

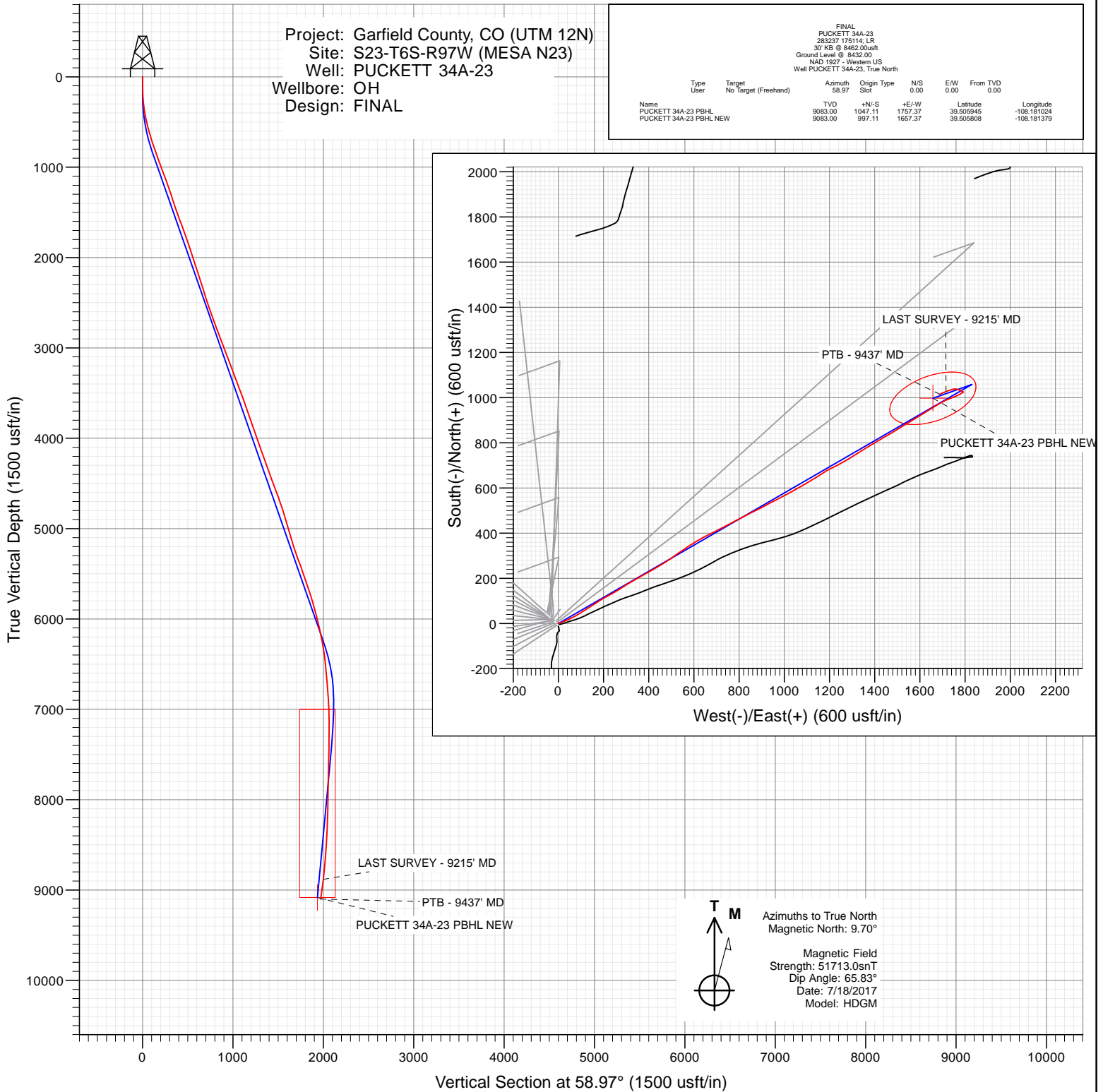


SECTION DETAILS

No plan data is available

Project: Garfield County, CO (UTM 12N)
Site: S23-T6S-R97W (MESA N23)
Well: PUCKETT 34A-23
Wellbore: OH
Design: FINAL

FINAL PUCKETT 34A-23 283237 175114; LR 30' KB @ 8462.00usft Ground Level @ 8432.00 NAD 1927 - Western US Well PUCKETT 34A-23, True North									
Type	Target	No. Target	(Freehand)	Azimuth	Origin	Type	N/S	E/W	From
User				58.97	Slot		0.00	0.00	TVD
Name									
PUCKETT 34A-23 PBHL				9083.00	1047.11	+N/-S	1757.37	Latitude	39.505945
PUCKETT 34A-23 PBHL NEW				9083.00	997.11	+E/-W	1657.37	Longitude	-108.181024
									-108.181379



WELL DETAILS: PUCKETT 34A-23

+N/-S	+E/-W	Northing	Ground Level:	8432.00	Latitude	Longitude
0.00	0.00	14357498.50	Easting	2433892.20	39.503071	-108.187250



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 34A-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 34A-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 34A-23					
Well Position	+N/-S	0.00 usft	Northing:	14,357,498.50 usft	Latitude:	39.503071
	+E/-W	0.00 usft	Easting:	2,433,892.20 usft	Longitude:	-108.187250
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	7/18/2017	9.70	65.83	51,713.00000000

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	58.97	

Survey Program	Date	7/26/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
178.00	9,437.00	SURVEYS (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		
178.00	2.24	73.25	177.95	1.00	3.33	3.37	1.26	1.26		
209.00	2.99	68.94	208.92	1.47	4.67	4.75	2.50	2.42		
240.00	3.91	63.75	239.87	2.23	6.37	6.60	3.13	2.97		
300.00	5.71	71.75	299.65	4.07	11.04	11.55	3.19	3.00		
391.00	9.05	68.59	389.89	8.10	22.00	23.03	3.70	3.67		
483.00	12.04	66.74	480.32	14.53	37.56	39.67	3.27	3.25		
575.00	14.72	63.31	569.82	23.57	56.82	60.84	3.04	2.91		
670.00	16.92	60.85	661.22	35.73	79.68	86.70	2.42	2.32		
764.00	19.29	56.72	750.56	50.91	104.61	115.89	2.87	2.52		
859.00	20.52	57.78	839.88	68.40	131.82	148.21	1.35	1.29		
953.00	20.39	56.81	927.96	86.15	159.46	181.05	0.39	-0.14		
1,048.00	19.03	57.07	1,017.39	103.63	186.31	213.07	1.43	-1.43		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 34A-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 34A-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
1,142.00	19.20	62.17	1,106.21	119.18	212.84	243.82	1.79	0.18	
1,237.00	19.51	61.12	1,195.84	134.13	240.55	275.27	0.49	0.33	
1,331.00	19.56	58.04	1,284.43	150.04	267.64	306.69	1.10	0.05	
1,426.00	18.72	56.99	1,374.18	166.77	293.92	337.83	0.96	-0.88	
1,520.00	18.63	59.71	1,463.23	182.56	319.54	367.91	0.93	-0.10	
1,615.00	19.82	60.59	1,552.93	198.12	346.67	399.19	1.29	1.25	
1,709.00	20.83	60.15	1,641.08	214.26	375.05	431.83	1.09	1.07	
1,804.00	19.95	59.45	1,730.13	230.91	403.66	464.92	0.96	-0.93	
1,898.00	19.60	60.85	1,818.58	246.74	431.24	496.72	0.63	-0.37	
1,993.00	18.77	60.76	1,908.31	261.97	458.49	527.92	0.87	-0.87	
2,087.00	17.62	55.58	1,997.61	277.40	483.42	557.24	2.11	-1.22	
2,181.00	16.70	53.03	2,087.43	293.56	505.95	584.88	1.26	-0.98	
2,276.00	18.50	55.67	2,177.98	310.27	529.31	613.50	2.07	1.89	
2,370.00	18.28	56.72	2,267.18	326.77	553.95	643.12	0.42	-0.23	
2,431.00	17.75	57.16	2,325.19	337.07	569.76	661.97	0.90	-0.87	
2,505.00	16.57	56.37	2,395.89	349.03	588.02	683.79	1.63	-1.59	
2,600.00	17.89	58.30	2,486.63	364.20	611.71	711.92	1.51	1.39	
2,695.00	19.34	62.61	2,576.66	379.10	638.10	742.21	2.10	1.53	
2,789.00	20.96	63.31	2,664.90	393.82	666.94	774.51	1.74	1.72	
2,884.00	21.01	62.96	2,753.60	409.19	697.29	808.44	0.14	0.05	
2,978.00	20.35	63.23	2,841.55	424.21	726.89	841.55	0.71	-0.70	
3,073.00	19.78	61.73	2,930.78	439.27	755.80	874.08	0.81	-0.60	
3,167.00	20.83	62.08	3,018.94	454.63	784.58	906.66	1.12	1.12	
3,261.00	20.79	62.00	3,106.81	470.28	814.07	940.00	0.05	-0.04	
3,356.00	21.09	63.49	3,195.53	485.83	844.26	973.88	0.64	0.32	
3,450.00	20.87	62.79	3,283.30	501.03	874.28	1,007.44	0.35	-0.23	
3,545.00	20.61	63.05	3,372.14	516.35	904.23	1,041.01	0.29	-0.27	
3,639.00	20.52	62.17	3,460.15	531.54	933.55	1,073.96	0.34	-0.10	
3,733.00	19.95	62.61	3,548.35	546.61	962.36	1,106.41	0.63	-0.61	
3,828.00	19.20	62.43	3,637.86	561.29	990.60	1,138.18	0.79	-0.79	
3,922.00	19.95	61.56	3,726.43	576.08	1,018.40	1,169.63	0.86	0.80	
4,017.00	19.29	61.64	3,815.91	591.26	1,046.46	1,201.49	0.70	-0.69	
4,111.00	19.51	59.36	3,904.58	606.63	1,073.63	1,232.70	0.84	0.23	
4,206.00	19.42	58.92	3,994.15	622.87	1,100.80	1,264.36	0.18	-0.09	
4,300.00	18.81	59.27	4,082.96	638.68	1,127.21	1,295.14	0.66	-0.65	
4,394.00	19.38	57.34	4,171.79	654.84	1,153.37	1,325.88	0.90	0.61	
4,489.00	18.68	57.43	4,261.60	671.54	1,179.46	1,356.85	0.74	-0.74	
4,583.00	20.92	63.40	4,350.04	687.16	1,207.16	1,388.63	3.21	2.38	
4,678.00	21.23	61.56	4,438.69	702.94	1,237.45	1,422.73	0.77	0.33	
4,772.00	19.86	62.17	4,526.71	718.50	1,266.54	1,455.67	1.48	-1.46	
4,867.00	20.04	58.39	4,616.01	734.57	1,294.67	1,488.06	1.37	0.19	
4,962.00	18.85	57.69	4,705.59	751.31	1,321.51	1,519.68	1.28	-1.25	
5,056.00	19.07	57.60	4,794.49	767.65	1,347.30	1,550.22	0.24	0.23	
5,151.00	16.52	56.90	4,884.94	783.34	1,371.73	1,579.23	2.69	-2.68	
5,245.00	15.29	59.97	4,975.34	796.85	1,393.65	1,604.98	1.58	-1.31	
5,340.00	16.08	60.85	5,066.80	809.52	1,415.99	1,630.66	0.87	0.83	
5,434.00	17.53	59.71	5,156.79	823.01	1,439.58	1,657.82	1.58	1.54	
5,529.00	19.69	58.74	5,246.81	838.53	1,465.62	1,688.14	2.30	2.27	
5,623.00	19.64	58.92	5,335.33	854.90	1,492.69	1,719.77	0.08	-0.05	
5,718.00	19.03	58.74	5,424.97	871.18	1,519.60	1,751.22	0.65	-0.64	
5,812.00	19.07	58.66	5,513.83	887.12	1,545.82	1,781.90	0.05	0.04	
5,907.00	18.81	58.04	5,603.68	903.30	1,572.07	1,812.74	0.35	-0.27	
6,001.00	18.77	58.13	5,692.67	919.30	1,597.77	1,843.01	0.05	-0.04	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 34A-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 34A-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
6,096.00	17.18	58.48	5,783.03	934.71	1,622.71	1,872.33	1.68	-1.67	
6,190.00	15.47	59.89	5,873.24	948.26	1,645.39	1,898.74	1.87	-1.82	
6,285.00	14.41	57.51	5,965.03	960.96	1,666.32	1,923.23	1.29	-1.12	
6,379.00	13.14	60.06	6,056.32	972.58	1,685.45	1,945.61	1.50	-1.35	
6,474.00	12.00	61.73	6,149.05	982.65	1,703.50	1,966.27	1.26	-1.20	
6,568.00	11.21	66.30	6,241.13	990.95	1,720.48	1,985.09	1.29	-0.84	
6,663.00	8.79	70.08	6,334.68	997.13	1,735.76	2,001.38	2.64	-2.55	
6,757.00	6.99	69.20	6,427.78	1,001.61	1,747.86	2,014.05	1.92	-1.91	
6,852.00	5.85	68.32	6,522.19	1,005.45	1,757.76	2,024.52	1.20	-1.20	
6,947.00	5.19	65.25	6,616.74	1,009.04	1,766.16	2,033.57	0.76	-0.69	
7,041.00	4.66	59.53	6,710.40	1,012.76	1,773.31	2,041.61	0.77	-0.56	
7,135.00	4.31	59.18	6,804.11	1,016.50	1,779.64	2,048.96	0.37	-0.37	
7,230.00	3.65	58.04	6,898.88	1,019.93	1,785.27	2,055.56	0.70	-0.69	
7,325.00	1.76	52.85	6,993.77	1,022.42	1,789.00	2,060.03	2.00	-1.99	
7,419.00	1.23	49.60	7,087.74	1,023.94	1,790.92	2,062.46	0.57	-0.56	
7,514.00	0.66	61.73	7,182.72	1,024.86	1,792.18	2,064.01	0.63	-0.60	
7,608.00	1.36	260.98	7,276.72	1,024.94	1,791.55	2,063.52	2.12	0.74	
7,797.00	1.54	316.61	7,465.67	1,026.44	1,787.59	2,060.90	0.72	0.10	
8,459.00	2.46	284.01	8,127.28	1,036.34	1,767.69	2,048.95	0.22	0.14	
8,648.00	2.86	277.85	8,316.07	1,037.97	1,759.09	2,042.42	0.26	0.21	
8,837.00	3.87	259.22	8,504.75	1,037.42	1,748.15	2,032.76	0.78	0.53	
9,026.00	5.10	250.61	8,693.17	1,033.44	1,733.96	2,018.55	0.74	0.65	
9,215.00	6.77	248.32	8,881.15	1,026.53	1,715.68	1,999.33	0.89	0.88	LAST SURVEY - 9215' MD
9,437.00	8.70	246.00	9,101.12	1,014.87	1,688.18	1,969.75	0.88	0.87	PTB - 9437' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
PUCKETT 34A-23 PBHL	0.00	0.00	9,083.00	1,047.11	1,757.37	14,358,600.00	2,435,616.00	39.505945	-108.181024
- actual wellpath misses target center by 72.78usft at 9408.78usft MD (9073.21 TVD, 1016.57 N, 1692.03 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 34A-23 PBHL	0.00	0.00	9,083.00	997.11	1,657.37	14,358,546.90	2,435,517.61	39.505808	-108.181379
- actual wellpath misses target center by 37.88usft at 9423.80usft MD (9088.06 TVD, 1015.67 N, 1690.00 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
9,215.00	8,881.15	1,026.53	1,715.68	LAST SURVEY - 9215' MD
9,437.00	9,101.12	1,014.87	1,688.18	PTB - 9437' MD

Checked By: _____ Approved By: _____ Date: _____