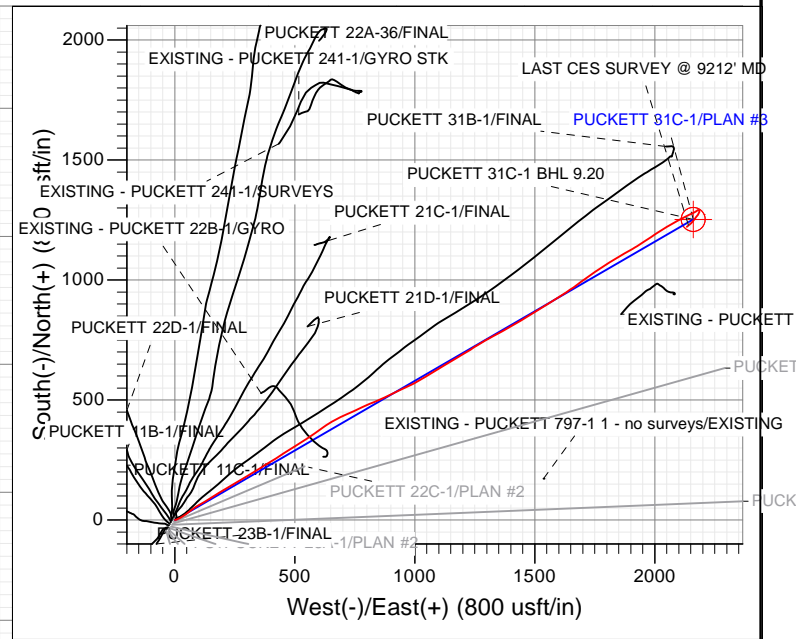
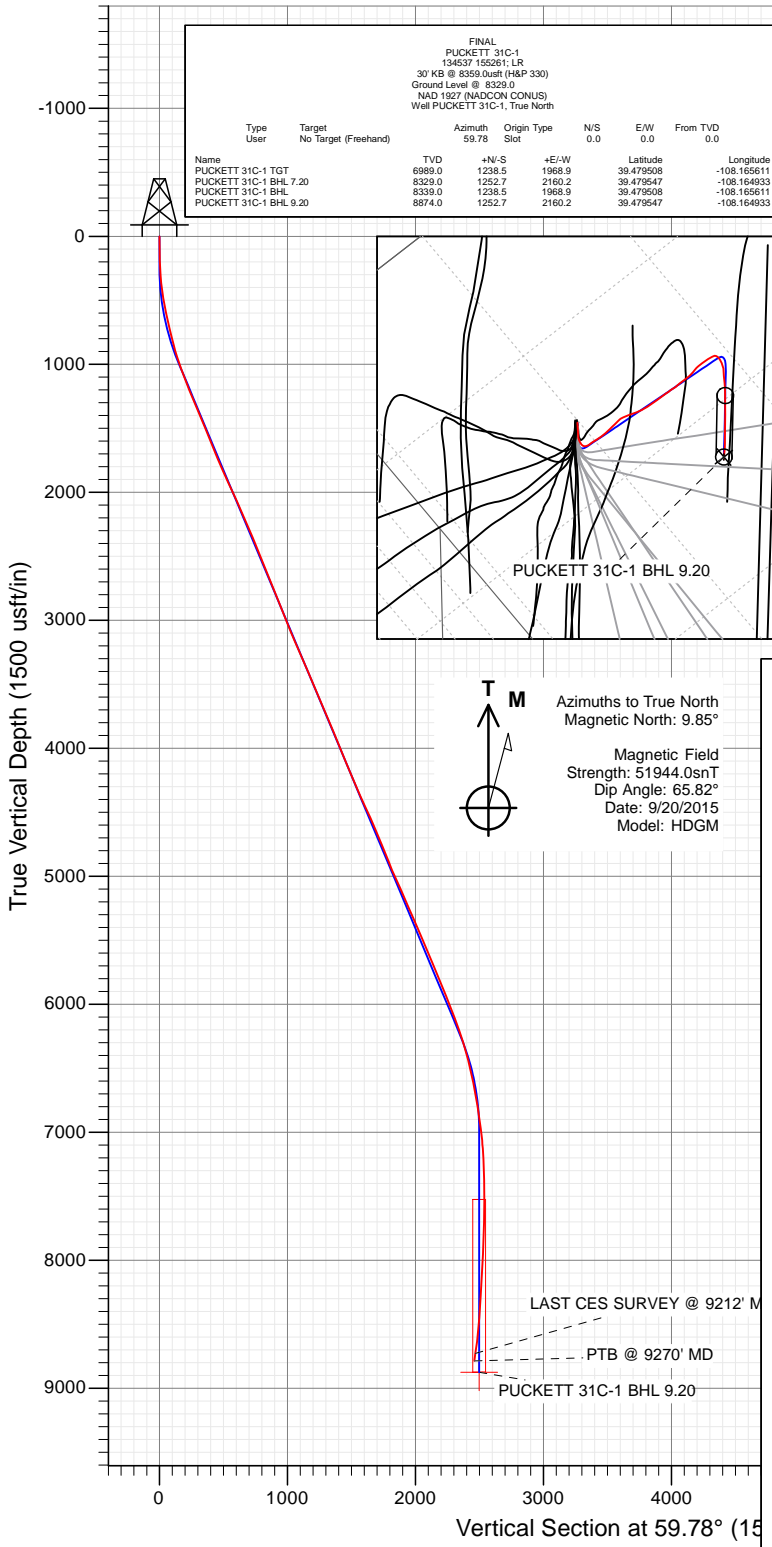
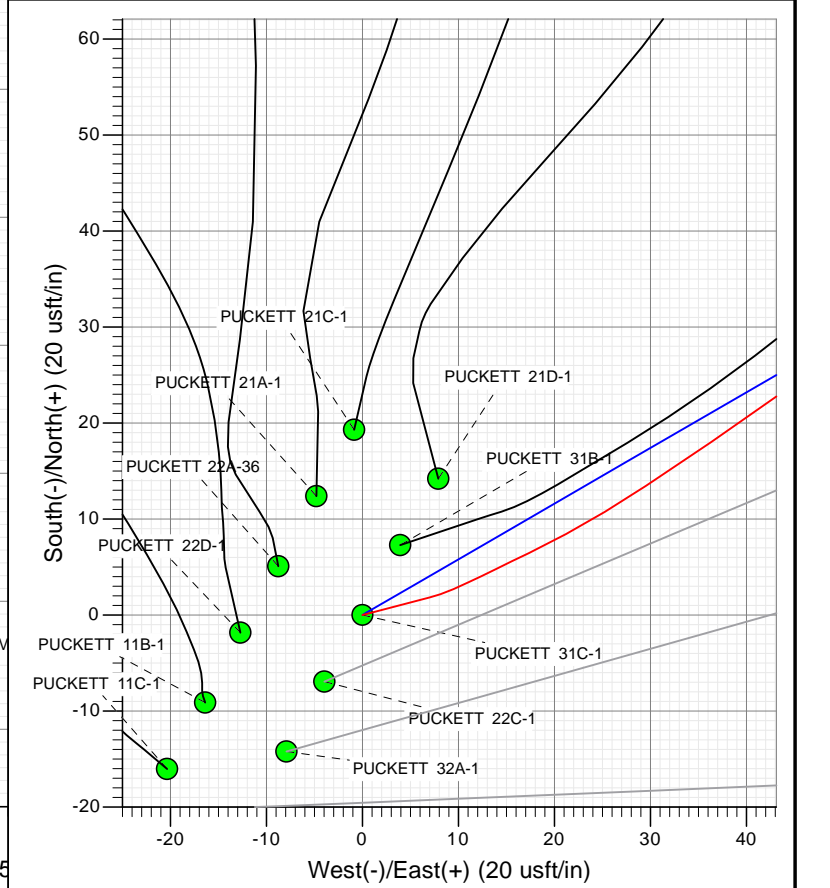




Project: Garfield County, CO
 Site: S1-T7S-R97W (Mesa E1 797)
 Well: PUCKETT 31C-1
 Wellbore: OH
 Design: FINAL



Azimuths to True North
 Magnetic North: 9.85°
 Magnetic Field
 Strength: 51944.0snT
 Dip Angle: 65.82°
 Date: 9/20/2015
 Model: HDGM



WELL DETAILS: PUCKETT 31C-1

+N/-S	+E/-W	Ground Level:	8329.0
0.0	0.0	Northing	609385.75
		Easting	1245671.07
		Latitude	39.476108
		Longitude	-108.172586

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well PUCKETT 31C-1
Project: Garfield County, CO	TVD Reference: 30' KB @ 8359.0usft (H&P 330)
Site: S1-T7S-R97W (Mesa E1 797)	MD Reference: 30' KB @ 8359.0usft (H&P 330)
Well: PUCKETT 31C-1	North Reference: True
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 Multi Users DB

Project Garfield County, CO		
Map System: US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum: NAD 1927 (NADCON CONUS)		
Map Zone: 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 31C-1				
Well Position	+N/-S	0.0 usft	Northing:	609,385.75 usft
	+E/-W	0.0 usft	Easting:	1,245,671.07 usft
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft
			Ground Level:	8,329.0 usft

Wellbore OH					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	9/20/2015	9.85	65.82	51,944

Design FINAL				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	59.78

Survey Program		Date 9/25/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
286.0	9,270.0	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
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
286.0	2.90	75.40	285.9	1.8	7.0	7.0	1.01	1.01	
347.0	5.40	65.00	346.7	3.4	11.1	11.3	4.26	4.10	
377.0	6.70	63.50	376.5	4.8	13.9	14.5	4.36	4.33	
407.0	7.80	64.60	406.3	6.5	17.3	18.2	3.70	3.67	
499.0	9.80	56.60	497.2	13.4	29.5	32.3	2.54	2.17	
591.0	11.50	54.80	587.6	23.0	43.6	49.2	1.88	1.85	
685.0	12.70	53.10	679.5	34.6	59.5	68.8	1.33	1.28	
780.0	14.20	54.70	771.9	47.7	77.3	90.8	1.63	1.58	
874.0	15.10	59.90	862.9	60.5	97.3	114.5	1.69	0.96	
969.0	17.40	60.00	954.1	73.8	120.4	141.1	2.42	2.42	
1,064.0	20.20	58.10	1,044.0	89.5	146.6	171.7	3.02	2.95	
1,158.0	22.20	59.20	1,131.6	107.2	175.6	205.7	2.17	2.13	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 31C-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 31C-1	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
1,253.0	22.60	56.60	1,219.5	126.4	206.3	241.9	1.12	0.42	
1,347.0	21.80	58.50	1,306.5	145.5	236.2	277.4	1.14	-0.85	
1,442.0	22.50	62.10	1,394.5	163.2	267.3	313.2	1.61	0.74	
1,537.0	22.60	59.90	1,482.2	180.9	299.2	349.6	0.89	0.11	
1,631.0	21.80	56.30	1,569.3	199.6	329.4	385.1	1.68	-0.85	
1,726.0	22.30	57.90	1,657.3	219.0	359.3	420.7	0.82	0.53	
1,821.0	23.30	59.90	1,744.9	238.0	390.8	457.5	1.33	1.05	
1,915.0	23.30	57.90	1,831.2	257.2	422.7	494.7	0.84	0.00	
2,010.0	24.90	55.50	1,918.0	278.5	455.1	533.4	1.97	1.68	
2,104.0	24.80	58.30	2,003.3	300.1	488.1	572.8	1.26	-0.11	
2,199.0	24.30	58.50	2,089.7	320.8	521.8	612.3	0.53	-0.53	
2,293.0	24.00	56.10	2,175.4	341.5	554.1	650.7	1.09	-0.32	
2,388.0	23.40	54.80	2,262.4	363.2	585.6	688.8	0.84	-0.63	
2,495.0	23.40	56.30	2,360.6	387.2	620.6	731.2	0.56	0.00	
2,594.0	22.10	57.00	2,451.9	408.3	652.6	769.4	1.34	-1.31	
2,689.0	22.10	65.00	2,540.0	425.6	683.8	805.0	3.17	0.00	
2,783.0	22.10	65.70	2,627.1	440.3	715.9	840.2	0.28	0.00	
2,878.0	21.40	64.70	2,715.3	455.1	747.9	875.3	0.83	-0.74	
2,973.0	21.80	65.40	2,803.6	469.8	779.6	910.1	0.50	0.42	
3,067.0	22.70	67.20	2,890.6	484.1	812.2	945.5	1.20	0.96	
3,162.0	22.00	67.90	2,978.5	497.9	845.6	981.3	0.79	-0.74	
3,256.0	21.50	63.90	3,065.8	512.1	877.3	1,015.9	1.66	-0.53	
3,351.0	24.20	64.30	3,153.3	528.2	910.5	1,052.7	2.85	2.84	
3,446.0	23.60	65.10	3,240.2	544.7	945.3	1,091.0	0.72	-0.63	
3,540.0	22.90	64.90	3,326.6	560.4	978.9	1,128.0	0.75	-0.74	
3,635.0	24.10	59.10	3,413.7	578.2	1,012.3	1,165.8	2.74	1.26	
3,729.0	23.20	59.20	3,499.8	597.5	1,044.7	1,203.5	0.96	-0.96	
3,824.0	22.70	58.80	3,587.3	616.6	1,076.5	1,240.5	0.55	-0.53	
3,918.0	22.10	59.30	3,674.2	635.0	1,107.2	1,276.3	0.67	-0.64	
4,013.0	23.40	59.20	3,761.8	653.8	1,138.8	1,313.1	1.37	1.37	
4,107.0	22.70	59.10	3,848.3	672.7	1,170.3	1,349.9	0.75	-0.74	
4,202.0	22.40	59.20	3,936.0	691.3	1,201.6	1,386.3	0.32	-0.32	
4,297.0	21.80	57.30	4,024.0	710.1	1,232.0	1,422.0	0.98	-0.63	
4,391.0	22.90	59.40	4,111.0	728.9	1,262.4	1,457.7	1.45	1.17	
4,485.0	22.40	58.90	4,197.7	747.4	1,293.5	1,493.9	0.57	-0.53	
4,580.0	24.00	61.40	4,285.0	766.0	1,326.0	1,531.4	1.98	1.68	
4,674.0	23.70	63.10	4,371.0	783.7	1,359.6	1,569.3	0.80	-0.32	
4,769.0	24.50	58.70	4,457.7	802.6	1,393.5	1,608.1	2.07	0.84	
4,863.0	24.00	59.20	4,543.5	822.5	1,426.6	1,646.7	0.58	-0.53	
4,958.0	23.40	59.00	4,630.4	842.1	1,459.3	1,684.9	0.64	-0.63	
5,053.0	22.10	59.20	4,718.0	861.0	1,490.8	1,721.6	1.37	-1.37	
5,147.0	22.80	57.30	4,804.9	879.9	1,521.4	1,757.5	1.07	0.74	
5,242.0	21.30	59.00	4,893.0	898.7	1,551.6	1,793.1	1.72	-1.58	
5,336.0	24.10	57.60	4,979.7	917.8	1,582.5	1,829.4	3.03	2.98	
5,431.0	24.30	57.80	5,066.3	938.6	1,615.4	1,868.3	0.23	0.21	
5,525.0	23.10	55.50	5,152.4	959.4	1,647.0	1,906.0	1.61	-1.28	
5,620.0	24.60	54.20	5,239.3	981.5	1,678.4	1,944.3	1.67	1.58	
5,714.0	23.80	52.40	5,325.0	1,004.5	1,709.3	1,982.6	1.16	-0.85	
5,809.0	23.60	56.50	5,412.0	1,026.7	1,740.3	2,020.6	1.75	-0.21	
5,904.0	23.40	57.00	5,499.1	1,047.5	1,772.0	2,058.4	0.30	-0.21	
5,998.0	21.50	54.90	5,586.0	1,067.6	1,801.7	2,094.2	2.19	-2.02	
6,093.0	23.00	59.80	5,674.0	1,086.9	1,832.0	2,130.1	2.51	1.58	
6,187.0	22.80	61.80	5,760.5	1,104.7	1,864.0	2,166.7	0.85	-0.21	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 31C-1
Project:	Garfield County, CO	TVD Reference:	30' KB @ 8359.0usft (H&P 330)
Site:	S1-T7S-R97W (Mesa E1 797)	MD Reference:	30' KB @ 8359.0usft (H&P 330)
Well:	PUCKETT 31C-1	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
6,282.0	23.20	59.80	5,848.0	1,122.9	1,896.3	2,203.8	0.92	0.42	
6,376.0	21.40	56.70	5,935.0	1,141.6	1,926.7	2,239.4	2.29	-1.91	
6,471.0	21.00	56.50	6,023.5	1,160.5	1,955.4	2,273.7	0.43	-0.42	
6,566.0	20.60	57.00	6,112.3	1,179.0	1,983.6	2,307.4	0.46	-0.42	
6,660.0	19.00	57.20	6,200.8	1,196.3	2,010.3	2,339.2	1.70	-1.70	
6,755.0	17.90	57.00	6,290.9	1,212.6	2,035.6	2,369.3	1.16	-1.16	
6,849.0	15.20	60.70	6,381.0	1,226.5	2,058.4	2,396.0	3.08	-2.87	
6,944.0	13.90	61.10	6,472.9	1,238.1	2,079.3	2,419.9	1.37	-1.37	
7,038.0	12.10	61.20	6,564.5	1,248.3	2,097.8	2,441.0	1.92	-1.91	
7,133.0	10.40	62.30	6,657.7	1,257.1	2,114.1	2,459.5	1.80	-1.79	
7,228.0	10.10	63.70	6,751.2	1,264.8	2,129.2	2,476.4	0.41	-0.32	
7,322.0	9.00	64.00	6,843.9	1,271.7	2,143.2	2,492.0	1.17	-1.17	
7,417.0	8.10	65.90	6,937.8	1,277.7	2,156.0	2,506.0	0.99	-0.95	
7,511.0	6.00	60.40	7,031.1	1,282.8	2,166.3	2,517.5	2.34	-2.23	
7,606.0	3.70	52.70	7,125.8	1,287.1	2,173.0	2,525.5	2.51	-2.42	
7,700.0	3.60	54.20	7,219.6	1,290.7	2,177.8	2,531.5	0.15	-0.11	
7,795.0	2.30	105.00	7,314.5	1,291.9	2,182.1	2,535.8	2.94	-1.37	
7,889.0	1.40	141.20	7,408.4	1,290.5	2,184.6	2,537.3	1.52	-0.96	
7,984.0	2.00	170.30	7,503.4	1,288.0	2,185.6	2,536.9	1.09	0.63	
8,078.0	0.90	163.30	7,597.3	1,285.7	2,186.1	2,536.1	1.18	-1.17	
8,173.0	1.50	196.60	7,692.3	1,283.8	2,186.0	2,535.1	0.94	0.63	
8,268.0	2.10	209.80	7,787.3	1,281.1	2,184.8	2,532.7	0.76	0.63	
8,362.0	2.80	212.20	7,881.2	1,277.6	2,182.7	2,529.1	0.75	0.74	
8,457.0	3.00	204.20	7,976.1	1,273.4	2,180.4	2,525.0	0.47	0.21	
8,551.0	3.20	218.90	8,069.9	1,269.1	2,177.8	2,520.6	0.87	0.21	
8,646.0	2.90	211.40	8,164.8	1,265.0	2,174.9	2,516.0	0.52	-0.32	
8,740.0	4.40	222.50	8,258.6	1,260.3	2,171.2	2,510.5	1.76	1.60	
8,835.0	3.70	212.10	8,353.4	1,255.0	2,167.1	2,504.3	1.07	-0.74	
8,929.0	4.40	220.20	8,447.1	1,249.7	2,163.2	2,498.2	0.96	0.74	
9,024.0	5.60	216.90	8,541.8	1,243.2	2,158.0	2,490.5	1.30	1.26	
9,118.0	7.40	228.80	8,635.2	1,235.6	2,150.7	2,480.3	2.38	1.91	
9,212.0	8.40	232.20	8,728.3	1,227.4	2,140.7	2,467.6	1.17	1.06	LAST CES SURVEY @ 9212' MD
9,270.0	8.40	232.20	8,785.7	1,222.2	2,134.0	2,459.2	0.00	0.00	PTB @ 9270' MD

Survey Report

Company: Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference: Well PUCKETT 31C-1
Project: Garfield County, CO	TVD Reference: 30' KB @ 8359.0usft (H&P 330)
Site: S1-T7S-R97W (Mesa E1 797)	MD Reference: 30' KB @ 8359.0usft (H&P 330)
Well: PUCKETT 31C-1	North Reference: True
Wellbore: OH	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: 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 31C-1 BHL - actual wellpath misses target center by 199.3usft at 8830.1usft MD (8348.5 TVD, 1255.3 N, 2167.3 E) - Circle (radius 50.0)	0.00	0.00	8,339.0	1,238.5	1,968.9	610,565.78	1,247,675.51	39.479508	-108.165611
PUCKETT 31C-1 BHL 9 - actual wellpath misses target center by 97.1usft at 9270.0usft MD (8785.7 TVD, 1222.2 N, 2134.0 E) - Circle (radius 50.0)	0.00	0.00	8,874.0	1,252.7	2,160.2	610,574.36	1,247,867.23	39.479547	-108.164933
PUCKETT 31C-1 TGT - actual wellpath misses target center by 196.3usft at 7445.1usft MD (6965.7 TVD, 1279.3 N, 2159.4 E) - Point	0.00	0.00	6,989.0	1,238.5	1,968.9	610,565.78	1,247,675.51	39.479508	-108.165611
PUCKETT 31C-1 BHL 7 - actual wellpath misses target center by 8.6usft at 8811.1usft MD (8329.5 TVD, 1256.3 N, 2168.0 E) - Circle (radius 50.0)	0.00	0.00	8,329.0	1,252.7	2,160.2	610,574.36	1,247,867.23	39.479547	-108.164933

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(usft)	(usft)	+N/-S	+E/-W		
		(usft)	(usft)		
9,212.0	8,728.3	1,227.4	2,140.7	LAST CES SURVEY @ 9212' MD	
9,270.0	8,785.7	1,222.2	2,134.0	PTB @ 9270' MD	

Checked By: _____ Approved By: _____ Date: _____