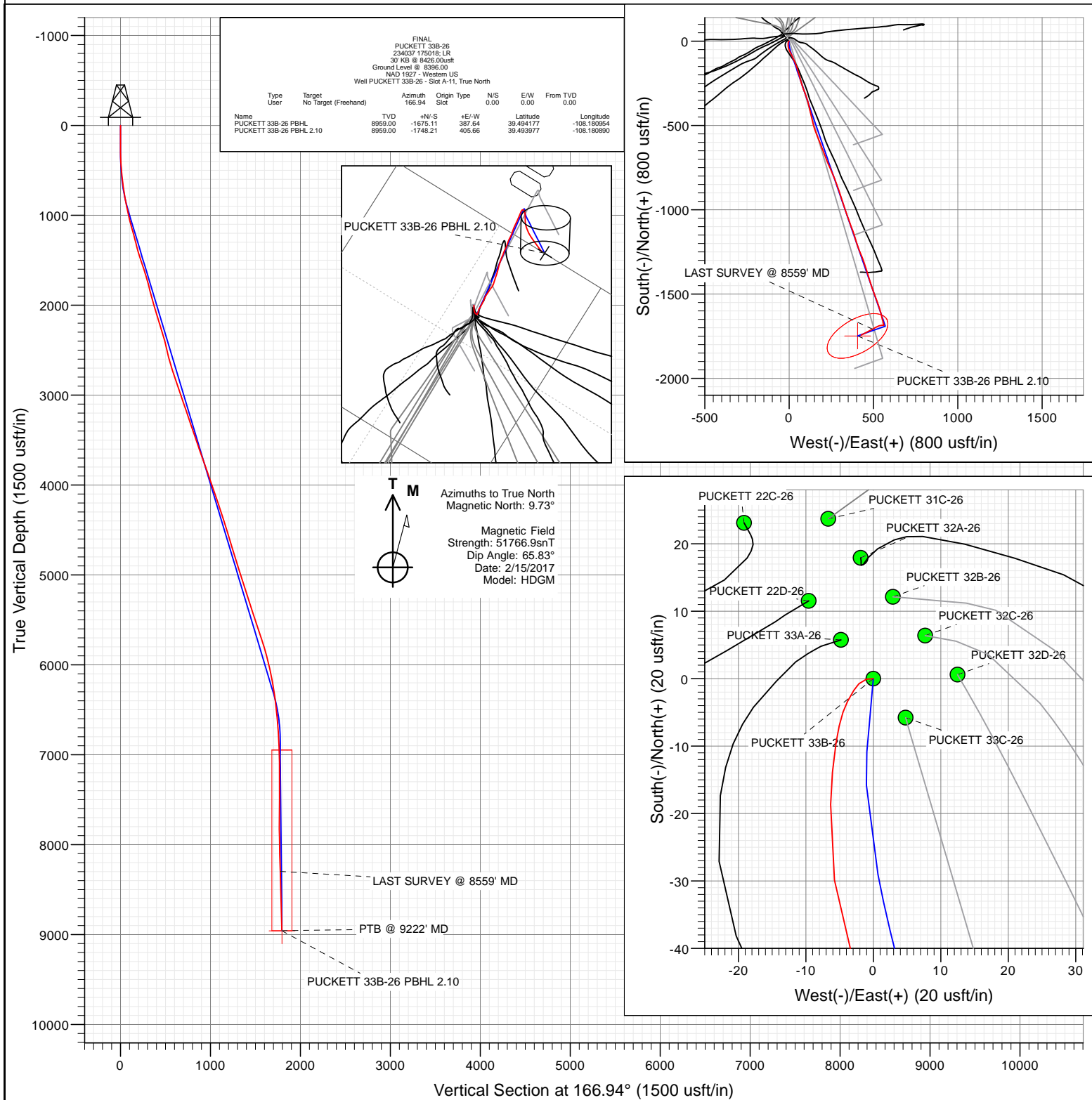




Project: Garfield County, CO (UTM 12N)
 Site: S26-T6S-R97W (697 26A)
 Well: PUCKETT 33B-26
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 33B-26

+N/-S	+E/-W	Northing	Ground Level:	8396.00	Latitude	Longitude
0.00	0.00	14355977.16	Easting	2435330.13	39.498775	-108.182327

A-11



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33B-26 - Slot A-11
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 33B-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
From:	Map	Easting:	2,433,730.50 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"
		Latitude:	39.501458
		Longitude:	-108.187888
		Grid Convergence:	1.79 °

Well	PUCKETT 33B-26 - Slot A-11					
Well Position	+N/-S	0.00 usft	Northing:	14,355,977.16 usft	Latitude:	39.498775
	+E/-W	0.00 usft	Easting:	2,435,330.13 usft	Longitude:	-108.182327
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	2/15/2017	9.73	65.83	51,767

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	166.94	

Survey Program	Date	2/17/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
208.00	9,222.00	CES MWD (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		
208.00	0.57	266.28	208.00	-0.07	-1.03	-0.17	0.27	0.27		
299.00	1.14	225.24	298.99	-0.73	-2.13	0.23	0.88	0.63		
390.00	2.86	207.84	389.93	-3.38	-3.83	2.43	1.98	1.89		
481.00	5.27	188.76	480.70	-9.52	-5.53	8.02	3.00	2.65		
573.00	6.20	181.82	572.24	-18.66	-6.33	16.75	1.26	1.01		
667.00	7.56	173.21	665.56	-29.87	-5.76	27.80	1.81	1.45		
762.00	9.27	162.04	759.54	-43.36	-2.66	41.64	2.48	1.80		
856.00	11.29	155.19	852.03	-58.92	3.54	58.19	2.51	2.15		
951.00	12.61	152.11	944.97	-76.52	12.29	77.32	1.54	1.39		
1,045.00	13.36	158.18	1,036.57	-95.68	21.13	97.98	1.65	0.80		
1,140.00	15.47	153.08	1,128.58	-117.17	30.94	121.13	2.59	2.22		
1,234.00	15.95	162.04	1,219.08	-140.63	40.60	146.17	2.63	0.51		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33B-26 - Slot A-11
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 33B-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
1,329.00	14.68	161.34	1,310.70	-164.46	48.48	171.16	1.35	-1.34	
1,423.00	15.38	163.28	1,401.49	-187.68	55.88	195.45	0.92	0.74	
1,518.00	18.19	164.59	1,492.43	-214.05	63.44	222.85	2.98	2.96	
1,613.00	19.03	164.33	1,582.46	-243.25	71.57	253.13	0.89	0.88	
1,707.00	17.10	160.99	1,671.83	-271.08	80.21	282.19	2.33	-2.05	
1,802.00	15.47	159.58	1,763.01	-296.16	89.18	308.65	1.77	-1.72	
1,896.00	14.41	158.62	1,853.84	-318.80	97.82	332.66	1.16	-1.13	
1,991.00	14.85	161.17	1,945.76	-341.33	106.06	356.47	0.82	0.46	
2,086.00	15.69	165.82	2,037.40	-365.31	113.13	381.42	1.56	0.88	
2,180.00	17.71	166.79	2,127.44	-391.55	119.51	408.43	2.17	2.15	
2,275.00	18.11	167.76	2,217.83	-420.05	125.95	437.64	0.53	0.42	
2,370.00	17.05	167.85	2,308.39	-448.09	132.01	466.33	1.12	-1.12	
2,464.00	14.28	165.82	2,398.89	-472.81	137.75	491.71	3.00	-2.95	
2,575.00	12.52	165.74	2,506.87	-497.75	144.07	517.43	1.59	-1.59	
2,606.00	12.31	165.30	2,537.14	-504.20	145.73	524.09	0.74	-0.68	
2,701.00	16.79	159.06	2,629.08	-526.82	153.21	547.82	4.99	4.72	
2,795.00	18.59	157.74	2,718.63	-553.37	163.74	576.06	1.96	1.91	
2,890.00	18.24	160.46	2,808.77	-581.40	174.45	605.78	0.98	-0.37	
2,984.00	18.15	157.56	2,898.07	-608.79	184.96	634.84	0.97	-0.10	
3,079.00	19.38	158.62	2,988.02	-637.15	196.35	665.04	1.34	1.29	
3,173.00	19.34	159.41	3,076.70	-666.24	207.51	695.90	0.28	-0.04	
3,267.00	19.47	159.58	3,165.36	-695.49	218.45	726.87	0.15	0.14	
3,362.00	18.98	155.72	3,255.07	-724.42	230.33	757.73	1.43	-0.52	
3,456.00	18.94	155.89	3,343.97	-752.27	242.85	787.69	0.07	-0.04	
3,551.00	19.20	157.56	3,433.76	-780.79	255.11	818.24	0.64	0.27	
3,645.00	19.20	158.44	3,522.53	-809.45	266.69	848.77	0.31	0.00	
3,739.00	19.16	158.18	3,611.31	-838.14	278.10	879.31	0.10	-0.04	
3,834.00	19.16	160.99	3,701.05	-867.36	288.97	910.22	0.97	0.00	
3,928.00	19.91	161.96	3,789.64	-897.16	298.96	941.51	0.87	0.80	
4,023.00	19.73	160.11	3,879.01	-927.62	309.42	973.55	0.69	-0.19	
4,117.00	19.20	162.48	3,967.64	-957.28	319.47	1,004.71	1.01	-0.56	
4,212.00	19.47	162.84	4,057.28	-987.30	328.85	1,036.08	0.31	0.28	
4,306.00	18.33	162.92	4,146.21	-1,016.40	337.81	1,066.45	1.21	-1.21	
4,400.00	18.19	159.14	4,235.48	-1,044.24	347.38	1,095.73	1.27	-0.15	
4,495.00	17.93	159.67	4,325.80	-1,071.81	357.74	1,124.93	0.32	-0.27	
4,589.00	18.19	159.14	4,415.17	-1,099.09	367.99	1,153.82	0.33	0.28	
4,684.00	16.96	160.20	4,505.73	-1,125.98	377.96	1,182.27	1.34	-1.29	
4,778.00	16.96	161.52	4,595.65	-1,151.89	386.95	1,209.53	0.41	0.00	
4,873.00	17.31	164.33	4,686.43	-1,178.64	395.16	1,237.44	0.95	0.37	
4,967.00	18.33	161.78	4,775.92	-1,206.14	403.56	1,266.14	1.37	1.09	
5,062.00	16.74	158.71	4,866.51	-1,233.08	413.20	1,294.56	1.94	-1.67	
5,157.00	16.92	157.91	4,957.44	-1,258.64	423.37	1,321.75	0.31	0.19	
5,251.00	17.14	157.74	5,047.32	-1,284.13	433.76	1,348.93	0.24	0.23	
5,346.00	17.80	160.38	5,137.93	-1,310.77	443.94	1,377.18	1.09	0.69	
5,441.00	18.55	162.22	5,228.19	-1,338.83	453.43	1,406.66	0.99	0.79	
5,535.00	18.41	164.51	5,317.35	-1,367.38	461.96	1,436.40	0.79	-0.15	
5,629.00	18.81	162.66	5,406.43	-1,396.15	470.44	1,466.34	0.76	0.43	
5,724.00	17.97	162.04	5,496.58	-1,424.71	479.52	1,496.21	0.91	-0.88	
5,818.00	18.68	161.08	5,585.81	-1,452.74	488.87	1,525.64	0.82	0.76	
5,913.00	18.55	160.29	5,675.84	-1,481.36	498.90	1,555.78	0.30	-0.14	
6,008.00	17.53	160.81	5,766.17	-1,509.10	508.70	1,585.01	1.09	-1.07	
6,102.00	15.29	159.23	5,856.34	-1,534.06	517.75	1,611.38	2.43	-2.38	
6,197.00	14.55	158.00	5,948.14	-1,556.84	526.66	1,635.58	0.85	-0.78	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 33B-26 - Slot A-11
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 33B-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
6,291.00	12.79	163.71	6,039.47	-1,577.77	534.01	1,657.63	2.36	-1.87	
6,386.00	11.47	162.66	6,132.35	-1,596.88	539.77	1,677.55	1.41	-1.39	
6,480.00	9.45	166.26	6,224.79	-1,613.30	544.39	1,694.59	2.26	-2.15	
6,575.00	7.78	168.29	6,318.71	-1,627.18	547.55	1,708.82	1.79	-1.76	
6,669.00	7.47	165.91	6,411.88	-1,639.33	550.33	1,721.29	0.47	-0.33	
6,764.00	6.42	165.74	6,506.18	-1,650.47	553.14	1,732.77	1.11	-1.11	
6,858.00	5.32	168.99	6,599.69	-1,659.84	555.27	1,742.38	1.22	-1.17	
6,953.00	4.04	167.85	6,694.37	-1,667.44	556.81	1,750.13	1.35	-1.35	
7,047.00	3.08	162.92	6,788.19	-1,673.09	558.25	1,755.96	1.07	-1.02	
7,142.00	2.11	161.34	6,883.09	-1,677.18	559.56	1,760.25	1.02	-1.02	
7,236.00	1.93	156.68	6,977.03	-1,680.28	560.74	1,763.53	0.26	-0.19	
7,425.00	0.44	138.31	7,165.98	-1,683.74	562.48	1,767.29	0.80	-0.79	
7,614.00	1.27	258.02	7,354.97	-1,684.72	560.92	1,767.89	0.81	0.44	
7,803.00	2.64	267.07	7,543.85	-1,685.38	554.52	1,767.09	0.74	0.72	
7,992.00	3.96	263.29	7,732.54	-1,686.36	543.69	1,765.60	0.71	0.70	
8,181.00	5.05	247.56	7,920.96	-1,690.30	529.52	1,766.23	0.87	0.58	
8,370.00	6.02	242.03	8,109.08	-1,698.12	513.08	1,770.14	0.59	0.51	
8,559.00	6.24	242.73	8,296.99	-1,707.48	495.19	1,775.21	0.12	0.12	LAST SURVEY @ 8559' MD
9,222.00	6.97	242.73	8,955.59	-1,742.42	427.41	1,793.93	0.11	0.11	PTB @ 9222' 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 33B-26 PBHL	0.00	0.00	8,959.00	-1,675.11	387.64	14,354,315.00	2,435,770.00	39.494177	-108.180954
- actual wellpath misses target center by 78.25usft at 9222.00usft MD (8955.59 TVD, -1742.42 N, 427.41 E)									
- Ellipse (radii L200.00 W100.00 on 240.00 azi)									
PUCKETT 33B-26 PBHL	0.00	0.00	8,959.00	-1,748.21	405.66	14,354,242.50	2,435,790.30	39.493977	-108.180890
- actual wellpath misses target center by 22.76usft at 9222.00usft MD (8955.59 TVD, -1742.42 N, 427.41 E)									
- Ellipse (radii L200.00 W100.00 on 240.00 azi)									

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
8,559.00	8,296.99	-1,707.48	495.19	LAST SURVEY @ 8559' MD
9,222.00	8,955.59	-1,742.42	427.41	PTB @ 9222' MD

Checked By: _____ Approved By: _____ Date: _____