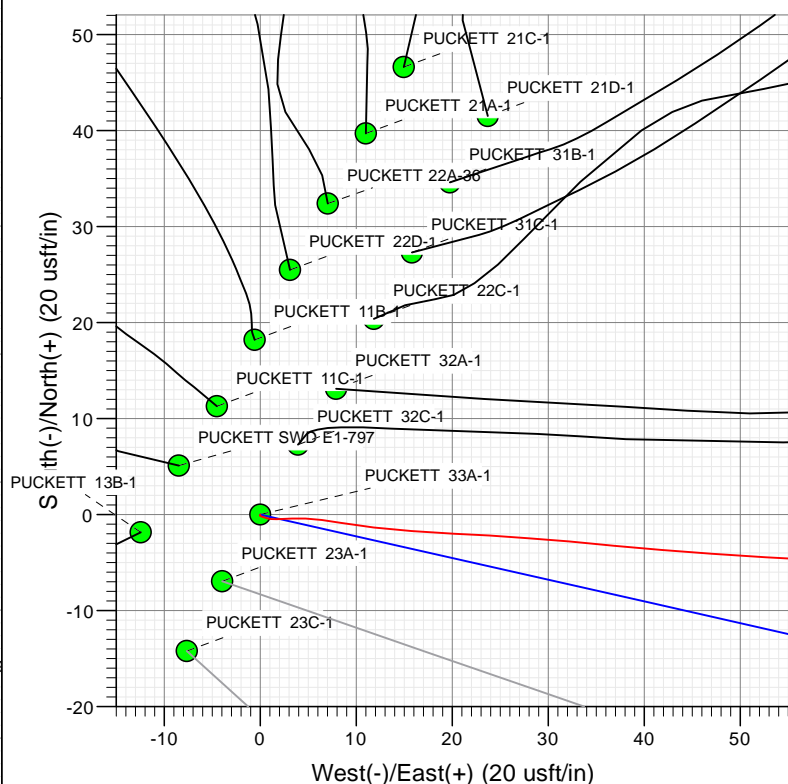
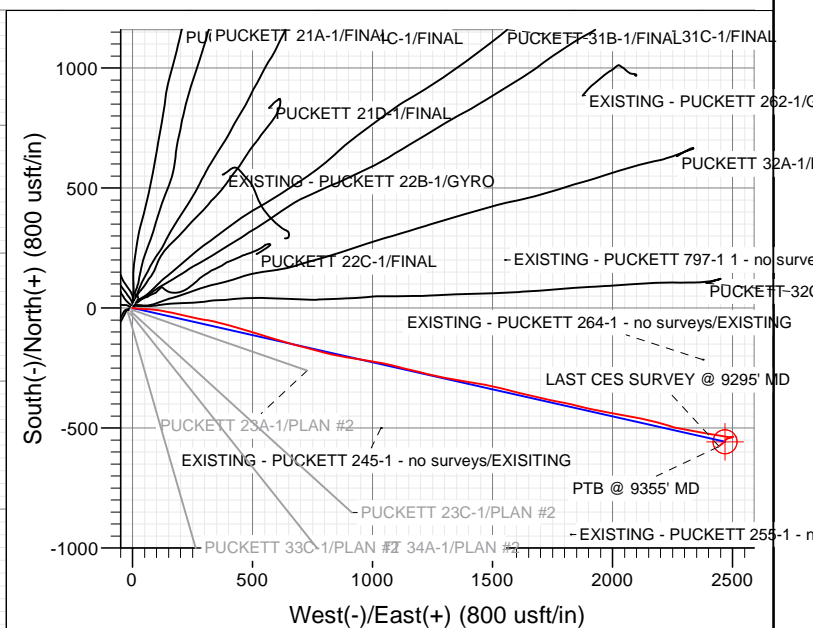
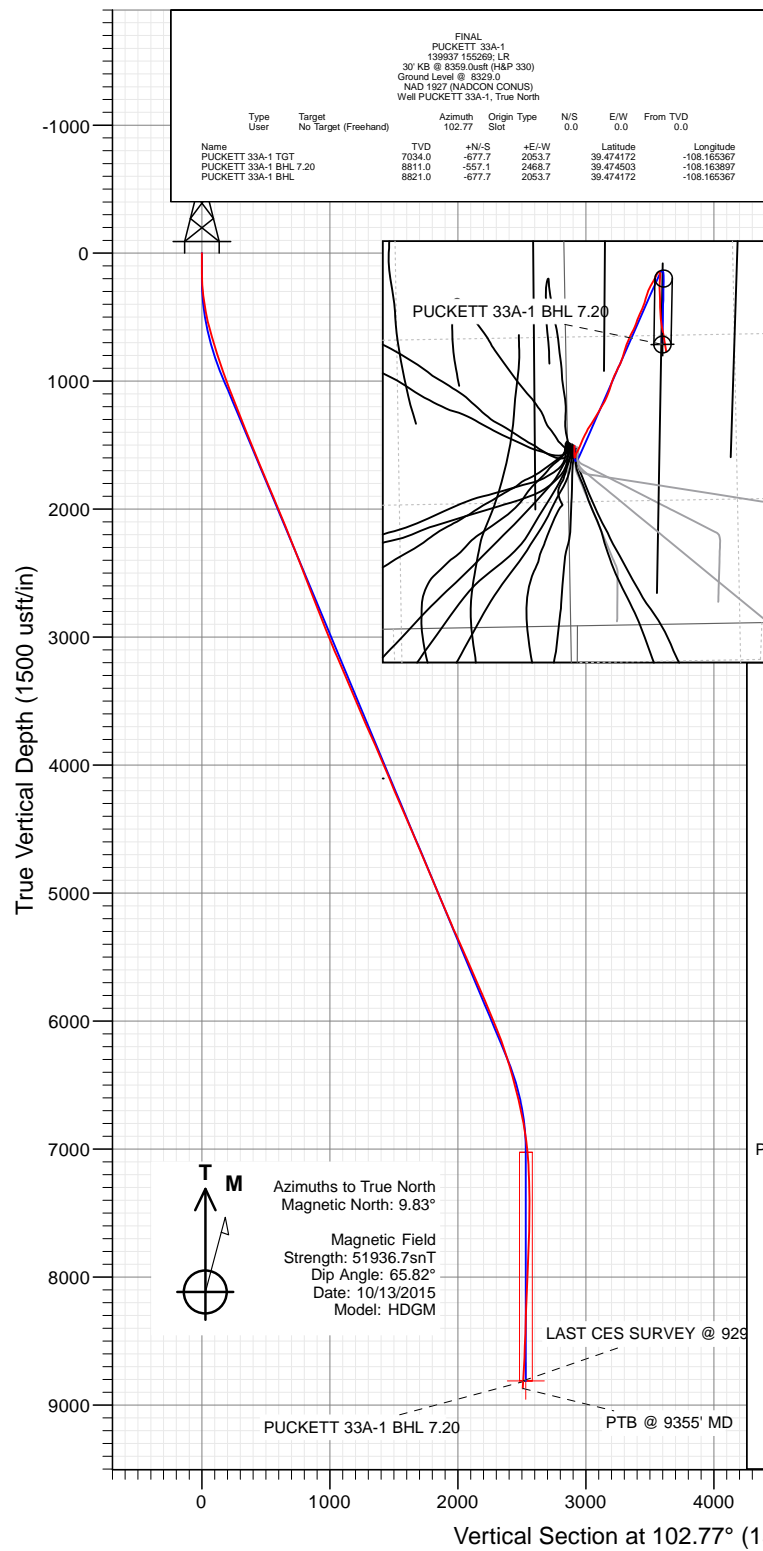




Project: Garfield County, CO  
Site: S1-T7S-R97W (Mesa E1 797)  
Well: PUCKETT 33A-1  
Wellbore: OH  
Design: FINAL



WELL DETAILS: PUCKETT 33A-1

+N/-S	+E/-W	Ground Level:	8329.0
0.0	0.0	Easting	1245654.47
		Latitude	39.476033
		Longitude	-108.172642



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 33A-1
<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 33A-1	<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 33A-1					
Well Position	+N/-S	0.0 usft	Northing:	609,358.91 usft	Latitude:	39.476033
	+E/-W	0.0 usft	Easting:	1,245,654.47 usft	Longitude:	-108.172642
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	10/13/2015	9.83	65.82	51,937

<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	102.77	

<b>Survey Program</b>	<b>Date</b>	10/18/2015			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
131.0	9,355.0	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		
131.0	0.10	190.20	131.0	-0.1	0.0	0.0	0.08	0.08		
162.0	0.70	107.10	162.0	-0.2	0.2	0.2	2.24	1.94		
192.0	1.40	107.80	192.0	-0.4	0.7	0.7	2.33	2.33		
223.0	2.50	89.70	223.0	-0.5	1.7	1.8	4.02	3.55		
253.0	3.60	86.30	252.9	-0.4	3.3	3.3	3.71	3.67		
314.0	6.10	99.90	313.7	-0.8	8.4	8.4	4.48	4.10		
405.0	8.90	92.50	403.9	-2.0	20.2	20.2	3.25	3.08		
496.0	12.20	95.60	493.4	-3.2	36.8	36.6	3.68	3.63		
587.0	15.60	92.70	581.7	-4.7	58.6	58.2	3.81	3.74		
683.0	16.50	93.40	674.0	-6.2	85.1	84.4	0.96	0.94		
778.0	17.40	98.60	764.8	-9.1	112.6	111.9	1.85	0.95		
872.0	17.80	103.30	854.4	-14.5	140.5	140.2	1.57	0.43		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 33A-1
<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 33A-1	<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
967.0	19.60	101.00	944.4	-20.9	170.3	170.7	2.05	1.89	
1,061.0	21.60	103.10	1,032.4	-27.8	202.6	203.8	2.27	2.13	
1,156.0	21.00	104.10	1,120.9	-35.9	236.2	238.3	0.74	-0.63	
1,251.0	21.10	101.70	1,209.6	-43.5	269.4	272.4	0.91	0.11	
1,345.0	22.10	97.60	1,297.0	-49.3	303.5	306.9	1.93	1.06	
1,440.0	22.10	103.10	1,385.0	-55.7	338.6	342.6	2.18	0.00	
1,535.0	22.30	106.40	1,473.0	-64.9	373.3	378.4	1.33	0.21	
1,629.0	22.40	103.50	1,559.9	-74.1	407.9	414.1	1.18	0.11	
1,724.0	22.10	104.80	1,647.8	-82.9	442.7	450.1	0.61	-0.32	
1,818.0	22.50	108.80	1,734.8	-93.2	476.9	485.7	1.67	0.43	
1,913.0	22.70	107.30	1,822.5	-104.5	511.6	522.0	0.64	0.21	
2,008.0	22.80	107.80	1,910.1	-115.6	546.6	558.6	0.23	0.11	
2,102.0	22.60	106.10	1,996.9	-126.1	581.3	594.8	0.73	-0.21	
2,197.0	22.40	106.20	2,084.6	-136.2	616.2	631.1	0.21	-0.21	
2,291.0	22.60	104.90	2,171.5	-145.9	650.9	667.0	0.57	0.21	
2,386.0	22.00	105.70	2,259.4	-155.4	685.6	703.0	0.71	-0.63	
2,480.0	21.30	105.00	2,346.7	-164.6	719.1	737.7	0.79	-0.74	
2,592.0	20.30	104.60	2,451.4	-174.7	757.5	777.4	0.90	-0.89	
2,686.0	21.40	103.10	2,539.3	-182.7	790.0	810.9	1.30	1.17	
2,781.0	22.50	102.80	2,627.4	-190.7	824.6	846.4	1.16	1.16	
2,875.0	20.60	103.50	2,714.8	-198.5	858.2	880.9	2.04	-2.02	
2,970.0	20.70	100.30	2,803.7	-205.4	891.0	914.4	1.19	0.11	
3,065.0	21.40	98.00	2,892.4	-210.9	924.7	948.4	1.14	0.74	
3,159.0	22.20	98.10	2,979.6	-215.8	959.3	983.2	0.85	0.85	
3,254.0	22.40	99.60	3,067.5	-221.3	994.9	1,019.2	0.64	0.21	
3,349.0	24.00	101.50	3,154.9	-228.2	1,031.7	1,056.6	1.86	1.68	
3,443.0	22.50	101.40	3,241.2	-235.5	1,068.0	1,093.7	1.60	-1.60	
3,538.0	23.80	105.40	3,328.6	-244.2	1,104.3	1,131.0	2.15	1.37	
3,632.0	22.80	102.80	3,414.9	-253.3	1,140.4	1,168.2	1.53	-1.06	
3,727.0	23.50	103.20	3,502.3	-261.7	1,176.8	1,205.5	0.76	0.74	
3,821.0	21.80	104.60	3,589.0	-270.4	1,211.9	1,241.7	1.90	-1.81	
3,916.0	23.40	103.10	3,676.7	-279.1	1,247.4	1,278.2	1.79	1.68	
4,010.0	24.70	102.00	3,762.5	-287.4	1,284.8	1,316.5	1.46	1.38	
4,105.0	23.60	100.90	3,849.2	-295.1	1,322.8	1,355.4	1.25	-1.16	
4,200.0	22.80	98.10	3,936.6	-301.3	1,359.7	1,392.7	1.43	-0.84	
4,294.0	23.70	99.80	4,022.9	-307.1	1,396.4	1,429.7	1.19	0.96	
4,389.0	22.50	99.70	4,110.3	-313.4	1,433.1	1,467.0	1.26	-1.26	
4,483.0	22.70	101.10	4,197.1	-319.9	1,468.7	1,503.0	0.61	0.21	
4,577.0	23.40	102.80	4,283.6	-327.6	1,504.7	1,539.8	1.03	0.74	
4,672.0	23.00	103.10	4,370.9	-336.0	1,541.1	1,577.3	0.44	-0.42	
4,766.0	23.50	104.00	4,457.3	-344.7	1,577.2	1,614.4	0.65	0.53	
4,861.0	24.10	103.90	4,544.2	-353.9	1,614.4	1,652.7	0.63	0.63	
4,955.0	22.00	105.00	4,630.7	-363.1	1,650.0	1,689.5	2.28	-2.23	
5,050.0	23.30	103.70	4,718.3	-372.1	1,685.5	1,726.0	1.47	1.37	
5,145.0	22.70	100.50	4,805.8	-379.9	1,721.8	1,763.2	1.46	-0.63	
5,239.0	22.30	99.30	4,892.6	-386.1	1,757.2	1,799.1	0.65	-0.43	
5,334.0	23.10	102.30	4,980.3	-393.0	1,793.2	1,835.7	1.48	0.84	
5,428.0	24.00	103.60	5,066.5	-401.4	1,829.8	1,873.3	1.11	0.96	
5,523.0	22.90	104.70	5,153.6	-410.6	1,866.5	1,911.1	1.25	-1.16	
5,617.0	23.20	102.40	5,240.1	-419.3	1,902.2	1,947.8	1.01	0.32	
5,712.0	24.60	101.00	5,327.0	-427.0	1,939.9	1,986.3	1.59	1.47	
5,807.0	24.40	100.60	5,413.4	-434.4	1,978.6	2,025.7	0.27	-0.21	
5,901.0	23.70	99.90	5,499.2	-441.2	2,016.3	2,064.0	0.80	-0.74	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 33A-1
<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 33A-1	<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
5,996.0	22.30	99.80	5,586.7	-447.6	2,052.9	2,101.0	1.47	-1.47	
6,090.0	23.40	99.30	5,673.3	-453.7	2,088.9	2,137.5	1.19	1.17	
6,185.0	23.60	103.70	5,760.4	-461.2	2,126.0	2,175.3	1.86	0.21	
6,279.0	23.50	105.00	5,846.6	-470.5	2,162.4	2,212.9	0.56	-0.11	
6,374.0	22.90	104.90	5,933.9	-480.2	2,198.5	2,250.3	0.63	-0.63	
6,469.0	23.20	107.10	6,021.3	-490.4	2,234.3	2,287.4	0.96	0.32	
6,563.0	20.30	103.20	6,108.7	-499.6	2,267.8	2,322.2	3.45	-3.09	
6,658.0	18.70	100.00	6,198.2	-506.0	2,298.9	2,353.9	2.02	-1.68	
6,752.0	18.00	98.90	6,287.4	-510.9	2,328.1	2,383.4	0.83	-0.74	
6,847.0	16.00	99.10	6,378.3	-515.2	2,355.5	2,411.1	2.11	-2.11	
6,941.0	14.70	99.70	6,468.9	-519.3	2,380.1	2,436.0	1.39	-1.38	
7,036.0	13.90	102.00	6,561.0	-523.7	2,403.1	2,459.4	1.03	-0.84	
7,131.0	13.20	101.30	6,653.3	-528.2	2,424.9	2,481.7	0.76	-0.74	
7,225.0	11.30	100.60	6,745.2	-532.0	2,444.5	2,501.6	2.03	-2.02	
7,320.0	9.70	100.50	6,838.6	-535.1	2,461.5	2,518.9	1.68	-1.68	
7,414.0	7.10	96.40	6,931.6	-537.2	2,475.1	2,532.6	2.84	-2.77	
7,509.0	5.80	87.30	7,026.0	-537.7	2,485.7	2,543.0	1.74	-1.37	
7,603.0	3.90	84.60	7,119.6	-537.1	2,493.6	2,550.7	2.04	-2.02	
7,698.0	2.00	76.70	7,214.5	-536.4	2,498.4	2,555.2	2.04	-2.00	
7,792.0	1.80	74.70	7,308.4	-535.7	2,501.5	2,558.0	0.22	-0.21	
7,887.0	0.30	147.90	7,403.4	-535.5	2,503.0	2,559.5	1.83	-1.58	
7,981.0	1.10	228.80	7,497.4	-536.3	2,502.5	2,559.1	1.16	0.85	
8,076.0	1.80	248.30	7,592.4	-537.4	2,500.4	2,557.4	0.89	0.74	
8,171.0	2.80	244.30	7,687.3	-539.0	2,496.9	2,554.3	1.07	1.05	
8,265.0	1.80	262.30	7,781.2	-540.2	2,493.4	2,551.1	1.30	-1.06	
8,360.0	2.20	258.80	7,876.2	-540.8	2,490.1	2,548.1	0.44	0.42	
8,455.0	2.60	258.50	7,971.1	-541.5	2,486.2	2,544.4	0.42	0.42	
8,549.0	3.40	254.10	8,065.0	-542.7	2,481.5	2,540.1	0.89	0.85	
8,643.0	3.40	241.20	8,158.8	-544.8	2,476.3	2,535.5	0.81	0.00	
8,738.0	3.60	220.70	8,253.6	-548.5	2,471.9	2,532.0	1.33	0.21	
8,832.0	4.10	213.80	8,347.4	-553.5	2,468.1	2,529.4	0.72	0.53	
8,927.0	3.60	221.60	8,442.2	-558.5	2,464.3	2,526.8	0.76	-0.53	
9,021.0	3.90	229.60	8,536.0	-562.8	2,459.9	2,523.4	0.64	0.32	
9,116.0	4.30	233.10	8,630.8	-567.0	2,454.6	2,519.2	0.50	0.42	
9,295.0	4.90	232.90	8,809.2	-575.7	2,443.1	2,509.9	0.34	0.34	LAST CES SURVEY @ 9295' MD
9,355.0	4.90	232.90	8,869.0	-578.8	2,439.0	2,506.6	0.00	0.00	PTB @ 9355' MD

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Caerus Oil & Gas (NAD 27)	<b>Local Co-ordinate Reference:</b>	Well PUCKETT 33A-1
<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 33A-1	<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	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PUCKETT 33A-1 TGT	0.00	0.00	7,034.0	-677.7	2,053.7	608,621.06	1,247,687.34	39.474172	-108.165367
- actual wellpath misses target center by 452.6usft at 7469.3usft MD (6986.5 TVD, -537.7 N, 2481.5 E)									
- Point									
PUCKETT 33A-1 BHL	0.00	0.00	8,821.0	-677.7	2,053.7	608,621.06	1,247,687.34	39.474172	-108.165367
- actual wellpath misses target center by 400.4usft at 9338.6usft MD (8852.6 TVD, -577.9 N, 2440.1 E)									
- Circle (radius 50.0)									
PUCKETT 33A-1 BHL 7.	0.00	0.00	8,811.0	-557.1	2,468.7	608,729.40	1,248,105.67	39.474503	-108.163897
- actual wellpath misses target center by 31.6usft at 9294.3usft MD (8808.5 TVD, -575.6 N, 2443.1 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
9,295.0	8,809.2	-575.7	2,443.1	LAST CES SURVEY @ 9295' MD	
9,355.0	8,869.0	-578.8	2,439.0	PTB @ 9355' MD	

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