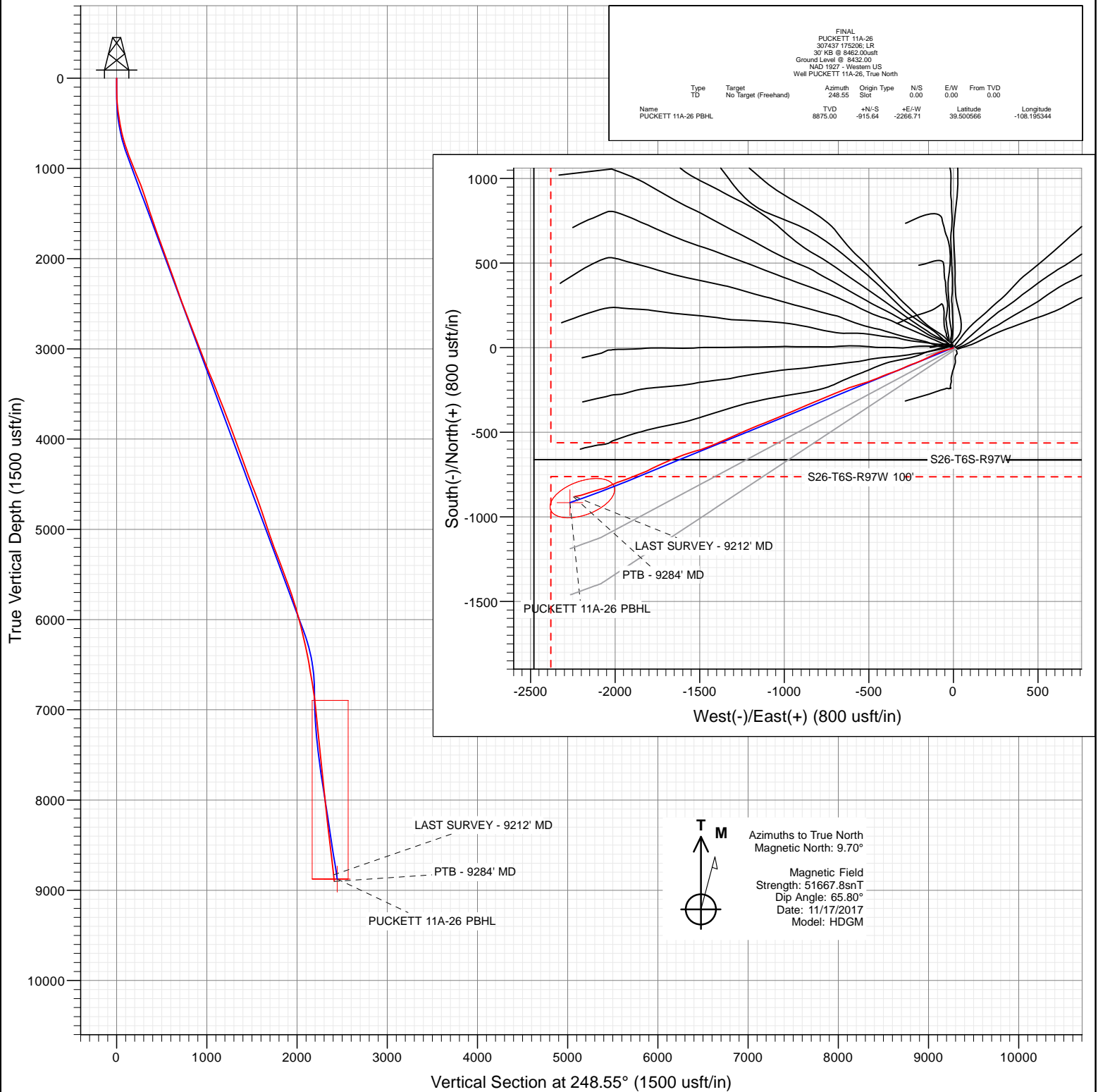




Project: Garfield County, CO (UTM 12N)
Site: S23-T6S-R97W (MESA N23)
Well: PUCKETT 11A-26
Wellbore: OH
Design: FINAL



FINAL PUCKETT 11A-26 307437 175206 LR 30' KB @ 8462.00usft Ground Level @ 8432.00 NAD 1927 - Western US Well PUCKETT 11A-26, True North							
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD	
TD	No Target (Freehand)	248.55	Slot	0.00	0.00	0.00	
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
PUCKETT 11A-26 PBHL		8875.00	-915.64	-2266.71	39.503086	-108.195344	



WELL DETAILS: PUCKETT 11A-26

+N/-S	+E/-W	Northing	Ground Level:	8432.00	Latitude	Longitude
0.00	0.00	14357501.00	Easting		39.503080	-108.187314
			2433874.00			



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11A-26
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 11A-26	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	Latitude:	39.503127
From:	Map	Easting:	2,433,869.00 usft	Longitude:	-108.187330
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.79 °

Well	PUCKETT 11A-26					
Well Position	+N/-S	0.00 usft	Northing:	14,357,501.00 usft	Latitude:	39.503080
	+E/-W	0.00 usft	Easting:	2,433,874.00 usft	Longitude:	-108.187314
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	11/17/2017	9.70	65.80	51,667.80000000

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	248.55	

Survey Program	Date	11/24/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
173.00	173.00	Survey #1 (OH)	INC-ONLY_A027Ua	OWSG Inclination Only Surveys	
204.00	853.00	Survey #2 (OH)	INC+TREND	Inclinometer + known azi trend	
947.00	9,284.00	Survey #3 (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	
	173.00	1.14	241.53	172.99	-0.82	-1.51	1.71	0.66	0.66	
	204.00	1.89	243.99	203.98	-1.19	-2.24	2.52	2.43	2.42	
	294.00	4.97	242.58	293.81	-3.64	-7.04	7.88	3.42	3.42	
	386.00	7.52	257.35	385.26	-6.79	-16.45	17.80	3.25	2.77	
	478.00	9.67	255.94	476.22	-9.99	-29.82	31.41	2.35	2.34	
	570.00	12.35	254.53	566.52	-14.49	-46.80	48.86	2.93	2.91	
	664.00	14.63	249.70	657.92	-21.29	-67.63	70.73	2.70	2.43	
	758.00	17.45	248.65	748.25	-30.54	-91.89	96.70	3.02	3.00	
	853.00	20.57	243.99	838.07	-43.05	-120.17	127.59	3.65	3.28	
	947.00	22.02	242.49	925.65	-58.43	-150.64	161.58	1.65	1.54	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11A-26
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 11A-26	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
1,042.00	22.24	246.27	1,013.65	-73.90	-182.90	197.25	1.52	0.23	
1,136.00	22.46	250.67	1,100.60	-87.00	-216.13	232.97	1.79	0.23	
1,230.00	20.74	247.94	1,187.99	-99.19	-248.50	267.56	2.12	-1.83	
1,324.00	19.07	244.95	1,276.38	-111.95	-277.84	299.53	2.08	-1.78	
1,419.00	17.97	246.36	1,366.46	-124.40	-305.32	329.67	1.25	-1.16	
1,513.00	17.40	248.91	1,456.02	-135.27	-331.72	358.21	1.02	-0.61	
1,607.00	18.46	251.46	1,545.45	-145.06	-358.95	387.13	1.40	1.13	
1,702.00	20.22	249.88	1,635.09	-155.49	-388.62	418.57	1.93	1.85	
1,796.00	19.95	246.45	1,723.37	-167.48	-418.58	450.84	1.29	-0.29	
1,891.00	19.60	246.62	1,812.77	-180.28	-448.06	482.96	0.37	-0.37	
1,985.00	19.86	250.23	1,901.26	-191.94	-477.56	514.68	1.33	0.28	
2,080.00	20.00	251.98	1,990.57	-202.43	-508.20	547.02	0.64	0.15	
2,174.00	20.35	252.07	2,078.80	-212.43	-539.03	579.38	0.37	0.37	
2,269.00	19.29	252.95	2,168.17	-222.12	-569.75	611.52	1.16	-1.12	
2,363.00	19.78	252.25	2,256.76	-231.52	-599.75	642.87	0.58	0.52	
2,458.00	19.82	249.26	2,346.15	-242.12	-630.12	675.01	1.07	0.04	
2,598.00	19.25	246.98	2,478.09	-259.55	-673.56	721.82	0.68	-0.41	
2,692.00	21.27	248.65	2,566.27	-271.82	-703.70	754.36	2.24	2.15	
2,786.00	21.23	247.33	2,653.88	-284.59	-735.28	788.43	0.51	-0.04	
2,881.00	21.23	247.68	2,742.43	-297.75	-767.07	822.82	0.13	0.00	
2,975.00	20.39	247.15	2,830.30	-310.57	-797.90	856.21	0.92	-0.89	
3,070.00	20.79	247.33	2,919.23	-323.50	-828.71	889.61	0.43	0.42	
3,164.00	22.50	247.06	3,006.60	-336.94	-860.67	924.27	1.82	1.82	
3,258.00	20.13	246.62	3,094.16	-350.37	-892.09	958.42	2.53	-2.52	
3,353.00	21.53	246.45	3,182.95	-363.82	-923.07	992.18	1.48	1.47	
3,447.00	22.68	247.59	3,270.04	-377.62	-955.64	1,027.54	1.31	1.22	
3,542.00	22.54	246.98	3,357.74	-391.72	-989.33	1,064.05	0.29	-0.15	
3,636.00	21.62	246.71	3,444.84	-405.62	-1,021.82	1,099.37	0.98	-0.98	
3,731.00	21.27	246.27	3,533.27	-419.47	-1,053.67	1,134.08	0.41	-0.37	
3,825.00	21.40	248.91	3,620.83	-432.50	-1,085.28	1,168.27	1.03	0.14	
3,920.00	21.31	248.91	3,709.30	-444.95	-1,117.55	1,202.86	0.09	-0.09	
4,014.00	21.53	248.38	3,796.81	-457.45	-1,149.52	1,237.19	0.31	0.23	
4,109.00	20.30	246.54	3,885.55	-470.44	-1,180.85	1,271.09	1.47	-1.29	
4,203.00	20.30	247.77	3,973.71	-483.10	-1,210.90	1,303.69	0.45	0.00	
4,298.00	19.86	245.57	4,062.94	-496.01	-1,240.85	1,336.29	0.92	-0.46	
4,392.00	19.07	245.22	4,151.57	-509.05	-1,269.33	1,367.56	0.85	-0.84	
4,487.00	20.96	247.24	4,240.83	-522.13	-1,299.09	1,400.05	2.12	1.99	
4,581.00	20.44	246.45	4,328.76	-535.19	-1,329.64	1,433.26	0.63	-0.55	
4,676.00	19.64	246.45	4,418.01	-548.20	-1,359.48	1,465.79	0.84	-0.84	
4,770.00	21.05	247.33	4,506.14	-561.01	-1,389.54	1,498.46	1.53	1.50	
4,865.00	20.52	246.98	4,594.96	-574.10	-1,420.61	1,532.16	0.57	-0.56	
4,959.00	20.65	248.73	4,682.96	-586.56	-1,451.22	1,565.20	0.67	0.14	
5,054.00	20.13	250.23	4,772.00	-598.16	-1,482.22	1,598.29	0.78	-0.55	
5,148.00	18.28	255.06	4,860.77	-607.44	-1,511.68	1,629.11	2.59	-1.97	
5,243.00	17.93	253.65	4,951.07	-615.39	-1,540.11	1,658.48	0.59	-0.37	
5,337.00	18.72	251.63	5,040.30	-624.22	-1,568.31	1,687.96	1.08	0.84	
5,431.00	21.01	249.08	5,128.71	-634.99	-1,598.37	1,719.88	2.60	2.44	
5,526.00	20.39	249.26	5,217.57	-646.94	-1,629.76	1,753.45	0.66	-0.65	
5,620.00	20.35	246.62	5,305.70	-659.22	-1,660.07	1,786.16	0.98	-0.04	
5,715.00	20.48	247.94	5,394.73	-672.02	-1,690.64	1,819.29	0.50	0.14	
5,809.00	21.01	245.48	5,482.64	-685.19	-1,721.21	1,852.56	1.08	0.56	
5,903.00	19.95	245.39	5,570.69	-698.86	-1,751.12	1,885.40	1.13	-1.13	
5,998.00	19.20	243.20	5,660.20	-712.65	-1,779.80	1,917.14	1.10	-0.79	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11A-26
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 11A-26	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
6,093.00	19.03	243.55	5,749.97	-726.59	-1,807.61	1,948.12	0.22	-0.18	
6,187.00	16.08	247.24	5,839.58	-738.46	-1,833.34	1,976.41	3.35	-3.14	
6,281.00	15.78	250.40	5,929.97	-747.78	-1,857.39	2,002.20	0.98	-0.32	
6,376.00	15.47	248.91	6,021.46	-756.68	-1,881.38	2,027.78	0.53	-0.33	
6,470.00	13.58	246.54	6,112.45	-765.58	-1,903.20	2,051.35	2.11	-2.01	
6,565.00	12.70	248.73	6,204.97	-773.81	-1,923.17	2,072.94	1.06	-0.93	
6,659.00	12.13	250.67	6,296.77	-780.83	-1,942.11	2,093.14	0.75	-0.61	
6,754.00	11.73	252.78	6,389.72	-786.99	-1,960.76	2,112.74	0.62	-0.42	
6,848.00	10.24	249.96	6,481.99	-792.68	-1,977.73	2,130.63	1.68	-1.59	
6,943.00	9.45	246.27	6,575.59	-798.71	-1,992.81	2,146.86	1.06	-0.83	
7,038.00	10.02	247.94	6,669.23	-804.96	-2,007.61	2,162.92	0.67	0.60	
7,132.00	8.97	244.95	6,761.94	-811.13	-2,021.82	2,178.41	1.23	-1.12	
7,227.00	7.12	243.64	6,856.00	-816.88	-2,033.81	2,191.67	1.96	-1.95	
7,321.00	5.67	244.51	6,949.41	-821.47	-2,043.22	2,202.10	1.55	-1.54	
7,416.00	5.80	248.21	7,043.94	-825.27	-2,051.92	2,211.59	0.41	0.14	
7,588.00	5.49	253.22	7,215.10	-830.87	-2,067.86	2,228.48	0.34	-0.18	
7,889.00	6.46	255.59	7,514.46	-839.24	-2,098.05	2,259.63	0.33	0.32	
8,172.00	5.80	250.32	7,795.85	-848.02	-2,126.93	2,289.73	0.31	-0.23	
8,455.00	5.85	253.65	8,077.39	-856.89	-2,154.24	2,318.39	0.12	0.02	
8,739.00	7.03	250.05	8,359.59	-866.90	-2,184.46	2,350.18	0.44	0.42	
9,023.00	6.72	260.86	8,641.56	-875.47	-2,217.21	2,383.78	0.47	-0.11	
9,212.00	5.80	253.92	8,829.43	-879.87	-2,237.30	2,404.10	0.63	-0.49	LAST SURVEY - 9212' MD
9,284.00	5.80	253.92	8,901.07	-881.89	-2,244.29	2,411.34	0.00	0.00	PTB - 9284' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PUCKETT 11A-26 PBHL	0.00	0.00	8,875.00	-915.64	-2,266.71	14,356,515.00	2,431,637.00	39.500566	-108.195344
- hit/miss target									
- Shape									
- actual wellpath misses target center by 42.44usft at 9261.19usft MD (8878.37 TVD, -881.25 N, -2242.08 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)	
	9,212.00	8,829.43	-879.87	-2,237.30	LAST SURVEY - 9212' MD
	9,284.00	8,901.07	-881.89	-2,244.29	PTB - 9284' MD

Checked By: _____ Approved By: _____ Date: _____