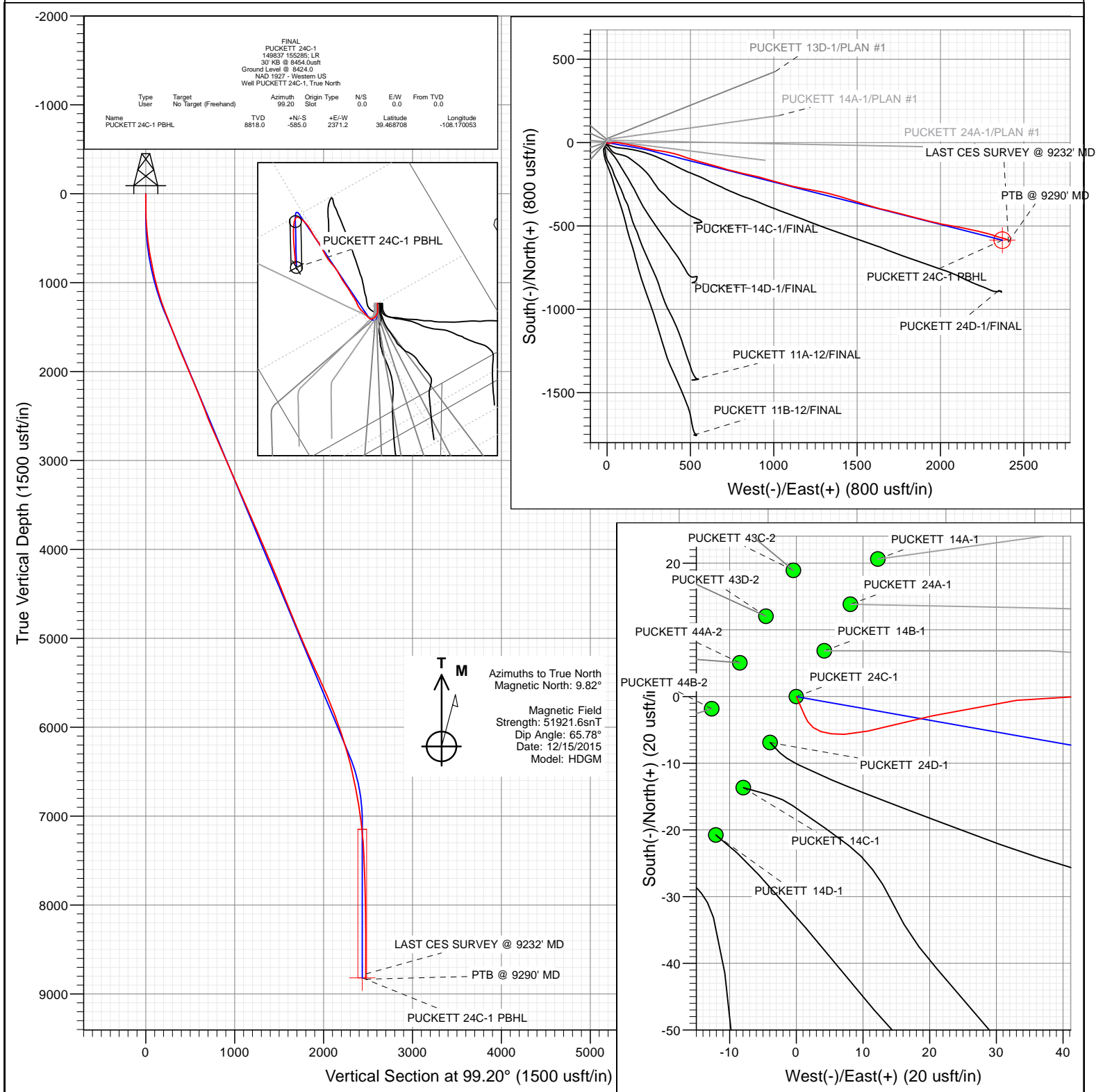




Project: Garfield County, CO (UTM 12N)
Site: S2-T7S-R97W (P2)
Well: PUCKETT 24C-1
Wellbore: OH
Design: FINAL



WELL DETAILS: PUCKETT 24C-1

+N/-S	+E/-W	Northing	Ground Level:	8424.0	Latitude	Longitude
0.0	0.0	14345646.40	Easting	2436749.30	39.470314	-108.178449



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 24C-1
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8454.0usft
Site:	S2-T7S-R97W (P2)	MD Reference:	30' KB @ 8454.0usft
Well:	PUCKETT 24C-1	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		S2-T7S-R97W (P2)			
Site Position:		Northing:	14,345,665.30 usft	Latitude:	39.470366
From:	Map	Easting:	2,436,748.30 usft	Longitude:	-108.178450
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.79 °

Well	PUCKETT 24C-1					
Well Position	+N/-S	0.0 usft	Northing:	14,345,646.40 usft	Latitude:	39.470314
	+E/-W	0.0 usft	Easting:	2,436,749.30 usft	Longitude:	-108.178449
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,424.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/15/2015	9.82	65.78	51,922

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	99.20	

Survey Program	Date	12/22/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
197.0	9,290.0	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	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
197.0	1.80	155.90	197.0	-2.8	1.3	1.7	0.91	0.91		
227.0	2.00	150.10	227.0	-3.7	1.7	2.3	0.92	0.67		
364.0	3.60	88.30	363.8	-5.7	7.2	8.0	2.33	1.17		
411.0	5.10	78.10	410.7	-5.2	10.7	11.4	3.58	3.19		
504.0	7.30	75.70	503.1	-2.9	20.5	20.7	2.38	2.37		
596.0	8.70	82.80	594.2	-0.6	33.1	32.7	1.86	1.52		
691.0	10.50	89.60	687.9	0.4	48.9	48.2	2.24	1.89		
786.0	10.90	97.60	781.3	-0.7	66.4	65.7	1.62	0.42		
880.0	11.90	100.40	873.4	-3.6	84.8	84.2	1.22	1.06		
975.0	13.10	100.20	966.1	-7.3	105.0	104.8	1.26	1.26		
1,069.0	15.20	101.60	1,057.3	-11.7	127.5	127.8	2.26	2.23		
1,164.0	17.40	100.80	1,148.5	-16.8	153.7	154.4	2.33	2.32		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 24C-1
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8454.0usft
Site:	S2-T7S-R97W (P2)	MD Reference:	30' KB @ 8454.0usft
Well:	PUCKETT 24C-1	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
1,259.0	19.60	100.40	1,238.5	-22.4	183.3	184.6	2.32	2.32	
1,353.0	21.00	102.80	1,326.7	-29.0	215.3	217.1	1.73	1.49	
1,448.0	21.90	104.20	1,415.1	-37.1	249.0	251.8	1.09	0.95	
1,542.0	21.30	99.20	1,502.5	-44.1	282.9	286.3	2.06	-0.64	
1,637.0	20.60	97.50	1,591.3	-49.1	316.5	320.3	0.98	-0.74	
1,731.0	21.00	101.80	1,679.1	-54.7	349.4	353.6	1.68	0.43	
1,826.0	22.10	102.80	1,767.5	-62.1	383.5	388.5	1.22	1.16	
1,920.0	23.00	104.90	1,854.3	-70.7	418.5	424.4	1.28	0.96	
2,015.0	24.30	109.00	1,941.3	-81.9	454.9	462.1	2.21	1.37	
2,110.0	23.90	109.20	2,028.0	-94.6	491.5	500.3	0.43	-0.42	
2,204.0	23.40	106.80	2,114.2	-106.2	527.4	537.6	1.15	-0.53	
2,298.0	21.80	105.20	2,200.9	-116.2	562.1	573.5	1.82	-1.70	
2,393.0	21.70	104.70	2,289.2	-125.3	596.1	608.5	0.22	-0.11	
2,482.0	20.60	105.70	2,372.2	-133.7	627.1	640.4	1.30	-1.24	
2,599.0	21.30	106.40	2,481.4	-145.3	667.3	681.9	0.64	0.60	
2,693.0	23.10	107.10	2,568.5	-155.5	701.3	717.2	1.94	1.91	
2,788.0	23.90	104.70	2,655.6	-165.9	737.7	754.8	1.31	0.84	
2,882.0	24.20	103.40	2,741.4	-175.2	774.9	792.9	0.65	0.32	
2,977.0	24.00	103.00	2,828.2	-184.0	812.7	831.6	0.27	-0.21	
3,072.0	23.10	101.60	2,915.2	-192.1	849.7	869.5	1.12	-0.95	
3,167.0	23.20	102.80	3,002.6	-200.0	886.3	906.8	0.51	0.11	
3,261.0	23.40	105.60	3,088.9	-209.1	922.3	943.9	1.20	0.21	
3,356.0	23.60	106.30	3,176.0	-219.5	958.7	981.5	0.36	0.21	
3,450.0	23.40	105.10	3,262.3	-229.7	994.8	1,018.7	0.55	-0.21	
3,545.0	24.80	106.20	3,349.0	-240.2	1,032.1	1,057.3	1.55	1.47	
3,639.0	24.80	104.60	3,434.3	-250.6	1,070.1	1,096.4	0.71	0.00	
3,734.0	24.10	103.40	3,520.8	-260.1	1,108.3	1,135.6	0.90	-0.74	
3,828.0	23.40	101.80	3,606.8	-268.4	1,145.2	1,173.4	1.01	-0.74	
3,923.0	22.50	100.20	3,694.3	-275.5	1,181.6	1,210.4	1.15	-0.95	
4,017.0	23.10	101.20	3,781.0	-282.3	1,217.4	1,246.9	0.76	0.64	
4,112.0	22.60	99.30	3,868.5	-288.8	1,253.7	1,283.7	0.94	-0.53	
4,207.0	23.00	102.40	3,956.1	-295.8	1,289.8	1,320.5	1.33	0.42	
4,301.0	23.60	104.80	4,042.4	-304.5	1,326.0	1,357.6	1.19	0.64	
4,395.0	22.90	103.70	4,128.8	-313.6	1,361.9	1,394.5	0.88	-0.74	
4,490.0	23.00	107.40	4,216.3	-323.6	1,397.6	1,431.3	1.52	0.11	
4,584.0	22.10	107.00	4,303.1	-334.2	1,432.0	1,467.0	0.97	-0.96	
4,679.0	21.20	106.60	4,391.4	-344.4	1,465.6	1,501.8	0.96	-0.95	
4,773.0	22.60	107.90	4,478.6	-354.8	1,499.0	1,536.5	1.58	1.49	
4,868.0	22.70	107.80	4,566.3	-366.0	1,533.9	1,572.7	0.11	0.11	
4,963.0	21.80	106.50	4,654.2	-376.6	1,568.2	1,608.3	1.08	-0.95	
5,057.0	21.90	106.70	4,741.4	-386.6	1,601.8	1,643.0	0.13	0.11	
5,152.0	22.50	104.80	4,829.4	-396.3	1,636.3	1,678.6	0.98	0.63	
5,247.0	23.50	102.90	4,916.8	-405.2	1,672.3	1,715.6	1.31	1.05	
5,341.0	22.50	102.70	5,003.4	-413.3	1,708.2	1,752.3	1.07	-1.06	
5,435.0	22.90	104.20	5,090.1	-421.8	1,743.4	1,788.4	0.75	0.43	
5,530.0	24.90	105.60	5,176.9	-431.7	1,780.6	1,826.7	2.19	2.11	
5,624.0	24.50	104.70	5,262.3	-442.0	1,818.5	1,865.8	0.58	-0.43	
5,719.0	24.50	104.60	5,348.8	-451.9	1,856.7	1,905.0	0.04	0.00	
5,814.0	24.50	104.10	5,435.2	-461.7	1,894.8	1,944.3	0.22	0.00	
5,908.0	24.30	103.70	5,520.8	-471.0	1,932.5	1,983.0	0.28	-0.21	
6,003.0	24.20	103.50	5,607.5	-480.2	1,970.4	2,021.9	0.14	-0.11	
6,097.0	22.10	100.90	5,693.9	-488.0	2,006.5	2,058.8	2.48	-2.23	
6,192.0	21.20	100.40	5,782.2	-494.5	2,041.0	2,093.8	0.97	-0.95	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 24C-1
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8454.0usft
Site:	S2-T7S-R97W (P2)	MD Reference:	30' KB @ 8454.0usft
Well:	PUCKETT 24C-1	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
6,286.0	21.10	99.60	5,869.9	-500.4	2,074.4	2,127.7	0.32	-0.11	
6,381.0	19.80	101.10	5,958.9	-506.4	2,107.0	2,160.9	1.48	-1.37	
6,476.0	18.10	101.70	6,048.7	-512.5	2,137.3	2,191.7	1.80	-1.79	
6,570.0	18.10	101.10	6,138.1	-518.2	2,165.9	2,220.9	0.20	0.00	
6,665.0	16.20	102.80	6,228.8	-524.0	2,193.3	2,248.9	2.07	-2.00	
6,759.0	16.00	103.20	6,319.1	-529.9	2,218.7	2,274.9	0.24	-0.21	
6,854.0	14.50	103.10	6,410.8	-535.6	2,243.0	2,299.8	1.58	-1.58	
6,948.0	12.00	104.00	6,502.3	-540.6	2,264.0	2,321.3	2.67	-2.66	
7,043.0	11.70	105.30	6,595.3	-545.5	2,282.9	2,340.7	0.42	-0.32	
7,138.0	11.60	106.30	6,688.3	-550.7	2,301.3	2,359.8	0.24	-0.11	
7,232.0	10.20	108.40	6,780.6	-556.0	2,318.3	2,377.4	1.55	-1.49	
7,327.0	10.20	108.50	6,874.1	-561.3	2,334.2	2,394.0	0.02	0.00	
7,421.0	8.70	106.80	6,966.8	-566.0	2,348.9	2,409.2	1.62	-1.60	
7,516.0	6.20	104.50	7,061.0	-569.4	2,360.8	2,421.5	2.65	-2.63	
7,610.0	5.60	105.50	7,154.5	-571.9	2,370.1	2,431.1	0.65	-0.64	
7,704.0	5.60	104.70	7,248.1	-574.3	2,379.0	2,440.2	0.08	0.00	
7,799.0	4.10	104.20	7,342.7	-576.3	2,386.8	2,448.2	1.58	-1.58	
7,894.0	2.20	109.90	7,437.6	-577.7	2,391.8	2,453.4	2.02	-2.00	
7,988.0	2.00	111.30	7,531.5	-579.0	2,395.0	2,456.7	0.22	-0.21	
8,083.0	2.00	112.10	7,626.5	-580.2	2,398.1	2,460.0	0.03	0.00	
8,178.0	1.80	114.80	7,721.4	-581.4	2,401.0	2,463.0	0.23	-0.21	
8,272.0	1.70	113.90	7,815.4	-582.6	2,403.6	2,465.8	0.11	-0.11	
8,367.0	1.40	114.80	7,910.3	-583.7	2,405.9	2,468.3	0.32	-0.32	
8,461.0	1.30	117.40	8,004.3	-584.6	2,407.9	2,470.4	0.12	-0.11	
8,556.0	1.10	123.60	8,099.3	-585.6	2,409.6	2,472.3	0.25	-0.21	
8,650.0	1.40	182.30	8,193.3	-587.3	2,410.3	2,473.2	1.33	0.32	
8,745.0	1.30	172.80	8,288.2	-589.5	2,410.4	2,473.7	0.26	-0.11	
8,839.0	1.10	189.20	8,382.2	-591.5	2,410.4	2,474.0	0.42	-0.21	
8,934.0	0.90	193.30	8,477.2	-593.1	2,410.1	2,473.9	0.22	-0.21	
9,028.0	0.60	194.00	8,571.2	-594.3	2,409.8	2,473.8	0.32	-0.32	
9,123.0	0.60	219.20	8,666.2	-595.2	2,409.4	2,473.5	0.28	0.00	
9,232.0	0.90	235.80	8,775.2	-596.1	2,408.3	2,472.6	0.34	0.28	LAST CES SURVEY @ 9232' MD
9,290.0	0.90	235.80	8,833.2	-596.6	2,407.5	2,472.0	0.00	0.00	PTB @ 9290' MD

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 24C-1
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	30' KB @ 8454.0usft
Site:	S2-T7S-R97W (P2)	MD Reference:	30' KB @ 8454.0usft
Well:	PUCKETT 24C-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
PUCKETT 24C-1 PBHL	0.00	0.00	8,818.0	-585.0	2,371.2	14,345,135.90	2,439,137.70	39.468708	-108.170053
- actual wellpath misses target center by 38.2usft at 9275.2usft MD (8818.4 TVD, -596.5 N, 2407.7 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment	
9,232.0	8,775.2	-596.1	2,408.3	LAST CES SURVEY @ 9232' MD	
9,290.0	8,833.2	-596.6	2,407.5	PTB @ 9290' MD	

Checked By: _____ Approved By: _____ Date: _____