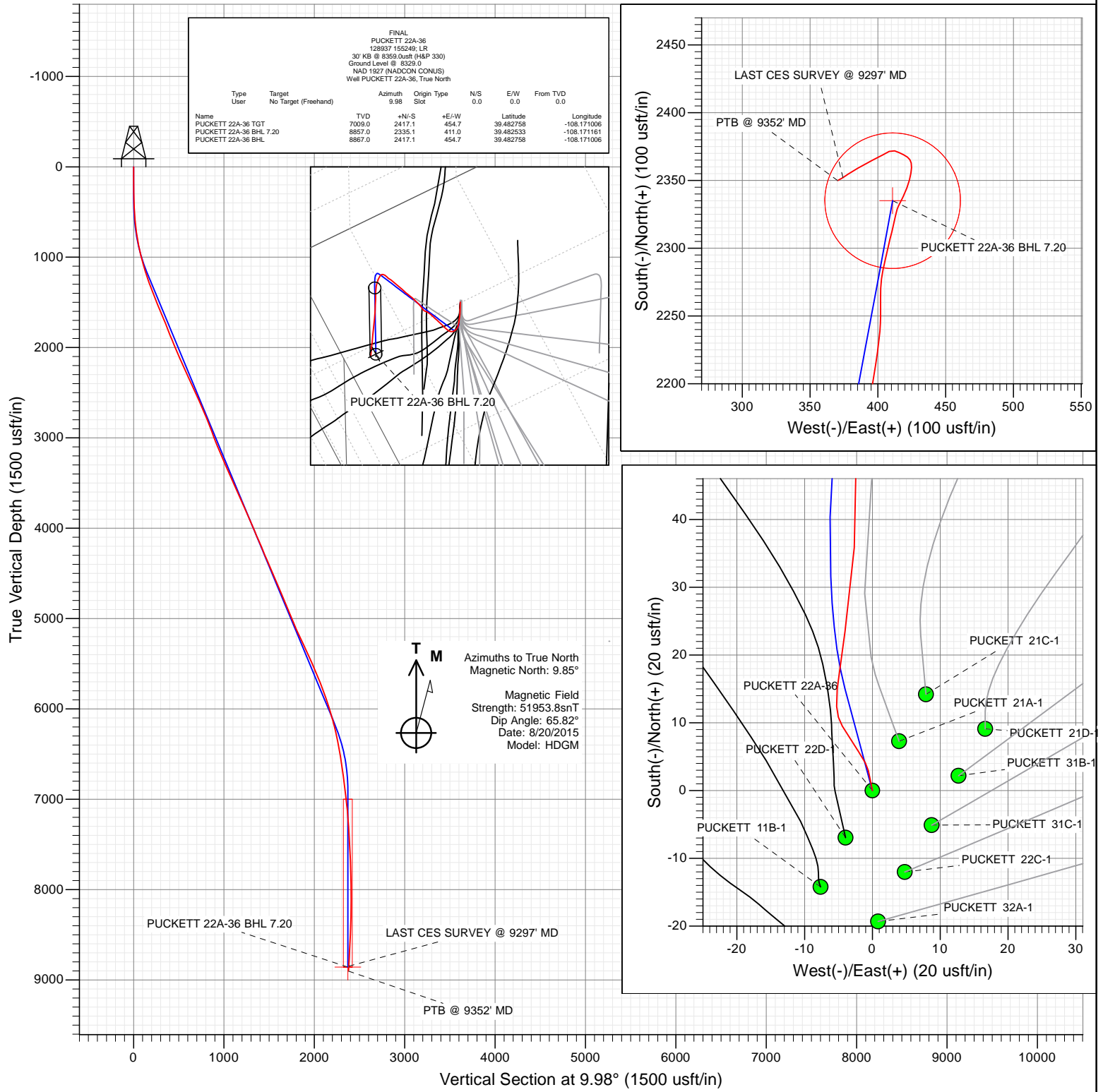




Project: Garfield County, CO  
 Site: S1-T7S-R97W (Mesa E1 797)  
 Well: PUCKETT 22A-36  
 Wellbore: OH  
 Design: FINAL



## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 22A-36
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 22A-36	<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		
<b>Map System:</b>	US State Plane 1927 (Exact solution)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 (NADCON CONUS)		
<b>Map Zone:</b>	Colorado Central 502		

Site		S1-T7S-R97W (Mesa E1 797)			
Site Position:		Northing:	609,370.34 usft	Latitude:	39.476064
From:	Lat/Long	Easting:	1,245,650.28 usft	Longitude:	-108.172658
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.69 °

Well	PUCKETT 22A-36					
Well Position	+N/-S	0.0 usft	Northing:	609,391.11 usft	Latitude:	39.476122
	+E/-W	0.0 usft	Easting:	1,245,662.47 usft	Longitude:	-108.172617
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	8,329.0 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	8/20/2015	9.85	65.82	51,954

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	9.98	

<b>Survey Program</b>	<b>Date</b>	8/28/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
286.0	9,352.0	Survey #1 (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>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
286.0	1.20	348.80	286.0	2.9	-0.6	2.8	0.42	0.42		
377.0	2.70	326.00	376.9	5.6	-2.0	5.2	1.82	1.65		
468.0	3.10	329.00	467.8	9.5	-4.4	8.6	0.47	0.44		
521.0	3.60	356.70	520.7	12.4	-5.3	11.3	3.16	0.94		
559.0	4.20	6.10	558.6	15.0	-5.2	13.9	2.30	1.58		
654.0	6.30	9.00	653.2	23.6	-4.0	22.6	2.23	2.21		
748.0	8.80	4.20	746.4	35.9	-2.7	34.9	2.74	2.66		
843.0	10.90	358.70	840.0	52.1	-2.3	50.9	2.42	2.21		
938.0	12.90	358.10	933.0	71.7	-2.9	70.1	2.11	2.11		
1,032.0	14.80	358.80	1,024.2	94.2	-3.5	92.1	2.03	2.02		
1,127.0	16.20	2.00	1,115.8	119.6	-3.3	117.2	1.73	1.47		
1,221.0	18.10	6.80	1,205.6	147.2	-1.1	144.7	2.52	2.02		

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 22A-36
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 22A-36	<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
1,316.0	19.50	7.80	1,295.5	177.5	2.8	175.3	1.51	1.47	
1,411.0	21.70	8.90	1,384.4	210.6	7.7	208.7	2.35	2.32	
1,505.0	23.10	8.90	1,471.3	246.0	13.2	244.5	1.49	1.49	
1,600.0	22.40	11.50	1,559.0	282.1	19.7	281.3	1.29	-0.74	
1,694.0	22.90	14.80	1,645.7	317.4	27.9	317.4	1.45	0.53	
1,789.0	21.10	15.00	1,733.8	351.8	37.1	352.9	1.90	-1.89	
1,884.0	21.50	14.70	1,822.3	385.1	45.9	387.2	0.44	0.42	
1,979.0	23.00	12.80	1,910.2	420.1	54.5	423.1	1.75	1.58	
2,073.0	23.20	11.70	1,996.7	456.1	62.3	460.0	0.51	0.21	
2,167.0	23.60	11.40	2,083.0	492.7	69.8	497.3	0.44	0.43	
2,262.0	24.30	10.50	2,169.8	530.5	77.1	535.9	0.83	0.74	
2,357.0	23.50	10.90	2,256.6	568.3	84.2	574.3	0.86	-0.84	
2,451.0	23.60	9.90	2,342.8	605.3	91.0	611.9	0.44	0.11	
2,501.0	24.30	10.40	2,388.5	625.3	94.6	632.2	1.46	1.40	
2,595.0	25.00	9.20	2,473.9	663.9	101.3	671.4	0.92	0.74	
2,690.0	24.50	10.00	2,560.2	703.1	107.9	711.2	0.63	-0.53	
2,784.0	23.90	9.70	2,645.9	741.1	114.5	749.7	0.65	-0.64	
2,879.0	23.00	9.30	2,733.1	778.4	120.7	787.5	0.96	-0.95	
2,973.0	22.20	8.00	2,819.9	814.1	126.2	823.6	1.00	-0.85	
3,068.0	20.00	7.20	2,908.5	848.0	130.7	857.8	2.34	-2.32	
3,163.0	20.50	11.60	2,997.6	880.4	136.1	890.6	1.69	0.53	
3,257.0	21.50	14.40	3,085.4	913.2	143.7	924.3	1.51	1.06	
3,352.0	24.10	15.00	3,173.0	948.8	153.0	961.0	2.75	2.74	
3,446.0	24.00	14.80	3,258.8	985.8	162.9	999.1	0.14	-0.11	
3,541.0	23.50	14.80	3,345.8	1,022.8	172.6	1,037.2	0.53	-0.53	
3,636.0	24.40	12.80	3,432.6	1,060.3	181.8	1,075.7	1.28	0.95	
3,730.0	24.10	12.50	3,518.3	1,097.9	190.3	1,114.3	0.35	-0.32	
3,825.0	22.60	12.20	3,605.5	1,134.7	198.3	1,151.9	1.58	-1.58	
3,919.0	24.60	10.30	3,691.6	1,171.6	205.7	1,189.5	2.28	2.13	
4,014.0	23.90	10.50	3,778.2	1,210.0	212.7	1,228.5	0.74	-0.74	
4,108.0	23.90	10.50	3,864.2	1,247.4	219.6	1,266.6	0.00	0.00	
4,203.0	23.40	10.50	3,951.2	1,284.9	226.6	1,304.7	0.53	-0.53	
4,297.0	22.50	9.70	4,037.8	1,321.0	233.0	1,341.4	1.01	-0.96	
4,392.0	24.00	10.10	4,125.1	1,357.9	239.5	1,378.9	1.59	1.58	
4,486.0	23.60	9.50	4,211.1	1,395.3	245.9	1,416.8	0.50	-0.43	
4,580.0	22.30	10.40	4,297.6	1,431.4	252.3	1,453.5	1.43	-1.38	
4,675.0	23.40	11.60	4,385.2	1,467.6	259.3	1,490.3	1.26	1.16	
4,770.0	22.90	12.00	4,472.5	1,504.2	266.9	1,527.7	0.55	-0.53	
4,864.0	24.20	11.70	4,558.7	1,540.9	274.6	1,565.2	1.39	1.38	
4,959.0	23.20	11.10	4,645.7	1,578.4	282.2	1,603.4	1.08	-1.05	
5,053.0	22.40	11.10	4,732.3	1,614.1	289.2	1,639.8	0.85	-0.85	
5,148.0	21.80	10.50	4,820.3	1,649.2	295.9	1,675.5	0.67	-0.63	
5,243.0	23.40	12.00	4,908.0	1,685.0	303.0	1,712.0	1.79	1.68	
5,337.0	21.80	12.10	4,994.8	1,720.3	310.6	1,748.1	1.70	-1.70	
5,432.0	23.30	11.20	5,082.6	1,756.0	317.9	1,784.6	1.62	1.58	
5,526.0	25.90	7.60	5,168.0	1,794.6	324.3	1,823.7	3.19	2.77	
5,621.0	25.60	6.30	5,253.6	1,835.6	329.3	1,864.9	0.67	-0.32	
5,715.0	24.50	5.60	5,338.7	1,875.2	333.4	1,904.6	1.21	-1.17	
5,810.0	23.80	5.10	5,425.4	1,913.9	337.0	1,943.3	0.77	-0.74	
5,905.0	23.00	11.20	5,512.6	1,951.2	342.3	1,981.0	2.68	-0.84	
5,999.0	23.20	12.40	5,599.1	1,987.3	349.9	2,017.8	0.54	0.21	
6,094.0	22.90	12.60	5,686.5	2,023.6	357.9	2,055.0	0.33	-0.32	
6,188.0	20.50	11.00	5,773.8	2,057.6	365.0	2,089.7	2.63	-2.55	

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 22A-36
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 22A-36	<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
6,283.0	18.90	13.40	5,863.3	2,088.9	371.8	2,121.7	1.89	-1.68	
6,377.0	17.80	13.80	5,952.5	2,117.7	378.7	2,151.2	1.18	-1.17	
6,472.0	16.90	11.60	6,043.2	2,145.3	385.0	2,179.5	1.17	-0.95	
6,566.0	15.50	12.50	6,133.4	2,170.9	390.5	2,205.7	1.51	-1.49	
6,661.0	12.70	10.60	6,225.6	2,193.6	395.1	2,228.9	2.99	-2.95	
6,756.0	12.40	8.20	6,318.3	2,214.0	398.5	2,249.5	0.63	-0.32	
6,850.0	11.10	6.60	6,410.3	2,232.9	401.0	2,268.6	1.43	-1.38	
6,945.0	8.80	0.50	6,503.9	2,249.3	402.1	2,284.9	2.66	-2.42	
7,039.0	8.50	358.90	6,596.8	2,263.4	402.0	2,298.8	0.41	-0.32	
7,134.0	8.40	7.50	6,690.8	2,277.3	402.8	2,312.7	1.33	-0.11	
7,228.0	7.30	13.80	6,783.9	2,289.9	405.1	2,325.5	1.48	-1.17	
7,323.0	7.20	12.30	6,878.2	2,301.6	407.8	2,337.5	0.23	-0.11	
7,417.0	6.10	15.60	6,971.5	2,312.2	410.4	2,348.3	1.24	-1.17	
7,521.0	6.50	10.40	7,074.9	2,323.3	413.0	2,359.7	0.67	0.38	
7,607.0	4.70	24.50	7,160.5	2,331.3	415.3	2,368.0	2.62	-2.09	
7,701.0	4.40	29.80	7,254.2	2,337.9	418.7	2,375.1	0.55	-0.32	
7,795.0	4.20	17.00	7,347.9	2,344.3	421.5	2,381.9	1.04	-0.21	
7,890.0	3.30	16.80	7,442.7	2,350.3	423.3	2,388.1	0.95	-0.95	
7,985.0	2.90	7.50	7,537.6	2,355.3	424.4	2,393.2	0.68	-0.42	
8,079.0	2.30	5.80	7,631.5	2,359.5	424.9	2,397.4	0.64	-0.64	
8,174.0	1.80	342.60	7,726.4	2,362.8	424.7	2,400.7	1.01	-0.53	
8,269.0	1.50	334.70	7,821.4	2,365.4	423.7	2,403.0	0.40	-0.32	
8,363.0	1.80	300.30	7,915.4	2,367.2	421.9	2,404.5	1.08	0.32	
8,458.0	2.20	301.50	8,010.3	2,368.9	419.0	2,405.7	0.42	0.42	
8,552.0	2.10	291.40	8,104.2	2,370.5	415.9	2,406.7	0.42	-0.11	
8,647.0	2.30	290.70	8,199.2	2,371.8	412.5	2,407.4	0.21	0.21	
8,741.0	3.00	244.60	8,293.1	2,371.4	408.5	2,406.3	2.31	0.74	
8,836.0	3.40	240.30	8,387.9	2,369.0	403.8	2,403.1	0.49	0.42	
8,930.0	4.10	244.50	8,481.7	2,366.1	398.4	2,399.4	0.80	0.74	
9,025.0	4.90	240.00	8,576.4	2,362.7	391.8	2,394.8	0.92	0.84	
9,119.0	4.10	243.20	8,670.1	2,359.1	385.3	2,390.2	0.89	-0.85	
9,214.0	4.10	232.50	8,764.9	2,355.5	379.6	2,385.7	0.80	0.00	
9,297.0	4.60	240.80	8,847.7	2,352.1	374.3	2,381.4	0.97	0.60	LAST CES SURVEY @ 9297' MD
9,352.0	4.60	240.80	8,902.5	2,350.0	370.5	2,378.6	0.00	0.00	PTB @ 9352' MD

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 22A-36
<b>Project:</b>	Garfield County, CO	<b>TVD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Site:</b>	S1-T7S-R97W (Mesa E1 797)	<b>MD Reference:</b>	30' KB @ 8359.0usft (H&P 330)
<b>Well:</b>	PUCKETT 22A-36	<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

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PUCKETT 22A-36 BHL - actual wellpath misses target center by 105.2usft at 9297.0usft MD (8847.7 TVD, 2352.1 N, 374.3 E) - Circle (radius 50.0)	0.00	0.00	8,867.0	2,417.1	454.7	611,793.74	1,246,188.10	39.482758	-108.171006
PUCKETT 22A-36 BHL - actual wellpath misses target center by 41.5usft at 9297.0usft MD (8847.7 TVD, 2352.1 N, 374.3 E) - Circle (radius 50.0)	0.00	0.00	8,857.0	2,335.1	411.0	611,713.11	1,246,141.96	39.482533	-108.171161
PUCKETT 22A-36 TGT - actual wellpath misses target center by 109.2usft at 7466.5usft MD (7020.8 TVD, 2317.4 N, 411.7 E) - Point	0.00	0.00	7,009.0	2,417.1	454.7	611,793.74	1,246,188.10	39.482758	-108.171006

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,297.0	8,847.7	2,352.1	374.3	LAST CES SURVEY @ 9297' MD	
9,352.0	8,902.5	2,350.0	370.5	PTB @ 9352' MD	

Checked By: _____	Approved By: _____	Date: _____
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