453				
10,700.00	7,995.17	10,690.89	7,904.98	53.91	54.68	-82.27	-2,788.38	545.56	678.62	570.03	108.59	6.249				
10,800.00	7,995.30	10,790.89	7,905.06	55.64	56.38	-82.26	-2,888.38	545.18	678.47	566.45	112.02	6.057				
10,900.00	7,995.43	10,890.89	7,905.14	57.38	58.08	-82.26	-2,988.38	544.81	678.31	562.85	115.46	5.875				
11,000.00	7,995.56	10,990.89	7,905.22	59.12	59.80	-82.25	-3,088.38	544.43	678.15	559.24	118.91	5.703				
11,100.00	7,995.70	11,090.89	7,905.30	60.86	61.52	-82.24	-3,188.38	544.06	677.99	555.61	122.38	5.540				
11,200.00	7,995.83	11,190.89	7,905.38	62.61	63.24	-82.24	-3,288.38	543.68	677.83	551.98	125.85	5.386				
11,300.00	7,995.96	11,290.89	7,905.46	64.37	64.97	-82.23	-3,388.38	543.31	677.68	548.34	129.34	5.240				
11,400.00	7,996.09	11,390.89	7,905.54	66.13	66.70	-82.23	-3,488.38	542.93	677.52	544.69	132.83	5.101				
11,500.00	7,996.22	11,490.89	7,905.62	67.89	68.44	-82.22	-3,588.38	542.55	677.36	541.03	136.33	4.968				

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



Anticollision Report



Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S., R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Com 507H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well SRO 5 State Com 507H
TVD Reference: KB=30' @ 3039.40usft (Nabors 894)
MD Reference: KB=30' @ 3039.40usft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at: 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design													Sec. 05, T 26 S., R 28 E - SRO 5 State Com 506H - Wellbore #1 - Plan #1		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			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				
11,600.00	7,996.35	11,590.89	7,905.70	69.65	70.19	-82.21	-3,688.38	542.18	677.20	537.36	139.84	4.843				
11,700.00	7,996.48	11,690.89	7,905.78	71.42	71.94	-82.21	-3,788.38	541.80	677.04	533.69	143.36	4.723				
11,800.00	7,996.61	11,790.89	7,905.86	73.19	73.69	-82.20	-3,888.38	541.43	676.89	530.01	146.88	4.608				
11,900.00	7,996.74	11,890.89	7,905.94	74.97	75.44	-82.19	-3,988.37	541.05	676.73	526.32	150.41	4.499				
12,000.00	7,996.87	11,990.89	7,906.02	76.74	77.20	-82.19	-4,088.37	540.67	676.57	522.63	153.94	4.395				
12,100.00	7,997.01	12,090.89	7,906.10	78.52	78.96	-82.18	-4,188.37	540.30	676.41	518.93	157.48	4.295				
12,200.00	7,997.14	12,190.89	7,906.18	80.30	80.73	-82.18	-4,288.37	539.92	676.25	515.23	161.03	4.200				
12,300.00	7,997.27	12,290.89	7,906.26	82.08	82.50	-82.17	-4,388.37	539.55	676.10	511.52	164.58	4.108				
12,400.00	7,997.40	12,390.89	7,906.34	83.87	84.27	-82.16	-4,488.37	539.17	675.94	507.81	168.13	4.020				
12,500.00	7,997.53	12,490.89	7,906.42	85.65	86.04	-82.16	-4,588.37	538.80	675.78	504.09	171.69	3.936				
12,600.00	7,997.66	12,590.89	7,906.50	87.44	87.81	-82.15	-4,688.37	538.42	675.62	500.37	175.25	3.855				
12,700.00	7,997.79	12,690.89	7,906.58	89.23	89.59	-82.15	-4,788.37	538.04	675.46	496.65	178.82	3.777				
12,800.00	7,997.92	12,790.89	7,906.67	91.02	91.36	-82.14	-4,888.37	537.67	675.31	492.92	182.38	3.703				
12,900.00	7,998.05	12,890.89	7,906.75	92.81	93.14	-82.13	-4,988.37	537.29	675.15	489.19	185.96	3.631				
13,000.00	7,998.19	12,990.89	7,906.83	94.60	94.93	-82.13	-5,088.36	536.92	674.99	485.46	189.53	3.561				
13,100.00	7,998.32	13,090.89	7,906.91	96.40	96.71	-82.12	-5,188.36	536.54	674.83	481.73	193.11	3.495				
13,200.00	7,998.45	13,190.89	7,906.99	98.19	98.49	-82.11	-5,288.36	536.16	674.68	477.99	196.69	3.430				
13,300.00	7,998.58	13,290.89	7,907.07	99.99	100.28	-82.11	-5,388.36	535.79	674.52	474.25	200.27	3.368				
13,400.00	7,998.71	13,390.89	7,907.15	101.79	102.07	-82.10	-5,488.36	535.41	674.36	470.50	203.86	3.308				
13,500.00	7,998.84	13,490.89	7,907.23	103.59	103.86	-82.10	-5,588.36	535.04	674.20	466.76	207.44	3.250				
13,600.00	7,998.97	13,590.89	7,907.31	105.39	105.65	-82.09	-5,688.36	534.66	674.04	463.01	211.03	3.194				
13,700.00	7,999.10	13,690.89	7,907.39	107.19	107.44	-82.08	-5,788.36	534.29	673.89	459.26	214.62	3.140				
13,800.00	7,999.23	13,790.89	7,907.47	108.99	109.23	-82.08	-5,888.36	533.91	673.73	455.51	218.22	3.087				
13,900.00	7,999.36	13,890.89	7,907.55	110.79	111.02	-82.07	-5,988.36	533.53	673.57	451.76	221.81	3.037				
14,000.00	7,999.50	13,990.89	7,907.63	112.59	112.82	-82.06	-6,088.36	533.16	673.41	448.00	225.41	2.988				
14,100.00	7,999.63	14,090.89	7,907.71	114.40	114.61	-82.06	-6,188.35	532.78	673.26	444.25	229.01	2.940				
14,200.00	7,999.76	14,190.89	7,907.79	116.20	116.41	-82.05	-6,288.35	532.41	673.10	440.49	232.61	2.894				
14,300.00	7,999.89	14,290.89	7,907.87	118.00	118.21	-82.05	-6,388.35	532.03	672.94	436.73	236.21	2.849				
14,400.00	8,000.02	14,390.89	7,907.95	119.81	120.00	-82.04	-6,488.35	531.65	672.78	432.97	239.81	2.805				
14,500.00	8,000.15	14,490.89	7,908.03	121.62	121.80	-82.03	-6,588.35	531.28	672.62	429.20	243.42	2.763				
14,600.00	8,000.28	14,590.89	7,908.11	123.42	123.60	-82.03	-6,688.35	530.90	672.47	425.44	247.03	2.722				
14,700.00	8,000.41	14,690.89	7,908.19	125.23	125.40	-82.02	-6,788.35	530.53	672.31	421.68	250.63	2.682				
14,800.00	8,000.54	14,790.89	7,908.27	127.04	127.20	-82.01	-6,888.35	530.15	672.15	417.91	254.24	2.644				
14,900.00	8,000.68	14,890.89	7,908.35	128.85	129.01	-82.01	-6,988.35	529.78	671.99	414.14	257.85	2.606				
15,000.00	8,000.81	14,990.89	7,908.43	130.65	130.81	-82.00	-7,088.35	529.40	671.84	410.37	261.46	2.570				
15,100.00	8,000.94	15,090.89	7,908.51	132.46	132.61	-82.00	-7,188.35	529.02	671.68	406.60	265.07	2.534				
15,200.00	8,001.07	15,190.89	7,908.59	134.27	134.41	-81.99	-7,288.34	528.65	671.52	402.83	268.69	2.499				
15,300.00	8,001.20	15,290.89	7,908.67	136.08	136.22	-81.98	-7,388.34	528.27	671.36	399.06	272.30	2.466				
15,400.00	8,001.33	15,390.89	7,908.76	137.89	138.02	-81.98	-7,488.34	527.90	671.20	395.29	275.92	2.433				
15,500.00	8,001.46	15,490.89	7,908.84	139.70	139.83	-81.97	-7,588.34	527.52	671.05	391.51	279.53	2.401				
15,600.00	8,001.59	15,590.89	7,908.92	141.51	141.63	-81.96	-7,688.34	527.14	670.89	387.74	283.15	2.369				
15,700.00	8,001.72	15,690.89	7,909.00	143.33	143.44	-81.96	-7,788.34	526.77	670.73	383.97	286.77	2.339				
15,800.00	8,001.85	15,790.89	7,909.08	145.14	145.25	-81.95	-7,888.34	526.39	670.57	380.19	290.38	2.309				
15,900.00	8,001.99	15,890.89	7,909.16	146.95	147.05	-81.95	-7,988.34	526.02	670.42	376.41	294.00	2.280				
16,000.00	8,002.12	15,990.89	7,909.24	148.76	148.86	-81.94	-8,088.34	525.64	670.26	372.63	297.62	2.252				
16,100.00	8,002.25	16,090.89	7,909.32	150.58	150.67	-81.93	-8,188.34	525.26	670.10	368.86	301.24	2.224				
16,200.00	8,002.38	16,190.89	7,909.40	152.39	152.48	-81.93	-8,288.34	524.89	669.94	365.08	304.87	2.197				
16,300.00	8,002.51	16,290.89	7,909.48	154.20	154.29	-81.92	-8,388.34	524.51	669.79	361.30	308.49	2.171				
16,400.00	8,002.64	16,390.89	7,909.56	156.02	156.10	-81.91	-8,488.33	524.14	669.63	357.52	312.11	2.145				
16,500.00	8,002.77	16,490.89	7,909.64	157.83	157.90	-81.91	-8,588.33	523.76	669.47	353.74	315.73	2.120				
16,600.00	8,002.90	16,590.88	7,909.72	159.64	159.71	-81.90	-8,688.33	523.39	669.31	349.95	319.36	2.096				
16,700.00	8,003.03	16,690.88	7,909.80	161.46	161.52	-81.90	-8,788.33	523.01	669.16	346.17	322.98	2.072				

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

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S. , R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Com 507H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

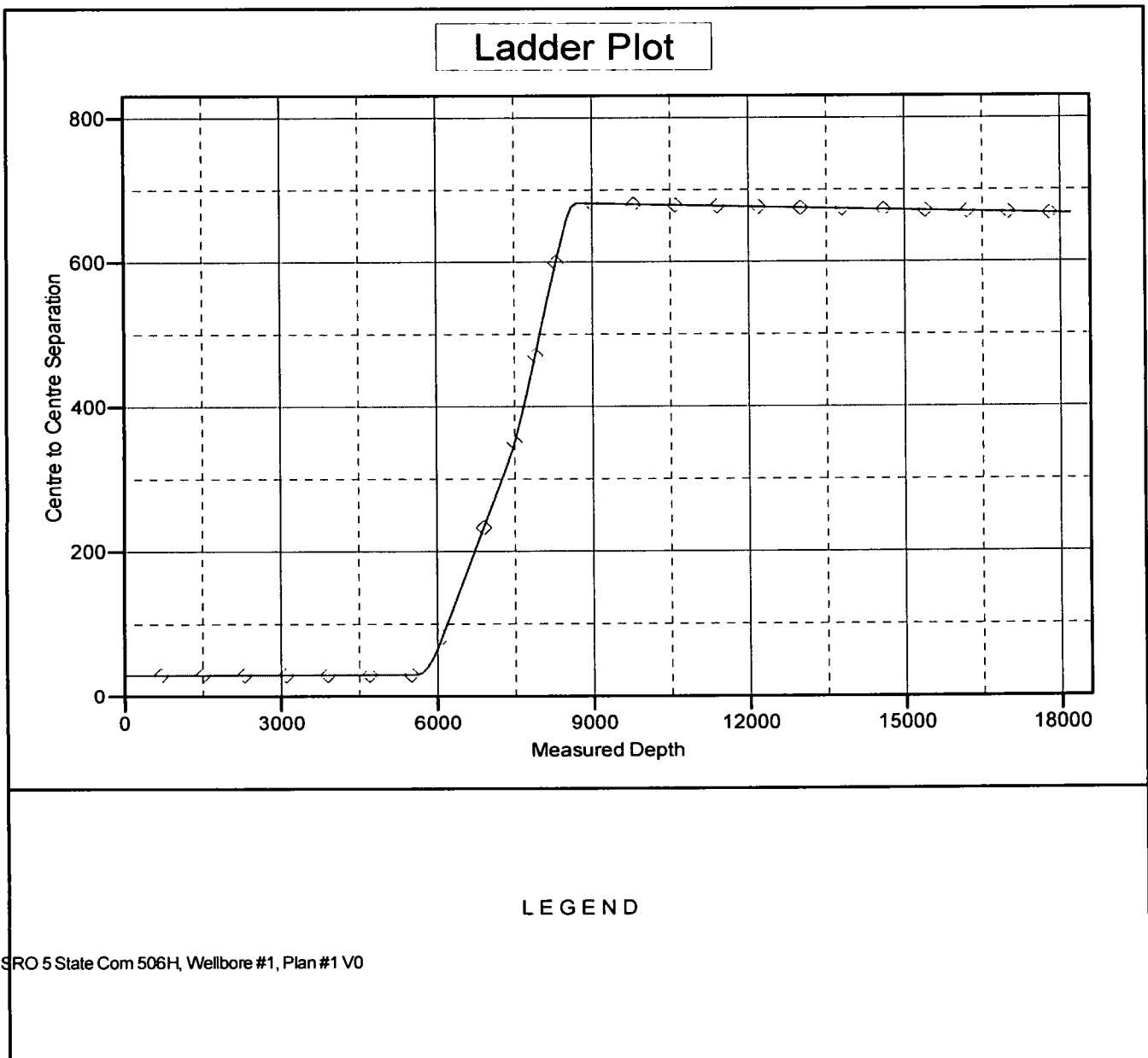
Local Co-ordinate Reference: Well SRO 5 State Com 507H
TVD Reference: KB=30' @ 3039.40usft (Nabors 894)
MD Reference: KB=30' @ 3039.40usft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Offset Design Sec. 05, T 26 S. , R 28 E - SRO 5 State Com 506H - Wellbore #1 - Plan #1													Offset Site Error: 0.00 usft
Survey Program: 0-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)			
16,800.00	8,003.17	16,790.88	7,909.88	163.27	163.33	-81.89	-8,888.33	522.63	669.00	342.39	326.61	2.048	
16,900.00	8,003.30	16,890.88	7,909.96	165.09	165.15	-81.88	-8,988.33	522.26	668.84	338.61	330.23	2.025	
17,000.00	8,003.43	16,990.88	7,910.04	166.90	166.96	-81.88	-9,088.33	521.88	668.68	334.82	333.86	2.003	
17,100.00	8,003.56	17,090.88	7,910.12	168.72	168.77	-81.87	-9,188.33	521.51	668.52	331.04	337.49	1.981	
17,200.00	8,003.69	17,190.88	7,910.20	170.53	170.58	-81.86	-9,288.33	521.13	668.37	327.25	341.11	1.959	
17,300.00	8,003.82	17,290.88	7,910.28	172.35	172.39	-81.86	-9,388.33	520.75	668.21	323.47	344.74	1.938	
17,400.00	8,003.95	17,390.88	7,910.36	174.17	174.20	-81.85	-9,488.33	520.38	668.05	319.68	348.37	1.918	
17,500.00	8,004.08	17,490.88	7,910.44	175.98	176.02	-81.85	-9,588.32	520.00	667.89	315.90	352.00	1.897	
17,600.00	8,004.21	17,590.88	7,910.52	177.80	177.83	-81.84	-9,688.32	519.63	667.74	312.11	355.63	1.878	
17,700.00	8,004.34	17,690.88	7,910.60	179.61	179.64	-81.83	-9,788.32	519.25	667.58	308.32	359.26	1.858	
17,800.00	8,004.48	17,790.88	7,910.68	181.43	181.46	-81.83	-9,888.32	518.88	667.42	304.54	362.89	1.839	
17,900.00	8,004.61	17,890.88	7,910.76	183.25	183.27	-81.82	-9,988.32	518.50	667.26	300.75	366.52	1.821	
18,000.00	8,004.74	17,990.88	7,910.85	185.07	185.08	-81.81	-10,088.32	518.12	667.11	296.96	370.15	1.802	
18,100.00	8,004.87	18,090.88	7,910.93	186.88	186.90	-81.81	-10,188.32	517.75	666.95	293.17	373.78	1.784	
18,176.11	8,004.97	18,166.99	7,910.99	188.27	188.28	-81.80	-10,264.43	517.46	666.83	290.29	376.54	1.771	
18,200.24	8,005.00	18,183.46	7,911.00	188.70	188.58	-81.80	-10,280.90	517.40	666.84	289.56	377.28	1.767	

Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S., R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Corn 507H
Well Error: 0.00 usft
Reference Wellbore: Wellbore #1
Reference Design: Plan #1

Local Co-ordinate Reference: Well SRO 5 State Corn 507H
TVD Reference: KB=30' @ 3039.40usft (Nabors 894)
MD Reference: KB=30' @ 3039.40usft (Nabors 894)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.1
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=30' @ 3039.40usft (Nabors 894) Coordinates are relative to: SRO 5 State Corn 507H
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30
 Central Meridian is -104.33334 Grid Convergence at Surface is: 0.12°

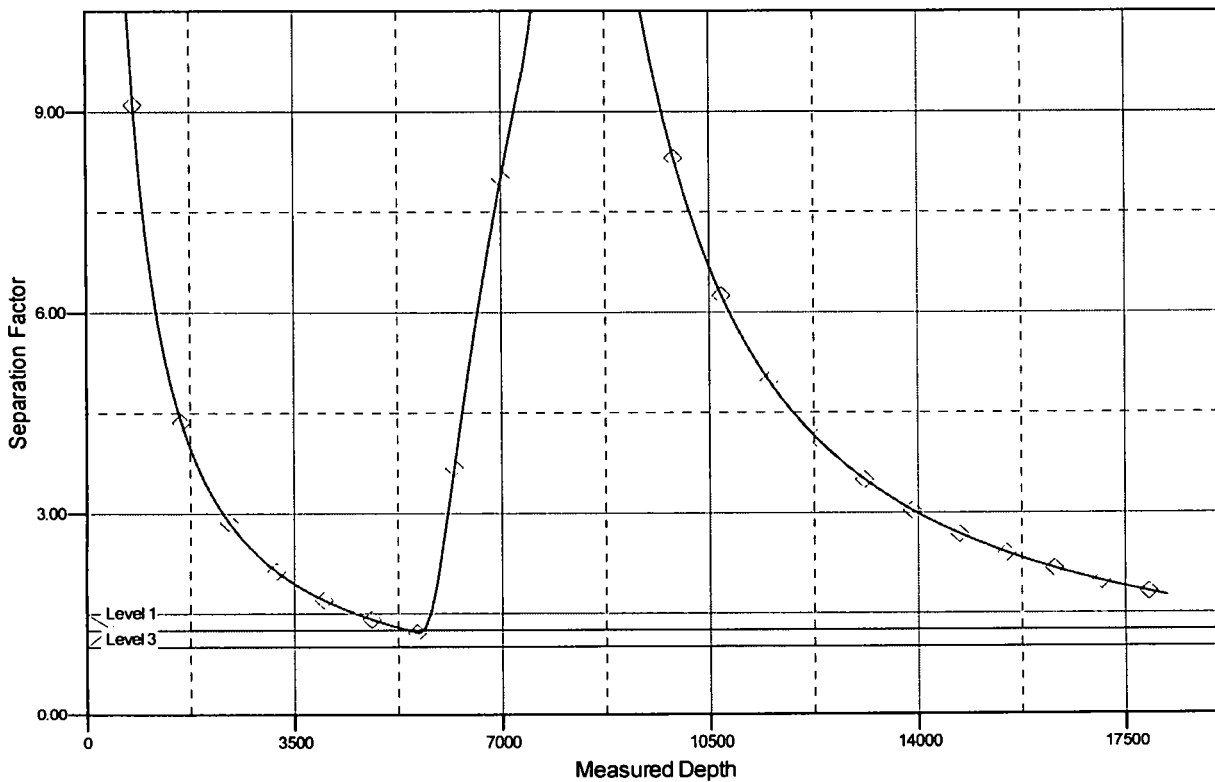


Company: COG Operating L L C
Project: Eddy County, NM (NAD 27 NME)
Reference Site: Sec. 05, T 26 S., R 28 E
Site Error: 0.00 usft
Reference Well: SRO 5 State Com 507H
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Separation Factor Plot



LEGEND

SRO 5 State Com 506H, Wellbore #1, Plan #1 V0

Vertical Section at 180.79° (250 usft/in)