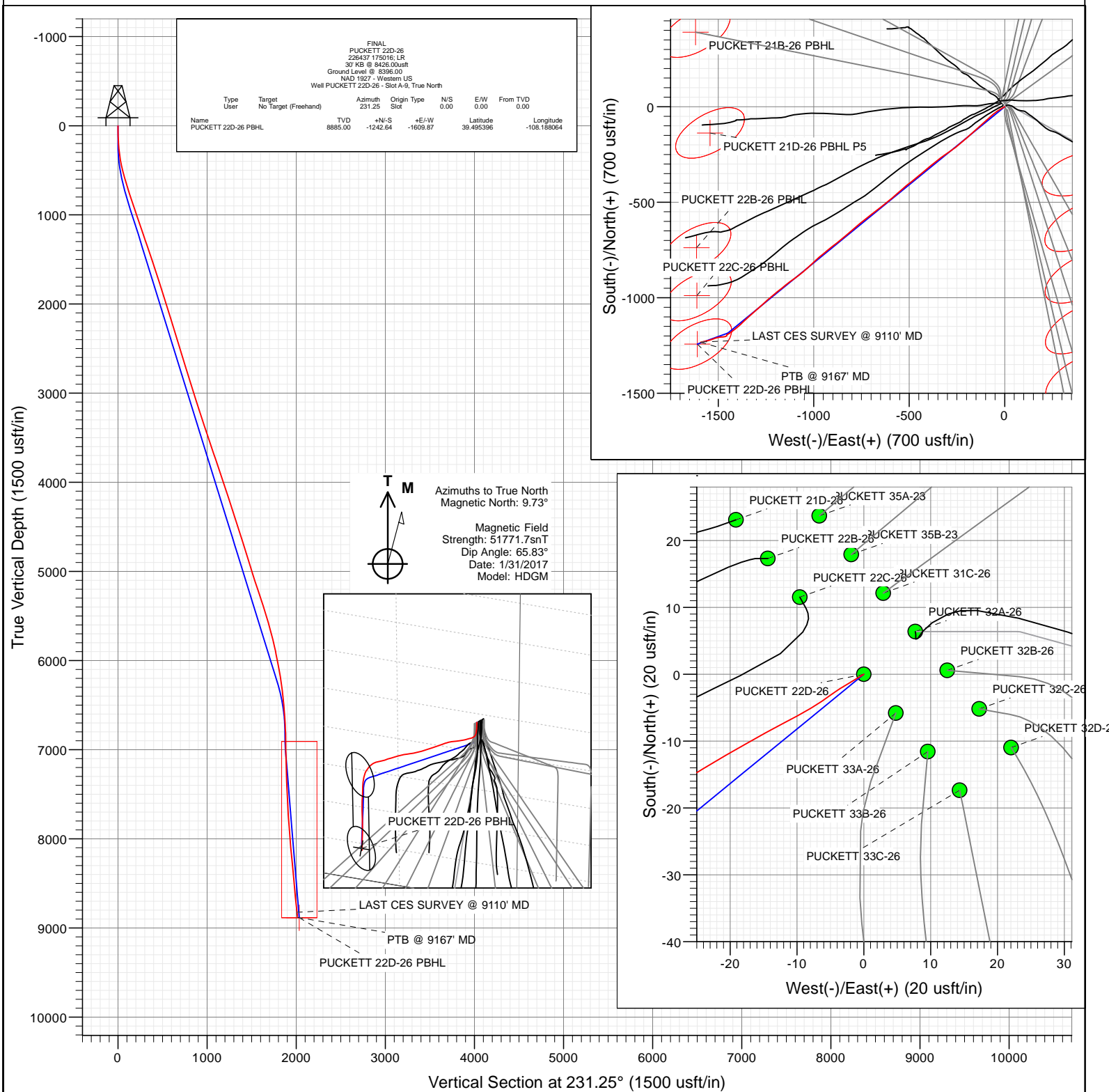




Project: Garfield County, CO (UTM 12N)
Site: S26-T6S-R97W (697 26A)
Well: PUCKETT 22D-26
Wellbore: OH
Design: FINAL



WELL DETAILS: PUCKETT 22D-26

+N/-S	+E/-W	Northing	Ground Level:	8396.00	Latitude	Longitude
0.00	0.00	14355988.41	Easting	2435320.20	39.498806	-108.182361

A-9



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 22D-26 - Slot A-9
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8426.00usft
Site:	S26-T6S-R97W (697 26A)	MD Reference:	30' KB @ 8426.00usft
Well:	PUCKETT 22D-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		S26-T6S-R97W (697 26A)			
Site Position:		Northing:	14,356,905.20 usft	Latitude:	39.501458
From:	Map	Easting:	2,433,730.50 usft	Longitude:	-108.187888
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.79 °

Well	PUCKETT 22D-26 - Slot A-9					
Well Position	+N/-S	0.00 usft	Northing:	14,355,988.41 usft	Latitude:	39.498806
	+E/-W	0.00 usft	Easting:	2,435,320.20 usft	Longitude:	-108.182361
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	8,396.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	1/31/2017	9.73	65.83	51,772

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	231.25	

Survey Program	Date	2/5/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
177.00	9,167.00	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		
177.00	2.68	238.97	176.94	-2.13	-3.55	4.10	1.51	1.51		
208.00	3.69	232.90	207.89	-3.11	-4.96	5.82	3.43	3.26		
299.00	6.90	242.57	298.49	-7.39	-12.15	14.11	3.65	3.53		
390.00	10.24	239.15	388.46	-14.06	-23.95	27.48	3.71	3.67		
481.00	12.92	236.07	477.60	-23.89	-39.34	45.63	3.02	2.95		
573.00	15.69	230.62	566.74	-37.53	-57.49	68.33	3.34	3.01		
667.00	17.49	227.54	656.83	-55.13	-77.74	95.14	2.13	1.91		
762.00	17.97	227.19	747.32	-74.73	-99.02	124.00	0.52	0.51		
856.00	18.50	229.83	836.60	-94.20	-121.06	153.37	1.04	0.56		
951.00	18.02	227.54	926.81	-113.84	-143.42	183.10	0.91	-0.51		
1,045.00	18.90	227.19	1,015.98	-134.00	-165.31	212.80	0.94	0.94		
1,140.00	19.07	230.62	1,105.81	-154.31	-188.60	243.67	1.19	0.18		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 22D-26 - Slot A-9
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8426.00usft
Site:	S26-T6S-R97W (697 26A)	MD Reference:	30' KB @ 8426.00usft
Well:	PUCKETT 22D-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
1,234.00	18.77	228.86	1,194.73	-174.00	-211.85	274.13	0.69	-0.32	
1,329.00	19.16	228.95	1,284.58	-194.29	-235.12	304.98	0.41	0.41	
1,423.00	18.15	231.94	1,373.64	-213.45	-258.28	335.03	1.48	-1.07	
1,518.00	19.16	235.54	1,463.65	-231.39	-282.79	365.38	1.61	1.06	
1,613.00	19.38	235.81	1,553.33	-249.07	-308.68	396.64	0.25	0.23	
1,707.00	18.37	234.66	1,642.27	-266.40	-333.67	426.97	1.14	-1.07	
1,802.00	17.36	231.23	1,732.69	-283.94	-356.93	456.09	1.53	-1.06	
1,896.00	17.58	228.86	1,822.36	-302.06	-378.55	484.29	0.79	0.23	
1,991.00	17.31	230.36	1,912.99	-320.52	-400.24	512.76	0.55	-0.28	
2,086.00	16.83	230.18	2,003.80	-338.34	-421.69	540.64	0.51	-0.51	
2,180.00	17.10	231.59	2,093.71	-355.64	-442.97	568.07	0.52	0.29	
2,275.00	17.27	231.06	2,184.47	-373.18	-464.88	596.14	0.24	0.18	
2,370.00	17.67	231.94	2,275.09	-390.93	-487.20	624.66	0.50	0.42	
2,464.00	17.05	230.53	2,364.81	-408.49	-509.07	652.70	0.80	-0.66	
2,483.00	17.27	230.36	2,382.96	-412.06	-513.40	658.31	1.19	1.16	
2,606.00	16.79	227.90	2,500.57	-435.62	-540.64	694.30	0.70	-0.39	
2,701.00	17.23	229.21	2,591.41	-454.01	-561.47	722.06	0.61	0.46	
2,795.00	17.71	229.92	2,681.08	-472.31	-582.95	750.26	0.56	0.51	
2,890.00	17.40	230.44	2,771.65	-490.66	-604.96	778.91	0.37	-0.33	
2,984.00	17.14	231.32	2,861.42	-508.26	-626.61	806.82	0.39	-0.28	
3,079.00	17.89	231.76	2,952.01	-526.05	-649.00	835.41	0.80	0.79	
3,173.00	17.14	232.73	3,041.65	-543.37	-671.36	863.69	0.86	-0.80	
3,267.00	16.92	231.41	3,131.53	-560.29	-693.07	891.22	0.47	-0.23	
3,362.00	17.89	232.20	3,222.18	-577.86	-715.41	919.63	1.05	1.02	
3,456.00	18.68	232.29	3,311.43	-595.91	-738.73	949.12	0.84	0.84	
3,551.00	19.03	229.30	3,401.34	-615.32	-762.50	979.81	1.08	0.37	
3,645.00	18.06	230.44	3,490.46	-634.59	-785.36	1,009.69	1.10	-1.03	
3,739.00	18.41	227.81	3,579.74	-653.84	-807.59	1,039.08	0.95	0.37	
3,834.00	18.77	230.09	3,669.78	-673.72	-830.43	1,069.34	0.85	0.38	
3,928.00	19.42	230.62	3,758.61	-693.34	-854.11	1,100.08	0.72	0.69	
4,023.00	18.59	231.94	3,848.43	-712.70	-878.24	1,131.02	0.98	-0.87	
4,117.00	18.59	231.85	3,937.53	-731.19	-901.82	1,160.98	0.03	0.00	
4,212.00	18.46	231.23	4,027.60	-749.96	-925.45	1,191.16	0.25	-0.14	
4,306.00	18.46	230.18	4,116.77	-768.81	-948.49	1,220.93	0.35	0.00	
4,400.00	18.11	229.39	4,206.02	-787.85	-971.01	1,250.41	0.46	-0.37	
4,495.00	17.93	226.93	4,296.36	-807.45	-992.90	1,279.75	0.82	-0.19	
4,589.00	17.49	226.66	4,385.91	-827.02	-1,013.74	1,308.26	0.48	-0.47	
4,684.00	17.97	228.86	4,476.39	-846.46	-1,035.16	1,337.13	0.87	0.51	
4,778.00	17.93	229.74	4,565.82	-865.35	-1,057.12	1,366.08	0.29	-0.04	
4,873.00	17.58	232.20	4,656.30	-883.60	-1,079.62	1,395.04	0.87	-0.37	
4,967.00	17.75	235.19	4,745.87	-900.48	-1,102.60	1,423.53	0.98	0.18	
5,062.00	17.36	232.99	4,836.44	-917.28	-1,125.81	1,452.15	0.81	-0.41	
5,157.00	16.61	231.06	4,927.30	-934.34	-1,147.69	1,479.89	0.99	-0.79	
5,251.00	17.01	231.76	5,017.28	-951.30	-1,168.94	1,507.07	0.48	0.43	
5,346.00	17.84	230.62	5,107.92	-969.13	-1,191.10	1,535.52	0.94	0.87	
5,440.00	18.77	230.71	5,197.16	-987.84	-1,213.93	1,565.04	0.99	0.99	
5,535.00	18.81	228.86	5,287.10	-1,007.60	-1,237.30	1,595.63	0.63	0.04	
5,629.00	17.84	228.42	5,376.33	-1,027.12	-1,259.48	1,625.15	1.04	-1.03	
5,724.00	17.53	226.84	5,466.84	-1,046.57	-1,280.80	1,653.95	0.60	-0.33	
5,818.00	16.39	229.48	5,556.76	-1,064.87	-1,301.21	1,681.32	1.46	-1.21	
5,913.00	15.03	227.90	5,648.21	-1,081.84	-1,320.54	1,707.02	1.50	-1.43	
6,008.00	13.58	229.13	5,740.26	-1,097.39	-1,338.12	1,730.46	1.56	-1.53	
6,102.00	13.54	226.58	5,831.64	-1,112.18	-1,354.45	1,752.46	0.64	-0.04	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 22D-26 - Slot A-9
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8426.00usft
Site:	S26-T6S-R97W (697 26A)	MD Reference:	30' KB @ 8426.00usft
Well:	PUCKETT 22D-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
6,197.00	11.51	227.63	5,924.37	-1,126.21	-1,369.54	1,773.00	2.15	-2.14	
6,291.00	11.16	226.31	6,016.54	-1,138.82	-1,383.04	1,791.43	0.46	-0.37	
6,385.00	10.50	228.25	6,108.86	-1,150.80	-1,396.01	1,809.04	0.80	-0.70	
6,480.00	8.79	231.15	6,202.52	-1,161.12	-1,408.12	1,824.95	1.87	-1.80	
6,575.00	7.30	232.29	6,296.58	-1,169.37	-1,418.55	1,838.24	1.58	-1.57	
6,669.00	6.33	232.82	6,389.92	-1,176.15	-1,427.40	1,849.39	1.03	-1.03	
6,764.00	5.27	234.66	6,484.43	-1,181.84	-1,435.14	1,858.98	1.13	-1.12	
6,858.00	4.66	236.42	6,578.08	-1,186.45	-1,441.84	1,867.09	0.67	-0.65	
6,953.00	3.52	242.48	6,672.83	-1,189.93	-1,447.64	1,873.80	1.28	-1.20	
7,047.00	2.42	250.92	6,766.71	-1,191.91	-1,452.08	1,878.50	1.26	-1.17	
7,142.00	1.01	226.93	6,861.66	-1,193.14	-1,454.58	1,881.22	1.63	-1.48	
7,236.00	1.32	168.48	6,955.64	-1,194.77	-1,454.97	1,882.54	1.24	0.33	
7,330.00	1.27	188.70	7,049.62	-1,196.86	-1,454.91	1,883.81	0.49	-0.05	
7,519.00	1.67	236.07	7,238.57	-1,200.47	-1,457.52	1,888.09	0.65	0.21	
7,708.00	3.03	252.68	7,427.40	-1,203.49	-1,464.57	1,895.49	0.80	0.72	
7,803.00	2.73	266.04	7,522.29	-1,204.39	-1,469.22	1,899.68	0.77	-0.32	
7,992.00	4.35	267.71	7,710.92	-1,204.99	-1,480.88	1,909.14	0.86	0.86	
8,181.00	5.19	259.71	7,899.26	-1,206.80	-1,496.45	1,922.43	0.57	0.44	
8,370.00	5.41	248.99	8,087.46	-1,211.53	-1,513.18	1,938.43	0.54	0.12	
8,559.00	6.02	251.80	8,275.52	-1,217.82	-1,530.91	1,956.19	0.35	0.32	
8,748.00	5.58	255.40	8,463.55	-1,223.23	-1,549.22	1,973.86	0.30	-0.23	
8,937.00	5.98	260.15	8,651.59	-1,227.23	-1,567.81	1,990.86	0.33	0.21	
9,110.00	6.77	256.02	8,823.52	-1,231.23	-1,586.58	2,008.01	0.53	0.46	LAST CES SURVEY @ 9110' MD
9,167.00	6.77	256.02	8,880.13	-1,232.86	-1,593.10	2,014.11	0.00	0.00	PTB @ 9167' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PUCKETT 22D-26 PBHI	0.00	0.00	8,885.00	-1,242.64	-1,609.87	14,354,696.00	2,433,750.00	39.495396	-108.188064
- hit/miss target									
- Shape									
- actual wellpath misses target center by 20.02usft at 9167.00usft MD (8880.13 TVD, -1232.86 N, -1593.10 E)									
- Ellipse (radii L200.00 W100.00 on 240.00 azi)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment	
9,110.00	8,823.52	-1,231.23	-1,586.58	LAST CES SURVEY @ 9110' MD	
9,167.00	8,880.13	-1,232.86	-1,593.10	PTB @ 9167' MD	

Checked By: _____	Approved By: _____	Date: _____
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