



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00
3	1100.00	3.00	80.00	1099.95	0.45	2.58	3.00	80.00	2.06	
4	1280.00	3.00	80.00	1279.71	2.09	11.85	0.00	0.00	9.46	
5	1689.91	14.56	42.80	1684.31	41.90	57.59	3.00	-45.51	69.63	
6	7755.29	14.56	42.80	7555.02	1160.28	1093.35	0.00	0.00	1593.73	
7	8240.47	0.00	0.00	8035.00	1205.25	1135.00	3.00	180.00	1655.01	
8	8313.10	1.45	250.00	8107.62	1204.94	1134.13	2.00	250.00	1654.20	
9	11800.59	1.45	250.00	11594.00	1174.69	1051.06	0.00	0.00	1576.27	NPR 11A-2_596_PBHL v2

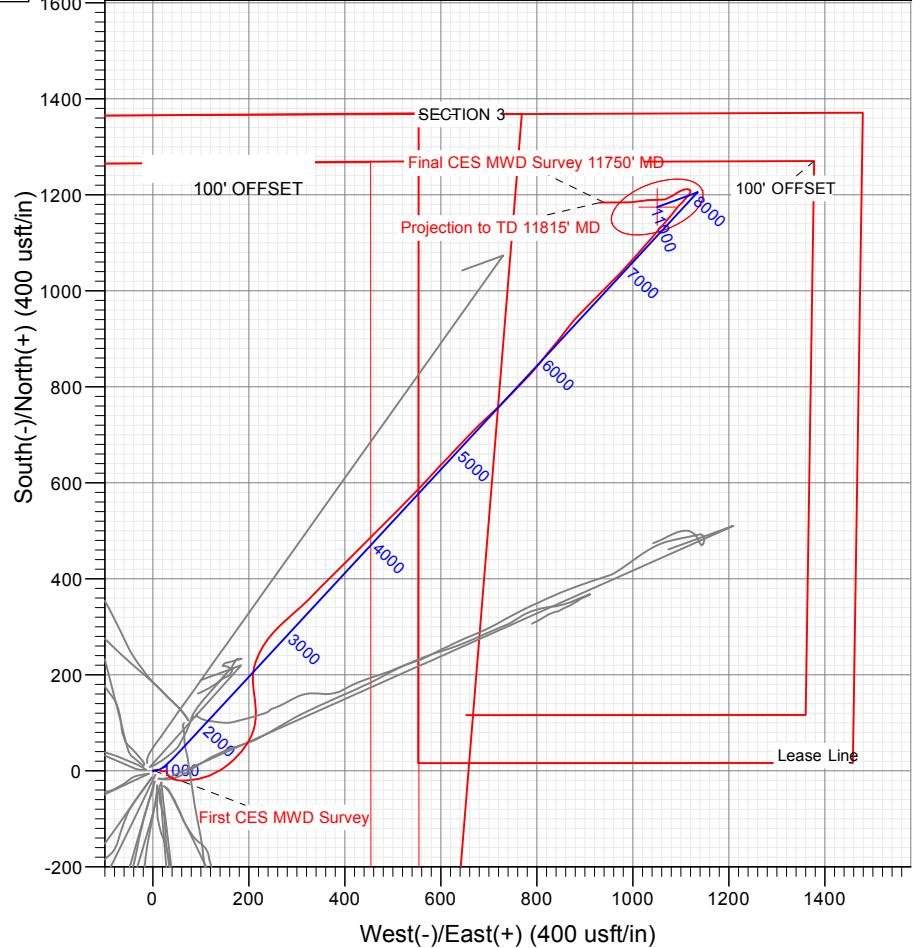
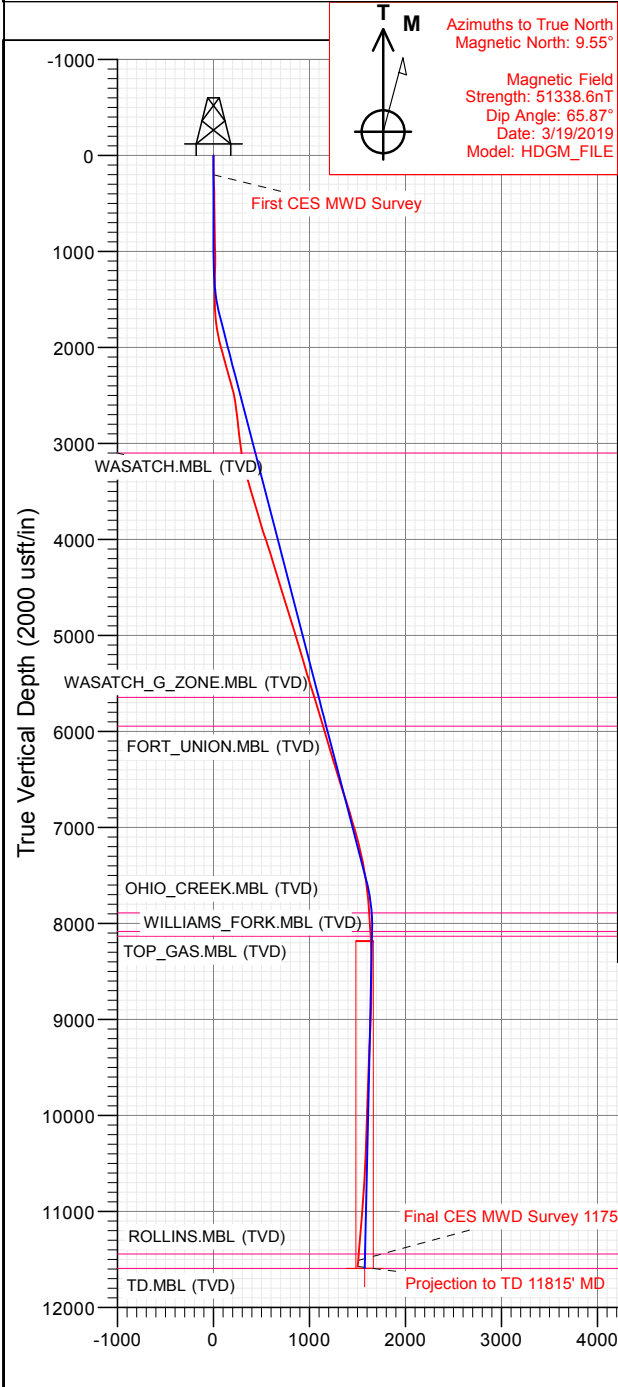
Plan 4 (02-26-19 DS)

NPR 11A-2_596
GL+KB @ 8361.00feet (Original Well Elev)
Ground Level @ 8331.00
NAD 1983 - Western US
Well NPR 11A-2_596, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From	TVD
TD	No Target (Freehand)	41.82	Slot	0.00	0.00	0.00	0.00	0.00

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
NPR 11A-2_596_PBHL v2	11594.00	1174.69	1051.06	39.650879	-108.143741

Project: Garfield County, CO (UTM 12N)
Site: S3-T5S R96W NPR A03 596 PAD (H&P330)
Well: NPR 11A-2_596
Wellbore: OH [450737]
Design: Plan 4 (02-26-19 DS)



FORMATION TOP DETAILS

TVDPPath	MDPath	Formation
3100.00	3152.54	WASATCH.MBL (TVD)
5646.00	5782.96	WASATCH_G_ZONE.MBL (TVD)
5946.00	6092.91	FORT_UNION.MBL (TVD)
7891.00	8096.33	OHIO_CREEK.MBL (TVD)
8085.00	8290.47	TOP_GAS.MBL (TVD)
8135.00	8340.48	WILLIAMS_FORK.MBL (TVD)
11444.00	11650.55	ROLLINS.MBL (TVD)
11594.00	11800.59	TD.MBL (TVD)

WELL DETAILS: NPR 11A-2_596

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14410508.20	2443443.80	39.647655	-108.147472



Survey Report

Company: Caerus Oil & Gas	Local Co-ordinate Reference: Well NPR 11A-2_596
Project: Garfield County, CO (UTM 12N)	TVD Reference: GL+KB @ 8361.00usft (Original Well Elev)
Site: S3-T5S R96W NPR A03 596 PAD (H&P330)	MD Reference: GL+KB @ 8361.00usft (Original Well Elev)
Well: NPR 11A-2_596	North Reference: True
Wellbore: OH [450737]	Survey Calculation Method: Minimum Curvature
Design: Survey (H&P 330)	Database: USA EDM 5000 Multi Users DB

Project Garfield County, CO (UTM 12N)	
Map System: Universal Transverse Mercator (US Survey Fee	System Datum: Mean Sea Level
Geo Datum: NAD 1927 - Western US	
Map Zone: Zone 12N (114 W to 108 W)	

Site S3-T5S R96W NPR A03 596 PAD (H&P330)		
Site Position:	Northing: 14,410,524.00 usft	Latitude: 39.647700
From: Map	Easting: 2,443,431.60 usft	Longitude: -108.147513
Position Uncertainty: 3.28 usft	Slot Radius: 13-3/16"	Grid Convergence: 1.82 °

Well NPR 11A-2_596			
Well Position	+N/-S 0.00 usft	Northing: 14,410,508.20 usft	Latitude: 39.647655
	+E/-W 0.00 usft	Easting: 2,443,443.80 usft	Longitude: -108.147472
Position Uncertainty	3.28 usft	Wellhead Elevation: usft	Ground Level: 8,331.00 usft

Wellbore OH [450737]					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	3/19/2019	9.55	65.87	51,338.60000000

Design Survey (H&P 330)					
Audit Notes:					
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00			
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	41.82	

Survey Program		Date 3/29/2019		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
204.00	11,815.00	CES MWD Survey (OH [450737])	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 (°/100usft)	Build Rate (°/100u)	Formations / Comments	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
204.00	1.58	77.14	203.97	0.63	2.74	2.29	0.77	0.77	First CES MWD Survey	
296.00	2.37	65.71	295.92	1.69	5.71	5.07	0.96	0.86		
388.00	2.55	93.66	387.84	2.34	9.49	8.07	1.31	0.20		
480.00	1.98	108.43	479.77	1.71	13.04	9.97	0.88	-0.62		
571.00	1.93	118.71	570.71	0.48	15.87	10.94	0.39	-0.05		
666.00	1.93	100.87	665.66	-0.59	18.85	12.13	0.63	0.00		
760.00	1.71	92.52	759.61	-0.95	21.80	13.83	0.37	-0.23		
854.00	1.41	70.99	853.58	-0.64	24.30	15.73	0.69	-0.32		
948.00	0.84	54.37	947.56	0.14	25.95	17.41	0.69	-0.61		
1,042.00	0.35	50.24	1,041.56	0.72	26.73	18.37	0.52	-0.52		
1,137.00	0.26	132.25	1,136.55	0.76	27.12	18.65	0.43	-0.09		
1,231.00	2.73	154.57	1,230.52	-1.40	28.24	17.78	2.65	2.63		

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well NPR 11A-2_596
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Site:	S3-T5S R96W NPR A03 596 PAD (H&P330)	MD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Well:	NPR 11A-2_596	North Reference:	True
Wellbore:	OH [450737]	Survey Calculation Method:	Minimum Curvature
Design:	Survey (H&P 330)	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
1,324.00	4.18	150.79	1,323.34	-6.36	30.84	15.83	1.58	1.56	
1,418.00	3.60	141.83	1,417.13	-11.67	34.34	14.20	0.89	-0.62	
1,512.00	4.00	118.18	1,510.93	-15.54	39.05	14.46	1.71	0.43	
1,606.00	5.93	104.30	1,604.57	-18.29	46.65	17.48	2.40	2.05	
1,700.00	8.39	94.98	1,697.84	-20.08	58.19	23.83	2.89	2.62	
1,795.00	11.47	85.75	1,791.41	-19.98	74.51	34.79	3.64	3.24	
1,889.00	14.63	78.46	1,882.97	-16.91	95.47	51.06	3.78	3.36	
1,983.00	15.34	67.82	1,973.79	-9.84	118.62	71.76	3.02	0.76	
2,077.00	15.51	57.63	2,064.43	1.58	140.76	95.03	2.89	0.18	
2,172.00	16.39	49.89	2,155.78	17.02	161.74	120.53	2.42	0.93	
2,266.00	16.52	41.54	2,245.94	35.57	180.75	147.03	2.52	0.14	
2,360.00	16.17	32.31	2,336.16	56.64	196.61	173.31	2.79	-0.37	
2,454.00	15.12	19.92	2,426.70	79.23	207.78	197.60	3.72	-1.12	
2,547.00	13.01	7.88	2,516.92	101.01	213.35	217.54	3.87	-2.27	
2,642.00	11.43	359.18	2,609.78	121.02	214.68	233.34	2.55	-1.66	
2,736.00	10.59	355.40	2,702.05	138.94	213.86	246.15	1.18	-0.89	
2,790.00	9.67	354.08	2,755.20	148.40	212.99	252.62	1.76	-1.70	
2,906.00	9.01	349.60	2,869.67	167.03	210.35	264.73	0.85	-0.57	
3,001.00	9.32	356.02	2,963.46	182.02	208.47	274.65	1.12	0.33	
3,095.00	10.68	4.36	3,056.03	198.30	208.60	286.88	2.11	1.45	
3,189.00	11.95	13.59	3,148.21	216.44	211.55	302.37	2.35	1.35	
3,283.00	14.06	22.91	3,239.80	236.42	218.29	321.75	3.16	2.24	
3,378.00	15.34	30.38	3,331.70	257.90	229.14	344.98	2.41	1.35	
3,472.00	16.88	38.11	3,422.02	279.37	243.85	370.79	2.81	1.64	
3,566.00	16.08	46.55	3,512.17	299.06	261.73	397.39	2.68	-0.85	
3,661.00	16.17	48.84	3,603.43	316.81	281.24	423.63	0.68	0.09	
3,755.00	17.75	46.73	3,693.34	335.25	301.53	450.90	1.80	1.68	
3,849.00	15.43	46.11	3,783.42	353.74	320.97	477.65	2.48	-2.47	
3,944.00	16.88	43.92	3,874.67	372.44	339.65	504.04	1.66	1.53	
4,038.00	19.16	45.50	3,964.05	393.09	360.12	533.07	2.48	2.43	
4,132.00	18.11	45.85	4,053.12	414.08	381.61	563.04	1.12	-1.12	
4,227.00	17.67	44.71	4,143.53	434.61	402.34	592.17	0.59	-0.46	
4,321.00	16.79	44.62	4,233.31	454.41	421.92	619.98	0.94	-0.94	
4,416.00	16.74	44.97	4,324.27	473.86	441.22	647.34	0.12	-0.05	
4,510.00	17.80	45.94	4,414.04	493.42	461.12	675.19	1.17	1.13	
4,605.00	17.45	44.62	4,504.58	513.66	481.56	703.90	0.56	-0.37	
4,699.00	16.92	44.88	4,594.38	533.39	501.11	731.64	0.57	-0.56	
4,794.00	17.80	45.15	4,685.05	553.42	521.16	759.94	0.93	0.93	
4,888.00	16.88	44.44	4,774.78	573.30	540.90	787.92	1.00	-0.98	
4,983.00	17.45	42.51	4,865.55	593.65	560.18	815.94	0.85	0.60	
5,077.00	17.14	42.69	4,955.30	614.22	579.10	843.88	0.33	-0.33	
5,171.00	16.35	43.21	5,045.31	634.04	597.55	870.96	0.86	-0.84	
5,266.00	16.08	42.60	5,136.53	653.47	615.61	897.48	0.34	-0.28	
5,360.00	17.10	44.00	5,226.62	673.00	634.02	924.31	1.17	1.09	
5,454.00	16.26	43.74	5,316.66	692.45	652.72	951.27	0.90	-0.89	
5,548.00	16.30	44.79	5,406.89	711.32	671.11	977.60	0.32	0.04	
5,642.00	17.71	46.20	5,496.78	730.58	690.73	1,005.03	1.56	1.50	
5,768.00	16.88	47.26	5,617.08	756.26	717.99	1,042.35	0.70	-0.66	
5,830.00	17.58	45.32	5,676.30	768.95	731.26	1,060.65	1.46	1.13	
5,925.00	17.49	43.92	5,766.89	789.32	751.37	1,089.24	0.45	-0.09	
6,019.00	16.26	43.48	5,856.84	809.04	770.22	1,116.51	1.32	-1.31	
6,113.00	16.26	42.33	5,947.08	828.32	788.14	1,142.83	0.34	0.00	
6,207.00	16.22	38.91	6,037.33	848.27	805.25	1,169.10	1.02	-0.04	

Survey Report

Company:	Caerus Oil & Gas	Local Co-ordinate Reference:	Well NPR 11A-2_596
Project:	Garfield County, CO (UTM 12N)	TVD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Site:	S3-T5S R96W NPR A03 596 PAD (H&P330)	MD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Well:	NPR 11A-2_596	North Reference:	True
Wellbore:	OH [450737]	Survey Calculation Method:	Minimum Curvature
Design:	Survey (H&P 330)	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 (°/100usft)	Build Rate (°/100u)	Formations / Comments
6,301.00	16.70	38.99	6,127.48	868.98	821.99	1,195.70	0.51	0.51	
6,395.00	17.23	39.70	6,217.39	890.19	839.38	1,223.10	0.61	0.56	
6,489.00	16.61	36.45	6,307.32	911.71	856.26	1,250.39	1.20	-0.66	
6,583.00	16.88	39.35	6,397.33	933.07	872.89	1,277.40	0.93	0.29	
6,677.00	17.97	44.44	6,487.02	953.98	891.70	1,305.52	1.99	1.16	
6,772.00	18.15	45.23	6,577.34	974.86	912.46	1,334.93	0.32	0.19	
6,866.00	17.67	44.62	6,666.79	995.33	932.88	1,363.80	0.55	-0.51	
6,961.00	17.40	44.62	6,757.37	1,015.70	952.98	1,392.39	0.28	-0.28	
7,055.00	17.01	44.00	6,847.17	1,035.59	972.41	1,420.16	0.46	-0.41	
7,150.00	16.52	42.51	6,938.13	1,055.55	991.19	1,447.55	0.69	-0.52	
7,244.00	16.44	40.75	7,028.27	1,075.47	1,008.90	1,474.22	0.54	-0.09	
7,338.00	14.33	41.54	7,118.90	1,094.26	1,025.30	1,499.15	2.26	-2.24	
7,432.00	13.93	40.93	7,210.05	1,111.52	1,040.42	1,522.10	0.45	-0.43	
7,527.00	12.61	40.66	7,302.51	1,128.02	1,054.67	1,543.90	1.39	-1.39	
7,621.00	11.29	41.89	7,394.47	1,142.66	1,067.50	1,563.36	1.43	-1.40	
7,716.00	8.53	39.87	7,488.05	1,154.99	1,078.23	1,579.71	2.93	-2.91	
7,810.00	8.00	34.78	7,581.07	1,165.71	1,086.43	1,593.16	0.96	-0.56	
7,905.00	6.24	42.07	7,675.34	1,174.98	1,093.66	1,604.89	2.08	-1.85	
7,999.00	4.79	50.51	7,768.90	1,181.26	1,100.12	1,613.88	1.76	-1.54	
8,094.00	3.96	37.24	7,863.63	1,186.40	1,105.16	1,621.07	1.37	-0.87	
8,282.00	3.56	44.88	8,051.22	1,195.70	1,113.21	1,633.37	0.34	-0.21	
8,471.00	2.11	25.81	8,239.99	1,202.99	1,118.86	1,642.57	0.91	-0.77	
8,660.00	1.19	355.75	8,428.91	1,208.08	1,120.23	1,647.28	0.65	-0.49	
8,849.00	1.41	289.92	8,617.87	1,210.83	1,117.90	1,647.77	0.75	0.12	
9,037.00	2.24	269.71	8,805.78	1,211.60	1,112.05	1,644.45	0.55	0.44	
9,131.00	1.89	263.11	8,899.72	1,211.41	1,108.68	1,642.05	0.45	-0.37	
9,320.00	2.64	243.78	9,088.57	1,209.11	1,101.68	1,635.67	0.56	0.40	
9,414.00	3.21	242.64	9,182.45	1,206.94	1,097.40	1,631.20	0.61	0.61	
9,508.00	2.90	241.67	9,276.31	1,204.61	1,092.97	1,626.51	0.33	-0.33	
9,697.00	2.02	231.39	9,465.14	1,200.26	1,086.16	1,618.73	0.52	-0.47	
9,791.00	2.02	244.13	9,559.08	1,198.50	1,083.37	1,615.56	0.48	0.00	
9,979.00	1.98	240.35	9,746.97	1,195.45	1,077.57	1,609.41	0.07	-0.02	
10,168.00	2.51	247.65	9,935.82	1,192.26	1,070.90	1,602.59	0.32	0.28	
10,262.00	2.33	248.61	10,029.74	1,190.78	1,067.22	1,599.04	0.20	-0.19	
10,639.00	3.16	277.62	10,406.32	1,189.36	1,049.78	1,586.35	0.42	0.22	
10,922.00	4.44	262.85	10,688.70	1,189.03	1,031.18	1,573.70	0.57	0.45	
11,016.00	5.23	258.02	10,782.36	1,187.69	1,023.38	1,567.50	0.94	0.84	
11,299.00	6.55	268.83	11,063.87	1,184.68	994.62	1,546.09	0.61	0.47	
11,675.00	7.08	269.62	11,437.21	1,184.09	950.01	1,515.90	0.14	0.14	
11,750.00	7.91	269.36	11,511.57	1,184.00	940.23	1,509.31	1.11	1.11	Final CES MWD Survey 11750' MD
11,815.00	7.91	269.36	11,575.95	1,183.90	931.28	1,503.27	0.00	0.00	Projection to TD 11815' MD

Survey Report

Company: Caerus Oil & Gas	Local Co-ordinate Reference: Well NPR 11A-2_596
Project: Garfield County, CO (UTM 12N)	TVD Reference: GL+KB @ 8361.00usft (Original Well Elev)
Site: S3-T5S R96W NPR A03 596 PAD (H&P330)	MD Reference: GL+KB @ 8361.00usft (Original Well Elev)
Well: NPR 11A-2_596	North Reference: True
Wellbore: OH [450737]	Survey Calculation Method: Minimum Curvature
Design: Survey (H&P 330)	Database: USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting		
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)	Latitude	Longitude
NPR 11A-2_596_PBH	0.00	0.00	11,594.00	1,174.69	1,051.06	14,411,715.70	2,444,457.00	39.650879	-108.143741
- actual wellpath misses target center by 121.48usft at 11815.00usft MD (11575.95 TVD, 1183.90 N, 931.28 E) - Ellipse (radii L100.00 W50.00 on 250.00 azi)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			Comment
		+N/-S (usft)	+E/-W (usft)		
204.00	203.97	0.63	2.74		First CES MWD Survey
11,750.00	11,511.57	1,184.00	940.23		Final CES MWD Survey 11750' MD
11,815.00	11,575.95	1,183.90	931.28		Projection to TD 11815' MD

Checked By: _____	Approved By: _____	Date: _____
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