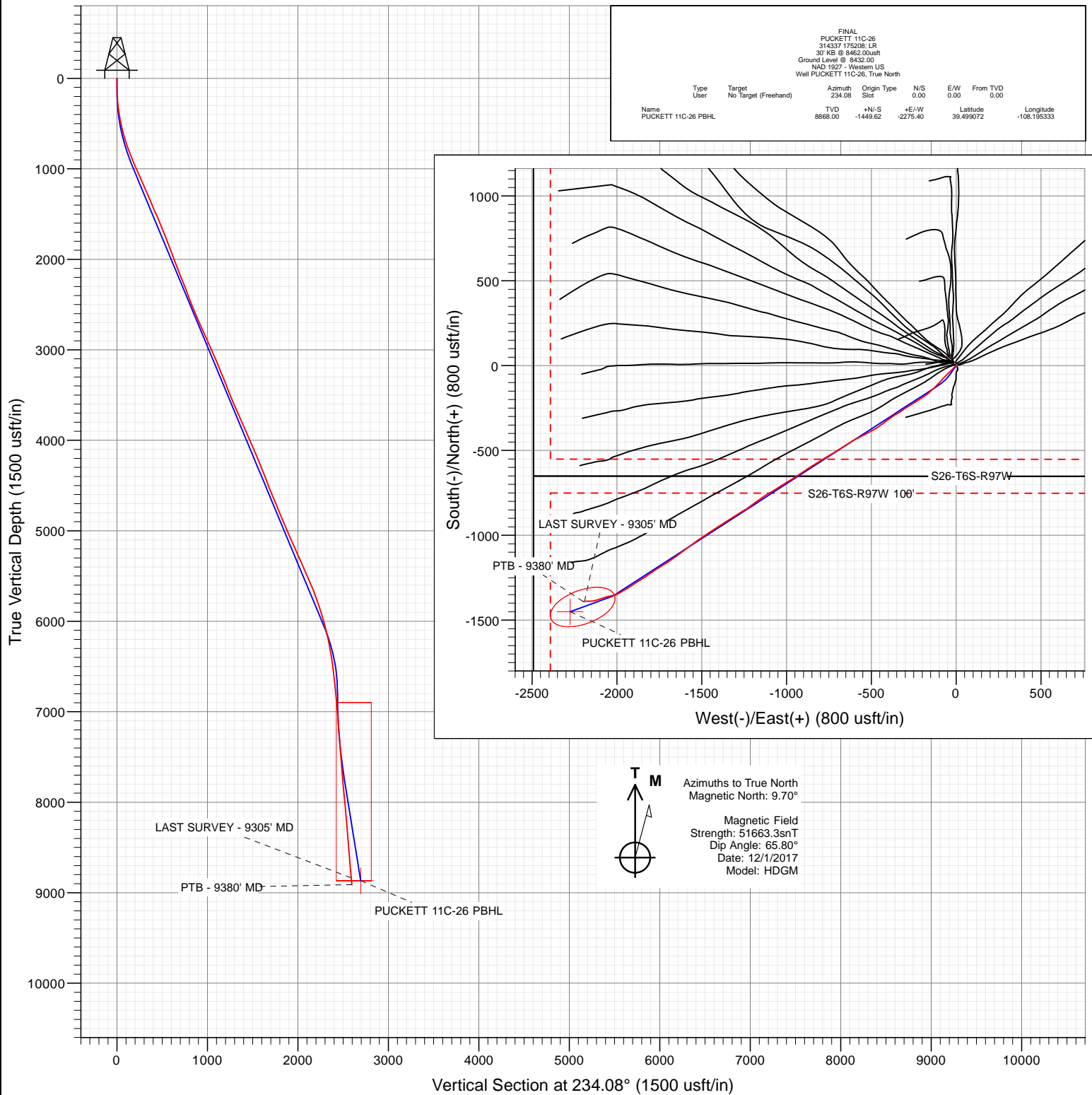




Project: Garfield County, CO (UTM 12N)
 Site: S23-T6S-R97W (MESA N23)
 Well: PUCKETT 11C-26
 Wellbore: OH
 Design: FINAL



FINAL							
PUCKETT 11C-26							
314337 175208 LR							
30' KB @ 8462.00usft							
Ground Level @ 8432.00							
NAD 1927 - Western US							
Well PUCKETT 11C-26, True North							
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD	
User	No Target (Freehand)	234.08	Slot	0.00	0.00	0.00	
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
PUCKETT 11C-26 PBHL		8868.00	-1449.62	-2275.40	39.499072	-108.195333	



Azimuths to True North
 Magnetic North: 9.70°

Magnetic Field
 Strength: 51663.3snT
 Dip Angle: 65.80°
 Date: 12/1/2017
 Model: HDGM



WELL DETAILS: PUCKETT 11C-26

+N/-S	+E/-W	Northing	Ground Level:	8432.00	Latitude	Longitude
0.00	0.00	14357491.00	Easting	2433886.00	39.503051	-108.187273



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11C-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 11C-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
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 11C-26					
Well Position	+N/-S	0.00 usft	Northing:	14,357,491.00 usft	Latitude:	39.503051
	+E/-W	0.00 usft	Easting:	2,433,886.00 usft	Longitude:	-108.187273
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	12/1/2017	9.70	65.80	51,663.30000000

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	234.08	

Survey Program	Date	12/8/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
142.00	386.00	Survey #1 (OH)	INC+TREND	Inclinometer + known azi trend	
477.00	9,380.00	Survey #2 (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	
142.00	1.27	242.31	141.99	-0.73	-1.39	1.56	0.89	0.89	
203.00	2.68	242.83	202.95	-1.70	-3.26	3.64	2.31	2.31	
294.00	6.46	220.42	293.65	-6.57	-8.48	10.72	4.52	4.15	
386.00	9.10	222.88	384.80	-15.84	-16.78	22.88	2.89	2.87	
477.00	11.34	224.11	474.35	-27.54	-27.91	38.76	2.47	2.46	
569.00	13.67	226.14	564.16	-41.57	-42.04	58.44	2.58	2.53	
664.00	16.52	224.90	655.87	-58.92	-59.68	82.89	3.02	3.00	
758.00	19.47	223.32	745.26	-79.79	-79.86	111.48	3.18	3.14	
852.00	21.67	223.76	833.27	-103.72	-102.62	143.95	2.35	2.34	
947.00	23.64	224.99	920.93	-129.86	-128.22	180.02	2.13	2.07	
1,041.00	23.95	229.04	1,006.95	-155.70	-155.95	217.64	1.77	0.33	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11C-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 11C-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
1,136.00	23.99	235.19	1,093.77	-179.37	-186.37	256.16	2.63	0.04	
1,230.00	23.60	237.03	1,179.78	-200.52	-217.85	294.06	0.89	-0.41	
1,324.00	23.51	238.88	1,265.95	-220.45	-249.69	331.53	0.79	-0.10	
1,418.00	22.54	238.97	1,352.46	-239.42	-281.18	368.17	1.03	-1.03	
1,513.00	23.42	234.31	1,439.92	-259.83	-312.12	405.19	2.13	0.93	
1,607.00	23.99	238.26	1,526.00	-280.78	-343.54	442.93	1.79	0.61	
1,701.00	23.12	237.56	1,612.17	-300.73	-375.37	480.41	0.97	-0.93	
1,796.00	21.45	233.43	1,700.07	-321.09	-405.06	516.40	2.41	-1.76	
1,890.00	21.14	232.46	1,787.65	-341.66	-432.31	550.53	0.50	-0.33	
1,985.00	20.52	236.15	1,876.45	-361.37	-459.72	584.30	1.53	-0.65	
2,079.00	20.52	240.29	1,964.49	-378.71	-487.71	617.14	1.54	0.00	
2,174.00	21.05	242.31	2,053.31	-394.90	-517.28	650.58	0.94	0.56	
2,268.00	22.46	243.36	2,140.61	-410.79	-548.28	685.01	1.56	1.50	
2,363.00	22.41	242.66	2,228.42	-427.25	-580.59	720.83	0.29	-0.05	
2,457.00	21.18	240.55	2,315.70	-443.82	-611.29	755.42	1.55	-1.31	
2,479.00	20.79	239.32	2,336.24	-447.77	-618.11	763.26	2.67	-1.77	
2,598.00	19.91	234.57	2,447.82	-470.29	-652.79	804.55	1.57	-0.74	
2,692.00	22.98	237.21	2,535.30	-489.52	-681.26	838.89	3.42	3.27	
2,787.00	23.34	239.58	2,622.65	-509.09	-713.08	876.14	1.05	0.38	
2,881.00	24.30	239.93	2,708.64	-528.21	-745.88	913.92	1.03	1.02	
2,975.00	24.70	238.70	2,794.18	-548.10	-779.40	952.73	0.69	0.43	
3,070.00	24.39	239.32	2,880.59	-568.42	-813.23	992.05	0.42	-0.33	
3,164.00	23.64	235.72	2,966.46	-588.94	-845.50	1,030.22	1.75	-0.80	
3,259.00	23.25	235.89	3,053.62	-610.18	-876.76	1,068.00	0.42	-0.41	
3,353.00	22.94	238.09	3,140.09	-630.27	-907.67	1,104.82	0.98	-0.33	
3,448.00	22.46	236.42	3,227.73	-650.10	-938.51	1,141.42	0.85	-0.51	
3,542.00	22.10	239.06	3,314.71	-669.12	-968.63	1,176.98	1.13	-0.38	
3,637.00	20.92	238.09	3,403.10	-687.27	-998.36	1,211.70	1.30	-1.24	
3,731.00	21.89	237.65	3,490.61	-705.52	-1,027.41	1,245.93	1.05	1.03	
3,826.00	23.82	237.56	3,578.15	-725.29	-1,058.56	1,282.76	2.03	2.03	
3,920.00	23.69	239.76	3,664.19	-744.98	-1,090.90	1,320.50	0.95	-0.14	
4,014.00	23.95	237.47	3,750.18	-764.75	-1,123.30	1,358.33	1.02	0.28	
4,109.00	23.86	235.28	3,837.03	-786.07	-1,155.35	1,396.79	0.94	-0.09	
4,203.00	24.26	233.69	3,922.87	-808.33	-1,186.54	1,435.11	0.81	0.43	
4,298.00	23.64	233.25	4,009.69	-831.28	-1,217.53	1,473.67	0.68	-0.65	
4,393.00	23.47	238.97	4,096.78	-852.43	-1,249.00	1,511.57	2.41	-0.18	
4,487.00	22.81	238.53	4,183.22	-871.60	-1,280.58	1,548.39	0.73	-0.70	
4,582.00	21.45	238.00	4,271.22	-890.41	-1,311.02	1,584.08	1.45	-1.43	
4,676.00	20.83	236.77	4,358.89	-908.68	-1,339.58	1,617.92	0.81	-0.66	
4,771.00	20.92	236.86	4,447.66	-927.21	-1,367.91	1,651.73	0.10	0.09	
4,865.00	22.54	238.26	4,534.98	-945.86	-1,397.28	1,686.47	1.81	1.72	
4,959.00	22.59	236.59	4,621.78	-965.28	-1,427.68	1,722.47	0.68	0.05	
5,054.00	22.59	236.24	4,709.49	-985.47	-1,458.08	1,758.94	0.14	0.00	
5,148.00	23.03	236.15	4,796.14	-1,005.74	-1,488.36	1,795.35	0.47	0.47	
5,243.00	22.37	235.10	4,883.78	-1,026.44	-1,518.62	1,832.00	0.82	-0.69	
5,337.00	23.86	234.40	4,970.23	-1,047.74	-1,548.75	1,868.90	1.61	1.59	
5,432.00	23.29	232.02	5,057.31	-1,070.48	-1,579.18	1,906.88	1.17	-0.60	
5,526.00	23.60	232.90	5,143.54	-1,093.27	-1,608.83	1,944.26	0.50	0.33	
5,620.00	24.04	234.57	5,229.54	-1,115.72	-1,639.44	1,982.22	0.86	0.47	
5,715.00	24.13	234.05	5,316.27	-1,138.34	-1,670.93	2,020.99	0.24	0.09	
5,809.00	23.77	237.39	5,402.18	-1,159.83	-1,702.44	2,059.12	1.49	-0.38	
5,904.00	24.21	238.18	5,488.97	-1,180.42	-1,735.12	2,097.66	0.57	0.46	
5,998.00	23.38	238.09	5,574.98	-1,200.44	-1,767.33	2,135.49	0.88	-0.88	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 11C-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 11C-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	21.40	234.48	5,662.82	-1,220.47	-1,797.44	2,171.63	2.54	-2.08	
6,187.00	19.60	234.31	5,750.86	-1,239.64	-1,824.21	2,204.55	1.92	-1.91	
6,281.00	18.46	239.93	5,839.73	-1,256.29	-1,849.89	2,235.12	2.29	-1.21	
6,376.00	17.23	238.53	5,930.16	-1,271.18	-1,874.91	2,264.12	1.37	-1.29	
6,470.00	15.16	233.25	6,020.43	-1,285.80	-1,896.64	2,290.29	2.70	-2.20	
6,565.00	13.45	240.29	6,112.49	-1,298.71	-1,916.19	2,313.70	2.56	-1.80	
6,659.00	11.91	236.07	6,204.19	-1,309.54	-1,933.74	2,334.26	1.91	-1.64	
6,754.00	10.24	240.20	6,297.42	-1,319.21	-1,949.20	2,352.45	1.95	-1.76	
6,849.00	10.02	239.32	6,390.94	-1,327.63	-1,963.63	2,369.08	0.28	-0.23	
6,943.00	7.87	240.11	6,483.79	-1,335.01	-1,976.25	2,383.63	2.29	-2.29	
7,038.00	6.59	246.26	6,578.04	-1,340.44	-1,986.88	2,395.42	1.57	-1.35	
7,132.00	6.06	235.80	6,671.47	-1,345.40	-1,995.92	2,405.66	1.35	-0.56	
7,227.00	5.98	247.05	6,765.95	-1,350.15	-2,004.62	2,415.49	1.24	-0.08	
7,321.00	5.23	261.20	6,859.50	-1,352.72	-2,013.37	2,424.08	1.67	-0.80	
7,604.00	5.36	256.90	7,141.30	-1,357.69	-2,038.99	2,447.74	0.15	0.05	
7,888.00	4.00	254.96	7,424.34	-1,363.26	-2,061.47	2,469.22	0.48	-0.48	
8,171.00	5.41	251.01	7,706.38	-1,370.17	-2,083.62	2,491.21	0.51	0.50	
8,454.00	5.67	253.38	7,988.06	-1,378.51	-2,109.63	2,517.17	0.12	0.09	
8,738.00	4.92	254.61	8,270.85	-1,385.75	-2,134.82	2,541.81	0.27	-0.26	
9,022.00	5.85	272.72	8,553.61	-1,388.30	-2,161.02	2,564.52	0.68	0.33	
9,305.00	6.24	263.84	8,835.04	-1,389.26	-2,190.72	2,589.14	0.36	0.14	LAST SURVEY - 9305' MD
9,380.00	6.24	263.84	8,909.60	-1,390.14	-2,198.82	2,596.22	0.00	0.00	PTB - 9380' 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 11C-26 PBHL	0.00	0.00	8,868.00	-1,449.62	-2,275.40	14,355,971.00	2,431,657.00	39.499072	-108.195333
- actual wellpath misses target center by 100.42usft at 9347.62usft MD (8877.41 TVD, -1389.76 N, -2195.32 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
9,305.00	8,835.04	-1,389.26	-2,190.72	LAST SURVEY - 9305' MD
9,380.00	8,909.60	-1,390.14	-2,198.82	PTB - 9380' MD

Checked By: _____ Approved By: _____ Date: _____