

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_CLARK PAD**

**CLARK 13N-11HZ**

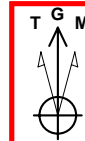
**CLARK 13N-11HZ**

**Plan: CLARK 13N-11HZ (wp01)**

## **Standard Planning Report**

**05 August, 2011**





Azimuths to Grid North  
True North: -0.48°  
Magnetic North: 8.33°  
  
Magnetic Field  
Strength: 52948.1snT  
Dip Angle: 66.78°  
Date: 7/18/2011  
Model: IGRF2010

Project: COLORADO NORTHERN ZONE - 83  
Site: WELD CLARK PAD  
Well: CLARK 13N-11HZ  
Wellbore: CLARK 13N-11HZ  
Section:  
SHL:  
Design: CLARK 13N-11HZ (wp01)  
Latitude: 40.071769  
Longitude: -104.752041  
GL: 5106.00  
KB: 5106' RKB + 17' RKB @ 5123.00ft

#### WELL DETAILS: CLARK 13N-11HZ

+N/-S	+E/-W	Northing	Ground Level: Easting	5106.00 Latitude	Longitude	Slot
0.00	0.00	1269873.28	3209320.40	40.071769	-104.752041	

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
CLARK 13N-11HZ BHL	7379.00	-4347.49	205.74	40.059830	-104.751437	Point

#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	359.52	1000.00	0.00	0.00	0.00	359.52	0.00	
1248.42	4.97	20.40	1248.11	10.09	3.75	2.00	20.40	-9.90	
6751.89	4.97	20.40	6730.90	456.83	169.90	0.00	0.00	-448.29	
7694.61	89.62	179.78	7350.00	-110.39	190.94	10.00	159.32	119.29	
7697.34	89.61	179.80	7350.02	-113.12	190.95	1.00	122.32	122.02	
11931.84	89.61	179.80	7379.00	-4347.49	205.74	0.00	0.00	4352.36	CLARK 13N-11HZ BHL

#### FORMATION TOP DETAILS

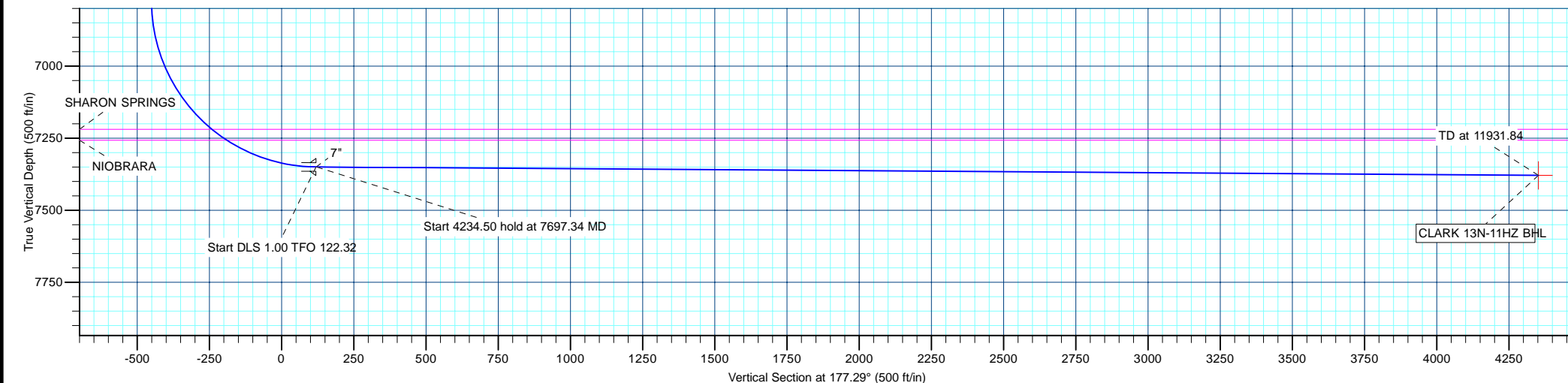
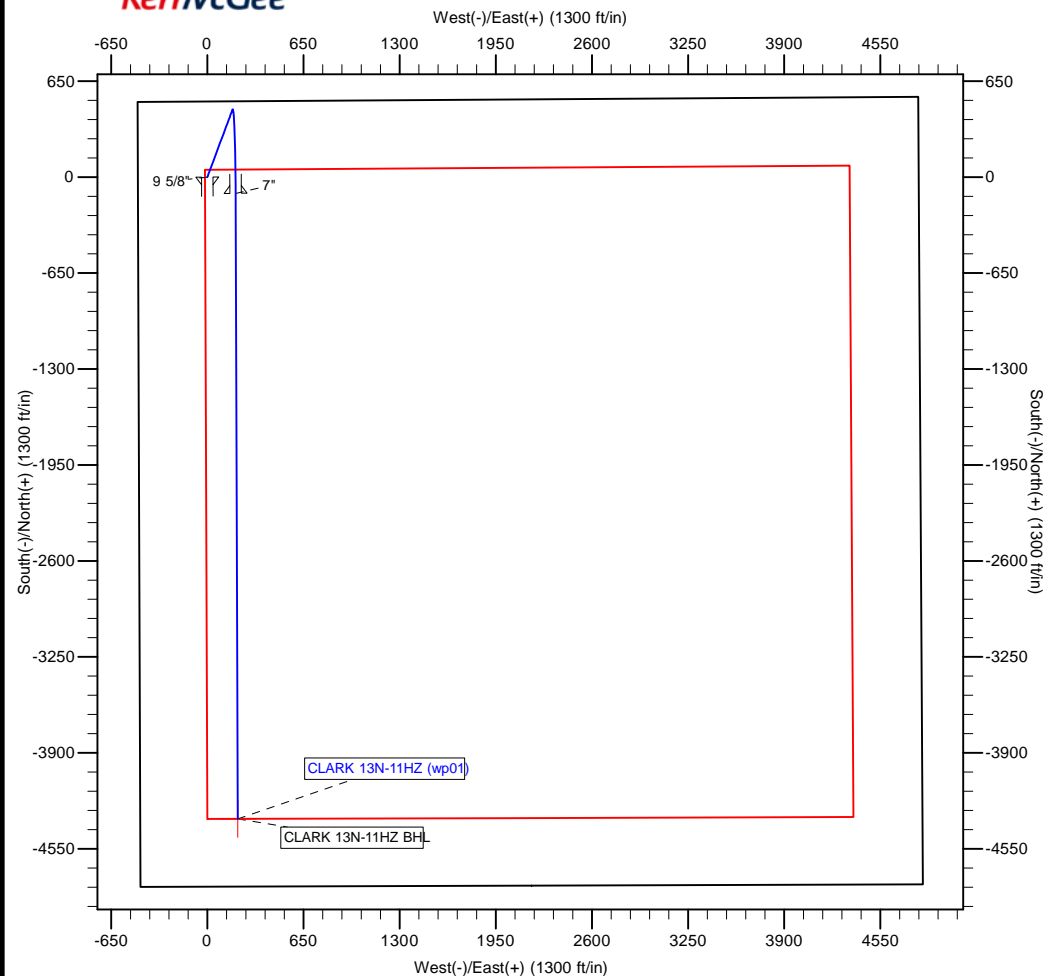
TVDPath	MDPath	Formation
3037.00	3044.06	PARKMAN
4606.00	4618.98	SUSSEX
5337.00	5352.73	SHANNON
7219.00	7303.03	SHARON SPRINGS
7257.00	7367.25	NIOBRARA

#### CASING DETAILS

TVD	MD	Name	Size
850.00	850.00	9 5/8"	9-5/8
7350.00	7694.61	7"	7



Weatherford®



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well CLARK 13N-11HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Site:</b>	WELD_CLARK PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	CLARK 13N-11HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	CLARK 13N-11HZ		
<b>Design:</b>	CLARK 13N-11HZ (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Site</b>	WELD_CLARK PAD			
<b>Site Position:</b>		<b>Northing:</b>	1,259,836.49 ft	<b>Latitude:</b> 40.041869
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,293,768.15 ft	<b>Longitude:</b> -104.450735
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	0 "	<b>Grid Convergence:</b> 0.68 °

<b>Well</b>	CLARK 13N-11HZ			
<b>Well Position</b>	<b>+N/-S</b>	10,036.79 ft	<b>Northing:</b>	1,269,873.28 ft
	<b>+E/-W</b>	-84,447.75 ft	<b>Easting:</b>	3,209,320.40 ft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b> 5,106.00 ft

<b>Wellbore</b>	CLARK 13N-11HZ				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/18/2011	8.82	66.78	52,948

<b>Design</b>	CLARK 13N-11HZ (wp01)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	177.29

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	359.52	1,000.00	0.00	0.00	0.00	0.00	0.00	359.52	
1,248.42	4.97	20.40	1,248.11	10.09	3.75	2.00	2.00	0.00	20.40	
6,751.89	4.97	20.40	6,730.90	456.83	169.90	0.00	0.00	0.00	0.00	
7,694.61	89.62	179.78	7,350.00	-110.39	190.94	10.00	8.98	16.91	159.32	
7,697.34	89.61	179.80	7,350.02	-113.12	190.95	1.00	-0.53	0.85	122.32	
11,931.84	89.61	179.80	7,379.00	-4,347.49	205.74	0.00	0.00	0.00	0.00	CLARK 13N-11HZ Bt

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well CLARK 13N-11HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Site:</b>	WELD_CLARK PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	CLARK 13N-11HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	CLARK 13N-11HZ		
<b>Design:</b>	CLARK 13N-11HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	359.52	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	359.52	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	359.52	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	359.52	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	359.52	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	359.52	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	359.52	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	359.52	800.00	0.00	0.00	0.00	0.00	0.00	0.00
850.00	0.00	359.52	850.00	0.00	0.00	0.00	0.00	0.00	0.00
9 5/8"									
900.00	0.00	359.52	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	359.52	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	2.00	20.40	1,099.98	1.64	0.61	-1.61	2.00	2.00	0.00
1,200.00	4.00	20.40	1,199.84	6.54	2.43	-6.42	2.00	2.00	0.00
1,248.42	4.97	20.40	1,248.11	10.09	3.75	-9.90	2.00	2.00	0.00
Start 5503.47 hold at 1248.42 MD									
1,300.00	4.97	20.40	1,299.50	14.28	5.31	-14.01	0.00	0.00	0.00
1,400.00	4.97	20.40	1,399.12	22.39	8.33	-21.97	0.00	0.00	0.00
1,500.00	4.97	20.40	1,498.74	30.51	11.35	-29.94	0.00	0.00	0.00
1,600.00	4.97	20.40	1,598.37	38.63	14.37	-37.91	0.00	0.00	0.00
1,700.00	4.97	20.40	1,697.99	46.75	17.38	-45.87	0.00	0.00	0.00
1,800.00	4.97	20.40	1,797.62	54.86	20.40	-53.84	0.00	0.00	0.00
1,900.00	4.97	20.40	1,897.24	62.98	23.42	-61.80	0.00	0.00	0.00
2,000.00	4.97	20.40	1,996.86	71.10	26.44	-69.77	0.00	0.00	0.00
2,100.00	4.97	20.40	2,096.49	79.22	29.46	-77.73	0.00	0.00	0.00
2,200.00	4.97	20.40	2,196.11	87.33	32.48	-85.70	0.00	0.00	0.00
2,300.00	4.97	20.40	2,295.74	95.45	35.50	-93.67	0.00	0.00	0.00
2,400.00	4.97	20.40	2,395.36	103.57	38.52	-101.63	0.00	0.00	0.00
2,500.00	4.97	20.40	2,494.99	111.69	41.54	-109.60	0.00	0.00	0.00
2,600.00	4.97	20.40	2,594.61	119.80	44.55	-117.56	0.00	0.00	0.00
2,700.00	4.97	20.40	2,694.23	127.92	47.57	-125.53	0.00	0.00	0.00
2,800.00	4.97	20.40	2,793.86	136.04	50.59	-133.49	0.00	0.00	0.00
2,900.00	4.97	20.40	2,893.48	144.16	53.61	-141.46	0.00	0.00	0.00
3,000.00	4.97	20.40	2,993.11	152.27	56.63	-149.43	0.00	0.00	0.00
3,044.06	4.97	20.40	3,037.00	155.85	57.96	-152.94	0.00	0.00	0.00
PARKMAN									
3,100.00	4.97	20.40	3,092.73	160.39	59.65	-157.39	0.00	0.00	0.00
3,200.00	4.97	20.40	3,192.36	168.51	62.67	-165.36	0.00	0.00	0.00
3,300.00	4.97	20.40	3,291.98	176.63	65.69	-173.32	0.00	0.00	0.00
3,400.00	4.97	20.40	3,391.60	184.74	68.71	-181.29	0.00	0.00	0.00
3,500.00	4.97	20.40	3,491.23	192.86	71.72	-189.25	0.00	0.00	0.00
3,600.00	4.97	20.40	3,590.85	200.98	74.74	-197.22	0.00	0.00	0.00
3,700.00	4.97	20.40	3,690.48	209.10	77.76	-205.19	0.00	0.00	0.00
3,800.00	4.97	20.40	3,790.10	217.21	80.78	-213.15	0.00	0.00	0.00
3,900.00	4.97	20.40	3,889.73	225.33	83.80	-221.12	0.00	0.00	0.00
4,000.00	4.97	20.40	3,989.35	233.45	86.82	-229.08	0.00	0.00	0.00
4,100.00	4.97	20.40	4,088.97	241.57	89.84	-237.05	0.00	0.00	0.00
4,200.00	4.97	20.40	4,188.60	249.68	92.86	-245.01	0.00	0.00	0.00
4,300.00	4.97	20.40	4,288.22	257.80	95.88	-252.98	0.00	0.00	0.00
4,400.00	4.97	20.40	4,387.85	265.92	98.89	-260.95	0.00	0.00	0.00
4,500.00	4.97	20.40	4,487.47	274.04	101.91	-268.91	0.00	0.00	0.00
4,600.00	4.97	20.40	4,587.10	282.15	104.93	-276.88	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well CLARK 13N-11HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Site:</b>	WELD_CLARK PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	CLARK 13N-11HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	CLARK 13N-11HZ		
<b>Design:</b>	CLARK 13N-11HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,618.98	4.97	20.40	4,606.00	283.69	105.51	-278.39	0.00	0.00	0.00
<b>SUSSEX</b>									
4,700.00	4.97	20.40	4,686.72	290.27	107.95	-284.84	0.00	0.00	0.00
4,800.00	4.97	20.40	4,786.34	298.39	110.97	-292.81	0.00	0.00	0.00
4,900.00	4.97	20.40	4,885.97	306.51	113.99	-300.77	0.00	0.00	0.00
5,000.00	4.97	20.40	4,985.59	314.62	117.01	-308.74	0.00	0.00	0.00
5,100.00	4.97	20.40	5,085.22	322.74	120.03	-316.71	0.00	0.00	0.00
5,200.00	4.97	20.40	5,184.84	330.86	123.05	-324.67	0.00	0.00	0.00
5,300.00	4.97	20.40	5,284.47	338.98	126.06	-332.64	0.00	0.00	0.00
5,352.73	4.97	20.40	5,337.00	343.26	127.66	-336.84	0.00	0.00	0.00
<b>SHANNON</b>									
5,400.00	4.97	20.40	5,384.09	347.09	129.08	-340.60	0.00	0.00	0.00
5,500.00	4.97	20.40	5,483.71	355.21	132.10	-348.57	0.00	0.00	0.00
5,600.00	4.97	20.40	5,583.34	363.33	135.12	-356.53	0.00	0.00	0.00
5,700.00	4.97	20.40	5,682.96	371.45	138.14	-364.50	0.00	0.00	0.00
5,800.00	4.97	20.40	5,782.59	379.56	141.16	-372.47	0.00	0.00	0.00
5,900.00	4.97	20.40	5,882.21	387.68	144.18	-380.43	0.00	0.00	0.00
6,000.00	4.97	20.40	5,981.84	395.80	147.20	-388.40	0.00	0.00	0.00
6,100.00	4.97	20.40	6,081.46	403.92	150.22	-396.36	0.00	0.00	0.00
6,200.00	4.97	20.40	6,181.08	412.03	153.23	-404.33	0.00	0.00	0.00
6,300.00	4.97	20.40	6,280.71	420.15	156.25	-412.29	0.00	0.00	0.00
6,400.00	4.97	20.40	6,380.33	428.27	159.27	-420.26	0.00	0.00	0.00
6,500.00	4.97	20.40	6,479.96	436.39	162.29	-428.23	0.00	0.00	0.00
6,600.00	4.97	20.40	6,579.58	444.50	165.31	-436.19	0.00	0.00	0.00
6,700.00	4.97	20.40	6,679.21	452.62	168.33	-444.16	0.00	0.00	0.00
6,751.89	4.97	20.40	6,730.90	456.83	169.90	-448.29	0.00	0.00	0.00
<b>Start DLS 10.00 TFO 159.32</b>									
6,800.00	1.76	95.05	6,778.94	458.72	171.36	-450.11	10.00	-6.67	155.16
6,900.00	10.31	170.10	6,878.36	449.75	174.43	-441.00	10.00	8.55	75.05
7,000.00	20.23	175.03	6,974.71	423.64	177.48	-414.77	10.00	9.92	4.92
7,100.00	30.21	176.78	7,065.06	381.19	180.40	-372.23	10.00	9.97	1.75
7,200.00	40.19	177.71	7,146.68	323.68	183.11	-314.66	10.00	9.99	0.94
7,300.00	50.18	178.33	7,217.06	252.87	185.53	-243.82	10.00	9.99	0.61
7,303.03	50.49	178.34	7,219.00	250.53	185.60	-241.48	10.00	9.99	0.52
<b>SHARON SPRINGS</b>									
7,367.25	56.90	178.65	7,257.00	198.83	186.95	-189.77	10.00	9.99	0.47
<b>NIOBRARA</b>									
7,400.00	60.18	178.78	7,274.09	170.90	187.58	-161.84	10.00	9.99	0.42
7,500.00	70.17	179.16	7,316.02	80.27	189.19	-71.24	10.00	9.99	0.37
7,600.00	80.17	179.48	7,341.59	-16.27	190.33	25.24	10.00	9.99	0.33
7,694.61	89.62	179.78	7,350.00	-110.39	190.94	119.29	10.00	10.00	0.31
<b>Start DLS 1.00 TFO 122.32 - 7"</b>									
7,697.34	89.61	179.80	7,350.02	-113.12	190.95	122.02	1.00	-0.53	0.85
<b>Start 4234.50 hold at 7697.34 MD</b>									
7,700.00	89.61	179.80	7,350.04	-115.78	190.96	124.68	0.00	0.00	0.00
7,800.00	89.61	179.80	7,350.72	-215.78	191.31	224.58	0.00	0.00	0.00
7,900.00	89.61	179.80	7,351.41	-315.77	191.66	324.48	0.00	0.00	0.00
8,000.00	89.61	179.80	7,352.09	-415.77	192.01	424.38	0.00	0.00	0.00
8,100.00	89.61	179.80	7,352.77	-515.77	192.35	524.29	0.00	0.00	0.00
8,200.00	89.61	179.80	7,353.46	-615.77	192.70	624.19	0.00	0.00	0.00
8,300.00	89.61	179.80	7,354.14	-715.76	193.05	724.09	0.00	0.00	0.00
8,400.00	89.61	179.80	7,354.83	-815.76	193.40	823.99	0.00	0.00	0.00
8,500.00	89.61	179.80	7,355.51	-915.76	193.75	923.89	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well CLARK 13N-11HZ
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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Site:</b>	WELD_CLARK PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	CLARK 13N-11HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	CLARK 13N-11HZ		
<b>Design:</b>	CLARK 13N-11HZ (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,600.00	89.61	179.80	7,356.20	-1,015.75	194.10	1,023.79	0.00	0.00	0.00
8,700.00	89.61	179.80	7,356.88	-1,115.75	194.45	1,123.70	0.00	0.00	0.00
8,800.00	89.61	179.80	7,357.57	-1,215.75	194.80	1,223.60	0.00	0.00	0.00
8,900.00	89.61	179.80	7,358.25	-1,315.75	195.15	1,323.50	0.00	0.00	0.00
9,000.00	89.61	179.80	7,358.93	-1,415.74	195.50	1,423.40	0.00	0.00	0.00
9,100.00	89.61	179.80	7,359.62	-1,515.74	195.85	1,523.30	0.00	0.00	0.00
9,200.00	89.61	179.80	7,360.30	-1,615.74	196.20	1,623.20	0.00	0.00	0.00
9,300.00	89.61	179.80	7,360.99	-1,715.73	196.55	1,723.11	0.00	0.00	0.00
9,400.00	89.61	179.80	7,361.67	-1,815.73	196.90	1,823.01	0.00	0.00	0.00
9,500.00	89.61	179.80	7,362.36	-1,915.73	197.25	1,922.91	0.00	0.00	0.00
9,600.00	89.61	179.80	7,363.04	-2,015.72	197.60	2,022.81	0.00	0.00	0.00
9,700.00	89.61	179.80	7,363.73	-2,115.72	197.94	2,122.71	0.00	0.00	0.00
9,800.00	89.61	179.80	7,364.41	-2,215.72	198.29	2,222.62	0.00	0.00	0.00
9,900.00	89.61	179.80	7,365.09	-2,315.72	198.64	2,322.52	0.00	0.00	0.00
10,000.00	89.61	179.80	7,365.78	-2,415.71	198.99	2,422.42	0.00	0.00	0.00
10,100.00	89.61	179.80	7,366.46	-2,515.71	199.34	2,522.32	0.00	0.00	0.00
10,200.00	89.61	179.80	7,367.15	-2,615.71	199.69	2,622.22	0.00	0.00	0.00
10,300.00	89.61	179.80	7,367.83	-2,715.70	200.04	2,722.12	0.00	0.00	0.00
10,400.00	89.61	179.80	7,368.52	-2,815.70	200.39	2,822.03	0.00	0.00	0.00
10,500.00	89.61	179.80	7,369.20	-2,915.70	200.74	2,921.93	0.00	0.00	0.00
10,600.00	89.61	179.80	7,369.88	-3,015.69	201.09	3,021.83	0.00	0.00	0.00
10,700.00	89.61	179.80	7,370.57	-3,115.69	201.44	3,121.73	0.00	0.00	0.00
10,800.00	89.61	179.80	7,371.25	-3,215.69	201.79	3,221.63	0.00	0.00	0.00
10,900.00	89.61	179.80	7,371.94	-3,315.69	202.14	3,321.53	0.00	0.00	0.00
11,000.00	89.61	179.80	7,372.62	-3,415.68	202.49	3,421.44	0.00	0.00	0.00
11,100.00	89.61	179.80	7,373.31	-3,515.68	202.84	3,521.34	0.00	0.00	0.00
11,200.00	89.61	179.80	7,373.99	-3,615.68	203.18	3,621.24	0.00	0.00	0.00
11,300.00	89.61	179.80	7,374.68	-3,715.67	203.53	3,721.14	0.00	0.00	0.00
11,400.00	89.61	179.80	7,375.36	-3,815.67	203.88	3,821.04	0.00	0.00	0.00
11,500.00	89.61	179.80	7,376.04	-3,915.67	204.23	3,920.95	0.00	0.00	0.00
11,600.00	89.61	179.80	7,376.73	-4,015.67	204.58	4,020.85	0.00	0.00	0.00
11,700.00	89.61	179.80	7,377.41	-4,115.66	204.93	4,120.75	0.00	0.00	0.00
11,800.00	89.61	179.80	7,378.10	-4,215.66	205.28	4,220.65	0.00	0.00	0.00
11,900.00	89.61	179.80	7,378.78	-4,315.66	205.63	4,320.55	0.00	0.00	0.00
11,931.84	89.61	179.80	7,379.00	-4,347.49	205.74	4,352.36	0.00	0.00	0.00
CLARK 13N-11HZ BHL									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
CLARK 13N-11HZ BHL	0.00	359.52	7,379.00	-4,347.49	205.74	1,265,525.78	3,209,526.14	40.059830	-104.751437
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well CLARK 13N-11HZ
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	5106' RKB + 17' RKB @ 5123.00ft
<b>Site:</b>	WELD_CLARK PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	CLARK 13N-11HZ	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	CLARK 13N-11HZ		
<b>Design:</b>	CLARK 13N-11HZ (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
850.00	850.00	9 5/8"	9-5/8	12-1/4	
7,694.61	7,350.00	7"	7	8-3/4	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,044.06	3,037.00	PARKMAN		0.00	
4,618.98	4,606.00	SUSSEX		0.00	
5,352.73	5,337.00	SHANNON		0.00	
7,303.03	7,219.00	SHARON SPRINGS		0.00	
7,367.25	7,257.00	NIOBRARA		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,248.42	1,248.11	10.09	3.75	Start 5503.47 hold at 1248.42 MD	
6,751.89	6,730.90	456.83	169.90	Start DLS 10.00 TFO 159.32	
7,694.61	7,350.00	-110.39	190.94	Start DLS 1.00 TFO 122.32	
7,697.34	7,350.02	-113.12	190.95	Start 4234.50 hold at 7697.34 MD	
11,931.84	7,379.00	-4,347.50	205.74	TD at 11931.84	