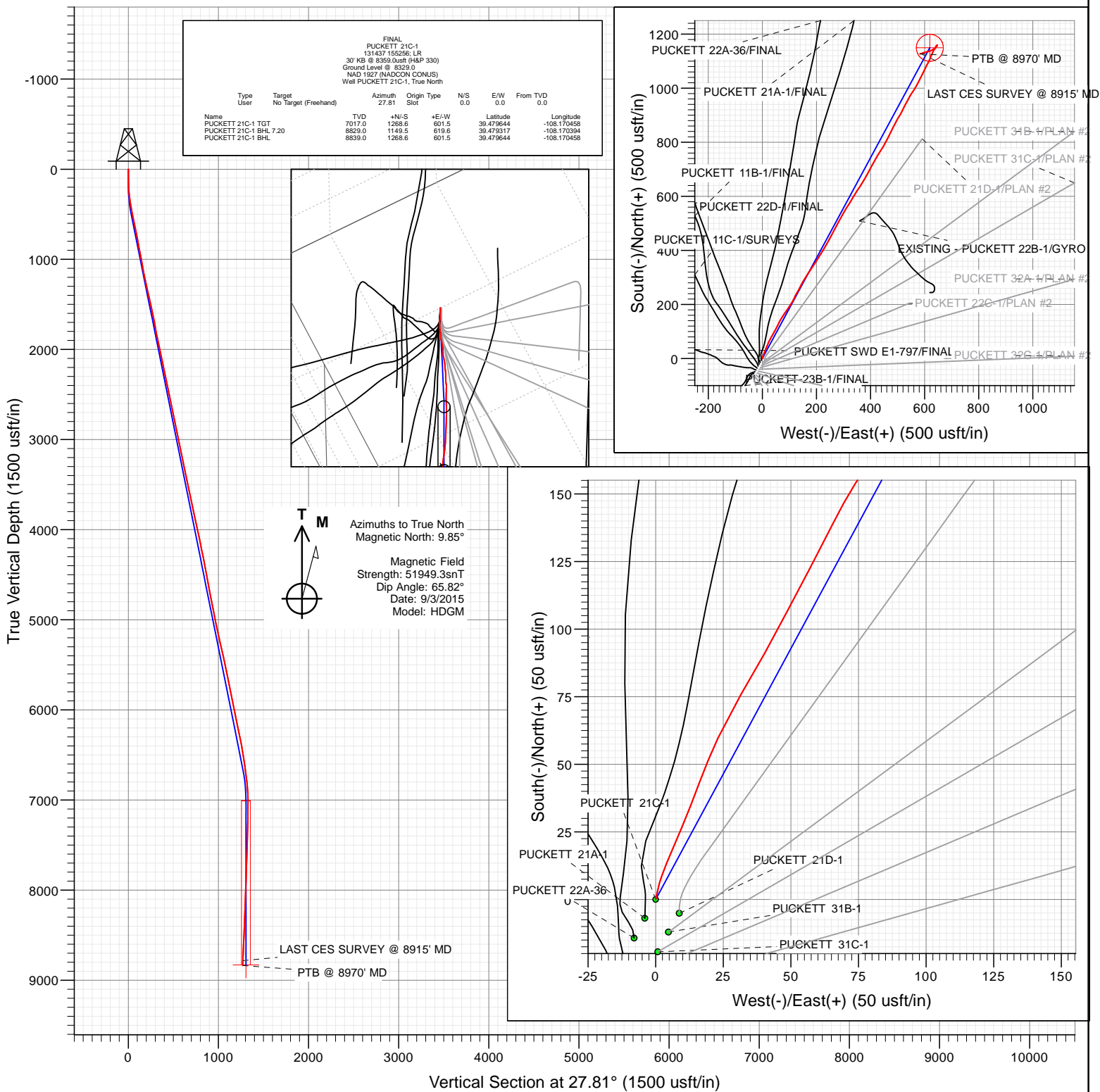




Project: Garfield County, CO  
 Site: S1-T7S-R97W (Mesa E1 797)  
 Well: PUCKETT 21C-1  
 Wellbore: OH  
 Design: FINAL



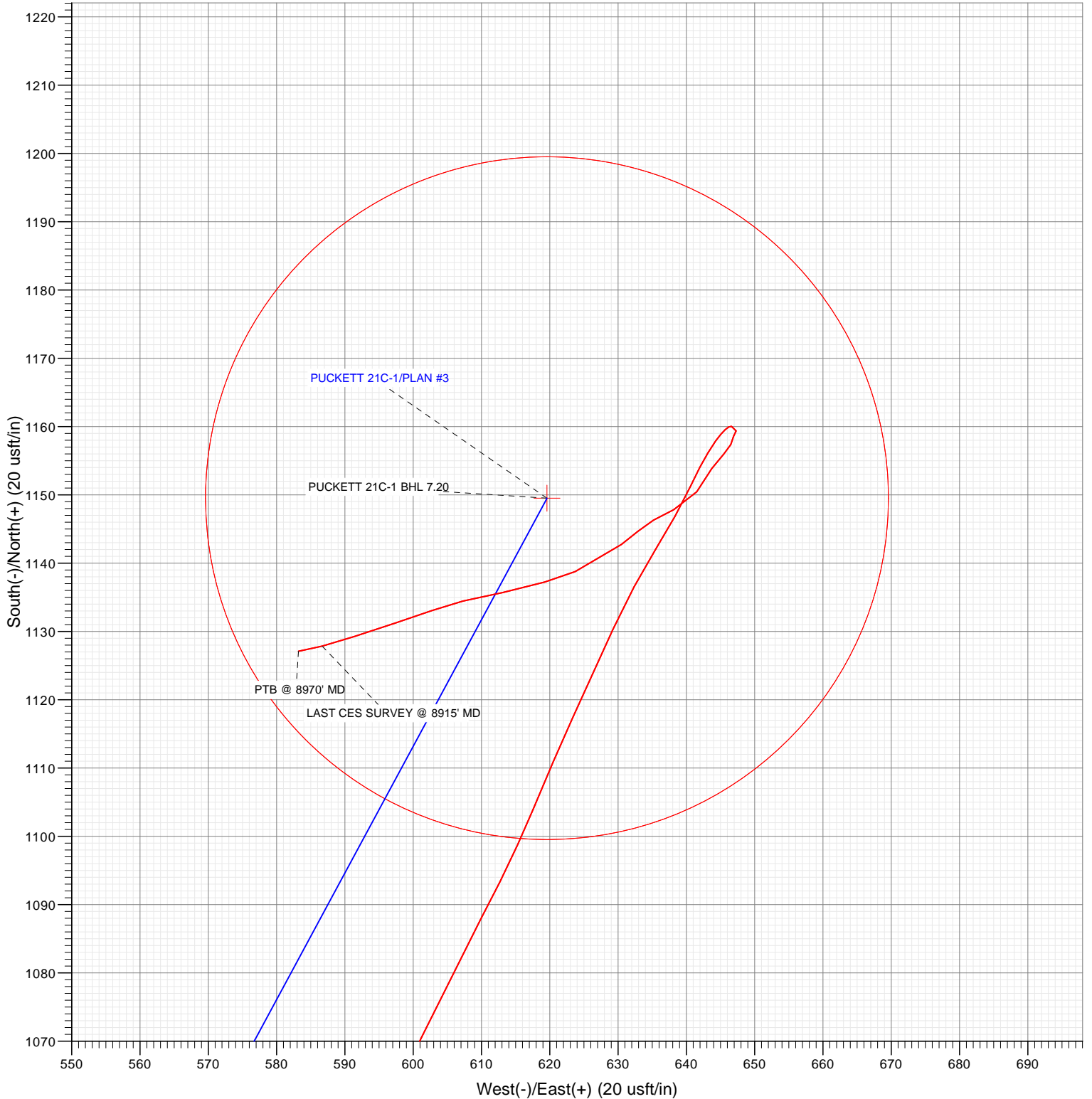
WELL DETAILS: PUCKETT 21C-1

+N/-S 0.0 +E/-W 0.0 Northing 609405.07 Ground Level: 8329.0 Easting 1245670.79 Latitude 39.476161 Longitude -108.172589





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



CATHEDRAL

WELL DETAILS: PUCKETT 21C-1

+N/-S	+E/-W	Northing	Ground Level:	8329.0	Latitude	Longitude
0.0	0.0	609405.07	Easting	1245670.79	39.476161	-108.172589





# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 21C-1
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 21C-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<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		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 21C-1					
Well Position	+N/-S	0.0 usft	Northing:	609,405.07 usft	Latitude:	39.476161
	+E/-W	0.0 usft	Easting:	1,245,670.79 usft	Longitude:	-108.172589
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,329.0 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	9/3/2015	9.85	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	27.81

<b>Survey Program</b>	<b>Date</b>	9/8/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
225.0	8,970.0	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	

<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 (°/100usft)</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		
225.0	2.90	13.00	224.9	5.5	1.3	5.5	1.29	1.29		
316.0	7.80	22.30	315.5	13.5	4.1	13.9	5.45	5.38		
407.0	10.60	23.00	405.3	26.9	9.8	28.4	3.08	3.08		
498.0	11.56	20.20	494.6	43.2	16.2	45.7	1.21	1.05		
590.0	10.90	25.20	584.8	59.7	23.1	63.6	1.28	-0.72		
685.0	10.90	30.30	678.1	75.6	31.4	81.5	1.01	0.00		
780.0	11.00	29.50	771.4	91.2	40.4	99.6	0.19	0.11		
874.0	10.90	27.00	863.7	107.0	48.9	117.4	0.52	-0.11		
969.0	10.90	28.30	957.0	122.9	57.2	135.4	0.26	0.00		
1,063.0	10.90	26.40	1,049.3	138.7	65.4	153.1	0.38	0.00		
1,158.0	10.30	32.00	1,142.7	153.9	73.9	170.6	1.25	-0.63		
1,253.0	11.60	36.10	1,235.9	168.8	84.0	188.5	1.59	1.37		



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 21C-1
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 21C-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<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 (°/100usft)	Build Rate (°/100u)	Formations / Comments
1,347.0	13.40	34.50	1,327.7	185.4	95.7	208.7	1.95	1.91	
1,442.0	13.20	29.90	1,420.2	203.9	107.4	230.5	1.13	-0.21	
1,537.0	13.00	26.50	1,512.7	222.9	117.5	252.0	0.84	-0.21	
1,631.0	11.40	28.70	1,604.6	240.5	126.7	271.8	1.77	-1.70	
1,726.0	9.90	27.90	1,697.9	256.0	135.1	289.4	1.59	-1.58	
1,820.0	10.40	26.50	1,790.5	270.7	142.6	306.0	0.59	0.53	
1,915.0	12.50	31.90	1,883.6	287.1	151.9	324.8	2.48	2.21	
2,010.0	12.00	33.90	1,976.4	304.0	162.8	344.9	0.69	-0.53	
2,104.0	11.70	32.80	2,068.4	320.1	173.4	364.1	0.40	-0.32	
2,199.0	11.50	32.90	2,161.5	336.2	183.8	383.1	0.21	-0.21	
2,293.0	11.50	32.40	2,253.6	352.0	193.9	401.8	0.11	0.00	
2,388.0	11.50	32.50	2,346.7	367.9	204.1	420.7	0.02	0.00	
2,482.0	11.80	32.40	2,438.7	384.0	214.3	439.6	0.32	0.32	
2,493.0	12.00	32.20	2,449.5	385.9	215.5	441.8	1.86	1.82	
2,596.0	11.10	31.20	2,550.4	403.4	226.3	462.4	0.90	-0.87	
2,691.0	12.70	29.90	2,643.4	420.3	236.3	482.0	1.71	1.68	
2,785.0	12.60	29.30	2,735.1	438.2	246.4	502.6	0.18	-0.11	
2,880.0	12.10	27.10	2,827.9	456.1	256.0	522.9	0.72	-0.53	
2,974.0	11.30	26.90	2,919.9	473.1	264.7	541.9	0.85	-0.85	
3,069.0	11.80	30.10	3,013.0	489.8	273.8	560.9	0.86	0.53	
3,164.0	11.90	27.70	3,106.0	506.9	283.2	580.4	0.53	0.11	
3,258.0	10.50	27.90	3,198.2	523.0	291.7	598.7	1.49	-1.49	
3,353.0	12.00	29.50	3,291.4	539.3	300.6	617.2	1.61	1.58	
3,448.0	11.90	33.30	3,384.3	556.0	310.9	636.8	0.83	-0.11	
3,542.0	11.60	32.10	3,476.3	572.1	321.2	655.9	0.41	-0.32	
3,637.0	11.10	29.60	3,569.5	588.2	330.8	674.6	0.74	-0.53	
3,731.0	12.30	32.40	3,661.5	604.5	340.6	693.6	1.41	1.28	
3,826.0	12.20	32.70	3,754.3	621.5	351.5	713.7	0.12	-0.11	
3,920.0	11.40	33.70	3,846.4	637.6	362.0	732.8	0.88	-0.85	
4,015.0	12.70	31.70	3,939.3	654.3	372.7	752.6	1.44	1.37	
4,109.0	12.70	28.00	4,031.0	672.2	383.0	773.2	0.87	0.00	
4,204.0	12.00	29.20	4,123.8	690.0	392.7	793.5	0.78	-0.74	
4,299.0	11.40	28.00	4,216.8	707.0	401.9	812.8	0.68	-0.63	
4,393.0	11.40	30.00	4,308.9	723.2	410.9	831.4	0.42	0.00	
4,487.0	11.20	27.40	4,401.1	739.4	419.8	849.8	0.58	-0.21	
4,582.0	9.90	31.80	4,494.5	754.5	428.3	867.2	1.61	-1.37	
4,676.0	11.50	32.50	4,586.9	769.3	437.6	884.6	1.71	1.70	
4,771.0	10.10	32.70	4,680.2	784.3	447.2	902.3	1.47	-1.47	
4,865.0	10.50	27.30	4,772.7	798.8	455.6	919.1	1.11	0.43	
4,960.0	10.90	27.20	4,866.0	814.5	463.7	936.7	0.42	0.42	
5,055.0	12.40	26.60	4,959.1	831.6	472.3	955.9	1.58	1.58	
5,149.0	11.50	25.90	5,051.0	849.0	480.9	975.4	0.97	-0.96	
5,244.0	12.00	28.00	5,144.0	866.3	489.7	994.7	0.69	0.53	
5,338.0	13.30	29.10	5,235.8	884.4	499.6	1,015.3	1.41	1.38	
5,433.0	12.50	30.60	5,328.4	902.8	510.1	1,036.5	0.91	-0.84	
5,527.0	12.60	25.70	5,420.1	920.8	519.7	1,056.9	1.14	0.11	
5,622.0	11.80	27.60	5,513.0	938.7	528.7	1,077.0	0.94	-0.84	
5,716.0	12.00	27.10	5,604.9	955.9	537.6	1,096.3	0.24	0.21	
5,811.0	11.80	31.80	5,697.9	973.0	547.3	1,115.9	1.04	-0.21	
5,906.0	10.00	34.70	5,791.2	988.0	557.1	1,133.8	1.98	-1.89	
6,000.0	11.90	30.40	5,883.5	1,003.1	566.6	1,151.6	2.20	2.02	
6,095.0	11.80	27.70	5,976.5	1,020.1	576.1	1,171.1	0.59	-0.11	
6,189.0	11.80	25.20	6,068.5	1,037.3	584.7	1,190.3	0.54	0.00	



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 21C-1
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 21C-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<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 (°/100usft)	Build Rate (°/100u)	Formations / Comments
6,284.0	11.00	27.90	6,161.6	1,054.1	593.0	1,209.0	1.01	-0.84	
6,378.0	11.50	25.20	6,253.8	1,070.5	601.2	1,227.4	0.77	0.53	
6,473.0	11.90	27.90	6,346.8	1,087.8	609.8	1,246.6	0.71	0.42	
6,568.0	9.80	22.60	6,440.1	1,103.9	617.5	1,264.5	2.45	-2.21	
6,662.0	8.30	24.20	6,532.9	1,117.5	623.4	1,279.2	1.62	-1.60	
6,757.0	8.90	24.80	6,626.9	1,130.4	629.3	1,293.4	0.64	0.63	
6,851.0	7.20	32.00	6,719.9	1,142.0	635.4	1,306.5	2.10	-1.81	
6,946.0	5.80	25.20	6,814.3	1,151.4	640.6	1,317.3	1.68	-1.47	
7,040.0	3.40	36.00	6,908.0	1,157.9	644.3	1,324.8	2.70	-2.55	
7,135.0	0.80	104.00	7,003.0	1,160.0	646.6	1,327.7	3.36	-2.74	
7,230.0	0.60	175.60	7,098.0	1,159.4	647.3	1,327.5	0.88	-0.21	
7,324.0	0.60	233.60	7,192.0	1,158.6	646.9	1,326.6	0.62	0.00	
7,419.0	1.10	180.90	7,286.9	1,157.4	646.5	1,325.3	0.92	0.53	
7,513.0	1.40	243.80	7,380.9	1,156.0	645.5	1,323.6	1.41	0.32	
7,608.0	2.10	203.50	7,475.9	1,153.9	643.7	1,320.9	1.45	0.74	
7,702.0	2.90	219.90	7,569.8	1,150.5	641.5	1,316.9	1.13	0.85	
7,797.0	2.40	247.10	7,664.7	1,147.9	638.1	1,313.0	1.41	-0.53	
7,891.0	1.70	235.80	7,758.6	1,146.3	635.2	1,310.2	0.86	-0.74	
7,986.0	1.60	232.90	7,853.6	1,144.7	633.0	1,307.8	0.14	-0.11	
8,080.0	2.20	230.60	7,947.5	1,142.8	630.5	1,304.9	0.64	0.64	
8,270.0	2.60	247.10	8,137.4	1,138.8	623.7	1,298.3	0.42	0.21	
8,364.0	3.20	254.30	8,231.2	1,137.2	619.2	1,294.8	0.75	0.64	
8,459.0	4.40	257.00	8,326.0	1,135.7	613.1	1,290.6	1.28	1.26	
8,553.0	2.90	259.60	8,419.8	1,134.5	607.3	1,286.8	1.61	-1.60	
8,648.0	2.90	246.10	8,514.7	1,133.1	602.7	1,283.4	0.72	0.00	
8,742.0	4.00	254.90	8,608.5	1,131.2	597.4	1,279.3	1.30	1.17	
8,837.0	3.60	248.70	8,703.3	1,129.3	591.4	1,274.8	0.60	-0.42	
8,915.0	3.70	257.60	8,781.2	1,127.9	586.7	1,271.3	0.74	0.13	LAST CES SURVEY @ 8915' MD
8,960.3	3.70	257.60	8,826.4	1,127.2	583.8	1,269.4	0.00	0.00	PUCKETT 21C-1 BHL 7.20
8,970.0	3.70	257.60	8,836.1	1,127.1	583.2	1,269.0	0.00	0.00	PTB @ 8970' MD



## Cathedral Energy Services

### Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 21C-1
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 21C-1	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 21C-1 TGT	0.00	0.00	7,017.0	1,268.6	601.5	610,655.47	1,246,309.37	39.479644	-108.170458
- survey misses target center by 117.7usft at 7148.0usft MD (7015.9 TVD, 1160.0 N, 646.8 E)									
- Point									
PUCKETT 21C-1 BHL	0.00	0.00	8,839.0	1,268.6	601.5	610,655.47	1,246,309.37	39.479644	-108.170458
- survey misses target center by 142.7usft at 8969.8usft MD (8835.9 TVD, 1127.1 N, 583.2 E)									
- Circle (radius 50.0)									
PUCKETT 21C-1 BHL 7	0.00	0.00	8,829.0	1,149.5	619.6	610,535.88	1,246,323.93	39.479317	-108.170394
- survey misses target center by 42.2usft at 8960.3usft MD (8826.4 TVD, 1127.2 N, 583.8 E)									
- Circle (radius 50.0)									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
8,915.0	8,781.2	1,127.9	586.7	LAST CES SURVEY @ 8915' MD
8,970.0	8,836.1	1,127.1	583.2	PTB @ 8970' MD

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