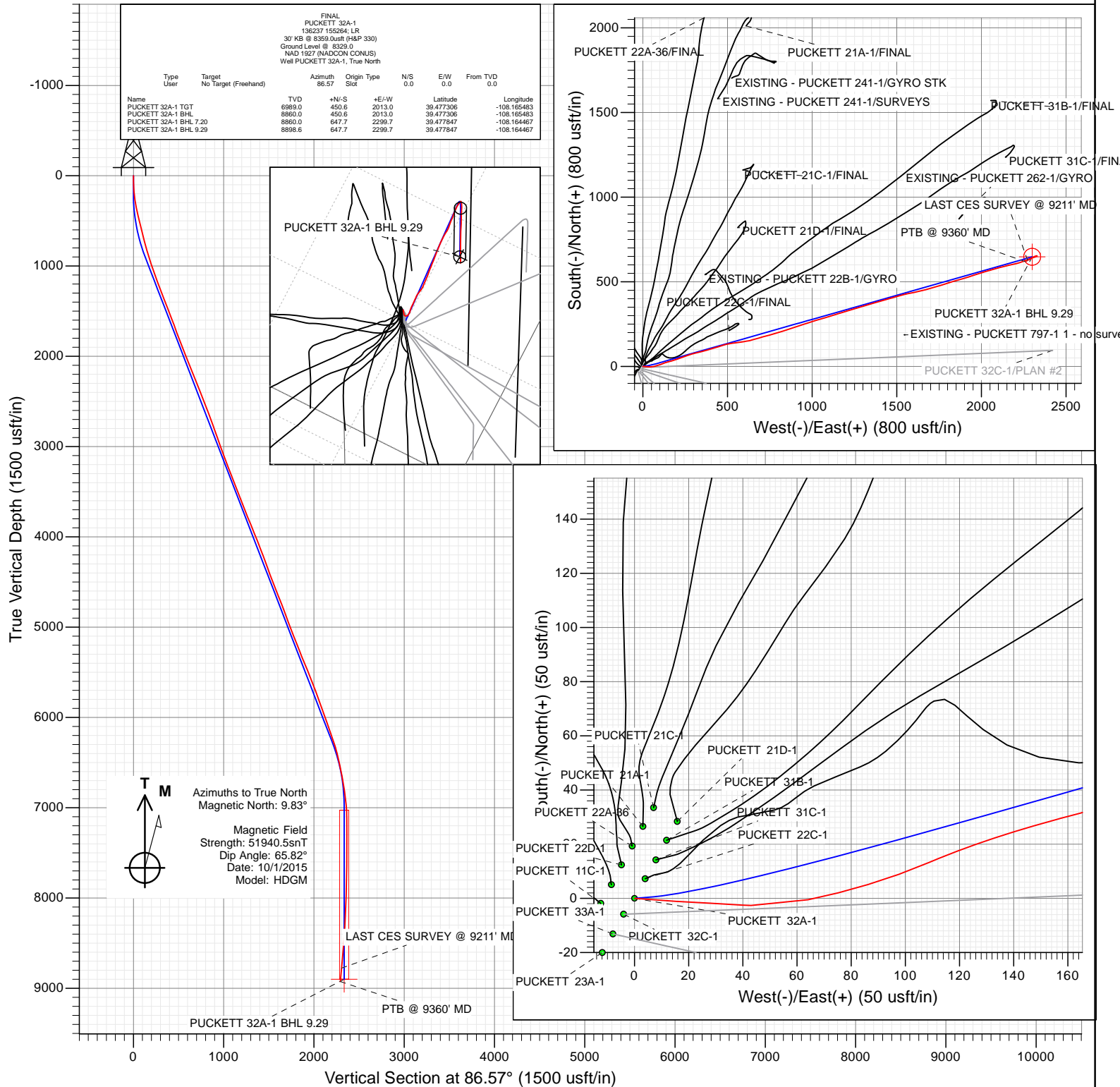




Project: Garfield County, CO
 Site: S1-T7S-R97W (Mesa E1 797)
 Well: PUCKETT 32A-1
 Wellbore: OH
 Design: FINAL



WELL DETAILS: PUCKETT 32A-1

Ground Level: 8329.0
 +N/-S 0.0 +E/-W 0.0 Northing 609371.79 Easting 1245662.75 Latitude 39.476069 Longitude -108.172614



Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32A-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 32A-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 32A-1					
Well Position	+N/-S	0.0 usft	Northing:	609,371.79 usft	Latitude:	39.476069
	+E/-W	0.0 usft	Easting:	1,245,662.75 usft	Longitude:	-108.172614
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	10/1/2015	9.83	65.82	51,941

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	86.57	

Survey Program	Date	10/7/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
255.0	9,360.0	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		
255.0	7.00	93.90	254.4	-1.1	15.5	15.4	2.75	2.75		
346.0	11.60	92.80	344.1	-1.9	30.2	30.0	5.06	5.05		
377.0	12.20	94.50	374.5	-2.3	36.6	36.4	2.24	1.94		
407.0	12.90	90.50	403.8	-2.6	43.1	42.9	3.72	2.33		
498.0	14.20	78.60	492.2	-0.5	64.2	64.0	3.37	1.43		
590.0	14.60	73.00	581.4	5.2	86.3	86.5	1.57	0.43		
685.0	14.50	67.20	673.3	13.3	108.8	109.4	1.54	-0.11		
779.0	14.90	71.40	764.2	21.7	131.1	132.1	1.21	0.43		
874.0	16.80	75.10	855.6	29.1	155.9	157.4	2.26	2.00		
968.0	18.90	74.00	945.1	36.8	183.7	185.5	2.26	2.23		
1,063.0	20.30	68.90	1,034.6	47.0	213.8	216.3	2.33	1.47		
1,158.0	20.20	70.20	1,123.7	58.5	244.6	247.7	0.49	-0.11		

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32A-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 32A-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
1,252.0	21.10	71.70	1,211.7	69.3	276.0	279.6	1.11	0.96	
1,347.0	21.70	76.40	1,300.1	78.8	309.3	313.4	1.91	0.63	
1,441.0	21.70	76.20	1,387.5	87.0	343.1	347.6	0.08	0.00	
1,536.0	22.10	74.10	1,475.6	96.1	377.3	382.4	0.93	0.42	
1,631.0	21.40	73.60	1,563.9	105.9	411.1	416.7	0.76	-0.74	
1,725.0	20.30	72.10	1,651.7	115.7	443.1	449.2	1.30	-1.17	
1,820.0	20.30	73.80	1,740.8	125.4	474.6	481.2	0.62	0.00	
1,915.0	21.10	78.80	1,829.7	133.3	507.2	514.3	2.04	0.84	
2,009.0	22.40	83.10	1,917.0	138.8	541.6	548.9	2.19	1.38	
2,104.0	22.00	82.40	2,005.0	143.3	577.2	584.7	0.50	-0.42	
2,198.0	21.90	79.20	2,092.1	148.9	611.9	619.7	1.28	-0.11	
2,293.0	22.70	75.00	2,180.0	157.0	647.0	655.2	1.88	0.84	
2,387.0	22.50	73.60	2,266.8	166.7	681.7	690.5	0.61	-0.21	
2,460.0	21.80	73.60	2,334.4	174.5	708.1	717.3	0.96	-0.96	
2,592.0	21.40	74.80	2,457.2	187.8	754.9	764.8	0.45	-0.30	
2,687.0	20.70	74.50	2,545.8	196.8	787.8	798.2	0.75	-0.74	
2,781.0	22.20	72.50	2,633.3	206.6	820.8	831.6	1.78	1.60	
2,876.0	21.40	71.60	2,721.5	217.4	854.3	865.8	0.91	-0.84	
2,970.0	20.10	71.10	2,809.4	228.1	885.9	897.9	1.40	-1.38	
3,065.0	20.20	72.70	2,898.6	238.2	917.0	929.6	0.59	0.11	
3,160.0	20.90	72.30	2,987.6	248.3	948.8	961.9	0.75	0.74	
3,254.0	19.40	71.50	3,075.8	258.3	979.6	993.2	1.62	-1.60	
3,349.0	20.70	72.60	3,165.0	268.3	1,010.5	1,024.8	1.42	1.37	
3,444.0	21.80	73.60	3,253.6	278.4	1,043.5	1,058.3	1.22	1.16	
3,538.0	22.70	74.10	3,340.6	288.2	1,077.7	1,093.0	0.98	0.96	
3,633.0	22.20	72.40	3,428.4	298.7	1,112.4	1,128.3	0.86	-0.53	
3,727.0	22.30	73.40	3,515.4	309.2	1,146.4	1,162.9	0.42	0.11	
3,822.0	20.70	73.00	3,603.8	319.2	1,179.8	1,196.7	1.69	-1.68	
3,916.0	21.90	72.90	3,691.4	329.2	1,212.4	1,229.9	1.28	1.28	
4,011.0	23.10	74.70	3,779.1	339.4	1,247.3	1,265.4	1.46	1.26	
4,105.0	22.40	72.40	3,865.8	349.6	1,282.2	1,300.8	1.20	-0.74	
4,200.0	22.40	71.90	3,953.6	360.7	1,316.6	1,335.8	0.20	0.00	
4,295.0	22.40	75.00	4,041.5	371.0	1,351.3	1,371.1	1.24	0.00	
4,389.0	21.60	74.60	4,128.6	380.3	1,385.3	1,405.6	0.87	-0.85	
4,483.0	21.20	73.20	4,216.2	389.8	1,418.3	1,439.0	0.69	-0.43	
4,578.0	20.50	73.80	4,304.9	399.4	1,450.7	1,472.0	0.77	-0.74	
4,672.0	21.00	74.40	4,392.8	408.5	1,482.7	1,504.5	0.58	0.53	
4,767.0	20.90	75.20	4,481.6	417.4	1,515.5	1,537.7	0.32	-0.11	
4,861.0	21.40	76.50	4,569.2	425.7	1,548.4	1,571.0	0.73	0.53	
4,956.0	22.40	78.00	4,657.4	433.5	1,582.9	1,606.0	1.21	1.05	
5,051.0	21.40	77.10	4,745.5	441.1	1,617.5	1,641.0	1.11	-1.05	
5,145.0	21.30	76.80	4,833.1	448.9	1,650.9	1,674.7	0.16	-0.11	
5,240.0	19.90	76.50	4,922.0	456.6	1,683.4	1,707.7	1.48	-1.47	
5,334.0	22.30	73.40	5,009.7	465.4	1,716.0	1,740.8	2.81	2.55	
5,429.0	22.20	72.00	5,097.6	476.1	1,750.4	1,775.7	0.57	-0.11	
5,523.0	21.70	71.00	5,184.8	487.3	1,783.7	1,809.6	0.66	-0.53	
5,618.0	21.60	73.70	5,273.1	497.9	1,817.1	1,843.6	1.05	-0.11	
5,712.0	23.30	75.00	5,360.0	507.6	1,851.7	1,878.7	1.88	1.81	
5,807.0	22.80	73.90	5,447.4	517.5	1,887.5	1,915.1	0.69	-0.53	
5,902.0	22.70	72.20	5,535.0	528.2	1,922.6	1,950.8	0.70	-0.11	
5,996.0	22.10	70.90	5,621.9	539.6	1,956.6	1,985.4	0.83	-0.64	
6,091.0	21.30	74.20	5,710.2	550.1	1,990.1	2,019.4	1.54	-0.84	
6,185.0	20.70	73.20	5,797.9	559.6	2,022.4	2,052.3	0.74	-0.64	

Survey Report

Company:	Caerus Oil & Gas (NAD 27)	Local Co-ordinate Reference:	Well PUCKETT 32A-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 32A-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
6,280.0	19.10	71.70	5,887.2	569.3	2,053.3	2,083.6	1.77	-1.68	
6,374.0	19.50	74.40	5,976.0	578.3	2,083.0	2,113.8	1.04	0.43	
6,469.0	20.70	77.40	6,065.2	586.3	2,114.6	2,145.9	1.66	1.26	
6,564.0	19.70	77.20	6,154.3	593.5	2,146.6	2,178.3	1.06	-1.05	
6,658.0	19.20	77.20	6,243.0	600.4	2,177.2	2,209.2	0.53	-0.53	
6,753.0	17.00	74.10	6,333.3	607.7	2,205.8	2,238.1	2.53	-2.32	
6,847.0	14.40	72.10	6,423.8	615.0	2,230.1	2,262.9	2.82	-2.77	
6,942.0	12.40	69.80	6,516.2	622.2	2,250.9	2,284.1	2.18	-2.11	
7,036.0	10.90	69.50	6,608.2	628.8	2,268.7	2,302.2	1.60	-1.60	
7,131.0	10.50	68.50	6,701.6	635.1	2,285.2	2,319.1	0.46	-0.42	
7,226.0	9.60	70.30	6,795.1	641.0	2,300.7	2,334.9	1.00	-0.95	
7,320.0	7.30	70.50	6,888.1	645.6	2,313.7	2,348.2	2.45	-2.45	
7,415.0	4.50	69.30	6,982.6	648.9	2,322.9	2,357.5	2.95	-2.95	
7,509.0	1.90	50.80	7,076.4	651.2	2,327.5	2,362.3	2.94	-2.77	
7,604.0	0.60	40.40	7,171.4	652.6	2,329.1	2,363.9	1.38	-1.37	
7,698.0	0.40	220.40	7,265.4	652.7	2,329.2	2,364.0	1.06	-0.21	
7,793.0	0.60	215.20	7,360.4	652.0	2,328.7	2,363.5	0.22	0.21	
7,887.0	0.40	348.50	7,454.4	652.0	2,328.3	2,363.1	0.98	-0.21	
7,982.0	0.40	349.00	7,549.4	652.6	2,328.2	2,363.0	0.00	0.00	
8,076.0	0.40	281.80	7,643.4	653.0	2,327.8	2,362.7	0.47	0.00	
8,171.0	0.90	263.60	7,738.4	653.0	2,326.8	2,361.6	0.56	0.53	
8,266.0	1.30	272.30	7,833.4	653.0	2,324.9	2,359.8	0.46	0.42	
8,360.0	1.60	261.40	7,927.3	652.8	2,322.6	2,357.4	0.43	0.32	
8,455.0	2.20	250.40	8,022.3	652.0	2,319.5	2,354.4	0.74	0.63	
8,549.0	2.70	244.20	8,116.2	650.4	2,315.9	2,350.6	0.60	0.53	
8,644.0	2.60	246.30	8,211.1	648.6	2,311.9	2,346.5	0.15	-0.11	
8,738.0	3.00	243.40	8,305.0	646.6	2,307.7	2,342.2	0.45	0.43	
8,833.0	3.80	241.90	8,399.8	644.0	2,302.7	2,337.1	0.85	0.84	
8,927.0	5.00	241.40	8,493.5	640.6	2,296.4	2,330.6	1.28	1.28	
9,022.0	5.50	240.50	8,588.1	636.4	2,288.8	2,322.7	0.53	0.53	
9,116.0	5.70	239.30	8,681.7	631.8	2,280.8	2,314.5	0.25	0.21	
9,211.0	5.80	238.90	8,776.2	626.9	2,272.7	2,306.1	0.11	0.11	LAST CES SURVEY @ 9211' MD
9,360.0	5.80	238.90	8,924.4	619.1	2,259.8	2,292.7	0.00	0.00	PTB @ 9360' MD

Survey Report

Company: Caerus Oil & Gas (NAD 27) Project: Garfield County, CO Site: S1-T7S-R97W (Mesa E1 797) Well: PUCKETT 32A-1 Wellbore: OH Design: FINAL	Local Co-ordinate Reference: Well PUCKETT 32A-1 TVD Reference: 30' KB @ 8359.0usft (H&P 330) MD Reference: 30' KB @ 8359.0usft (H&P 330) North Reference: True Survey Calculation Method: Minimum Curvature Database: USA EDM 5000 Multi Users DB	
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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 32A-1 BHL 7.	0.00	0.00	8,860.0	647.7	2,299.7	609,951.58	1,247,980.55	39.477847	-108.164467
- actual wellpath misses target center by 42.4usft at 9290.9usft MD (8855.7 TVD, 622.7 N, 2265.8 E)									
- Circle (radius 50.0)									
PUCKETT 32A-1 TGT	0.00	0.00	6,989.0	450.6	2,013.0	609,763.03	1,247,688.10	39.477306	-108.165483
- actual wellpath misses target center by 367.2usft at 7384.5usft MD (6952.2 TVD, 648.0 N, 2320.4 E)									
- Point									
PUCKETT 32A-1 BHL	0.00	0.00	8,860.0	450.6	2,013.0	609,763.03	1,247,688.10	39.477306	-108.165483
- actual wellpath misses target center by 303.8usft at 9326.0usft MD (8890.7 TVD, 620.9 N, 2262.7 E)									
- Circle (radius 50.0)									
PUCKETT 32A-1 BHL 9.	0.00	0.00	8,898.6	647.7	2,299.7	609,951.58	1,247,980.55	39.477847	-108.164467
- actual wellpath misses target center by 46.3usft at 9329.3usft MD (8893.9 TVD, 620.7 N, 2262.4 E)									
- Circle (radius 50.0)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,211.0	8,776.2	626.9	2,272.7	LAST CES SURVEY @ 9211' MD	
9,360.0	8,924.4	619.1	2,259.8	PTB @ 9360' MD	

Checked By: _____	Approved By: _____	Date: _____
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