



Cathedral Energy Services

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well PUCKETT 42A-2
Project: Garfield County, CO	TVD Reference: 30' KB @ 8507.0usft (H&P 330)
Site: S2-T7S-R97W (Mesa H2)	MD Reference: 30' KB @ 8507.0usft (H&P 330)
Well: PUCKETT 42A-2	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 Multi Users DB

Project Garfield County, CO		
Map System: US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum: NAD 1927 (NADCON CONUS)		
Map Zone: Colorado Central 502		

Site S2-T7S-R97W (Mesa H2)				
Site Position:	Northing:	609,295.74 usft	Latitude:	39.475700
From: Lat/Long	Easting:	1,243,680.53 usft	Longitude:	-108.179625
Position Uncertainty: 0.0 usft	Slot Radius: 13-3/16"		Grid Convergence:	-1.69 °

Well PUCKETT 42A-2				
Well Position	+N/-S	0.0 usft	Northing:	609,332.63 usft
	+E/-W	0.0 usft	Easting:	1,243,665.24 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft
			Ground Level:	8,477.0 usft

Wellbore DD					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/2/2015	9.88	65.82	51,949

Design FINAL				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	323.44

Survey Program		Date 5/10/2015
From (usft)	To (usft)	Survey (Wellbore)
176.0	8,925.0	Survey #1 (DD)
		Tool Name ISCWSA MWD
		Description MWD - Standard

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
176.0	2.70	287.40	175.9	1.2	-4.0	3.4	1.53	1.53	
207.0	3.20	296.60	206.9	1.8	-5.4	4.7	2.22	1.61	
238.0	3.60	297.00	237.8	2.7	-7.1	6.4	1.29	1.29	
269.0	3.90	293.60	268.8	3.5	-8.9	8.1	1.20	0.97	
299.0	4.70	297.80	298.7	4.5	-10.9	10.1	2.86	2.67	
331.0	5.10	302.50	330.6	5.9	-13.3	12.6	1.77	1.25	
361.0	5.10	313.50	360.5	7.5	-15.4	15.2	3.25	0.00	
392.0	4.60	316.40	391.3	9.4	-17.2	17.8	1.80	-1.61	
422.0	5.00	322.50	421.2	11.3	-18.9	20.3	2.16	1.33	
452.0	5.00	333.60	451.1	13.5	-20.2	22.9	3.22	0.00	
483.0	5.80	339.00	482.0	16.2	-21.4	25.7	3.05	2.58	
514.0	5.80	346.20	512.8	19.2	-22.3	28.7	2.35	0.00	

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Well:	PUCKETT 42A-2	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
545.0	6.80	346.20	543.6	22.5	-23.1	31.8	3.23	3.23	
575.0	7.60	342.80	573.4	26.1	-24.2	35.3	3.02	2.67	
607.0	8.20	338.20	605.1	30.2	-25.6	39.5	2.72	1.87	
638.0	7.90	333.60	635.8	34.2	-27.4	43.8	2.29	-0.97	
668.0	8.50	329.30	665.5	37.9	-29.4	48.0	2.86	2.00	
764.0	8.30	322.40	760.5	49.5	-37.3	62.0	1.07	-0.21	
859.0	7.70	320.10	854.5	59.8	-45.6	75.2	0.72	-0.63	
953.0	6.60	319.90	947.8	68.8	-53.1	86.9	1.17	-1.17	
1,047.0	6.80	332.00	1,041.2	77.8	-59.2	97.8	1.51	0.21	
1,142.0	7.00	333.30	1,135.5	88.0	-64.4	109.0	0.27	0.21	
1,236.0	7.60	326.70	1,228.7	98.3	-70.4	120.9	1.10	0.64	
1,331.0	7.80	322.60	1,322.9	108.7	-77.8	133.6	0.62	0.21	
1,426.0	8.70	317.10	1,416.9	119.1	-86.6	147.2	1.26	0.95	
1,520.0	8.20	318.50	1,509.9	129.3	-95.9	160.9	0.58	-0.53	
1,615.0	7.00	315.60	1,604.0	138.5	-104.4	173.4	1.33	-1.26	
1,709.0	5.60	321.10	1,697.5	146.2	-111.3	183.7	1.62	-1.49	
1,804.0	5.00	315.30	1,792.0	152.7	-117.1	192.4	0.85	-0.63	
1,898.0	5.50	331.40	1,885.7	159.6	-122.1	200.9	1.65	0.53	
1,993.0	5.00	338.20	1,980.3	167.4	-125.9	209.4	0.84	-0.53	
2,087.0	5.70	318.10	2,073.9	174.7	-130.5	218.0	2.11	0.74	
2,182.0	6.60	323.00	2,168.3	182.6	-136.9	228.2	1.10	0.95	
2,276.0	6.70	324.80	2,261.7	191.4	-143.3	239.1	0.25	0.11	
2,371.0	6.90	328.20	2,356.0	200.7	-149.5	250.3	0.47	0.21	
2,450.0	6.70	325.50	2,434.5	208.6	-154.7	259.7	0.48	-0.25	
2,595.0	7.90	326.20	2,578.3	223.8	-165.0	278.1	0.83	0.83	
2,689.0	6.60	320.40	2,671.5	233.4	-172.0	289.9	1.59	-1.38	
2,784.0	7.10	320.10	2,765.8	242.1	-179.3	301.2	0.53	0.53	
2,878.0	6.40	316.40	2,859.2	250.3	-186.6	312.2	0.88	-0.74	
2,973.0	6.60	319.50	2,953.6	258.3	-193.8	322.9	0.43	0.21	
3,067.0	6.20	324.20	3,047.0	266.5	-200.3	333.4	0.70	-0.43	
3,161.0	6.00	321.70	3,140.5	274.5	-206.3	343.4	0.35	-0.21	
3,256.0	6.40	333.10	3,234.9	283.1	-211.8	353.6	1.36	0.42	
3,350.0	6.50	330.60	3,328.3	292.4	-216.8	364.0	0.32	0.11	
3,445.0	5.90	330.90	3,422.8	301.4	-221.8	374.2	0.63	-0.63	
3,539.0	6.80	328.20	3,516.2	310.3	-227.1	384.5	1.01	0.96	
3,634.0	6.70	325.50	3,610.5	319.7	-233.2	395.7	0.35	-0.11	
3,728.0	7.10	329.70	3,703.8	329.2	-239.2	406.9	0.68	0.43	
3,823.0	6.90	329.60	3,798.1	339.2	-245.0	418.4	0.21	-0.21	
3,917.0	8.30	328.90	3,891.3	349.9	-251.4	430.8	1.49	1.49	
4,012.0	8.40	329.00	3,985.3	361.7	-258.5	444.5	0.11	0.11	
4,106.0	8.20	327.50	4,078.3	373.2	-265.7	458.0	0.31	-0.21	
4,200.0	8.00	325.50	4,171.4	384.3	-273.0	471.3	0.37	-0.21	
4,295.0	7.20	326.60	4,265.5	394.7	-280.0	483.8	0.86	-0.84	
4,390.0	6.90	326.70	4,359.8	404.4	-286.4	495.5	0.32	-0.32	
4,484.0	6.50	325.30	4,453.2	413.5	-292.5	506.4	0.46	-0.43	
4,578.0	6.00	326.60	4,546.6	422.0	-298.3	516.6	0.55	-0.53	
4,673.0	7.40	326.30	4,641.0	431.2	-304.4	527.7	1.47	1.47	
4,767.0	7.10	327.50	4,734.2	441.2	-310.9	539.5	0.36	-0.32	
4,862.0	6.40	323.00	4,828.6	450.4	-317.2	550.7	0.92	-0.74	
4,956.0	6.40	318.80	4,922.0	458.5	-323.8	561.2	0.50	0.00	
5,051.0	7.10	327.30	5,016.3	467.4	-330.5	572.3	1.28	0.74	
5,145.0	6.70	327.50	5,109.6	476.9	-336.6	583.6	0.43	-0.43	
5,240.0	6.20	327.70	5,204.0	485.9	-342.3	594.2	0.53	-0.53	

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Well:	PUCKETT 42A-2	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usf)	Build Rate (°/100u)	Formations / Comments
5,334.0	8.00	328.70	5,297.3	495.8	-348.4	605.8	1.92	1.91	
5,429.0	7.40	325.80	5,391.5	506.5	-355.3	618.5	0.75	-0.63	
5,523.0	7.00	323.70	5,484.7	516.1	-362.1	630.2	0.51	-0.43	
5,618.0	8.40	324.50	5,578.9	526.5	-369.5	643.0	1.48	1.47	
5,712.0	8.30	322.50	5,671.9	537.4	-377.6	656.6	0.33	-0.11	
5,807.0	8.00	320.60	5,765.9	548.0	-386.0	670.1	0.42	-0.32	
5,901.0	7.00	323.10	5,859.1	557.6	-393.6	682.3	1.12	-1.06	
5,996.0	7.20	324.50	5,953.4	567.1	-400.5	694.1	0.28	0.21	
6,090.0	7.20	323.30	6,046.6	576.6	-407.5	705.9	0.16	0.00	
6,185.0	7.90	324.40	6,140.8	586.7	-414.8	718.3	0.75	0.74	
6,279.0	8.20	324.50	6,233.9	597.4	-422.5	731.5	0.32	0.32	
6,374.0	7.80	329.10	6,328.0	608.4	-429.7	744.7	0.79	-0.42	
6,468.0	7.30	328.80	6,421.1	619.0	-436.1	757.0	0.53	-0.53	
6,563.0	6.70	327.30	6,515.4	628.9	-442.2	768.5	0.66	-0.63	
6,657.0	6.70	329.50	6,608.8	638.2	-448.0	779.5	0.27	0.00	
6,752.0	6.40	329.20	6,703.2	647.5	-453.5	790.2	0.32	-0.32	
6,847.0	6.10	328.30	6,797.6	656.4	-458.8	800.5	0.33	-0.32	
6,941.0	6.00	327.60	6,891.1	664.8	-464.1	810.4	0.13	-0.11	
7,036.0	4.70	332.50	6,985.7	672.4	-468.6	819.2	1.45	-1.37	
7,130.0	3.40	338.30	7,079.4	678.4	-471.4	825.7	1.45	-1.38	
7,225.0	2.00	338.40	7,174.3	682.6	-473.0	830.0	1.47	-1.47	
7,319.0	1.00	338.20	7,268.3	684.9	-473.9	832.4	1.06	-1.06	
7,414.0	1.00	325.20	7,363.3	686.3	-474.7	834.0	0.24	0.00	
7,509.0	0.60	295.10	7,458.3	687.2	-475.6	835.3	0.60	-0.42	
7,603.0	0.40	264.30	7,552.3	687.4	-476.4	835.9	0.35	-0.21	
7,792.0	1.30	284.20	7,741.2	687.8	-479.1	837.9	0.49	0.48	
7,982.0	1.90	283.90	7,931.2	689.1	-484.3	842.0	0.32	0.32	
8,171.0	2.30	272.60	8,120.0	690.0	-491.1	846.8	0.30	0.21	
8,360.0	3.30	265.20	8,308.8	689.8	-500.3	852.1	0.56	0.53	
8,549.0	3.50	273.80	8,497.5	689.7	-511.5	858.7	0.29	0.11	
8,738.0	3.20	267.20	8,686.2	689.8	-522.5	865.3	0.26	-0.16	
8,870.0	3.30	262.00	8,817.9	689.1	-530.0	869.2	0.24	0.08	LAST CES SURVEY @ 8870' MD
8,925.0	3.30	262.00	8,872.9	688.7	-533.1	870.7	0.00	0.00	PTB @ 8925' MD

Cathedral Energy Services

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well PUCKETT 42A-2
Project: Garfield County, CO	TVD Reference: 30' KB @ 8507.0usft (H&P 330)
Site: S2-T7S-R97W (Mesa H2)	MD Reference: 30' KB @ 8507.0usft (H&P 330)
Well: PUCKETT 42A-2	North Reference: True
Wellbore: DD	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PUCKETT 42A-2 BHL	0.00	0.00	8,894.0	680.8	-501.0	610,027.87	1,243,184.48	39.477669	-108.181458
- actual wellpath misses target center by 39.2usft at 8925.0usft MD (8872.9 TVD, 688.7 N, -533.1 E)									
- Circle (radius 50.0)									
PUCKETT 42A-2 TGT	0.00	0.00	7,354.0	680.8	-501.0	610,027.87	1,243,184.48	39.477669	-108.181458
- actual wellpath misses target center by 27.0usft at 7404.9usft MD (7354.1 TVD, 686.2 N, -474.6 E)									
- Point									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,870.0	8,817.9	689.1	-530.0	LAST CES SURVEY @ 8870' MD	
8,925.0	8,872.9	688.7	-533.1	PTB @ 8925' MD	

Checked By: _____ Approved By: _____ Date: _____