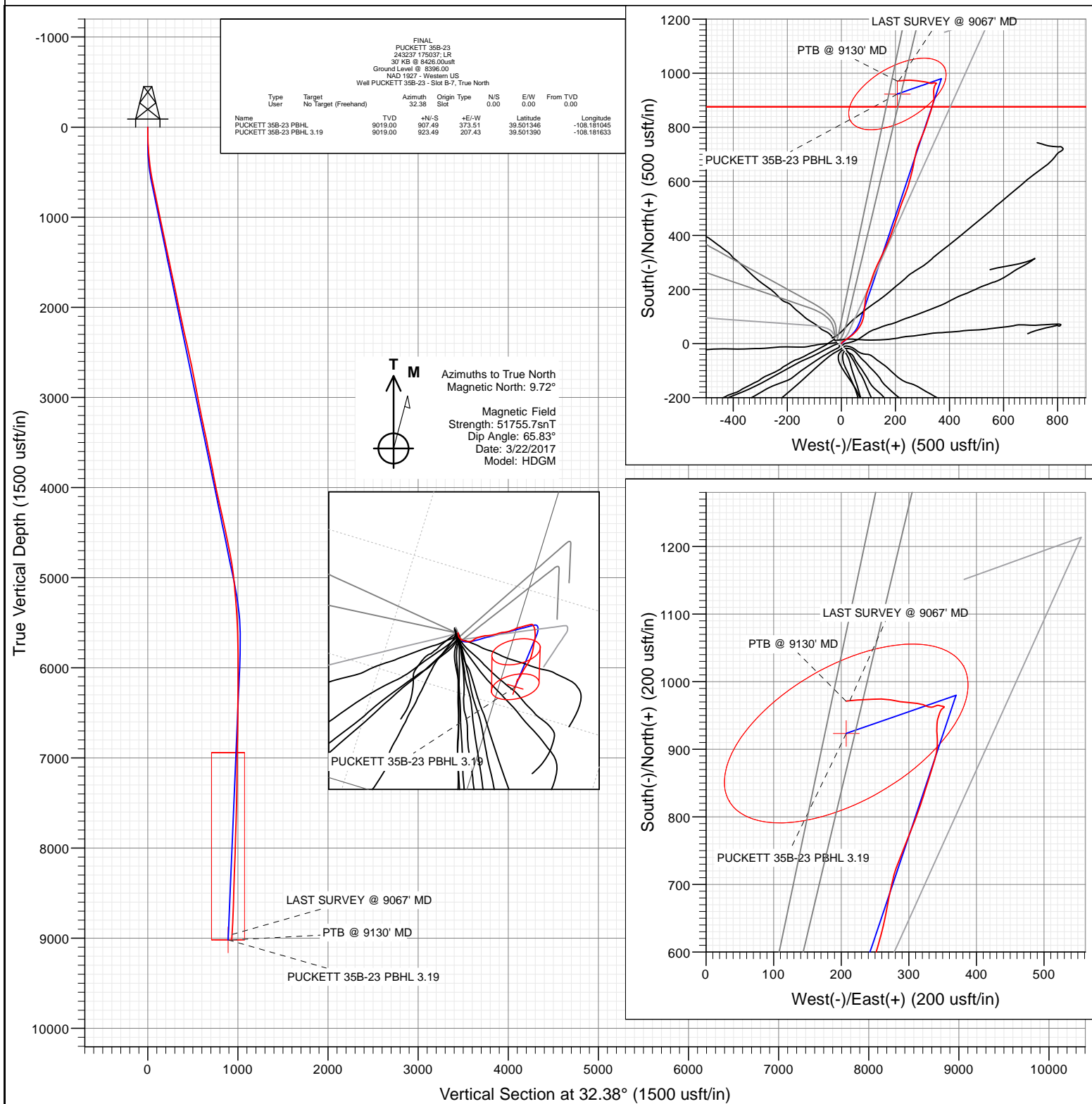




Project: Garfield County, CO (UTM 12N)
 Site: S26-T6S-R97W (697 26A)
 Well: PUCKETT 35B-23
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 35B-23

+N/-S 0.00 +E/-W 0.00 Northing 14356006.27 Ground Level: 8396.00 Easting 2435317.77 Latitude 39.498855 Longitude -108.182368

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 35B-23 - Slot B-7
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 35B-23	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 35B-23 - Slot B-7					
Well Position	+N/-S	0.00 usft	Northing:	14,356,006.27 usft	Latitude:	39.498855
	+E/-W	0.00 usft	Easting:	2,435,317.77 usft	Longitude:	-108.182368
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	3/22/2017	9.72	65.83	51,756

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	32.38	

Survey Program	Date	3/25/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
179.00	9,130.00	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		
179.00	2.24	32.92	178.95	2.94	1.90	3.50	1.25	1.25		
271.00	4.04	43.73	270.81	6.79	5.12	8.47	2.05	1.96		
301.00	4.61	60.26	300.73	8.15	6.90	10.58	4.55	1.90		
393.00	6.90	51.73	392.26	13.41	14.45	19.06	2.65	2.49		
485.00	9.71	56.65	483.29	21.10	25.27	31.35	3.15	3.05		
576.00	11.29	51.47	572.76	30.87	38.65	46.76	2.02	1.74		
670.00	11.78	44.17	664.87	43.48	52.53	64.85	1.64	0.52		
765.00	11.73	34.95	757.89	58.35	64.82	83.99	1.98	-0.05		
859.00	12.52	24.57	849.80	75.45	74.53	103.64	2.46	0.84		
954.00	12.61	13.06	942.54	94.92	81.16	123.63	2.63	0.09		
1,048.00	11.95	3.57	1,034.40	114.63	84.09	141.84	2.26	-0.70		
1,143.00	12.70	4.45	1,127.21	134.86	85.51	159.68	0.81	0.79		

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 35B-23 - Slot B-7
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 35B-23	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
1,237.00	13.14	9.11	1,218.83	155.71	88.00	178.63	1.20	0.47	
1,332.00	13.14	14.91	1,311.35	176.81	92.49	198.85	1.39	0.00	
1,426.00	12.35	18.07	1,403.03	196.69	98.36	218.78	1.12	-0.84	
1,521.00	12.31	19.12	1,495.84	215.92	104.83	238.49	0.24	-0.04	
1,616.00	12.39	17.98	1,588.64	235.18	111.29	258.22	0.27	0.08	
1,710.00	12.09	18.51	1,680.50	254.11	117.53	277.54	0.34	-0.32	
1,805.00	12.17	22.46	1,773.38	272.80	124.51	297.06	0.88	0.08	
1,899.00	11.95	26.16	1,865.31	290.69	132.59	316.50	0.85	-0.23	
1,994.00	11.38	26.24	1,958.35	307.92	141.07	335.59	0.60	-0.60	
2,089.00	11.43	25.10	2,051.47	324.85	149.20	354.25	0.24	0.05	
2,183.00	12.52	25.72	2,143.43	342.47	157.58	373.61	1.17	1.16	
2,278.00	12.79	23.70	2,236.12	361.37	166.27	394.23	0.55	0.28	
2,373.00	12.70	23.61	2,328.78	380.57	174.68	414.95	0.10	-0.09	
2,467.00	12.96	21.15	2,420.43	399.87	182.62	435.50	0.64	0.28	
2,603.00	12.61	18.86	2,553.06	428.14	192.92	464.89	0.45	-0.26	
2,697.00	12.61	17.81	2,644.79	447.62	199.38	484.80	0.24	0.00	
2,792.00	11.87	19.12	2,737.63	466.73	205.75	504.35	0.83	-0.78	
2,886.00	10.59	17.72	2,829.83	484.09	211.55	522.12	1.39	-1.36	
2,981.00	10.64	17.63	2,923.21	500.76	216.86	539.04	0.06	0.05	
3,075.00	10.85	20.09	3,015.56	517.34	222.53	556.08	0.54	0.22	
3,170.00	11.56	21.59	3,108.75	534.59	229.10	574.17	0.81	0.75	
3,264.00	12.22	22.55	3,200.73	552.54	236.38	593.22	0.73	0.70	
3,358.00	12.57	17.89	3,292.54	571.46	243.34	612.93	1.13	0.37	
3,453.00	12.52	15.87	3,385.27	591.20	249.33	632.81	0.46	-0.05	
3,547.00	12.13	14.91	3,477.11	610.54	254.66	652.00	0.47	-0.41	
3,642.00	11.56	15.78	3,570.08	629.35	259.82	670.64	0.63	-0.60	
3,736.00	12.66	11.48	3,661.99	648.51	264.43	689.29	1.51	1.17	
3,830.00	12.35	10.25	3,753.76	668.50	268.27	708.23	0.43	-0.33	
3,925.00	11.34	12.36	3,846.74	687.62	272.07	726.42	1.16	-1.06	
4,019.00	11.38	12.27	3,938.90	705.71	276.02	743.81	0.05	0.04	
4,114.00	11.95	19.56	4,031.94	724.13	281.31	762.20	1.66	0.60	
4,208.00	12.79	21.76	4,123.76	742.97	288.42	781.92	1.02	0.89	
4,303.00	12.92	22.03	4,216.38	762.58	296.31	802.70	0.15	0.14	
4,397.00	13.05	22.20	4,307.97	782.15	304.26	823.48	0.14	0.14	
4,492.00	12.52	19.21	4,400.62	801.80	311.70	844.07	0.89	-0.56	
4,586.00	11.95	18.07	4,492.48	820.67	318.07	863.42	0.66	-0.61	
4,681.00	11.60	18.07	4,585.48	839.10	324.08	882.20	0.37	-0.37	
4,775.00	11.65	17.81	4,677.55	857.13	329.92	900.55	0.08	0.05	
4,870.00	11.07	17.19	4,770.69	874.97	335.55	918.63	0.62	-0.61	
4,964.00	9.54	12.80	4,863.18	891.19	339.94	934.68	1.83	-1.63	
5,059.00	7.73	5.15	4,957.10	905.23	342.26	947.78	2.25	-1.91	
5,153.00	6.55	353.11	5,050.37	916.85	342.18	957.55	2.02	-1.26	
5,248.00	6.06	358.65	5,144.80	927.24	341.41	965.92	0.82	-0.52	
5,343.00	5.54	4.71	5,239.31	936.83	341.67	974.15	0.84	-0.55	
5,437.00	4.75	12.71	5,332.93	945.15	342.90	981.84	1.13	-0.84	
5,532.00	4.13	21.85	5,427.65	952.16	345.04	988.90	0.99	-0.65	
5,626.00	2.46	26.24	5,521.49	957.11	347.19	994.24	1.80	-1.78	
5,721.00	1.19	51.03	5,616.44	959.56	348.86	997.20	1.54	-1.34	
5,815.00	0.92	49.10	5,710.43	960.67	350.19	998.85	0.29	-0.29	
6,004.00	0.66	55.69	5,899.41	962.27	352.23	1,001.30	0.15	-0.14	
6,100.00	0.40	318.66	5,995.41	962.84	352.47	1,001.90	0.85	-0.27	
6,288.00	0.97	282.97	6,183.39	963.69	350.49	1,001.56	0.36	0.30	
6,477.00	1.71	278.84	6,372.34	964.48	346.14	999.90	0.39	0.39	

Cathedral Energy Services

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well PUCKETT 35B-23 - Slot B-7
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 35B-23	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
6,571.00	1.36	287.81	6,466.31	965.04	343.69	999.06	0.45	-0.37	
6,666.00	0.70	245.00	6,561.29	965.14	342.09	998.29	1.02	-0.69	
6,855.00	1.19	249.13	6,750.27	963.95	339.21	995.74	0.26	0.26	
7,044.00	2.07	257.75	6,939.19	962.52	334.04	991.77	0.48	0.47	
7,233.00	1.71	297.30	7,128.09	963.09	328.20	989.12	0.70	-0.19	
7,422.00	2.59	289.48	7,316.96	965.81	321.67	987.92	0.49	0.47	
7,610.00	3.21	277.61	7,504.72	967.93	312.45	984.77	0.46	0.33	
7,799.00	3.87	274.62	7,693.36	969.14	300.84	979.58	0.36	0.35	
7,988.00	4.22	277.52	7,881.88	970.56	287.59	973.69	0.21	0.19	
8,178.00	4.40	282.36	8,071.35	973.04	273.54	968.25	0.21	0.09	
8,367.00	4.18	268.91	8,259.82	974.46	259.57	961.97	0.54	-0.12	
8,556.00	3.25	267.59	8,448.42	974.10	247.33	955.12	0.49	-0.49	
8,745.00	3.38	268.73	8,637.11	973.75	236.41	948.97	0.08	0.07	
8,934.00	4.44	265.04	8,825.67	973.00	223.55	941.45	0.58	0.56	
9,067.00	5.05	263.55	8,958.21	971.90	212.61	934.66	0.47	0.46	LAST SURVEY @ 9067' MD
9,130.00	5.05	263.55	9,020.96	971.27	207.10	931.18	0.00	0.00	PTB @ 9130' 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 35B-23 PBHL	0.00	0.00	9,019.00	907.49	373.51	14,356,925.00	2,435,662.70	39.501346	-108.181045
- actual wellpath misses target center by 177.52usft at 9114.12usft MD (9005.14 TVD, 971.43 N, 208.49 E)									
- Ellipse (radii L200.00 W100.00 on 240.00 azi)									
PUCKETT 35B-23 PBHL	0.00	0.00	9,019.00	923.49	207.43	14,356,935.80	2,435,496.20	39.501390	-108.181633
- actual wellpath misses target center by 47.80usft at 9128.49usft MD (9019.46 TVD, 971.29 N, 207.23 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)
9,067.00	8,958.21	971.90	212.61
9,130.00	9,020.96	971.27	207.10
LAST SURVEY @ 9067' MD			
PTB @ 9130' MD			

Checked By: _____ Approved By: _____ Date: _____