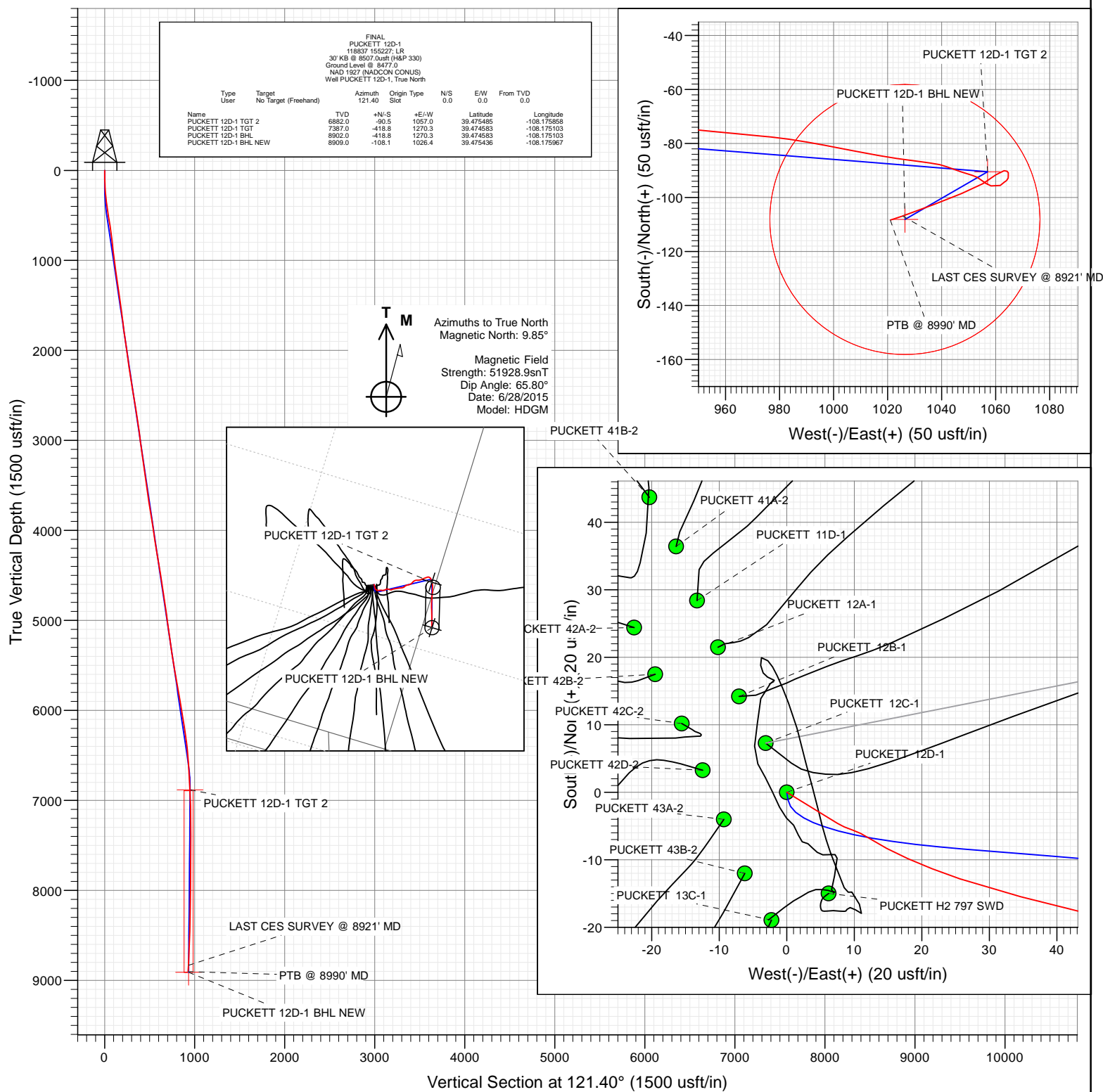




Project: Garfield County, CO
 Site: S2-T7S-R97W (Mesa H2)
 Well: PUCKETT 12D-1
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 12D-1

Ground Level: 8477.0
 Easting: 1243687.09
 Northing: 609307.57
 Latitude: 39.475733
 Longitude: -108.179603



Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 12D-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8507.0usft (H&P 330)
Site:	S2-T7S-R97W (Mesa H2)	MD Reference:	30' KB @ 8507.0usft (H&P 330)
Well:	PUCKETT 12D-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Project	Garfield County, CO		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site		S2-T7S-R97W (Mesa H2)			
Site Position:		Northing:	609,295.74 usft	Latitude:	39.475700
From:	Lat/Long	Easting:	1,243,680.53 usft	Longitude:	-108.179625
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.69 °

Well	PUCKETT 12D-1					
Well Position	+N/-S	0.0 usft	Northing:	609,307.57 usft	Latitude:	39.475733
	+E/-W	0.0 usft	Easting:	1,243,687.09 usft	Longitude:	-108.179603
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,477.0 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/28/2015	9.85	65.80	51,929

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	121.40	

Survey Program	Date	7/4/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
240.0	8,990.0	Survey #1 (OH)	ISCWSA MWD	MWD - Standard	

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		
240.0	4.20	121.40	239.8	-4.6	7.5	8.8	1.75	1.75		
271.0	4.80	108.00	270.7	-5.6	9.7	11.2	3.89	1.94		
302.0	5.40	122.80	301.6	-6.8	12.2	13.9	4.65	1.94		
424.0	8.60	108.70	422.7	-12.8	25.6	28.6	2.96	2.62		
485.0	9.10	104.30	482.9	-15.5	34.6	37.6	1.38	0.82		
577.0	10.50	103.30	573.6	-19.2	49.8	52.5	1.53	1.52		
671.0	8.80	99.40	666.2	-22.3	65.3	67.3	1.94	-1.81		
766.0	8.00	89.70	760.2	-23.5	79.1	79.7	1.71	-0.84		
860.0	7.90	90.10	853.3	-23.5	92.1	90.8	0.12	-0.11		
955.0	8.00	89.00	947.4	-23.4	105.2	102.0	0.19	0.11		
1,049.0	8.70	85.60	1,040.4	-22.7	118.8	113.2	0.91	0.74		
1,143.0	8.80	90.20	1,133.3	-22.2	133.1	125.2	0.75	0.11		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 12D-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8507.0usft (H&P 330)
Site:	S2-T7S-R97W (Mesa H2)	MD Reference:	30' KB @ 8507.0usft (H&P 330)
Well:	PUCKETT 12D-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
1,238.0	8.80	94.60	1,227.2	-22.8	147.6	137.9	0.71	0.00	
1,332.0	9.70	92.10	1,320.0	-23.6	162.7	151.2	1.05	0.96	
1,427.0	10.60	88.60	1,413.5	-23.7	179.4	165.5	1.15	0.95	
1,521.0	9.50	85.90	1,506.1	-23.0	195.8	179.1	1.27	-1.17	
1,616.0	8.60	87.80	1,599.9	-22.1	210.7	191.4	1.00	-0.95	
1,710.0	8.00	99.90	1,692.9	-23.0	224.2	203.3	1.96	-0.64	
1,805.0	7.90	104.10	1,787.0	-25.7	237.0	215.7	0.62	-0.11	
1,899.0	8.40	107.60	1,880.0	-29.4	249.8	228.6	0.75	0.53	
1,994.0	8.40	103.70	1,974.0	-33.1	263.2	241.9	0.60	0.00	
2,088.0	9.10	89.70	2,066.9	-34.7	277.3	254.8	2.38	0.74	
2,183.0	9.80	86.10	2,160.6	-34.1	292.9	267.8	0.96	0.74	
2,278.0	9.90	93.70	2,254.2	-34.1	309.1	281.6	1.37	0.11	
2,372.0	9.80	98.10	2,346.9	-35.7	325.1	296.1	0.81	-0.11	
2,466.0	9.80	100.00	2,439.5	-38.2	340.9	310.9	0.34	0.00	
2,490.0	10.10	98.60	2,463.1	-38.9	345.0	314.7	1.61	1.25	
2,588.0	10.40	108.80	2,559.6	-43.0	361.8	331.3	1.87	0.31	
2,683.0	10.00	97.20	2,653.1	-46.8	378.1	347.2	2.20	-0.42	
2,777.0	9.20	92.00	2,745.8	-48.1	393.8	361.2	1.25	-0.85	
2,872.0	8.90	95.80	2,839.6	-49.1	408.7	374.4	0.70	-0.32	
2,967.0	8.30	90.80	2,933.5	-50.0	422.8	386.9	1.01	-0.63	
3,061.0	8.40	92.10	3,026.5	-50.3	436.5	398.8	0.23	0.11	
3,156.0	9.70	92.40	3,120.3	-50.9	451.4	411.8	1.37	1.37	
3,250.0	8.60	95.00	3,213.1	-51.9	466.3	425.0	1.25	-1.17	
3,345.0	9.60	90.60	3,306.9	-52.6	481.3	438.2	1.28	1.05	
3,439.0	9.70	87.50	3,399.6	-52.3	497.1	451.5	0.56	0.11	
3,534.0	8.80	85.40	3,493.4	-51.4	512.3	464.0	1.01	-0.95	
3,628.0	11.00	84.10	3,586.0	-49.9	528.4	477.0	2.35	2.34	
3,723.0	10.70	92.80	3,679.3	-49.4	546.2	491.9	1.75	-0.32	
3,818.0	10.50	92.60	3,772.7	-50.2	563.7	507.3	0.21	-0.21	
3,912.0	9.80	94.80	3,865.2	-51.2	580.2	521.9	0.85	-0.74	
4,007.0	9.50	95.20	3,958.8	-52.6	596.1	536.2	0.32	-0.32	
4,101.0	8.80	95.40	4,051.6	-54.0	610.9	549.6	0.75	-0.74	
4,196.0	10.20	94.90	4,145.3	-55.4	626.6	563.7	1.48	1.47	
4,290.0	9.70	91.30	4,237.9	-56.3	642.8	578.0	0.85	-0.53	
4,385.0	11.50	92.60	4,331.3	-56.9	660.2	593.2	1.91	1.89	
4,480.0	11.70	88.00	4,424.4	-57.0	679.3	609.5	1.00	0.21	
4,574.0	11.30	87.10	4,516.5	-56.2	698.0	625.1	0.47	-0.43	
4,669.0	10.50	88.70	4,609.8	-55.5	716.0	640.1	0.90	-0.84	
4,763.0	9.80	83.00	4,702.3	-54.4	732.5	653.6	1.30	-0.74	
4,858.0	9.80	93.50	4,795.9	-53.9	748.6	667.0	1.88	0.00	
4,952.0	9.50	91.50	4,888.6	-54.6	764.3	680.8	0.48	-0.32	
5,047.0	9.40	82.70	4,982.3	-53.8	779.9	693.7	1.52	-0.11	
5,142.0	8.30	95.40	5,076.2	-53.5	794.4	705.9	2.35	-1.16	
5,236.0	9.10	99.60	5,169.1	-55.3	808.5	718.9	1.09	0.85	
5,330.0	9.30	97.30	5,261.9	-57.5	823.3	732.7	0.45	0.21	
5,425.0	8.90	100.70	5,355.7	-59.9	838.2	746.6	0.71	-0.42	
5,520.0	10.10	97.90	5,449.4	-62.4	853.6	761.1	1.35	1.26	
5,614.0	9.30	97.00	5,542.0	-64.4	869.4	775.6	0.87	-0.85	
5,709.0	11.60	97.70	5,635.5	-66.7	886.4	791.3	2.42	2.42	
5,803.0	11.30	98.60	5,727.6	-69.3	904.9	808.5	0.37	-0.32	
5,898.0	10.60	99.00	5,820.9	-72.1	922.7	825.2	0.74	-0.74	
5,992.0	10.60	94.60	5,913.3	-74.1	939.9	840.9	0.86	0.00	
6,087.0	10.20	95.80	6,006.7	-75.7	957.0	856.2	0.48	-0.42	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 12D-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8507.0usft (H&P 330)
Site:	S2-T7S-R97W (Mesa H2)	MD Reference:	30' KB @ 8507.0usft (H&P 330)
Well:	PUCKETT 12D-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
6,181.0	10.10	95.40	6,099.2	-77.3	973.5	871.2	0.13	-0.11	
6,276.0	9.10	99.50	6,192.9	-79.3	989.2	885.6	1.27	-1.05	
6,370.0	8.90	101.50	6,285.7	-82.0	1,003.6	899.4	0.40	-0.21	
6,465.0	6.40	99.50	6,379.9	-84.3	1,016.1	911.2	2.65	-2.63	
6,559.0	6.70	98.20	6,473.3	-86.0	1,026.6	921.1	0.36	0.32	
6,653.0	4.60	97.20	6,566.8	-87.2	1,035.8	929.6	2.24	-2.23	
6,748.0	3.30	111.40	6,661.6	-88.7	1,042.1	935.7	1.70	-1.37	
6,843.0	3.00	107.30	6,756.4	-90.4	1,047.1	940.8	0.39	-0.32	
6,937.0	2.60	107.90	6,850.3	-91.8	1,051.4	945.3	0.43	-0.43	
7,032.0	2.10	131.50	6,945.3	-93.6	1,054.8	949.1	1.14	-0.53	
7,127.0	2.90	111.20	7,040.2	-95.7	1,058.3	953.2	1.24	0.84	
7,221.0	1.90	50.20	7,134.1	-95.5	1,061.7	956.0	2.75	-1.06	
7,315.0	0.60	50.30	7,228.1	-94.2	1,063.3	956.7	1.38	-1.38	
7,410.0	0.10	102.70	7,323.1	-93.9	1,063.8	956.9	0.57	-0.53	
7,504.0	0.60	38.00	7,417.1	-93.5	1,064.2	957.1	0.60	0.53	
7,599.0	0.50	20.60	7,512.1	-92.8	1,064.6	957.0	0.20	-0.11	
7,693.0	0.70	351.20	7,606.1	-91.8	1,064.7	956.6	0.38	0.21	
7,788.0	0.50	8.60	7,701.1	-90.8	1,064.7	956.1	0.28	-0.21	
7,882.0	0.60	288.60	7,795.0	-90.3	1,064.2	955.4	0.76	0.11	
7,977.0	0.80	269.90	7,890.0	-90.1	1,063.1	954.4	0.32	0.21	
8,166.0	1.40	229.00	8,079.0	-91.6	1,060.1	952.5	0.50	0.32	
8,355.0	2.10	240.00	8,267.9	-94.9	1,055.3	950.2	0.41	0.37	
8,544.0	3.20	248.60	8,456.7	-98.5	1,047.4	945.3	0.62	0.58	
8,732.0	3.50	247.90	8,644.4	-102.6	1,037.2	938.8	0.16	0.16	
8,921.0	4.00	251.50	8,833.0	-106.9	1,025.6	931.1	0.29	0.26	LAST CES SURVEY @ 8921' MD
8,990.0	4.00	251.50	8,901.8	-108.4	1,021.0	928.0	0.00	0.00	PTB @ 8990' MD

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 12D-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8507.0usft (H&P 330)
Site:	S2-T7S-R97W (Mesa H2)	MD Reference:	30' KB @ 8507.0usft (H&P 330)
Well:	PUCKETT 12D-1	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PUCKETT 12D-1 TGT	0.00	0.00	7,387.0	-418.8	1,270.3	608,851.46	1,244,944.51	39.474583	-108.175103
- actual wellpath misses target center by 385.0usft at 7473.5usft MD (7386.6 TVD, -93.7 N, 1064.0 E)									
- Point									
PUCKETT 12D-1 BHL	0.00	0.00	8,902.0	-418.8	1,270.3	608,851.46	1,244,944.51	39.474583	-108.175103
- actual wellpath misses target center by 398.0usft at 8980.6usft MD (8892.4 TVD, -108.2 N, 1021.7 E)									
- Circle (radius 50.0)									
PUCKETT 12D-1 BHL N	0.00	0.00	8,909.0	-108.1	1,026.4	609,169.20	1,244,709.86	39.475436	-108.175967
- actual wellpath misses target center by 9.0usft at 8990.0usft MD (8901.8 TVD, -108.4 N, 1021.0 E)									
- Circle (radius 50.0)									
PUCKETT 12D-1 TGT 2	0.00	0.00	6,882.0	-90.5	1,057.0	609,185.98	1,244,741.01	39.475485	-108.175858
- actual wellpath misses target center by 4.7usft at 6968.8usft MD (6882.1 TVD, -92.3 N, 1052.7 E)									
- Point									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
8,921.0	8,833.0	-106.9	1,025.6	LAST CES SURVEY @ 8921' MD	
8,990.0	8,901.8	-108.4	1,021.0	PTB @ 8990' MD	

Checked By: _____ Approved By: _____ Date: _____