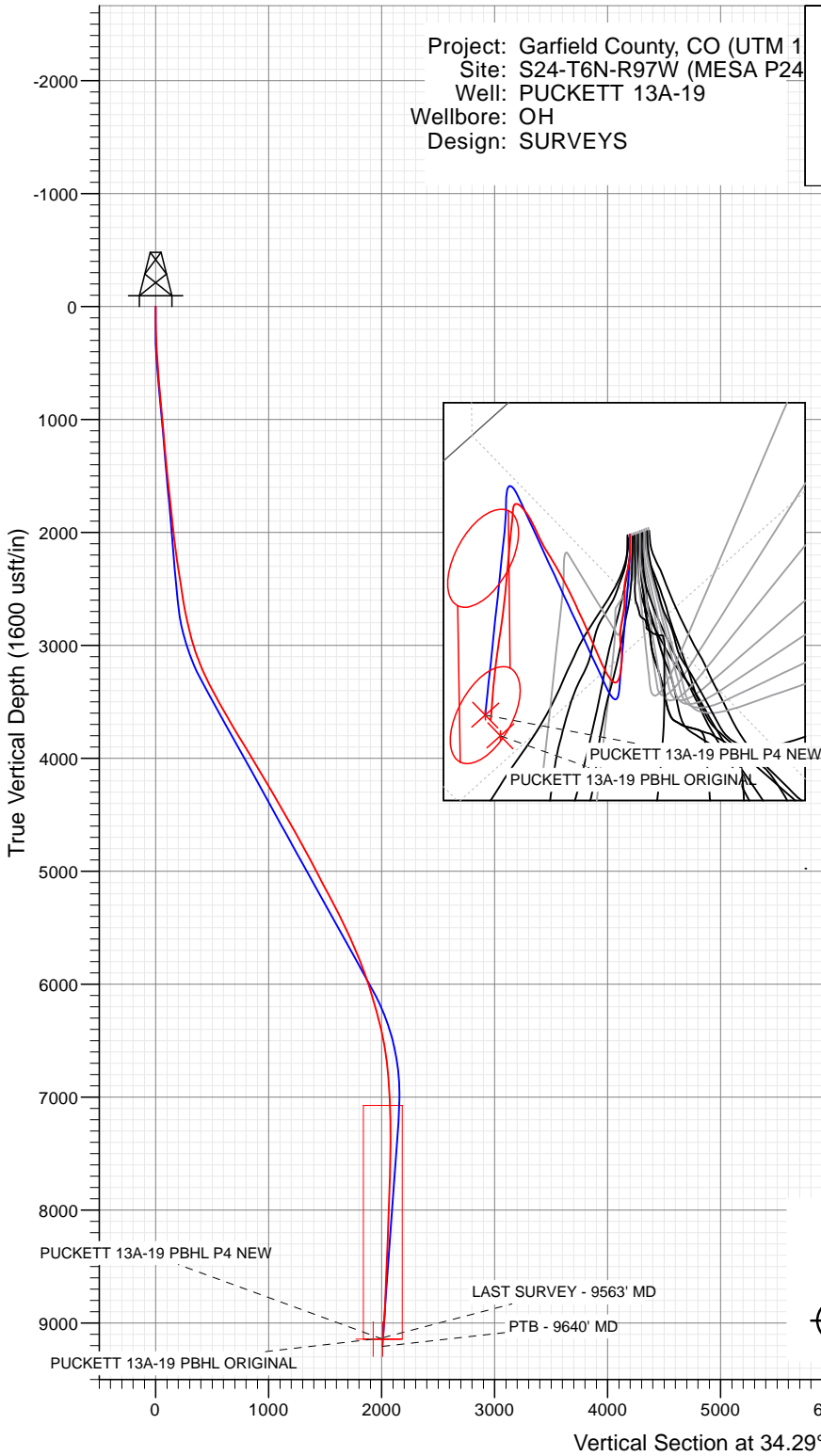




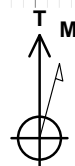
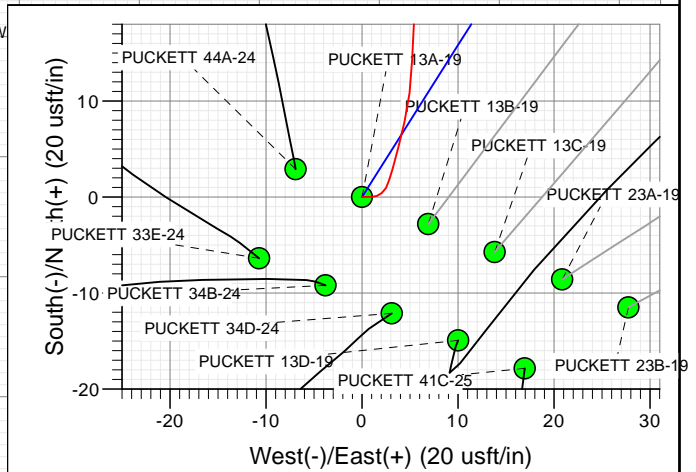
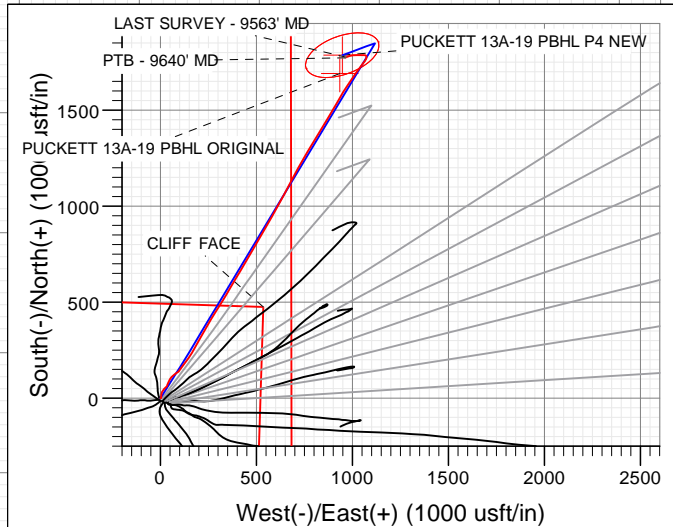
## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	466.67	5.00	32.29	466.66	6.14	3.88	3.00	32.29	7.25	
4	2600.00	5.00	32.29	2591.67	163.32	103.21	0.00	0.00	192.64	
5	3400.67	29.02	31.01	3351.73	362.18	223.67	3.00	-1.52	424.76	
6	6482.35	29.02	31.01	6046.54	1643.40	993.89	0.00	0.00	917.51	
7	7449.64	0.00	0.00	6973.00	1848.89	1117.42	3.00	180.00	2156.93	
8	7702.62	5.06	250.00	7225.64	1845.07	1106.93	2.00	250.00	2148.64	
9	9627.47	5.06	250.00	9143.00	1787.02	947.42	0.00	0.00	2022.63	PUCKETT 13A-19 PBHL P4 NEW

Project: Garfield County, CO (UTM 1  
Site: S24-T6N-R97W (MESA P24  
Well: PUCKETT 13A-19  
Wellbore: OH  
Design: SURVEYS



SURVEYS									
PUCKETT 13A-19									
354537 175241 LR									
30 KB @ 8181.00usft									
Ground Level @ 8151.00									
NAD 1983 - Western US									
Well PUCKETT 13A-19 - Slot A10, True North									
Type	Target	No Target (Freehand)	Azimuth	Origin	Type	N/S	E/W	From TVD	0.00
Name			TVD	+N/-S	+E/-W	Latitude	Longitude		
PUCKETT 14D-19 PBHL P5			9112.00	-413.38	960.24	39.501881	-108.157782		
PUCKETT 14C-19 PBHL P4			9119.00	-151.65	947.39	39.502699	-108.157627		
PUCKETT 14B-19 PBHL P4			9126.00	122.15	951.82	39.503350	-108.157812		
PUCKETT 14A-19 PBHL 11.25			9129.00	435.55	702.78	39.504210	-108.158694		
PUCKETT 13D-19 PBHL P4			9138.00	902.72	911.02	39.505493	-108.157956		
PUCKETT 13A-19 PBHL ORIGINAL			9143.00	1691.74	934.41	39.507658	-108.157873		
PUCKETT 13A-19 PBHL P4 NEW			9143.00	1787.02	947.42	39.507819	-108.157897		



Azimuths to True North  
Magnetic North: 9.65°

Magnetic Field  
Strength: 51655.1snT  
Dip Angle: 65.80°  
Date: 12/29/2017  
Model: HDGM

Vertical Section at 34.29° (1600 usft/in)

## WELL DETAILS: PUCKETT 13A-19

+N/-S	+E/-W	Northing	Ground Level:	8151.00	Latitude	Longitude
0.00	0.00	14357709.00	Easting	2441247.40	39.503015	-108.161183

A10

CATHEDRAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13A-19 - Slot A10
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8181.00usft
<b>Site:</b>	S24-T6N-R97W (MESA P24)	<b>MD Reference:</b>	30' KB @ 8181.00usft
<b>Well:</b>	PUCKETT 13A-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURVEYS	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Garfield County, CO (UTM 12N)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site		S24-T6N-R97W (MESA P24)			
Site Position:		Northing:	14,357,707.60 usft	Latitude:	39.503013
From:	Map	Easting:	2,441,222.80 usft	Longitude:	-108.161271
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	1.81 °

Well	PUCKETT 13A-19 - Slot A10					
Well Position	+N/-S	0.00 usft	Northing:	14,357,709.00 usft	Latitude:	39.503015
	+E/-W	0.00 usft	Easting:	2,441,247.40 usft	Longitude:	-108.161183
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	8,151.00 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	12/29/2017	9.65	65.80	51,655.10000000

<b>Design</b>	SURVEYS				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	34.29	

<b>Survey Program</b>	<b>Date</b>	1/4/2018			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
136.00	2,174.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	
2,268.00	9,640.00	Survey #2 (OH)	MWD+HDGM	OWSG MWD + HDGM	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usf)</b>	<b>Build Rate (°/100u)</b>	<b>Formations / Comments</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
136.00	0.88	87.84	135.99	0.04	1.04	0.62	0.65	0.65		
167.00	1.01	71.50	166.99	0.14	1.54	0.98	0.96	0.42		
198.00	1.19	51.72	197.98	0.42	2.05	1.50	1.35	0.58		
260.00	1.80	16.48	259.96	1.75	2.83	3.05	1.73	0.98		
290.00	2.64	16.30	289.94	2.87	3.16	4.15	2.80	2.80		
383.00	3.65	12.96	382.80	7.81	4.43	8.95	1.10	1.09		
475.00	4.53	2.24	474.57	14.29	5.23	14.75	1.26	0.96		
567.00	4.83	3.29	566.26	21.79	5.59	21.15	0.34	0.33		
662.00	5.01	17.09	660.91	29.75	7.04	28.54	1.26	0.19		
757.00	4.70	36.52	755.58	36.84	10.57	36.40	1.75	-0.33		
851.00	5.23	39.50	849.23	43.24	15.59	44.51	0.63	0.56		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13A-19 - Slot A10
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8181.00usft
<b>Site:</b>	S24-T6N-R97W (MESA P24)	<b>MD Reference:</b>	30' KB @ 8181.00usft
<b>Well:</b>	PUCKETT 13A-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURVEYS	<b>Database:</b>	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
946.00	5.63	44.25	943.80	49.92	21.60	53.41	0.63	0.42	
1,041.00	5.14	46.45	1,038.38	56.19	27.93	62.16	0.56	-0.52	
1,135.00	4.88	31.94	1,132.03	62.49	33.10	70.27	1.37	-0.28	
1,230.00	4.18	21.84	1,226.73	69.13	36.53	77.69	1.11	-0.74	
1,325.00	5.93	19.82	1,321.36	76.96	39.48	85.83	1.85	1.84	
1,420.00	6.37	23.51	1,415.81	86.41	43.24	95.76	0.62	0.46	
1,514.00	5.93	27.81	1,509.27	95.49	47.59	105.70	0.68	-0.47	
1,609.00	5.19	39.15	1,603.82	103.16	52.59	114.86	1.39	-0.78	
1,703.00	5.98	41.88	1,697.38	110.10	58.55	123.95	0.89	0.84	
1,797.00	6.77	46.62	1,790.80	117.55	65.84	134.22	1.01	0.84	
1,892.00	7.87	52.42	1,885.02	125.37	75.07	145.87	1.39	1.16	
1,986.00	6.15	57.43	1,978.32	132.00	84.41	156.62	1.94	-1.83	
2,080.00	5.67	49.52	2,071.82	137.73	92.19	165.73	1.00	-0.51	
2,174.00	7.95	36.08	2,165.15	146.00	99.55	176.71	2.94	2.43	LAST SURVEY - 2174' MD
2,268.00	9.23	36.95	2,258.10	157.28	107.91	190.73	1.37	1.36	
2,362.00	8.31	38.27	2,351.00	168.63	116.65	205.04	1.00	-0.98	
2,456.00	8.61	35.46	2,443.98	179.70	124.94	218.85	0.54	0.32	
2,602.00	9.67	38.01	2,588.12	198.26	138.83	242.02	0.78	0.73	
2,696.00	10.28	35.02	2,680.70	211.35	148.50	258.28	0.85	0.65	
2,790.00	12.13	28.78	2,772.91	226.88	158.07	276.50	2.35	1.97	
2,884.00	13.49	33.00	2,864.57	244.73	168.80	297.29	1.76	1.45	
2,978.00	15.56	29.04	2,955.56	264.95	180.89	320.81	2.44	2.20	
3,073.00	18.98	29.66	3,046.26	289.52	194.73	348.91	3.61	3.60	
3,166.00	21.27	28.25	3,133.58	317.53	210.20	380.76	2.52	2.46	
3,261.00	23.56	29.48	3,221.40	349.24	227.70	416.82	2.46	2.41	
3,354.00	25.84	31.33	3,305.88	382.74	247.39	455.59	2.59	2.45	
3,448.00	28.17	30.45	3,389.63	419.37	269.29	498.19	2.51	2.48	
3,542.00	29.71	31.94	3,471.89	458.27	292.86	543.61	1.81	1.64	
3,637.00	28.04	32.38	3,555.08	497.10	317.27	589.45	1.77	-1.76	
3,731.00	29.88	30.98	3,637.32	535.84	341.16	634.91	2.09	1.96	
3,826.00	30.81	30.89	3,719.30	577.01	365.83	682.82	0.98	0.98	
3,921.00	31.51	30.63	3,800.60	619.25	390.97	731.89	0.75	0.74	
4,016.00	31.82	30.45	3,881.46	662.20	416.31	781.65	0.34	0.33	
4,110.00	31.29	30.27	3,961.56	704.65	441.17	830.73	0.57	-0.56	
4,204.00	30.06	29.75	4,042.40	746.17	465.16	878.55	1.34	-1.31	
4,299.00	31.33	30.10	4,124.09	788.20	489.35	926.90	1.35	1.34	
4,394.00	30.63	30.45	4,205.54	830.43	514.00	975.68	0.76	-0.74	
4,489.00	30.45	30.45	4,287.36	872.04	538.47	1,023.84	0.19	-0.19	
4,583.00	29.75	30.19	4,368.68	912.74	562.27	1,070.87	0.76	-0.74	
4,678.00	30.45	29.13	4,450.87	954.14	585.84	1,118.36	0.93	0.74	
4,773.00	29.97	28.60	4,532.97	996.00	608.92	1,165.95	0.58	-0.51	
4,867.00	29.31	28.08	4,614.67	1,036.91	630.99	1,212.18	0.75	-0.70	
4,961.00	29.84	28.96	4,696.42	1,077.68	653.14	1,258.34	0.73	0.56	
5,055.00	28.65	27.73	4,778.44	1,118.09	674.95	1,304.02	1.42	-1.27	
5,149.00	28.08	28.34	4,861.15	1,157.50	695.94	1,348.41	0.68	-0.61	
5,243.00	27.73	28.08	4,944.22	1,196.27	716.73	1,392.15	0.39	-0.37	
5,337.00	27.20	29.31	5,027.63	1,234.30	737.54	1,435.30	0.83	-0.56	
5,431.00	28.43	31.51	5,110.77	1,272.11	759.76	1,479.05	1.70	1.31	
5,525.00	27.99	31.07	5,193.60	1,310.08	782.84	1,523.43	0.52	-0.47	
5,618.00	27.91	31.15	5,275.76	1,347.40	805.36	1,566.95	0.10	-0.09	
5,712.00	27.20	31.15	5,359.09	1,384.62	827.85	1,610.37	0.76	-0.76	
5,806.00	26.59	30.71	5,442.93	1,421.09	849.71	1,652.81	0.68	-0.65	
5,900.00	24.74	31.86	5,527.65	1,455.89	870.84	1,693.47	2.04	-1.97	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13A-19 - Slot A10
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8181.00usft
<b>Site:</b>	S24-T6N-R97W (MESA P24)	<b>MD Reference:</b>	30' KB @ 8181.00usft
<b>Well:</b>	PUCKETT 13A-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURVEYS	<b>Database:</b>	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
5,993.00	23.42	30.36	5,612.55	1,488.37	890.45	1,731.35	1.56	-1.42	
6,087.00	23.34	29.22	5,698.84	1,520.74	908.98	1,768.54	0.49	-0.09	
6,181.00	22.32	30.80	5,785.47	1,552.32	927.21	1,804.90	1.27	-1.09	
6,274.00	20.17	30.71	5,872.15	1,581.28	944.45	1,838.54	2.31	-2.31	
6,368.00	18.37	33.97	5,960.88	1,607.50	961.00	1,869.52	2.23	-1.91	
6,462.00	16.83	33.70	6,050.48	1,631.11	976.83	1,897.95	1.64	-1.64	
6,556.00	17.05	32.03	6,140.40	1,654.11	991.69	1,925.32	0.57	0.23	
6,649.00	15.38	35.90	6,229.70	1,675.66	1,006.15	1,951.28	2.14	-1.80	
6,743.00	14.94	33.35	6,320.43	1,695.88	1,020.12	1,975.85	0.85	-0.47	
6,836.00	12.35	35.90	6,410.80	1,713.95	1,032.55	1,997.79	2.86	-2.78	
6,930.00	10.37	37.66	6,502.95	1,728.80	1,043.61	2,016.28	2.14	-2.11	
7,024.00	9.45	37.13	6,595.55	1,741.65	1,053.44	2,032.43	0.98	-0.98	
7,118.00	7.38	37.31	6,688.53	1,752.60	1,061.76	2,046.17	2.20	-2.20	
7,213.00	5.41	33.88	6,782.94	1,761.17	1,067.95	2,056.74	2.11	-2.07	
7,308.00	4.40	20.61	6,877.59	1,768.30	1,071.73	2,064.76	1.59	-1.06	
7,496.00	2.29	340.62	7,065.28	1,778.60	1,073.02	2,074.00	1.61	-1.12	
7,684.00	1.23	341.67	7,253.19	1,784.06	1,071.14	2,077.45	0.56	-0.56	
7,778.00	1.45	303.79	7,347.17	1,785.68	1,069.84	2,078.05	0.95	0.23	
7,872.00	1.41	282.17	7,441.14	1,786.58	1,067.72	2,077.61	0.57	-0.04	
8,155.00	2.68	275.58	7,723.95	1,787.96	1,057.73	2,073.12	0.46	0.45	
8,437.00	3.87	266.09	8,005.49	1,787.95	1,041.67	2,064.06	0.46	0.42	
8,719.00	3.91	269.16	8,286.84	1,787.16	1,022.57	2,052.65	0.08	0.01	
9,001.00	3.65	269.34	8,568.22	1,786.92	1,003.98	2,041.97	0.09	-0.09	
9,282.00	3.69	251.14	8,848.66	1,783.89	986.47	2,029.61	0.41	0.01	
9,563.00	4.53	245.87	9,128.93	1,776.43	967.79	2,012.92	0.33	0.30	LAST SURVEY - 9563' MD
9,640.00	4.53	245.87	9,205.69	1,773.94	962.24	2,007.74	0.00	0.00	PTB - 9640' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13A-19 - Slot A10
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8181.00usft
<b>Site:</b>	S24-T6N-R97W (MESA P24)	<b>MD Reference:</b>	30' KB @ 8181.00usft
<b>Well:</b>	PUCKETT 13A-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	SURVEYS	<b>Database:</b>	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 14A-19 PBHL	0.00	0.00	9,129.00	435.55	702.78	14,358,166.49	2,441,936.10	39.504210	-108.158694
- actual wellpath misses target center by 1365.39usft at 9625.46usft MD (9191.20 TVD, 1774.41 N, 963.29 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 14C-19 PBHL	0.00	0.00	9,119.00	-151.65	947.39	14,357,587.30	2,442,199.10	39.502599	-108.157827
- actual wellpath misses target center by 1927.46usft at 9616.82usft MD (9182.59 TVD, 1774.69 N, 963.91 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 13A-19 PBHL	0.00	0.00	9,143.00	1,691.74	934.41	14,359,429.36	2,442,128.01	39.507658	-108.157873
- actual wellpath misses target center by 92.11usft at 9563.00usft MD (9128.93 TVD, 1776.43 N, 967.79 E)									
- Point									
PUCKETT 13A-19 PBHL	0.00	0.00	9,143.00	1,787.02	947.42	14,359,525.00	2,442,138.00	39.507919	-108.157827
- actual wellpath misses target center by 26.93usft at 9563.00usft MD (9128.93 TVD, 1776.43 N, 967.79 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 14D-19 PBHL	0.00	0.00	9,112.00	-413.38	960.24	14,357,326.10	2,442,220.20	39.501881	-108.157782
- actual wellpath misses target center by 2189.22usft at 9617.37usft MD (9183.13 TVD, 1774.67 N, 963.87 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 14B-19 PBHL	0.00	0.00	9,126.00	122.15	951.82	14,357,861.10	2,442,194.90	39.503350	-108.157812
- actual wellpath misses target center by 1653.55usft at 9614.64usft MD (9180.41 TVD, 1774.76 N, 964.07 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									
PUCKETT 13D-19 PBHL	0.00	0.00	9,138.00	902.72	911.02	14,358,640.00	2,442,129.50	39.505493	-108.157956
- actual wellpath misses target center by 874.62usft at 9604.34usft MD (9170.15 TVD, 1775.10 N, 964.81 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
2,174.00	2,165.15	146.00	99.55	LAST SURVEY - 2174' MD	
9,563.00	9,128.93	1,776.43	967.79	LAST SURVEY - 9563' MD	
9,640.00	9,205.69	1,773.94	962.24	PTB - 9640' MD	

Checked By: _____	Approved By: _____	Date: _____
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