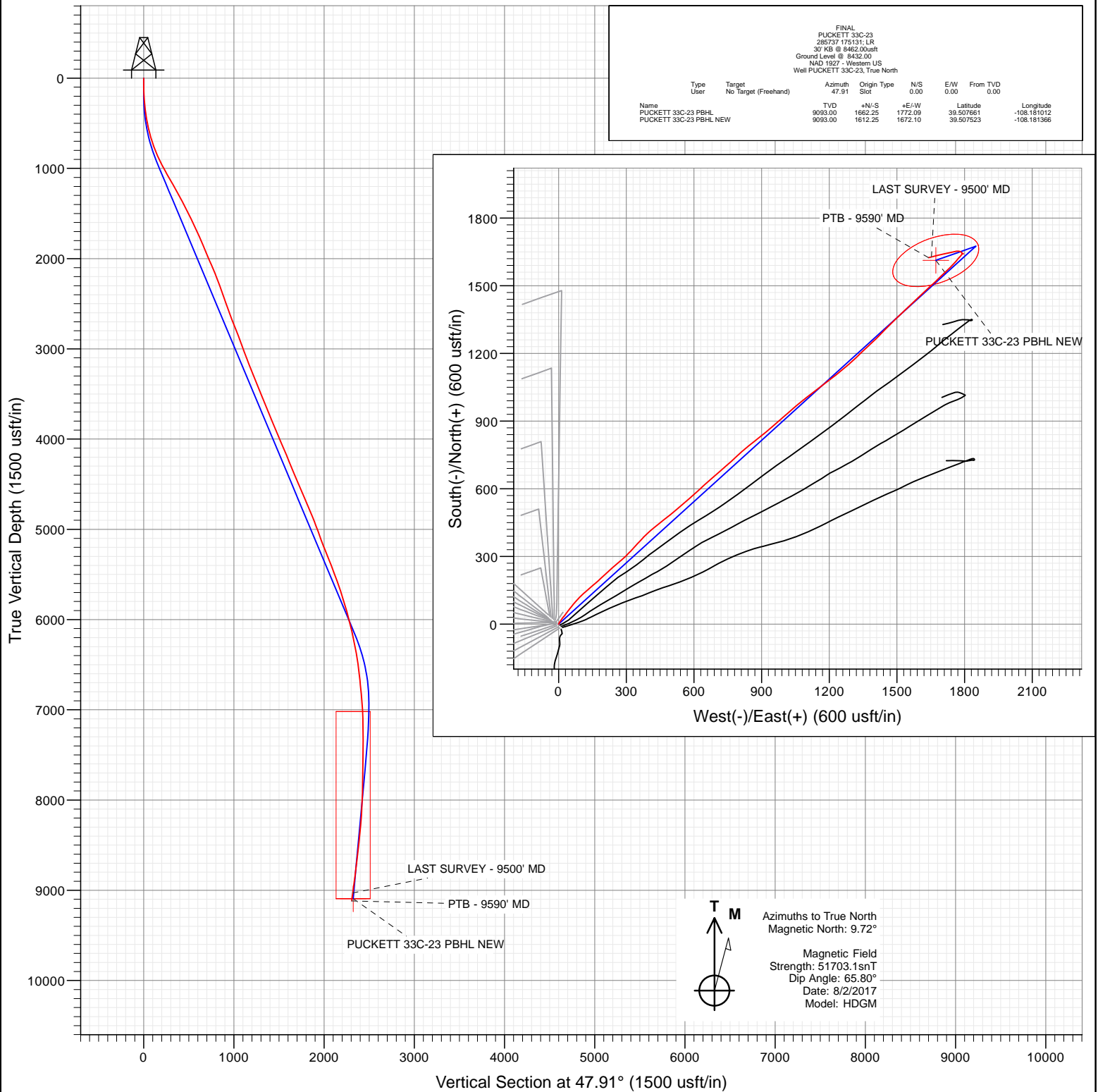




Project: Garfield County, CO (UTM 12N)
 Site: S23-T6S-R97W (MESA N23)
 Well: PUCKETT 33C-23
 Wellbore: OH
 Design: FINAL



FINAL PUCKETT 33C-23 285737 175131; LR 30' KB @ 8462.00usft Ground Level @ 8432.00 NAD 1927 - Western US Well PUCKETT 33C-23, True North									
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD			
User	No. Target (Freehand)	47.91	Spot	0.00	0.00	0.00			
Name		TVD	+N/-S	+E/-W	Latitude	Longitude			
PUCKETT 33C-23 PBHL		9093.00	1662.25	1772.09	39.507661	-108.181012			
PUCKETT 33C-23 PBHL NEW		9093.00	1612.25	1672.10	39.507523	-108.181366			



WELL DETAILS: PUCKETT 33C-23

+N/-S 0.00	+E/-W 0.00	Northing 14357508.20	Ground Level: Easting 2433880.70	8432.00 Latitude 39.503099	Longitude -108.187290
---------------	---------------	-------------------------	--	----------------------------------	--------------------------

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33C-23
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8462.00usft
Site:	S23-T6S-R97W (MESA N23)	MD Reference:	30' KB @ 8462.00usft
Well:	PUCKETT 33C-23	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Garfield County, CO (UTM 12N)		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 - Western US		
Map Zone:	Zone 12N (114 W to 108 W)		

Site	S23-T6S-R97W (MESA N23)		
Site Position:		Northing:	14,357,518.00 usft
From:	Map	Easting:	2,433,869.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	39.503127
		Longitude:	-108.187330
		Grid Convergence:	1.79 °

Well	PUCKETT 33C-23					
Well Position	+N/-S	0.00 usft	Northing:	14,357,508.20 usft	Latitude:	39.503099
	+E/-W	0.00 usft	Easting:	2,433,880.70 usft	Longitude:	-108.187290
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	8,432.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/2/2017	9.72	65.80	51,703.10000000

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	47.91	

Survey Program	Date	8/7/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
147.00	9,590.00	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	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
147.00	1.54	25.53	146.98	1.78	0.85	1.83	1.05	1.05		
208.00	2.94	25.79	207.93	3.93	1.89	4.03	2.30	2.30		
299.00	6.33	30.80	298.62	10.34	5.47	10.99	3.75	3.73		
390.00	8.44	36.52	388.86	20.02	12.01	22.34	2.45	2.32		
482.00	10.33	39.33	479.63	31.83	21.26	37.11	2.11	2.05		
575.00	13.32	37.84	570.65	46.74	33.12	55.91	3.23	3.22		
669.00	16.48	37.04	661.47	65.94	47.80	79.67	3.37	3.36		
764.00	20.17	39.15	751.64	89.41	66.26	109.10	3.95	3.88		
858.00	23.91	44.16	838.76	115.65	89.78	144.14	4.45	3.98		
953.00	26.50	49.09	924.72	143.35	119.21	184.55	3.51	2.73		
1,047.00	28.13	49.61	1,008.24	171.44	151.94	227.67	1.75	1.73		
1,141.00	29.88	47.06	1,090.45	201.76	185.96	273.24	2.28	1.86		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33C-23
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8462.00usft
Site:	S23-T6S-R97W (MESA N23)	MD Reference:	30' KB @ 8462.00usft
Well:	PUCKETT 33C-23	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
1,236.00	30.23	47.94	1,172.68	233.90	221.04	320.82	0.59	0.37	
1,330.00	28.70	49.44	1,254.52	264.43	255.76	367.05	1.81	-1.63	
1,425.00	26.63	48.03	1,338.65	293.50	288.93	411.14	2.29	-2.18	
1,519.00	27.47	42.67	1,422.38	323.54	319.29	453.81	2.74	0.89	
1,614.00	27.64	42.23	1,506.60	355.96	348.95	497.56	0.28	0.18	
1,708.00	26.32	44.87	1,590.38	386.88	378.31	540.07	1.90	-1.40	
1,803.00	24.52	49.17	1,676.18	414.70	408.09	580.81	2.71	-1.89	
1,898.00	23.64	51.28	1,762.92	439.50	437.87	619.54	1.30	-0.93	
1,992.00	23.07	51.37	1,849.21	462.79	466.96	656.73	0.61	-0.61	
2,086.00	22.90	51.11	1,935.75	485.77	495.58	693.38	0.21	-0.18	
2,181.00	22.63	50.05	2,023.35	509.11	523.98	730.10	0.52	-0.28	
2,275.00	23.12	49.26	2,109.96	532.77	551.82	766.62	0.62	0.52	
2,370.00	22.10	49.17	2,197.65	556.62	579.48	803.13	1.07	-1.07	
2,441.00	21.09	48.56	2,263.67	573.81	599.16	829.26	1.46	-1.42	
2,507.00	19.78	47.94	2,325.52	589.15	616.36	852.30	2.01	-1.98	
2,602.00	18.33	46.01	2,415.31	610.30	639.04	883.31	1.66	-1.53	
2,696.00	19.82	49.61	2,504.15	630.89	661.81	914.01	2.02	1.59	
2,791.00	20.52	48.73	2,593.32	652.31	686.59	946.76	0.80	0.74	
2,885.00	21.53	49.00	2,681.06	674.49	712.00	980.48	1.08	1.07	
2,980.00	21.45	49.17	2,769.46	697.29	738.29	1,015.27	0.11	-0.08	
3,074.00	20.96	47.24	2,857.09	719.94	763.64	1,049.27	0.91	-0.52	
3,169.00	20.13	47.15	2,946.05	742.59	788.10	1,082.61	0.87	-0.87	
3,263.00	20.17	48.47	3,034.30	764.34	812.10	1,114.99	0.49	0.04	
3,358.00	20.65	50.84	3,123.34	785.78	837.35	1,148.09	1.01	0.51	
3,452.00	22.37	52.16	3,210.79	807.22	864.33	1,182.49	1.90	1.83	
3,546.00	21.67	51.19	3,297.93	829.07	891.98	1,217.65	0.84	-0.74	
3,641.00	21.93	49.88	3,386.14	851.49	919.21	1,252.89	0.58	0.27	
3,735.00	22.50	49.26	3,473.16	874.54	946.26	1,288.42	0.66	0.61	
3,830.00	22.85	49.00	3,560.81	898.51	973.95	1,325.03	0.38	0.37	
3,924.00	21.71	48.82	3,647.80	921.93	1,000.81	1,360.66	1.21	-1.21	
4,018.00	21.62	48.82	3,735.16	944.78	1,026.93	1,395.36	0.10	-0.10	
4,113.00	22.76	50.23	3,823.12	968.06	1,054.23	1,431.23	1.32	1.20	
4,207.00	23.73	51.46	3,909.49	991.48	1,083.00	1,468.27	1.15	1.03	
4,302.00	22.81	51.28	3,996.76	1,014.91	1,112.32	1,505.73	0.97	-0.97	
4,396.00	23.25	52.78	4,083.27	1,037.53	1,141.31	1,542.41	0.78	0.47	
4,491.00	22.24	52.86	4,170.88	1,059.72	1,170.58	1,579.00	1.06	-1.06	
4,585.00	22.76	53.57	4,257.72	1,081.26	1,199.39	1,614.82	0.62	0.55	
4,680.00	22.90	51.72	4,345.28	1,103.62	1,228.68	1,651.55	0.77	0.15	
4,774.00	22.54	50.32	4,431.99	1,126.46	1,256.90	1,687.80	0.69	-0.38	
4,869.00	22.98	48.21	4,519.59	1,150.44	1,284.74	1,724.54	0.98	0.46	
4,963.00	23.82	46.89	4,605.86	1,175.64	1,312.28	1,761.87	1.05	0.89	
5,058.00	23.03	45.92	4,693.03	1,201.68	1,339.64	1,799.62	0.93	-0.83	
5,153.00	23.12	47.94	4,780.43	1,227.10	1,366.84	1,836.84	0.84	0.09	
5,247.00	22.28	46.98	4,867.15	1,251.62	1,393.57	1,873.11	0.98	-0.89	
5,342.00	20.57	44.43	4,955.58	1,275.83	1,418.42	1,907.78	2.05	-1.80	
5,436.00	19.56	44.52	5,043.88	1,298.84	1,441.01	1,939.97	1.07	-1.07	
5,531.00	20.57	43.99	5,133.11	1,322.19	1,463.75	1,972.50	1.08	1.06	
5,625.00	22.02	45.39	5,220.69	1,346.45	1,487.77	2,006.58	1.63	1.54	
5,720.00	22.28	47.77	5,308.68	1,371.06	1,513.78	2,042.38	0.98	0.27	
5,814.00	21.09	46.80	5,396.03	1,394.61	1,539.31	2,077.11	1.32	-1.27	
5,909.00	20.17	45.92	5,484.93	1,417.71	1,563.53	2,110.57	1.02	-0.97	
6,003.00	19.60	45.22	5,573.33	1,440.09	1,586.37	2,142.52	0.66	-0.61	
6,097.00	18.85	48.21	5,662.09	1,461.31	1,608.88	2,173.45	1.32	-0.80	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33C-23
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8462.00usft
Site:	S23-T6S-R97W (MESA N23)	MD Reference:	30' KB @ 8462.00usft
Well:	PUCKETT 33C-23	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
6,192.00	18.06	46.54	5,752.20	1,481.67	1,631.01	2,203.52	1.00	-0.83	
6,287.00	16.30	48.03	5,842.96	1,500.72	1,651.61	2,231.58	1.91	-1.85	
6,381.00	15.38	47.24	5,933.39	1,518.00	1,670.57	2,257.23	1.01	-0.98	
6,476.00	14.59	44.95	6,025.16	1,535.02	1,688.28	2,281.78	1.04	-0.83	
6,570.00	12.61	46.01	6,116.52	1,550.53	1,704.03	2,303.86	2.12	-2.11	
6,665.00	12.52	46.54	6,209.25	1,564.81	1,718.96	2,324.52	0.15	-0.09	
6,759.00	10.72	46.01	6,301.32	1,577.90	1,732.65	2,343.44	1.92	-1.91	
6,948.00	7.65	42.49	6,487.87	1,599.39	1,753.80	2,373.54	1.65	-1.62	
7,043.00	7.21	40.03	6,582.07	1,608.61	1,761.90	2,385.74	0.57	-0.46	
7,137.00	6.50	39.42	6,675.40	1,617.24	1,769.07	2,396.85	0.76	-0.76	
7,232.00	5.32	46.01	6,769.90	1,624.45	1,775.66	2,406.57	1.43	-1.24	
7,326.00	4.70	38.45	6,863.54	1,630.50	1,781.19	2,414.72	0.96	-0.66	
7,421.00	4.13	35.02	6,958.25	1,636.35	1,785.57	2,421.90	0.66	-0.60	
7,516.00	3.21	30.19	7,053.06	1,641.45	1,788.87	2,427.77	1.02	-0.97	
7,610.00	3.47	147.52	7,146.98	1,641.32	1,791.72	2,429.80	6.07	0.28	
7,704.00	3.69	15.51	7,240.90	1,641.84	1,794.06	2,431.88	6.96	0.23	
7,799.00	2.90	211.16	7,335.84	1,642.73	1,793.64	2,432.16	6.87	-0.83	
7,893.00	2.37	304.41	7,429.77	1,641.79	1,790.80	2,429.43	4.09	-0.56	
7,988.00	2.37	329.63	7,524.69	1,644.60	1,788.19	2,429.37	1.09	0.00	
8,177.00	1.98	312.32	7,713.56	1,650.17	1,783.80	2,429.85	0.40	-0.21	
8,366.00	3.43	275.76	7,902.36	1,652.93	1,775.76	2,425.73	1.16	0.77	
8,555.00	3.65	266.97	8,091.00	1,653.18	1,764.13	2,417.27	0.31	0.12	
8,744.00	5.49	251.67	8,279.40	1,650.02	1,749.53	2,404.32	1.16	0.97	
8,933.00	6.77	260.64	8,467.32	1,645.36	1,729.96	2,386.67	0.84	0.68	
9,122.00	8.00	257.47	8,654.75	1,640.70	1,706.13	2,365.86	0.69	0.65	
9,311.00	8.48	255.01	8,841.79	1,634.24	1,679.83	2,342.02	0.32	0.25	
9,500.00	8.48	255.98	9,028.73	1,627.26	1,652.85	2,317.32	0.08	0.00	LAST SURVEY - 9500' MD
9,590.00	8.48	255.98	9,117.74	1,624.05	1,639.97	2,305.60	0.00	0.00	PTB - 9590' MD

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-23 PBHI			0.00	0.00	9,093.00	1,612.25	1,672.10	14,359,171.90	2,435,501.62	39.507523	-108.181366
- actual wellpath misses target center by 31.03usft at 9561.35usft MD (9089.41 TVD, 1625.07 N, 1644.07 E)											
- Ellipse (radii L200.00 W100.00 on 250.00 azi)											
PUCKETT 33C-23 PBHI			0.00	0.00	9,093.00	1,662.25	1,772.09	14,359,225.00	2,435,600.00	39.507661	-108.181012
- actual wellpath misses target center by 132.39usft at 9545.26usft MD (9073.49 TVD, 1625.64 N, 1646.37 E)											
- Ellipse (radii L200.00 W100.00 on 250.00 azi)											

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	Comment
		+N/-S (usft)	+E/-W (usft)
9,500.00	9,028.73	1,627.26	1,652.85
9,590.00	9,117.74	1,624.05	1,639.97
LAST SURVEY - 9500' MD			
PTB - 9590' MD			

Checked By: _____ Approved By: _____ Date: _____