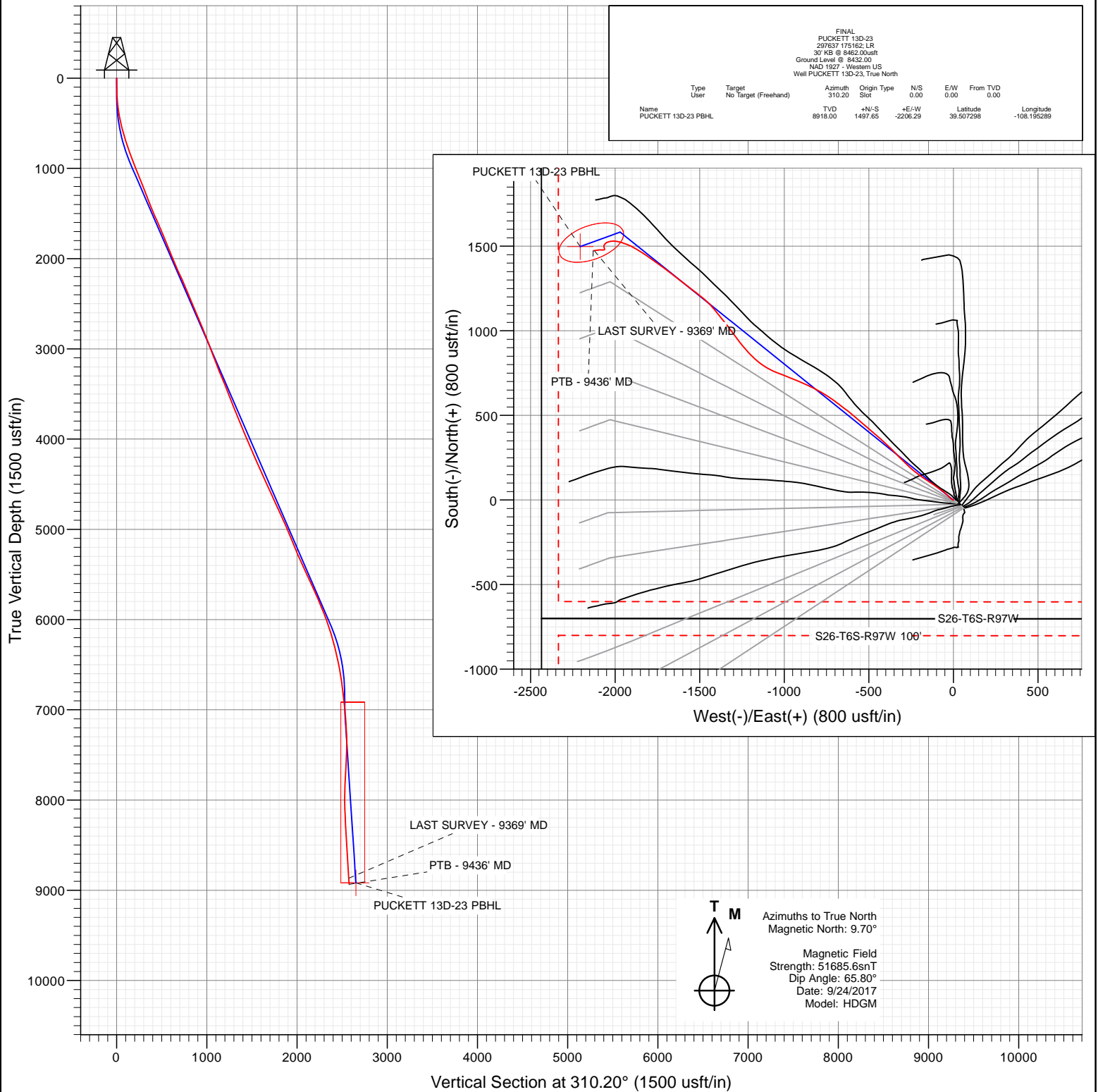




Project: Garfield County, CO (UTM 12N)  
 Site: S23-T6S-R97W (MESA N23)  
 Well: PUCKETT 13D-23  
 Wellbore: OH  
 Design: FINAL



FINAL PUCKETT 13D-23 237637 175162 LR 30' KB @ 8462.00usft Ground Level @ 8432.00 NAD 1927 - Western US Well PUCKETT 13D-23, True North							
Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD	
User	No Target (Freehand)	310.20	Slot	0.00	0.00	0.00	
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
PUCKETT 13D-23 PBHL		8918.00	1497.65	-2206.29	39.507298	-108.195289	



WELL DETAILS: PUCKETT 13D-23

+N/-S 0.00 +E/-W 0.00 Northing 14357539.00 Ground Level: 8432.00 Easting 2433828.00 Latitude 39.503188 Longitude -108.187473



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 13D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<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)		

<b>Site</b>	S23-T6S-R97W (MESA N23)		
<b>Site Position:</b>		<b>Northing:</b>	14,357,518.00 usft
<b>From:</b>	Map	<b>Easting:</b>	2,433,869.00 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13-3/16"
		<b>Latitude:</b>	39.503127
		<b>Longitude:</b>	-108.187330
		<b>Grid Convergence:</b>	1.79 °

<b>Well</b>	PUCKETT 13D-23		
<b>Well Position</b>	<b>+N/-S</b>	0.00 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.00 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	39.503188
		<b>Longitude:</b>	-108.187473
		<b>Ground Level:</b>	8,432.00 usft

<b>Wellbore</b>	OH		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	HDGM	9/24/2017	9.70
			<b>Dip Angle (°)</b>
			65.80
			<b>Field Strength (nT)</b>
			51,685.60000000

<b>Design</b>	FINAL		
<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)</b>	<b>+N/-S</b>	<b>+E/-W</b>
	(usft)	(usft)	(usft)
	0.00	0.00	0.00
			<b>Direction (°)</b>
			310.20

<b>Survey Program</b>	<b>Date</b>	9/30/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
143.00	2,459.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HDGM	
2,605.00	9,436.00	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	
143.00	2.02	286.62	142.97	0.72	-2.42	2.31	1.41	1.41	
174.00	2.68	292.78	173.94	1.16	-3.61	3.50	2.28	2.13	
204.00	3.16	299.28	203.91	1.83	-4.97	4.98	1.94	1.60	
235.00	3.78	301.92	234.85	2.79	-6.59	6.83	2.06	2.00	
266.00	4.79	307.28	265.76	4.12	-8.48	9.14	3.50	3.26	
295.00	5.71	305.52	294.64	5.69	-10.62	11.78	3.22	3.17	
387.00	9.05	313.17	385.87	13.30	-19.63	23.58	3.78	3.63	
479.00	12.44	314.84	476.24	25.24	-31.93	40.68	3.70	3.68	
570.00	14.72	310.62	564.69	39.68	-47.66	62.02	2.73	2.51	
665.00	16.79	307.89	656.12	55.97	-67.65	87.80	2.31	2.18	
759.00	18.63	304.11	745.66	72.73	-90.80	116.30	2.31	1.96	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 13D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<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
854.00	20.65	303.50	835.13	90.48	-117.34	148.03	2.14	2.13	
948.00	20.92	304.03	923.02	109.02	-145.07	181.17	0.35	0.29	
1,042.00	21.53	304.29	1,010.64	128.13	-173.23	215.02	0.66	0.65	
1,137.00	22.46	305.61	1,098.72	148.52	-202.38	250.44	1.11	0.98	
1,231.00	21.75	308.33	1,185.82	169.78	-230.64	285.75	1.33	-0.76	
1,326.00	21.53	314.22	1,274.13	192.86	-256.95	320.74	2.30	-0.23	
1,420.00	21.14	314.57	1,361.69	216.78	-281.39	354.84	0.44	-0.41	
1,515.00	21.53	312.99	1,450.18	240.69	-306.34	389.34	0.73	0.41	
1,609.00	23.91	315.28	1,536.88	265.99	-332.37	425.54	2.70	2.53	
1,704.00	24.96	315.98	1,623.37	294.08	-359.84	464.66	1.15	1.11	
1,798.00	23.29	313.87	1,709.16	321.23	-387.02	502.95	2.00	-1.78	
1,893.00	22.24	312.20	1,796.76	346.32	-413.88	539.66	1.30	-1.11	
1,987.00	22.19	311.85	1,883.78	370.11	-440.28	575.18	0.15	-0.05	
2,081.00	21.89	310.71	1,970.91	393.38	-466.79	610.44	0.56	-0.32	
2,176.00	22.02	310.00	2,059.02	416.38	-493.85	645.96	0.31	0.14	
2,270.00	25.14	310.88	2,145.16	440.78	-522.46	683.56	3.34	3.32	
2,365.00	25.31	310.53	2,231.10	467.19	-553.15	724.04	0.24	0.18	
2,459.00	23.47	310.44	2,316.71	492.39	-582.67	762.86	1.96	-1.96	LAST SURVEY - 2459' MD
2,605.00	21.27	307.54	2,451.72	527.39	-625.80	818.39	1.69	-1.51	
2,700.00	22.15	307.19	2,539.98	548.71	-653.73	853.49	0.94	0.93	
2,795.00	23.77	306.75	2,627.45	571.00	-683.34	890.49	1.71	1.71	
2,889.00	23.47	305.08	2,713.58	593.09	-713.84	928.04	0.78	-0.32	
2,983.00	22.68	303.76	2,800.06	613.92	-744.23	964.70	1.00	-0.84	
3,078.00	20.92	300.69	2,888.26	632.75	-774.04	999.63	2.21	-1.85	
3,172.00	21.49	298.84	2,975.90	649.63	-803.56	1,033.06	0.94	0.61	
3,267.00	21.18	296.03	3,064.39	665.55	-834.22	1,066.76	1.12	-0.33	
3,361.00	21.53	294.09	3,151.94	680.04	-865.23	1,099.80	0.84	0.37	
3,456.00	22.94	292.60	3,239.87	694.27	-898.23	1,134.19	1.60	1.48	
3,550.00	23.25	292.16	3,326.34	708.31	-932.33	1,169.30	0.38	0.33	
3,644.00	23.77	293.22	3,412.53	722.78	-966.92	1,205.05	0.71	0.55	
3,739.00	23.12	290.40	3,499.69	736.83	-1,002.00	1,240.92	1.36	-0.68	
3,833.00	22.32	290.84	3,586.40	749.61	-1,035.98	1,275.12	0.87	-0.85	
3,928.00	22.46	296.03	3,674.25	764.00	-1,069.15	1,309.74	2.09	0.15	
4,022.00	22.63	300.16	3,761.07	780.96	-1,100.92	1,344.96	1.69	0.18	
4,117.00	21.89	305.17	3,849.00	800.35	-1,131.20	1,380.60	2.14	-0.78	
4,211.00	22.28	309.56	3,936.10	821.79	-1,159.27	1,415.88	1.80	0.41	
4,305.00	23.07	314.31	4,022.85	846.01	-1,186.19	1,452.07	2.12	0.84	
4,400.00	23.69	317.30	4,110.05	873.04	-1,212.45	1,489.57	1.41	0.65	
4,494.00	25.23	319.32	4,195.61	902.11	-1,238.32	1,528.10	1.86	1.64	
4,589.00	24.74	322.57	4,281.72	933.25	-1,263.60	1,567.51	1.53	-0.52	
4,683.00	24.48	323.80	4,367.19	964.59	-1,287.06	1,605.65	0.61	-0.28	
4,778.00	24.87	323.27	4,453.51	996.48	-1,310.63	1,644.24	0.47	0.41	
4,872.00	24.17	321.69	4,539.03	1,027.42	-1,334.38	1,682.35	1.02	-0.74	
4,967.00	24.96	321.69	4,625.44	1,058.41	-1,358.86	1,721.05	0.83	0.83	
5,062.00	25.49	321.60	4,711.38	1,090.16	-1,383.98	1,760.74	0.56	0.56	
5,156.00	25.18	320.37	4,796.34	1,121.42	-1,409.30	1,800.25	0.65	-0.33	
5,251.00	24.35	317.56	4,882.60	1,151.44	-1,435.41	1,839.56	1.52	-0.87	
5,345.00	23.95	311.67	4,968.39	1,178.42	-1,462.74	1,877.86	2.60	-0.43	
5,440.00	22.68	308.33	5,055.63	1,202.61	-1,491.52	1,915.45	1.93	-1.34	
5,534.00	21.89	307.01	5,142.61	1,224.39	-1,519.73	1,951.06	0.99	-0.84	
5,629.00	22.94	307.54	5,230.43	1,246.33	-1,548.55	1,987.23	1.13	1.11	
5,723.00	23.95	307.89	5,316.67	1,269.21	-1,578.13	2,024.60	1.08	1.07	
5,818.00	24.65	307.45	5,403.25	1,293.10	-1,609.08	2,063.65	0.76	0.74	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 13D-23
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>TVD Reference:</b>	30' KB @ 8462.00usft
<b>Site:</b>	S23-T6S-R97W (MESA N23)	<b>MD Reference:</b>	30' KB @ 8462.00usft
<b>Well:</b>	PUCKETT 13D-23	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<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
5,912.00	24.92	307.54	5,488.59	1,317.09	-1,640.34	2,103.01	0.29	0.29	
6,007.00	24.61	307.45	5,574.86	1,341.31	-1,671.92	2,142.76	0.33	-0.33	
6,101.00	24.43	306.84	5,660.38	1,364.87	-1,703.01	2,181.72	0.33	-0.19	
6,196.00	24.30	306.66	5,746.92	1,388.32	-1,734.41	2,220.84	0.16	-0.14	
6,290.00	22.37	304.55	5,833.23	1,410.01	-1,764.67	2,257.95	2.24	-2.05	
6,385.00	21.45	305.70	5,921.37	1,430.40	-1,793.66	2,293.26	1.07	-0.97	
6,479.00	19.91	304.38	6,009.31	1,449.47	-1,820.83	2,326.32	1.71	-1.64	
6,574.00	18.81	302.09	6,098.93	1,466.74	-1,847.16	2,357.57	1.41	-1.16	
6,668.00	16.83	301.30	6,188.42	1,481.87	-1,871.63	2,386.02	2.12	-2.11	
6,763.00	14.46	296.82	6,279.90	1,494.36	-1,893.97	2,411.15	2.80	-2.49	
6,857.00	13.49	293.48	6,371.12	1,504.03	-1,914.50	2,433.07	1.34	-1.03	
6,952.00	12.26	291.46	6,463.73	1,512.13	-1,934.05	2,453.24	1.38	-1.29	
7,046.00	10.90	289.52	6,555.81	1,518.75	-1,951.71	2,471.00	1.50	-1.45	
7,141.00	10.15	285.74	6,649.21	1,524.03	-1,968.24	2,487.03	1.07	-0.79	
7,235.00	9.01	279.07	6,741.90	1,527.43	-1,983.48	2,500.87	1.69	-1.21	
7,330.00	7.87	276.43	6,835.87	1,529.34	-1,997.29	2,512.64	1.27	-1.20	
7,425.00	7.21	271.95	6,930.05	1,530.27	-2,009.71	2,522.73	0.93	-0.69	
7,519.00	7.12	262.98	7,023.32	1,529.76	-2,021.39	2,531.32	1.19	-0.10	
7,614.00	7.12	259.11	7,117.59	1,527.92	-2,033.01	2,539.02	0.50	0.00	
7,708.00	6.90	248.22	7,210.89	1,524.73	-2,043.98	2,545.33	1.43	-0.23	
7,803.00	6.37	233.19	7,305.26	1,519.45	-2,053.50	2,549.20	1.90	-0.56	
7,897.00	5.98	217.19	7,398.72	1,512.43	-2,060.63	2,550.11	1.87	-0.41	
7,992.00	4.66	198.56	7,493.32	1,504.82	-2,064.85	2,548.43	2.27	-1.39	
8,086.00	4.35	175.09	7,587.04	1,497.65	-2,065.76	2,544.49	1.97	-0.33	
8,370.00	2.64	148.90	7,870.51	1,481.32	-2,061.46	2,530.67	0.81	-0.60	
8,653.00	3.12	286.62	8,153.36	1,477.94	-2,065.48	2,531.55	1.90	0.17	
9,031.00	5.10	263.60	8,530.39	1,479.01	-2,092.04	2,552.53	0.67	0.52	
9,369.00	5.45	257.27	8,866.97	1,473.80	-2,122.62	2,572.52	0.20	0.10	LAST SURVEY - 9369' MD
9,436.00	5.45	257.27	8,933.66	1,472.39	-2,128.83	2,576.36	0.00	0.00	PTB - 9436' MD

### Targets

#### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
PUCKETT 13D-23 PBHI	0.00	0.00	8,918.00	1,497.65	-2,206.29	14,358,967.00	2,431,576.00	39.507298	-108.195289
- actual wellpath misses target center by 82.49usft at 9427.06usft MD (8924.76 TVD, 1472.58 N, -2128.00 E)									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,459.00	2,316.71	492.39	-582.67	LAST SURVEY - 2459' MD
9,369.00	8,866.97	1,473.80	-2,122.62	LAST SURVEY - 9369' MD
9,436.00	8,933.66	1,472.39	-2,128.83	PTB - 9436' MD

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_