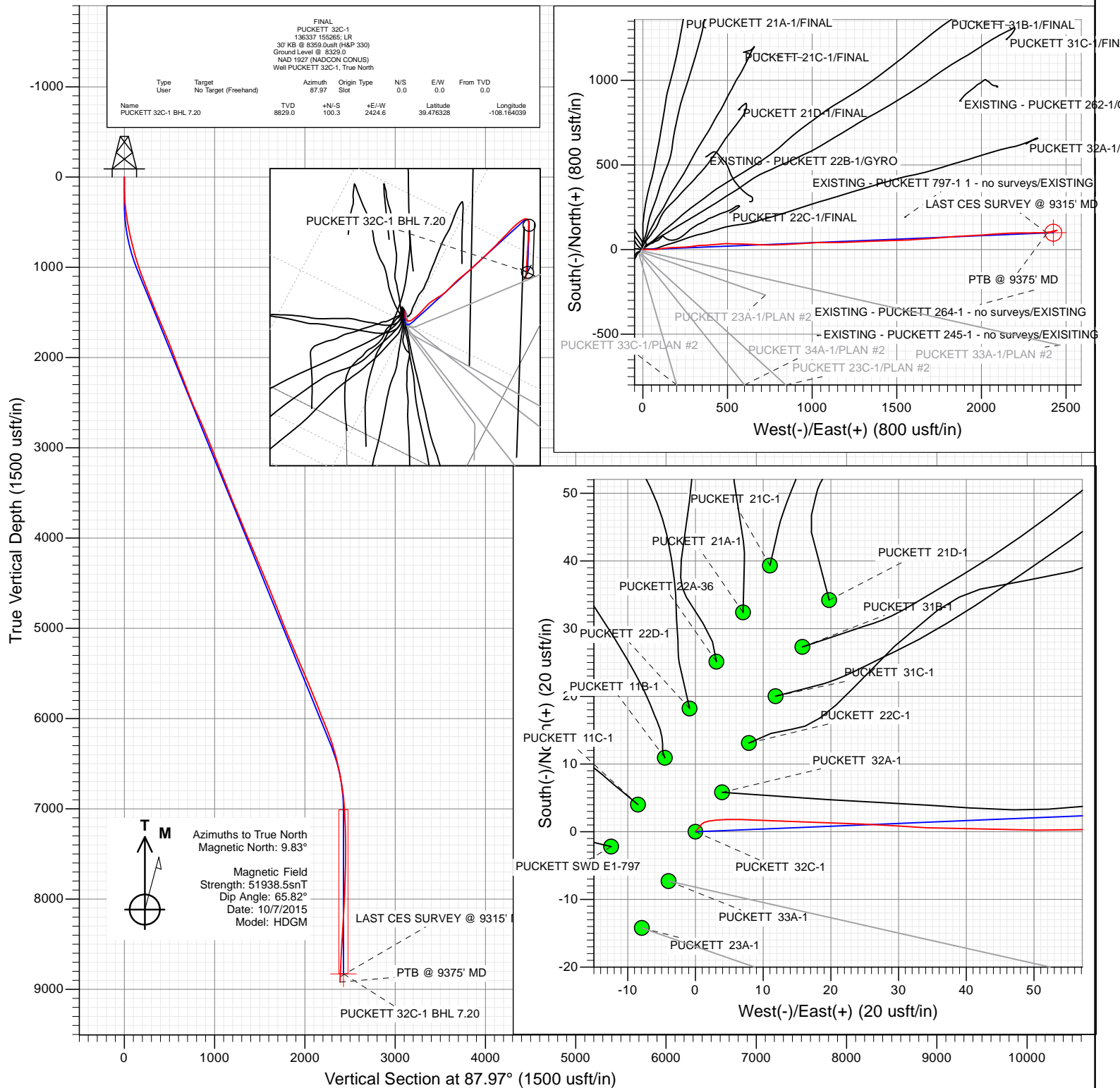




Project: Garfield County, CO
 Site: S1-T7S-R97W (Mesa E1 797)
 Well: PUCKETT 32C-1
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 32C-1

Ground Level: 8329.0
 +N/-S +E/-W Northing Easting Latitude Longitude
 0.0 0.0 609366.08 1245658.63 39.476053 -108.172628



Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32C-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 32C-1	North Reference:	True
Wellbore:	OH	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		S1-T7S-R97W (Mesa E1 797)			
Site Position:		Northing:	609,370.34 usft	Latitude:	39.476064
From:	Lat/Long	Easting:	1,245,650.28 usft	Longitude:	-108.172658
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.69 °

Well	PUCKETT 32C-1					
Well Position	+N/-S	0.0 usft	Northing:	609,366.08 usft	Latitude:	39.476053
	+E/-W	0.0 usft	Easting:	1,245,658.63 usft	Longitude:	-108.172628
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,329.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	10/7/2015	9.83	65.82	51,939

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	87.97	

Survey Program	Date	10/12/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
163.0	9,375.0	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

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		
163.0	1.00	39.00	163.0	1.1	0.9	0.9	0.61	0.61		
255.0	3.85	88.47	254.9	1.8	4.5	4.6	3.58	3.10		
285.0	4.91	91.37	284.8	1.8	6.8	6.8	3.61	3.53		
316.0	6.00	93.30	315.7	1.7	9.7	9.8	3.57	3.52		
438.0	8.30	91.20	436.7	1.1	24.9	24.9	1.90	1.89		
468.0	8.90	94.80	466.4	0.9	29.4	29.4	2.69	2.00		
498.0	9.60	92.60	496.0	0.6	34.2	34.2	2.61	2.33		
590.0	10.90	89.90	586.5	0.3	50.5	50.5	1.51	1.41		
685.0	13.40	87.60	679.4	0.7	70.5	70.5	2.68	2.63		
779.0	14.10	79.40	770.7	3.3	92.7	92.7	2.20	0.74		
874.0	16.00	83.20	862.4	7.0	117.0	117.2	2.25	2.00		
968.0	17.50	84.30	952.5	9.9	144.0	144.2	1.63	1.60		

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32C-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 32C-1	North Reference:	True
Wellbore:	OH	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
1,063.0	19.60	85.70	1,042.5	12.5	174.1	174.4	2.26	2.21	
1,158.0	21.00	89.50	1,131.6	13.9	207.0	207.4	2.02	1.47	
1,252.0	21.60	88.20	1,219.2	14.6	241.1	241.5	0.81	0.64	
1,347.0	21.40	82.60	1,307.6	17.3	275.8	276.2	2.17	-0.21	
1,441.0	21.10	81.90	1,395.2	21.9	309.6	310.1	0.42	-0.32	
1,536.0	22.90	87.00	1,483.3	25.3	345.0	345.6	2.76	1.89	
1,631.0	23.10	87.80	1,570.7	27.0	382.0	382.7	0.39	0.21	
1,725.0	23.00	83.60	1,657.2	29.7	418.7	419.5	1.75	-0.11	
1,820.0	22.30	84.70	1,744.9	33.5	455.1	456.0	0.86	-0.74	
1,915.0	22.00	89.60	1,832.9	35.3	490.8	491.8	1.97	-0.32	
2,009.0	21.20	91.30	1,920.3	35.0	525.4	526.4	1.08	-0.85	
2,104.0	20.20	92.10	2,009.2	34.0	559.0	559.9	1.09	-1.05	
2,198.0	21.40	91.40	2,097.0	33.0	592.4	593.2	1.30	1.28	
2,293.0	22.10	92.10	2,185.3	31.9	627.6	628.3	0.79	0.74	
2,387.0	21.20	92.60	2,272.6	30.5	662.2	662.9	0.98	-0.96	
2,497.0	20.70	93.30	2,375.4	28.5	701.5	702.1	0.51	-0.45	
2,592.0	21.30	90.10	2,464.1	27.5	735.5	736.0	1.36	0.63	
2,686.0	24.70	87.90	2,550.6	28.2	772.2	772.7	3.73	3.62	
2,781.0	24.80	87.90	2,636.9	29.6	812.0	812.5	0.11	0.11	
2,875.0	23.20	87.50	2,722.7	31.2	850.2	850.7	1.71	-1.70	
2,970.0	23.50	86.80	2,809.9	33.0	887.8	888.4	0.43	0.32	
3,065.0	21.70	86.80	2,897.7	35.1	924.2	924.9	1.89	-1.89	
3,159.0	22.30	86.00	2,984.8	37.3	959.4	960.1	0.71	0.64	
3,254.0	20.60	84.60	3,073.2	40.1	994.0	994.8	1.87	-1.79	
3,349.0	22.00	89.50	3,161.7	41.8	1,028.4	1,029.3	2.38	1.47	
3,443.0	21.80	90.40	3,249.0	41.9	1,063.5	1,064.3	0.42	-0.21	
3,538.0	21.00	89.00	3,337.4	42.1	1,098.1	1,098.9	1.00	-0.84	
3,632.0	22.10	89.00	3,424.8	42.7	1,132.7	1,133.5	1.17	1.17	
3,727.0	21.50	89.30	3,513.0	43.2	1,167.9	1,168.7	0.64	-0.63	
3,821.0	21.90	88.60	3,600.4	43.8	1,202.7	1,203.5	0.51	0.43	
3,916.0	23.40	88.10	3,688.0	44.9	1,239.3	1,240.1	1.59	1.58	
4,010.0	22.20	87.10	3,774.7	46.4	1,275.6	1,276.5	1.34	-1.28	
4,105.0	22.60	87.90	3,862.5	48.0	1,311.8	1,312.7	0.53	0.42	
4,200.0	21.80	86.10	3,950.5	49.8	1,347.7	1,348.6	1.11	-0.84	
4,294.0	23.50	88.70	4,037.2	51.5	1,383.8	1,384.8	2.10	1.81	
4,389.0	22.70	88.20	4,124.6	52.5	1,421.1	1,422.0	0.87	-0.84	
4,483.0	23.60	88.20	4,211.1	53.6	1,458.0	1,459.0	0.96	0.96	
4,577.0	22.10	88.50	4,297.7	54.7	1,494.5	1,495.5	1.60	-1.60	
4,672.0	23.90	87.80	4,385.1	55.9	1,531.6	1,532.6	1.92	1.89	
4,766.0	22.50	87.30	4,471.5	57.5	1,568.6	1,569.6	1.50	-1.49	
4,861.0	21.20	85.30	4,559.7	59.7	1,603.9	1,605.0	1.58	-1.37	
4,955.0	22.10	86.70	4,647.1	62.1	1,638.5	1,639.6	1.10	0.96	
5,050.0	22.20	86.70	4,735.0	64.2	1,674.2	1,675.4	0.11	0.11	
5,145.0	21.40	86.80	4,823.3	66.2	1,709.4	1,710.7	0.84	-0.84	
5,239.0	21.50	84.20	4,910.7	68.9	1,743.7	1,745.0	1.02	0.11	
5,334.0	21.60	84.00	4,999.1	72.5	1,778.4	1,779.9	0.13	0.11	
5,429.0	22.70	86.00	5,087.1	75.6	1,814.1	1,815.6	1.40	1.16	
5,523.0	23.60	87.90	5,173.5	77.5	1,851.0	1,852.6	1.24	0.96	
5,618.0	22.50	85.30	5,260.9	79.7	1,888.1	1,889.7	1.58	-1.16	
5,712.0	24.00	86.90	5,347.3	82.2	1,925.1	1,926.8	1.73	1.60	
5,807.0	23.40	87.80	5,434.3	84.0	1,963.3	1,965.0	0.74	-0.63	
5,901.0	22.50	84.70	5,520.9	86.4	1,999.8	2,001.6	1.60	-0.96	
5,996.0	23.20	86.80	5,608.4	89.1	2,036.6	2,038.5	1.13	0.74	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32C-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 32C-1	North Reference:	True
Wellbore:	OH	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
6,090.0	22.30	85.00	5,695.1	91.7	2,072.9	2,074.8	1.21	-0.96	
6,185.0	21.00	86.40	5,783.4	94.3	2,107.8	2,109.8	1.47	-1.37	
6,279.0	20.90	86.50	5,871.2	96.4	2,141.4	2,143.4	0.11	-0.11	
6,374.0	22.10	87.70	5,959.6	98.2	2,176.1	2,178.2	1.35	1.26	
6,469.0	22.50	89.60	6,047.5	99.0	2,212.2	2,214.3	0.87	0.42	
6,563.0	21.70	90.90	6,134.5	98.9	2,247.5	2,249.6	1.00	-0.85	
6,658.0	19.20	88.90	6,223.6	98.9	2,280.7	2,282.8	2.73	-2.63	
6,752.0	17.00	89.00	6,312.9	99.4	2,309.9	2,312.0	2.34	-2.34	
6,847.0	15.20	89.70	6,404.2	99.7	2,336.2	2,338.3	1.91	-1.89	
6,942.0	13.40	87.70	6,496.2	100.2	2,359.7	2,361.8	1.96	-1.89	
7,036.0	10.90	82.70	6,588.1	101.8	2,379.4	2,381.5	2.88	-2.66	
7,131.0	10.30	84.40	6,681.5	103.8	2,396.8	2,398.9	0.71	-0.63	
7,225.0	8.60	79.50	6,774.2	105.9	2,412.0	2,414.3	2.00	-1.81	
7,320.0	7.00	79.60	6,868.3	108.2	2,424.7	2,427.0	1.68	-1.68	
7,414.0	4.60	75.30	6,961.8	110.2	2,434.0	2,436.4	2.59	-2.55	
7,509.0	2.70	67.70	7,056.6	112.0	2,439.8	2,442.2	2.06	-2.00	
7,603.0	1.90	64.50	7,150.6	113.5	2,443.2	2,445.7	0.86	-0.85	
7,698.0	1.10	67.20	7,245.5	114.6	2,445.5	2,448.0	0.85	-0.84	
7,792.0	0.60	83.00	7,339.5	115.0	2,446.8	2,449.3	0.58	-0.53	
7,982.0	1.10	221.20	7,529.5	113.7	2,446.6	2,449.1	0.84	0.26	
8,171.0	1.20	293.80	7,718.5	113.2	2,443.6	2,446.1	0.72	0.05	
8,360.0	2.00	253.10	7,907.4	113.0	2,438.6	2,441.1	0.71	0.42	
8,549.0	3.10	254.90	8,096.2	110.7	2,430.5	2,432.9	0.58	0.58	
8,643.0	3.50	248.50	8,190.1	109.0	2,425.4	2,427.7	0.58	0.43	
8,738.0	3.30	242.10	8,284.9	106.7	2,420.3	2,422.5	0.45	-0.21	
8,832.0	3.90	247.90	8,378.7	104.2	2,414.9	2,417.1	0.75	0.64	
8,927.0	4.20	249.70	8,473.5	101.8	2,408.7	2,410.8	0.34	0.32	
9,022.0	3.50	258.80	8,568.3	100.0	2,402.6	2,404.6	0.98	-0.74	
9,116.0	2.60	263.00	8,662.1	99.2	2,397.6	2,399.6	0.99	-0.96	
9,211.0	2.70	263.40	8,757.0	98.7	2,393.3	2,395.3	0.11	0.11	
9,315.0	2.60	248.00	8,860.9	97.5	2,388.7	2,390.6	0.69	-0.10	LAST CES SURVEY @ 9315' MD
9,375.0	2.60	248.00	8,920.9	96.5	2,386.1	2,388.0	0.00	0.00	PTB @ 9375' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PUCKETT 32C-1 BHL 7	0.00	0.00	8,829.0	100.3	2,424.6	609,395.01	1,248,085.09	39.476328	-108.164039
- hit/miss target									
- Shape									
- actual wellpath misses target center by 34.6usft at 9281.5usft MD (8827.4 TVD, 98.0 N, 2390.1 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Local Coordinates	
9,315.0	8,860.9	97.5	2,388.7	LAST CES SURVEY @ 9315' MD	
9,375.0	8,920.9	96.5	2,386.1	PTB @ 9375' MD	

Checked By: _____	Approved By: _____	Date: _____
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