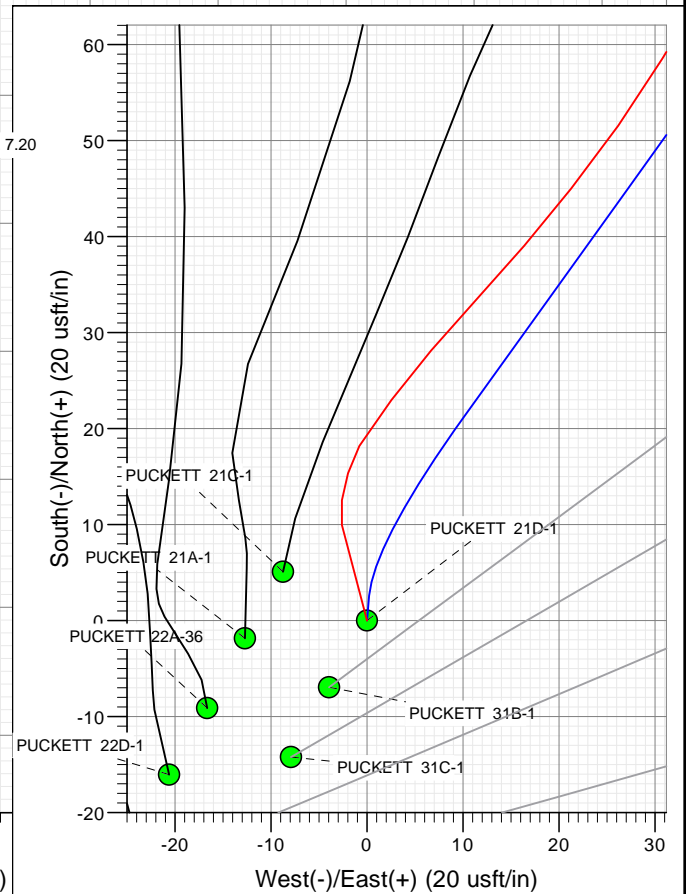
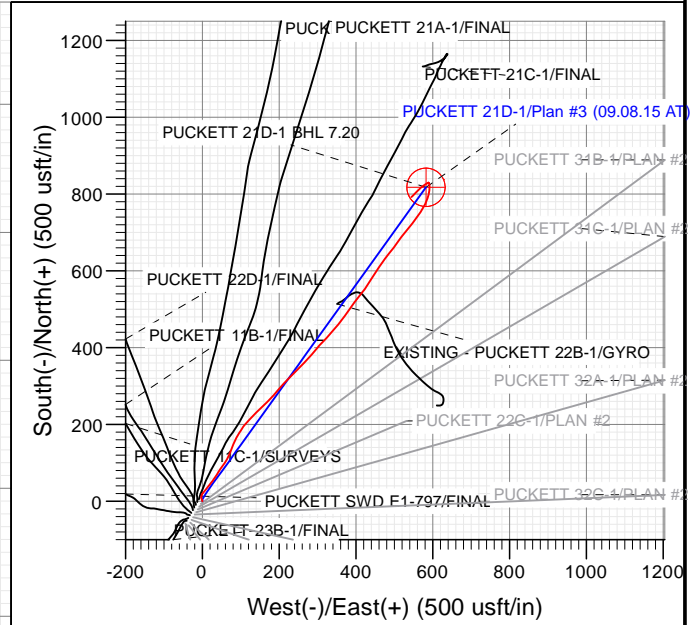
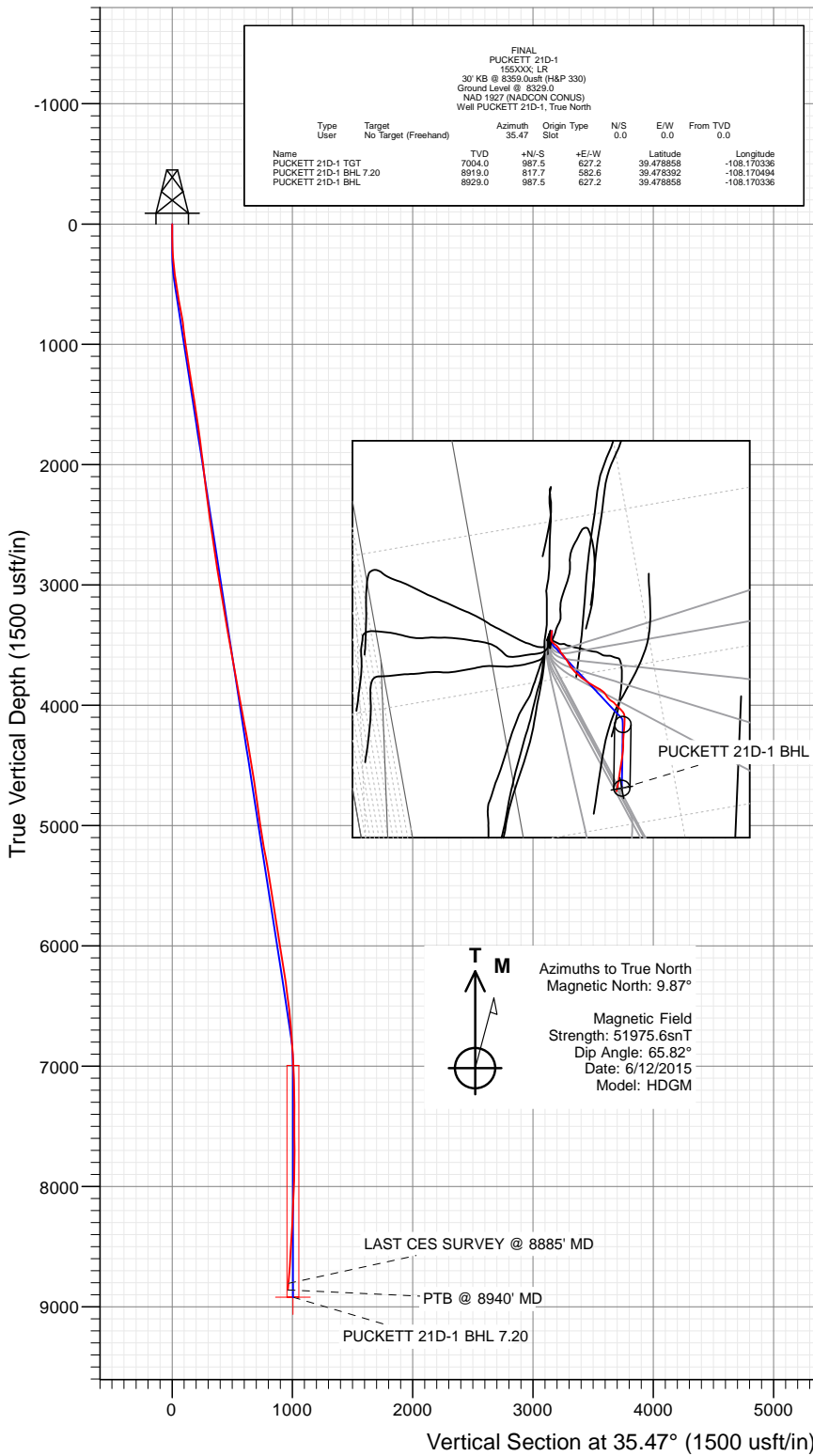




Project: Garfield County, CO
 Site: S1-T7S-R97W (Mesa E1 797)
 Well: PUCKETT 21D-1
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 21D-1

+N/-S 0.0 +E/-W 0.0 Northing 609399.72 Ground Level: 8329.0 Easting 1245679.39 Latitude 39.476147 Longitude -108.172558



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21D-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 21D-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 21D-1					
Well Position	+N/-S	0.0 usft	Northing:	609,399.72 usft	Latitude:	39.476147
	+E/-W	0.0 usft	Easting:	1,245,679.39 usft	Longitude:	-108.172558
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	6/12/2015	9.87	65.82	51,976

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	35.47	

Survey Program	Date	9/13/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
257.0	8,940.0	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		
257.0	4.60	345.30	256.7	10.0	-2.6	6.6	1.79	1.79		
288.0	5.20	13.50	287.6	12.5	-2.6	8.7	7.92	1.94		
318.0	5.80	11.80	317.5	15.3	-2.0	11.4	2.07	2.00		
348.0	6.20	32.70	347.3	18.2	-0.8	14.4	7.36	1.33		
500.0	8.80	42.80	498.0	33.6	11.5	34.1	1.91	1.71		
592.0	9.90	38.50	588.8	45.0	21.3	49.0	1.42	1.20		
687.0	10.20	31.70	682.3	58.5	30.8	65.5	1.29	0.32		
782.0	9.20	31.50	776.0	72.2	39.1	81.5	1.05	-1.05		
876.0	8.00	37.50	868.9	83.8	47.1	95.5	1.59	-1.28		
971.0	7.60	36.70	963.0	94.0	54.8	108.4	0.44	-0.42		
1,065.0	7.60	31.50	1,056.2	104.3	61.8	120.8	0.73	0.00		
1,160.0	8.30	23.80	1,150.3	116.0	67.8	133.8	1.34	0.74		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21D-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 21D-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
1,255.0	9.20	20.80	1,244.2	129.3	73.3	147.9	1.06	0.95	
1,349.0	9.60	21.40	1,336.9	143.7	78.8	162.7	0.44	0.43	
1,444.0	9.50	26.10	1,430.6	158.1	85.2	178.2	0.83	-0.11	
1,539.0	9.40	31.50	1,524.3	171.7	92.7	193.6	0.94	-0.11	
1,633.0	7.80	32.60	1,617.3	183.7	100.1	207.7	1.71	-1.70	
1,728.0	8.10	35.00	1,711.4	194.6	107.4	220.8	0.47	0.32	
1,822.0	7.40	42.60	1,804.5	204.4	115.3	233.4	1.32	-0.74	
1,917.0	7.20	41.50	1,898.7	213.4	123.4	245.4	0.26	-0.21	
2,012.0	6.70	45.30	1,993.0	221.8	131.3	256.8	0.71	-0.53	
2,106.0	6.60	47.30	2,086.4	229.3	139.2	267.5	0.27	-0.11	
2,201.0	7.00	45.20	2,180.7	237.1	147.3	278.5	0.50	0.42	
2,295.0	7.20	44.80	2,274.0	245.3	155.5	290.0	0.22	0.21	
2,390.0	7.90	44.80	2,368.2	254.1	164.3	302.3	0.74	0.74	
2,455.0	8.00	45.70	2,432.6	260.5	170.7	311.2	0.25	0.15	
2,596.0	9.00	43.30	2,572.0	275.3	185.3	331.8	0.75	0.71	
2,691.0	8.60	39.70	2,665.9	286.2	194.9	346.2	0.72	-0.42	
2,785.0	8.20	38.60	2,758.9	296.9	203.6	359.9	0.46	-0.43	
2,880.0	8.40	43.20	2,852.9	307.2	212.6	373.5	0.73	0.21	
2,974.0	9.80	46.30	2,945.7	317.8	223.0	388.2	1.58	1.49	
3,069.0	8.80	44.20	3,039.5	328.5	234.0	403.3	1.11	-1.05	
3,164.0	10.10	44.00	3,133.2	339.8	244.8	418.8	1.37	1.37	
3,258.0	10.00	45.10	3,225.7	351.4	256.3	435.0	0.23	-0.11	
3,353.0	9.50	43.30	3,319.4	363.0	267.5	450.8	0.62	-0.53	
3,447.0	10.40	41.30	3,411.9	375.0	278.4	467.0	1.03	0.96	
3,542.0	10.40	41.70	3,505.4	387.8	289.8	484.0	0.08	0.00	
3,637.0	9.30	39.10	3,599.0	400.2	300.4	500.2	1.25	-1.16	
3,731.0	10.50	45.60	3,691.6	412.1	311.3	516.2	1.74	1.28	
3,826.0	10.60	42.90	3,785.0	424.5	323.4	533.4	0.53	0.11	
3,920.0	9.80	39.60	3,877.5	437.0	334.4	550.0	1.05	-0.85	
4,015.0	9.40	42.10	3,971.2	449.0	344.7	565.7	0.61	-0.42	
4,109.0	10.90	39.00	4,063.7	461.6	355.5	582.2	1.70	1.60	
4,204.0	11.30	35.30	4,156.9	476.2	366.5	600.5	0.86	0.42	
4,298.0	10.40	36.30	4,249.2	490.6	376.9	618.2	0.98	-0.96	
4,393.0	9.40	35.40	4,342.8	503.8	386.4	634.5	1.07	-1.05	
4,487.0	10.00	35.10	4,435.5	516.7	395.6	650.4	0.64	0.64	
4,581.0	8.70	37.70	4,528.2	529.0	404.6	665.6	1.45	-1.38	
4,676.0	9.30	39.20	4,622.0	540.7	413.9	680.5	0.68	0.63	
4,771.0	7.90	37.80	4,716.0	551.8	422.7	694.7	1.49	-1.47	
4,865.0	7.30	33.30	4,809.1	561.9	429.9	707.1	0.90	-0.64	
4,960.0	8.20	30.30	4,903.3	572.8	436.7	719.9	1.04	0.95	
5,054.0	8.20	31.60	4,996.3	584.3	443.6	733.2	0.20	0.00	
5,149.0	10.00	34.60	5,090.1	596.8	451.8	748.2	1.96	1.89	
5,244.0	9.10	32.60	5,183.8	609.9	460.5	764.0	1.01	-0.95	
5,338.0	10.60	38.20	5,276.4	623.0	469.9	780.0	1.89	1.60	
5,433.0	10.20	35.40	5,369.9	636.7	480.2	797.2	0.68	-0.42	
5,527.0	9.10	38.90	5,462.5	649.3	489.7	812.9	1.33	-1.17	
5,622.0	8.60	37.70	5,556.4	660.8	498.7	827.5	0.56	-0.53	
5,716.0	8.20	34.10	5,649.4	671.9	506.8	841.2	0.70	-0.43	
5,811.0	9.90	37.90	5,743.2	683.9	515.6	856.2	1.90	1.79	
5,906.0	9.10	40.10	5,836.9	696.1	525.4	871.8	0.92	-0.84	
6,000.0	8.70	35.90	5,929.8	707.6	534.4	886.3	0.81	-0.43	
6,095.0	7.70	38.80	6,023.8	718.3	542.6	899.9	1.14	-1.05	
6,189.0	9.60	37.20	6,116.7	729.5	551.3	914.0	2.04	2.02	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21D-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 21D-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
6,284.0	9.10	35.30	6,210.5	741.9	560.4	929.4	0.62	-0.53	
6,378.0	8.40	36.10	6,303.4	753.5	568.8	943.7	0.76	-0.74	
6,473.0	7.60	27.50	6,397.4	764.7	575.8	956.9	1.51	-0.84	
6,567.0	6.80	23.00	6,490.7	775.4	580.8	968.5	1.04	-0.85	
6,662.0	5.40	21.10	6,585.2	784.7	584.6	978.3	1.49	-1.47	
6,757.0	5.30	20.60	6,679.7	793.0	587.8	986.9	0.12	-0.11	
6,851.0	4.70	14.60	6,773.4	800.8	590.3	994.7	0.85	-0.64	
6,946.0	4.40	5.90	6,868.1	808.2	591.6	1,001.5	0.79	-0.32	
7,040.0	4.10	0.10	6,961.8	815.1	592.0	1,007.4	0.56	-0.32	
7,135.0	1.70	4.10	7,056.7	819.9	592.1	1,011.3	2.53	-2.53	
7,229.0	1.50	358.00	7,150.7	822.5	592.1	1,013.5	0.28	-0.21	
7,324.0	1.50	339.40	7,245.6	824.9	591.7	1,015.2	0.51	0.00	
7,418.0	0.80	295.30	7,339.6	826.4	590.6	1,015.8	1.15	-0.74	
7,513.0	1.30	322.50	7,434.6	827.5	589.4	1,016.0	0.73	0.53	
7,608.0	0.40	238.60	7,529.6	828.2	588.4	1,016.0	1.39	-0.95	
7,702.0	1.60	32.60	7,623.6	829.1	588.9	1,017.0	2.09	1.28	
7,796.0	0.30	189.90	7,717.6	830.0	589.5	1,018.1	2.00	-1.38	
7,891.0	1.20	261.80	7,812.6	829.6	588.5	1,017.1	1.20	0.95	
7,986.0	1.50	247.30	7,907.5	829.0	586.4	1,015.4	0.48	0.32	
8,080.0	2.20	233.00	8,001.5	827.4	583.8	1,012.6	0.89	0.74	
8,175.0	2.20	233.70	8,096.4	825.2	580.9	1,009.2	0.03	0.00	
8,270.0	2.90	226.50	8,191.3	822.5	577.7	1,005.1	0.81	0.74	
8,364.0	3.70	244.30	8,285.2	819.6	573.2	1,000.1	1.37	0.85	
8,459.0	3.70	224.50	8,380.0	816.0	568.3	994.4	1.34	0.00	
8,553.0	3.10	233.60	8,473.8	812.4	564.1	989.0	0.86	-0.64	
8,648.0	3.20	209.50	8,568.7	808.5	560.8	983.9	1.39	0.11	
8,742.0	4.00	225.80	8,662.5	804.0	557.1	978.0	1.37	0.85	
8,837.0	5.10	229.50	8,757.2	798.9	551.5	970.7	1.20	1.16	
8,885.0	5.20	223.20	8,805.0	795.9	548.4	966.5	1.20	0.21	LAST CES SURVEY @ 8885' MD
8,940.0	5.20	223.20	8,859.8	792.3	545.0	961.5	0.00	0.00	PTB @ 8940' MD

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 21D-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 21D-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	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
PUCKETT 21D-1 BHL 7	0.00	0.00	8,919.0	817.7	582.6	610,199.95	1,246,285.81	39.478392	-108.170494
- actual wellpath misses target center by 74.6usft at 8940.0usft MD (8859.8 TVD, 792.3 N, 545.0 E)									
- Circle (radius 50.0)									
PUCKETT 21D-1 TGT	0.00	0.00	7,004.0	987.5	627.2	610,368.29	1,246,335.38	39.478858	-108.170336
- actual wellpath misses target center by 173.1usft at 7090.9usft MD (7012.6 TVD, 818.2 N, 592.0 E)									
- Point									
PUCKETT 21D-1 BHL	0.00	0.00	8,929.0	987.5	627.2	610,368.29	1,246,335.38	39.478858	-108.170336
- actual wellpath misses target center by 222.8usft at 8940.0usft MD (8859.8 TVD, 792.3 N, 545.0 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
8,885.0	8,805.0	795.9	548.4	LAST CES SURVEY @ 8885' MD	
8,940.0	8,859.8	792.3	545.0	PTB @ 8940' MD	

Checked By: _____ Approved By: _____ Date: _____