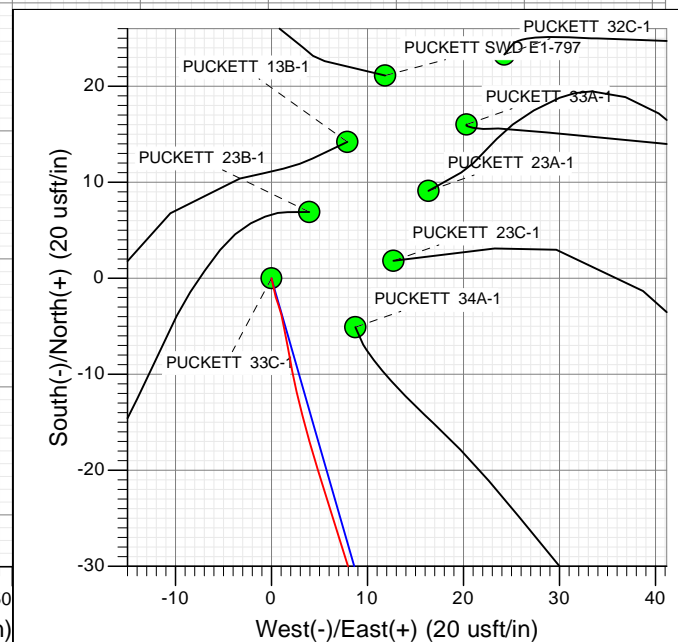
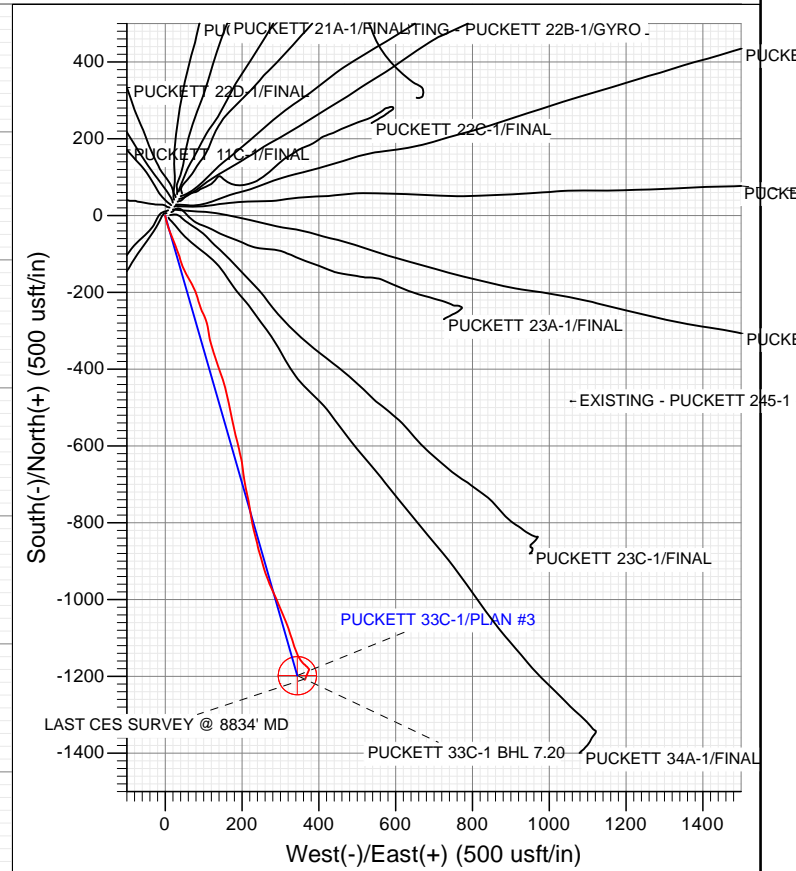
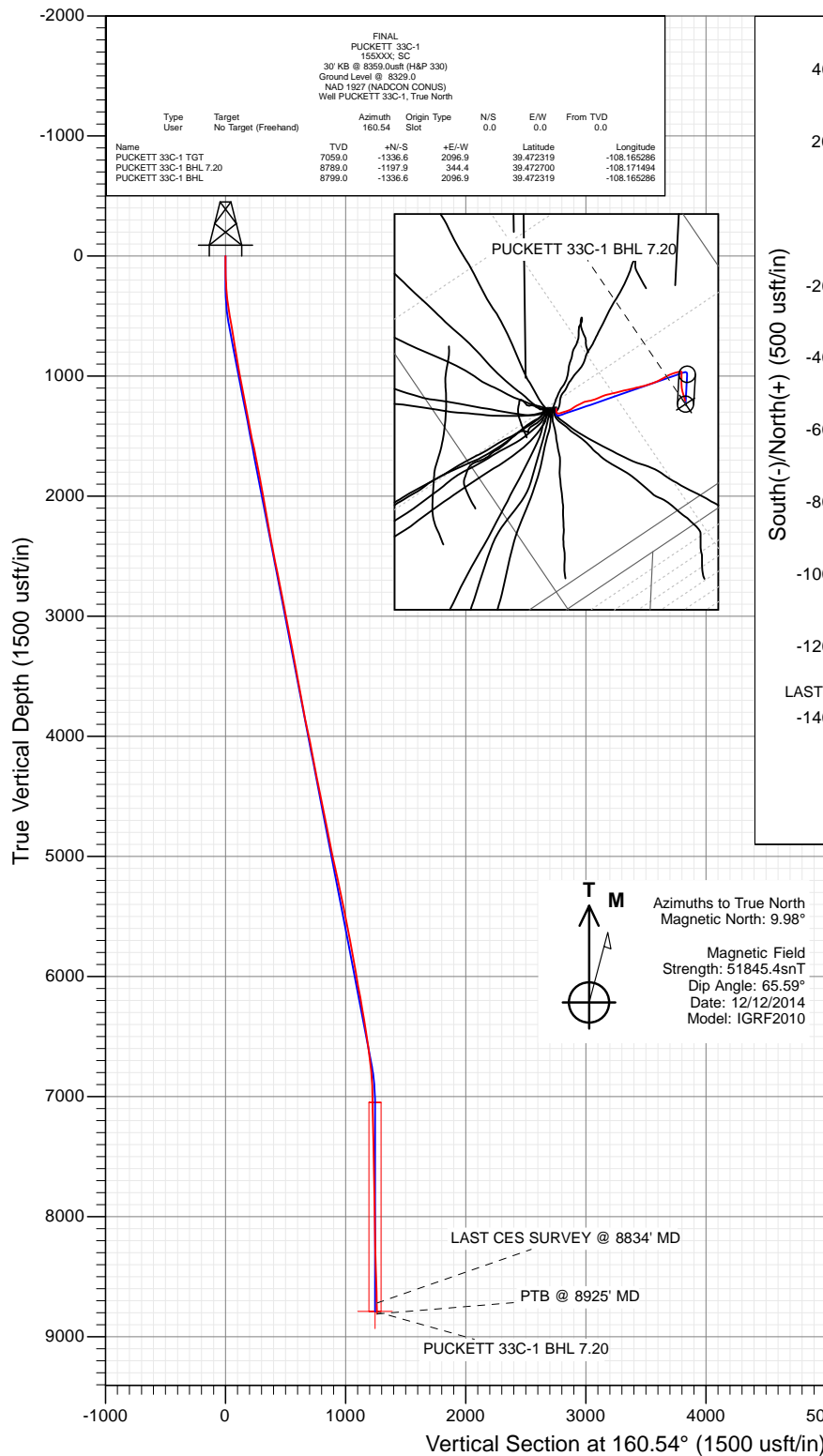




Project: Garfield County, CO
 Site: S1-T7S-R97W (Mesa E1 797)
 Well: PUCKETT 33C-1
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 33C-1

Ground Level: 8329.0
 +N/-S 0.0 +E/-W 0.0 Northing 609343.49 Easting 1245633.68 Latitude 39.475989 Longitude -108.172714



Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 33C-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 33C-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 33C-1					
Well Position	+N/-S	0.0 usft	Northing:	609,343.49 usft	Latitude:	39.475989
	+E/-W	0.0 usft	Easting:	1,245,633.68 usft	Longitude:	-108.172714
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)
	IGRF2010	12/12/2014	9.98	65.59	51,845

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	160.54	

Survey Program	Date	11/9/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
164.0	8,925.0	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		
164.0	1.40	167.10	164.0	-2.0	0.4	2.0	0.85	0.85		
195.0	1.80	156.40	195.0	-2.8	0.7	2.9	1.61	1.29		
225.0	2.40	168.40	225.0	-3.8	1.0	3.9	2.47	2.00		
317.0	5.10	169.40	316.7	-9.7	2.2	9.9	2.94	2.93		
408.0	8.30	162.90	407.1	-20.0	4.9	20.5	3.61	3.52		
499.0	10.00	162.60	497.0	-33.8	9.2	34.9	1.87	1.87		
591.0	9.40	155.80	587.6	-48.3	14.6	50.4	1.40	-0.65		
686.0	9.10	157.20	681.4	-62.3	20.7	65.6	0.39	-0.32		
780.0	9.40	157.80	774.2	-76.2	26.5	80.7	0.34	0.32		
875.0	9.70	162.10	867.9	-91.0	31.9	96.5	0.81	0.32		
969.0	10.30	161.30	960.4	-106.5	37.0	112.8	0.66	0.64		
1,064.0	11.60	162.80	1,053.7	-123.7	42.6	130.8	1.40	1.37		

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 33C-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 33C-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
1,159.0	11.10	156.60	1,146.9	-141.2	49.0	149.5	1.39	-0.53	
1,253.0	10.30	147.70	1,239.2	-156.6	57.1	166.7	1.95	-0.85	
1,348.0	9.80	150.40	1,332.8	-170.8	65.6	182.9	0.72	-0.53	
1,442.0	11.10	153.80	1,425.2	-185.9	73.6	199.8	1.53	1.38	
1,537.0	12.30	160.80	1,518.2	-203.7	80.9	219.0	1.95	1.26	
1,632.0	12.30	164.80	1,611.1	-223.0	86.9	239.2	0.90	0.00	
1,726.0	10.70	159.30	1,703.2	-240.8	92.6	257.9	2.06	-1.70	
1,821.0	10.20	152.80	1,796.6	-256.6	99.6	275.1	1.35	-0.53	
1,916.0	10.50	160.50	1,890.1	-272.2	106.3	292.1	1.49	0.32	
2,010.0	10.80	168.80	1,982.4	-288.9	110.9	309.4	1.66	0.32	
2,105.0	10.60	173.10	2,075.8	-306.3	113.7	326.7	0.87	-0.21	
2,199.0	10.40	166.60	2,168.2	-323.2	116.7	343.6	1.28	-0.21	
2,294.0	10.40	163.40	2,261.7	-339.7	121.1	360.7	0.61	0.00	
2,388.0	9.40	161.80	2,354.3	-355.1	125.9	376.8	1.10	-1.06	
2,478.0	11.00	162.40	2,442.8	-370.3	130.8	392.7	1.78	1.78	
2,593.0	11.50	161.00	2,555.6	-391.6	137.9	415.2	0.50	0.43	
2,688.0	11.60	161.40	2,648.7	-409.6	144.0	434.2	0.13	0.11	
2,782.0	11.40	160.80	2,740.8	-427.3	150.1	452.9	0.25	-0.21	
2,877.0	11.10	165.80	2,834.0	-445.1	155.4	471.4	1.07	-0.32	
2,972.0	10.70	166.40	2,927.3	-462.5	159.7	489.3	0.44	-0.42	
3,066.0	10.20	165.80	3,019.7	-479.1	163.8	506.3	0.54	-0.53	
3,161.0	11.40	169.90	3,113.0	-496.5	167.5	523.9	1.50	1.26	
3,256.0	11.00	169.40	3,206.2	-514.6	170.9	542.1	0.43	-0.42	
3,350.0	10.90	167.90	3,298.5	-532.1	174.4	559.8	0.32	-0.11	
3,445.0	10.80	167.30	3,391.8	-549.6	178.2	577.6	0.16	-0.11	
3,539.0	10.50	164.00	3,484.2	-566.4	182.5	594.8	0.72	-0.32	
3,634.0	10.70	168.30	3,577.6	-583.4	186.7	612.2	0.86	0.21	
3,728.0	9.80	165.40	3,670.1	-599.6	190.5	628.8	1.10	-0.96	
3,823.0	11.10	168.40	3,763.5	-616.4	194.3	646.0	1.48	1.37	
3,917.0	10.50	167.10	3,855.8	-633.6	198.1	663.4	0.69	-0.64	
4,012.0	12.00	172.90	3,949.0	-651.9	201.2	681.7	1.98	1.58	
4,107.0	12.10	172.70	4,041.9	-671.6	203.7	701.1	0.11	0.11	
4,201.0	11.60	170.60	4,133.9	-690.7	206.5	720.0	0.70	-0.53	
4,296.0	11.10	168.60	4,227.1	-709.0	209.9	738.5	0.67	-0.53	
4,390.0	10.90	167.90	4,319.3	-726.6	213.5	756.2	0.26	-0.21	
4,485.0	10.20	168.50	4,412.7	-743.6	217.1	773.5	0.75	-0.74	
4,579.0	11.80	170.70	4,505.0	-761.3	220.3	791.2	1.76	1.70	
4,673.0	12.00	170.50	4,597.0	-780.4	223.5	810.3	0.22	0.21	
4,768.0	11.90	170.20	4,689.9	-799.8	226.8	829.6	0.12	-0.11	
4,862.0	11.70	166.00	4,781.9	-818.6	230.7	848.7	0.94	-0.21	
4,957.0	10.80	165.80	4,875.1	-836.6	235.2	867.1	0.95	-0.95	
5,052.0	11.20	166.30	4,968.4	-854.1	239.6	885.2	0.43	0.42	
5,146.0	12.50	164.80	5,060.4	-872.8	244.4	904.4	1.42	1.38	
5,241.0	12.30	163.90	5,153.1	-892.5	249.9	924.8	0.29	-0.21	
5,336.0	12.30	164.90	5,246.0	-912.0	255.4	945.0	0.22	0.00	
5,430.0	11.90	160.20	5,337.9	-930.8	261.3	964.6	1.13	-0.43	
5,525.0	12.10	159.70	5,430.8	-949.3	268.0	984.4	0.24	0.21	
5,619.0	11.10	156.00	5,522.9	-966.8	275.1	1,003.2	1.33	-1.06	
5,714.0	10.70	154.90	5,616.2	-983.2	282.6	1,021.1	0.47	-0.42	
5,808.0	10.40	156.80	5,708.6	-998.9	289.6	1,038.3	0.49	-0.32	
5,903.0	10.20	156.90	5,802.0	-1,014.5	296.3	1,055.2	0.21	-0.21	
5,997.0	10.00	156.20	5,894.6	-1,029.6	302.9	1,071.7	0.25	-0.21	
6,092.0	9.80	158.80	5,988.2	-1,044.7	309.1	1,088.0	0.52	-0.21	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 33C-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 33C-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
6,186.0	10.20	158.10	6,080.7	-1,059.9	315.1	1,104.3	0.44	0.43	
6,281.0	10.10	159.90	6,174.3	-1,075.5	321.1	1,121.0	0.35	-0.11	
6,376.0	9.40	161.60	6,267.9	-1,090.7	326.4	1,137.1	0.80	-0.74	
6,470.0	9.50	161.60	6,360.6	-1,105.3	331.3	1,152.6	0.11	0.11	
6,565.0	9.10	163.70	6,454.4	-1,120.0	335.9	1,167.9	0.55	-0.42	
6,659.0	8.70	159.30	6,547.2	-1,133.8	340.5	1,182.4	0.84	-0.43	
6,754.0	7.50	152.80	6,641.3	-1,146.0	345.9	1,195.8	1.59	-1.26	
6,849.0	6.50	145.70	6,735.6	-1,156.0	351.7	1,207.1	1.39	-1.05	
6,943.0	5.10	141.90	6,829.1	-1,163.6	357.3	1,216.2	1.54	-1.49	
7,038.0	2.10	125.10	6,923.9	-1,168.0	361.3	1,221.6	3.31	-3.16	
7,132.0	1.10	114.80	7,017.9	-1,169.3	363.6	1,223.6	1.10	-1.06	
7,227.0	1.30	144.30	7,112.8	-1,170.6	365.0	1,225.3	0.67	0.21	
7,321.0	1.30	129.10	7,206.8	-1,172.1	366.5	1,227.3	0.37	0.00	
7,416.0	1.40	136.80	7,301.8	-1,173.6	368.1	1,229.2	0.22	0.11	
7,510.0	1.30	138.50	7,395.8	-1,175.3	369.6	1,231.3	0.11	-0.11	
7,605.0	1.50	136.70	7,490.7	-1,177.0	371.2	1,233.4	0.22	0.21	
7,699.0	1.20	138.40	7,584.7	-1,178.6	372.7	1,235.4	0.32	-0.32	
7,794.0	1.00	125.00	7,679.7	-1,179.8	374.0	1,237.0	0.34	-0.21	
7,888.0	0.80	172.40	7,773.7	-1,181.0	374.8	1,238.4	0.79	-0.21	
7,983.0	1.00	196.00	7,868.7	-1,182.4	374.6	1,239.7	0.44	0.21	
8,078.0	1.10	199.90	7,963.6	-1,184.1	374.1	1,241.1	0.13	0.11	
8,172.0	1.20	208.50	8,057.6	-1,185.8	373.3	1,242.4	0.21	0.11	
8,362.0	1.90	199.80	8,247.6	-1,190.5	371.3	1,246.2	0.39	0.37	
8,550.0	2.10	201.70	8,435.4	-1,196.6	369.0	1,251.2	0.11	0.11	
8,739.0	2.00	203.30	8,624.3	-1,202.9	366.4	1,256.2	0.06	-0.05	
8,834.0	2.00	205.30	8,719.3	-1,205.9	365.0	1,258.6	0.07	0.00	LAST CES SURVEY @ 8834' MD
8,925.0	2.00	205.30	8,810.2	-1,208.8	363.6	1,260.9	0.00	0.00	PTB @ 8925' MD

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 33C-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 33C-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PUCKETT 33C-1 TGT - actual wellpath misses target center by 1740.5usft at 7201.9usft MD (7087.8 TVD, -1170.2 N, 364.7 E) - Point	0.00	0.00	7,059.0	-1,336.6	2,096.9	607,945.76	1,247,690.40	39.472319	-108.165286
PUCKETT 33C-1 BHL 7 - actual wellpath misses target center by 22.0usft at 8903.7usft MD (8789.0 TVD, -1208.1 N, 364.0 E) - Circle (radius 50.0)	0.00	0.00	8,789.0	-1,197.9	344.4	608,135.94	1,245,942.70	39.472700	-108.171494
PUCKETT 33C-1 BHL - actual wellpath misses target center by 1737.7usft at 8892.0usft MD (8777.2 TVD, -1207.7 N, 364.1 E) - Circle (radius 50.0)	0.00	0.00	8,799.0	-1,336.6	2,096.9	607,945.76	1,247,690.40	39.472319	-108.165286

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,834.0	8,719.3	-1,205.9	365.0	LAST CES SURVEY @ 8834' MD	
8,925.0	8,810.2	-1,208.8	363.6	PTB @ 8925' MD	

Checked By: _____	Approved By: _____	Date: _____
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