



## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13A-1
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8507.0usft (H&P 330)
<b>Site:</b>	S2-T7S-R97W (Mesa H2)	<b>MD Reference:</b>	30' KB @ 8507.0usft (H&P 330)
<b>Well:</b>	PUCKETT 13A-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Garfield County, CO		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	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 13A-1					
Well Position	+N/-S	0.0 usft	Northing:	609,299.47 usft	Latitude:	39.475711
	+E/-W	0.0 usft	Easting:	1,243,689.96 usft	Longitude:	-108.179592
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,477.0 usft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	7/5/2015	9.85	65.80	51,926

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	108.34	

<b>Survey Program</b>	<b>Date</b>	7/10/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
175.0	9,020.0	Survey #1 (DD)	ISCWSA MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
175.0	2.30	99.40	175.0	-0.6	3.5	3.5	1.31	1.31		
206.0	3.30	108.60	205.9	-1.0	4.9	5.0	3.53	3.23		
236.0	4.00	117.90	235.9	-1.7	6.7	6.9	3.05	2.33		
268.0	5.10	119.50	267.8	-2.9	8.9	9.4	3.46	3.44		
299.0	5.80	117.60	298.6	-4.4	11.5	12.3	2.33	2.26		
330.0	6.90	111.30	329.4	-5.8	14.6	15.7	4.20	3.55		
391.0	9.10	113.30	389.8	-9.0	22.4	24.1	3.63	3.61		
482.0	10.10	121.60	479.6	-16.0	35.9	39.1	1.87	1.10		
574.0	9.80	120.00	570.2	-24.2	49.5	54.6	0.44	-0.33		
669.0	11.10	109.50	663.6	-31.3	65.1	71.7	2.42	1.37		
763.0	12.40	101.40	755.6	-36.3	83.6	90.7	2.23	1.38		
858.0	12.10	100.40	848.5	-40.1	103.3	110.7	0.39	-0.32		

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<b>Site:</b>	S2-T7S-R97W (Mesa H2)	<b>MD Reference:</b>	30' KB @ 8507.0usft (H&P 330)
<b>Well:</b>	PUCKETT 13A-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
952.0	11.10	101.40	940.6	-43.7	121.9	129.5	1.09	-1.06	
1,046.0	10.10	108.00	1,033.0	-48.0	138.6	146.7	1.67	-1.06	
1,141.0	10.70	106.00	1,126.4	-53.0	155.0	163.8	0.74	0.63	
1,235.0	11.40	103.20	1,218.6	-57.5	172.5	181.8	0.94	0.74	
1,330.0	10.50	100.50	1,311.9	-61.2	190.1	199.7	1.09	-0.95	
1,424.0	8.90	108.20	1,404.6	-65.1	205.4	215.5	2.19	-1.70	
1,519.0	9.30	112.40	1,498.4	-70.3	219.5	230.5	0.82	0.42	
1,613.0	9.50	110.10	1,591.1	-75.9	233.8	245.8	0.45	0.21	
1,707.0	10.70	112.30	1,683.7	-81.8	249.2	262.3	1.34	1.28	
1,802.0	9.70	117.70	1,777.2	-88.9	264.4	279.0	1.46	-1.05	
1,897.0	9.10	119.40	1,870.9	-96.3	278.1	294.2	0.70	-0.63	
1,991.0	9.10	124.80	1,963.7	-104.2	290.6	308.7	0.91	0.00	
2,086.0	8.90	122.90	2,057.5	-112.5	303.0	323.0	0.38	-0.21	
2,180.0	9.20	120.00	2,150.4	-120.2	315.6	337.4	0.58	0.32	
2,275.0	9.10	121.90	2,244.2	-128.0	328.5	352.1	0.33	-0.11	
2,369.0	9.30	125.40	2,336.9	-136.3	341.0	366.6	0.63	0.21	
2,464.0	9.50	128.80	2,430.7	-145.6	353.4	381.3	0.62	0.21	
2,588.0	9.80	129.90	2,552.9	-158.8	369.5	400.7	0.28	0.24	
2,683.0	9.50	127.60	2,646.6	-168.8	381.9	415.6	0.51	-0.32	
2,777.0	8.80	116.60	2,739.4	-176.7	394.5	430.1	2.00	-0.74	
2,872.0	8.60	116.00	2,833.3	-183.1	407.4	444.3	0.23	-0.21	
2,967.0	8.40	109.50	2,927.2	-188.5	420.3	458.3	1.03	-0.21	
3,061.0	8.90	107.50	3,020.2	-193.0	433.7	472.4	0.62	0.53	
3,156.0	9.60	106.30	3,113.9	-197.5	448.3	487.7	0.76	0.74	
3,250.0	10.10	103.80	3,206.6	-201.6	463.8	503.7	0.70	0.53	
3,345.0	12.10	102.30	3,299.8	-205.7	481.6	521.9	2.13	2.11	
3,439.0	11.70	101.60	3,391.8	-209.7	500.6	541.2	0.45	-0.43	
3,534.0	11.10	100.50	3,484.9	-213.3	519.0	559.8	0.67	-0.63	
3,629.0	11.50	104.40	3,578.0	-217.4	537.2	578.3	0.91	0.42	
3,723.0	11.40	101.00	3,670.2	-221.5	555.4	596.9	0.73	-0.11	
3,818.0	11.70	108.10	3,763.3	-226.3	573.8	615.8	1.53	0.32	
3,912.0	11.00	105.10	3,855.4	-231.6	591.5	634.3	0.97	-0.74	
4,007.0	11.60	108.50	3,948.6	-236.9	609.3	652.9	0.94	0.63	
4,101.0	10.90	108.60	4,040.8	-242.8	626.7	671.2	0.74	-0.74	
4,196.0	10.00	107.70	4,134.2	-248.2	643.1	688.5	0.96	-0.95	
4,290.0	10.00	110.80	4,226.8	-253.5	658.5	704.8	0.57	0.00	
4,385.0	10.70	109.60	4,320.2	-259.4	674.5	721.8	0.77	0.74	
4,480.0	10.10	109.40	4,413.7	-265.1	690.6	739.0	0.63	-0.63	
4,574.0	9.80	105.40	4,506.2	-270.0	706.1	755.2	0.80	-0.32	
4,669.0	10.00	106.90	4,599.8	-274.6	721.8	771.5	0.34	0.21	
4,763.0	10.90	107.50	4,692.3	-279.6	738.1	788.6	0.96	0.96	
4,858.0	10.30	103.90	4,785.6	-284.3	754.9	806.0	0.94	-0.63	
4,953.0	10.00	104.50	4,879.2	-288.4	771.1	822.7	0.33	-0.32	
5,047.0	10.10	103.80	4,971.7	-292.5	787.0	839.1	0.17	0.11	
5,142.0	10.90	107.20	5,065.1	-297.1	803.7	856.4	1.06	0.84	
5,236.0	11.50	114.60	5,157.3	-303.6	820.7	874.6	1.66	0.64	
5,330.0	11.70	113.80	5,249.4	-311.4	838.0	893.4	0.27	0.21	
5,425.0	10.80	111.40	5,342.6	-318.5	855.1	911.9	1.07	-0.95	
5,520.0	10.30	110.90	5,436.0	-324.8	871.3	929.2	0.54	-0.53	
5,614.0	9.70	110.70	5,528.6	-330.6	886.5	945.5	0.64	-0.64	
5,709.0	9.00	110.60	5,622.3	-336.0	901.0	961.0	0.74	-0.74	
5,803.0	9.60	111.70	5,715.1	-341.5	915.2	976.1	0.67	0.64	
5,898.0	9.90	113.80	5,808.7	-347.7	930.0	992.2	0.49	0.32	

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<b>Well:</b>	PUCKETT 13A-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
5,993.0	10.20	110.70	5,902.2	-354.0	945.3	1,008.7	0.65	0.32	
6,087.0	10.30	109.30	5,994.7	-359.7	961.0	1,025.4	0.29	0.11	
6,181.0	10.80	108.30	6,087.1	-365.3	977.3	1,042.6	0.57	0.53	
6,276.0	10.90	109.00	6,180.4	-371.0	994.3	1,060.5	0.17	0.11	
6,370.0	10.20	108.30	6,272.9	-376.5	1,010.6	1,077.7	0.76	-0.74	
6,464.0	8.50	116.40	6,365.6	-382.2	1,024.7	1,092.9	2.28	-1.81	
6,559.0	6.90	121.90	6,459.7	-388.3	1,035.8	1,105.4	1.85	-1.68	
6,653.0	5.20	121.20	6,553.2	-393.5	1,044.3	1,115.1	1.81	-1.81	
6,748.0	4.40	124.10	6,647.9	-397.8	1,051.0	1,122.8	0.88	-0.84	
6,843.0	2.80	116.00	6,742.7	-400.9	1,056.1	1,128.6	1.76	-1.68	
6,937.0	1.90	103.00	6,836.6	-402.2	1,059.7	1,132.4	1.11	-0.96	
7,032.0	1.60	135.30	6,931.6	-403.5	1,062.1	1,135.2	1.07	-0.32	
7,126.0	1.20	98.60	7,025.6	-404.6	1,064.0	1,137.3	1.02	-0.43	
7,221.0	1.40	70.40	7,120.5	-404.4	1,066.1	1,139.2	0.70	0.21	
7,315.0	1.50	39.80	7,214.5	-403.0	1,068.0	1,140.5	0.82	0.11	
7,410.0	1.40	347.20	7,309.5	-400.9	1,068.5	1,140.4	1.36	-0.11	
7,599.0	1.40	261.70	7,498.4	-399.0	1,065.7	1,137.1	1.01	0.00	
7,788.0	1.90	219.20	7,687.4	-401.8	1,061.5	1,134.0	0.68	0.26	
7,977.0	2.10	208.20	7,876.2	-407.3	1,057.8	1,132.3	0.23	0.11	
8,166.0	2.80	218.00	8,065.1	-413.9	1,053.4	1,130.1	0.43	0.37	
8,260.0	2.50	223.40	8,159.0	-417.2	1,050.5	1,128.5	0.41	-0.32	
8,449.0	1.60	263.40	8,347.9	-420.5	1,045.1	1,124.3	0.87	-0.48	
8,638.0	3.30	206.00	8,536.7	-425.7	1,040.1	1,121.2	1.47	0.90	
8,827.0	4.00	226.90	8,725.3	-435.1	1,032.9	1,117.3	0.79	0.37	
8,921.0	4.50	223.10	8,819.1	-440.1	1,028.0	1,114.2	0.61	0.53	LAST CES SURVEY @ 8921' MD
9,020.0	4.50	223.10	8,917.8	-445.7	1,022.7	1,111.0	0.00	0.00	PTB @ 9020' MD

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<b>Well:</b>	PUCKETT 13A-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	DD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 13A-1 BHL N	0.00	0.00	8,900.0	-412.6	1,034.3	608,856.50	1,244,711.66	39.474578	-108.175928
- actual wellpath misses target center by 33.7usft at 8999.8usft MD (8897.6 TVD, -444.6 N, 1023.7 E)									
- Circle (radius 50.0)									
PUCKETT 13A-1 TGT	0.00	0.00	7,374.0	-667.6	1,324.5	608,593.11	1,244,994.23	39.473878	-108.174900
- actual wellpath misses target center by 370.9usft at 7468.0usft MD (7367.5 TVD, -399.8 N, 1068.0 E)									
- Point									
PUCKETT 13A-1 TGT 2	0.00	0.00	6,867.0	-394.9	1,065.1	608,873.33	1,244,742.91	39.474627	-108.175819
- actual wellpath misses target center by 8.8usft at 6967.4usft MD (6867.0 TVD, -402.5 N, 1060.6 E)									
- Point									
PUCKETT 13A-1 BHL	0.00	0.00	8,884.0	-667.6	1,324.5	608,593.11	1,244,994.23	39.473878	-108.174900
- actual wellpath misses target center by 374.3usft at 8982.9usft MD (8880.7 TVD, -443.6 N, 1024.7 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
8,921.0	8,819.1	-440.1	1,028.0	LAST CES SURVEY @ 8921' MD	
9,020.0	8,917.8	-445.7	1,022.7	PTB @ 9020' MD	

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_