

WELL DETAILS: P_MOSER 36-4					
GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1304638.45	3232148.17	40° 9' 59.915 N	104° 40' 9.523 W

DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL MOSER 36-4	7618.00	-2183.13	212.95	1302457.42	3232381.56	40° 9' 38.340 N	104° 40' 6.780 W	Circle (Radius: 50.00)
- plan hits target center								

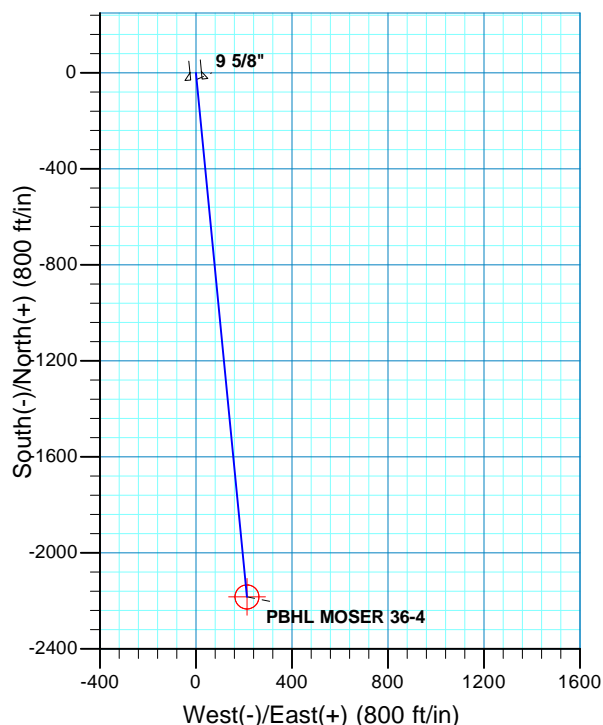
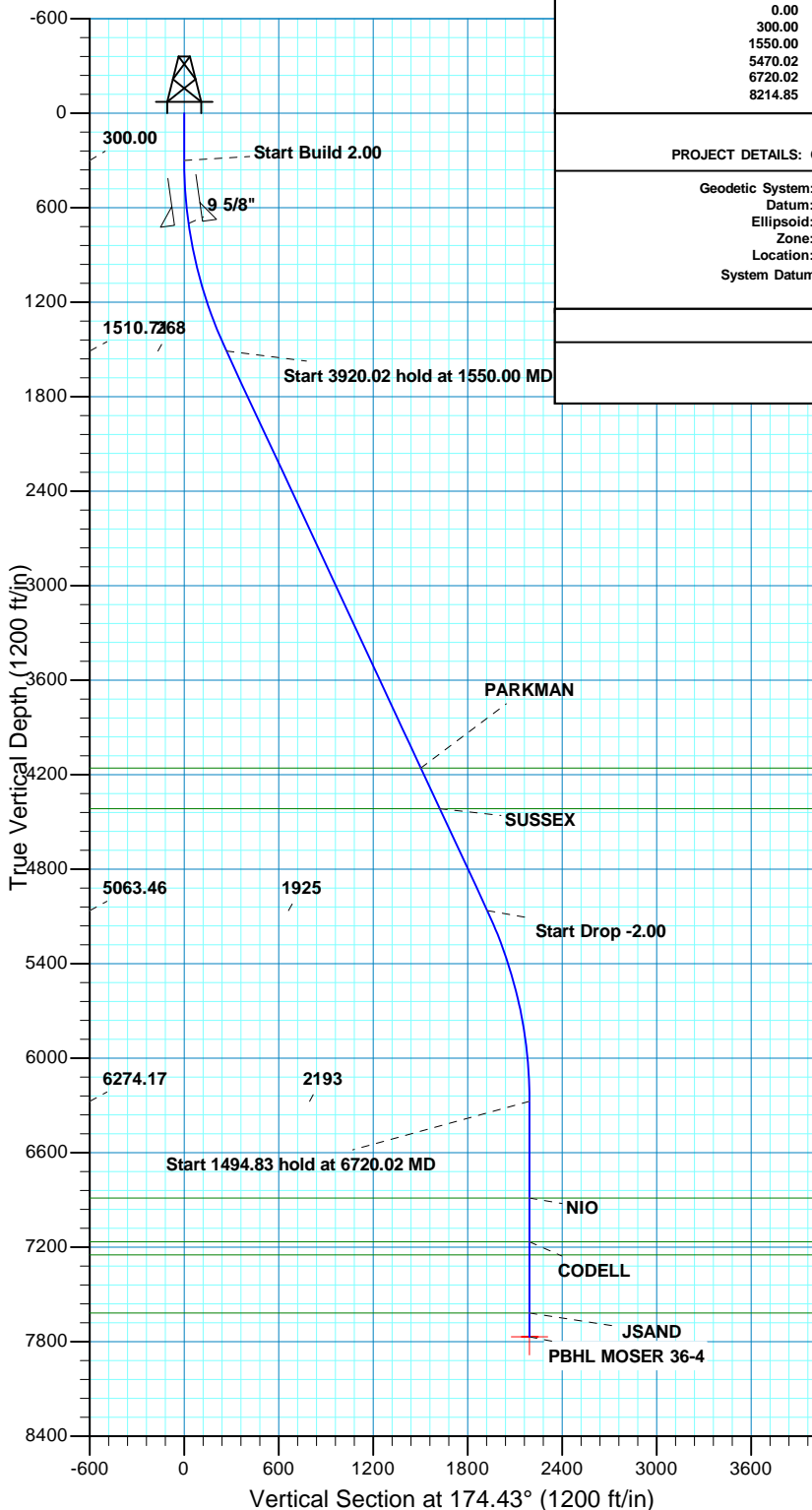
SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00		
1550.00	25.00	174.43	1510.71	-267.14	26.06	2.00	174.43	268.41		
5470.02	25.00	174.43	5063.46	-1915.99	186.89	0.00	0.00	1925.08		
6720.02	0.00	0.00	6274.17	-2183.13	212.95	2.00	180.00	2193.49		
8214.85	0.00	0.00	7769.00	-2183.13	212.95	0.00	0.00	2193.49	PBHL MOSER 36-4	

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4159.00	4472.06	PARKMAN
4416.00	4755.63	SUSSEX
6888.00	7333.85	NIO
7167.00	7612.85	CODELL
7250.00	7695.85	GREENHORN
7618.00	8063.85	JSAND

CASING DETAILS			
TVD	MD	Name	Size
700.00	701.31	9 5/8"	9.625





**Scientific Drilling**  
Rocky Mountain Operations

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_MOSER 11-4 PAD**

**P\_MOSER 36-4**

**P\_MOSER 36-4**

**Plan: PLAN #2**

## **Standard Planning Report**

**14 October, 2010**



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_MOSER 36-4
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Site:</b>	WELD_MOSER 11-4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_MOSER 36-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_MOSER 36-4		
<b>Design:</b>	PLAN #2		

<b>Project</b>	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<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_MOSER 11-4 PAD, SEC 4 T3N R65W				
<b>Site Position:</b>		<b>Northing:</b>	1,304,665.78 usft	<b>Latitude:</b>	40° 10' 0.188 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,232,109.06 usft	<b>Longitude:</b>	104° 40' 10.024 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in	<b>Grid Convergence:</b>	0.54 °

<b>Well</b>	P_MOSER 36-4, 2232' FSL 2476' FWL					
<b>Well Position</b>	<b>+N/-S</b>	-27.70 ft	<b>Northing:</b>	1,304,638.45 usft	<b>Latitude:</b>	40° 9' 59.915 N
	<b>+E/-W</b>	38.85 ft	<b>Easting:</b>	3,232,148.17 usft	<b>Longitude:</b>	104° 40' 9.523 W
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,859.00 ft

<b>Wellbore</b>	P_MOSER 36-4				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	09/01/2010	8.90	66.90	53,102

<b>Design</b>	PLAN #2			
<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	174.43

<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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,550.00	25.00	174.43	1,510.71	-267.14	26.06	2.00	2.00	0.00	174.43	
5,470.02	25.00	174.43	5,063.46	-1,915.99	186.89	0.00	0.00	0.00	0.00	
6,720.02	0.00	0.00	6,274.17	-2,183.13	212.95	2.00	-2.00	0.00	180.00	
8,214.85	0.00	0.00	7,769.00	-2,183.13	212.95	0.00	0.00	0.00	0.00	PBHL MOSER 36-4

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_MOSER 36-4
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Site:</b>	WELD_MOSER 11-4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_MOSER 36-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_MOSER 36-4		
<b>Design:</b>	PLAN #2		

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	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>Start Build 2.00</b>										
400.00	2.00	174.43	399.98	-1.74	0.17	1.75	2.00	2.00	0.00	
500.00	4.00	174.43	499.84	-6.95	0.68	6.98	2.00	2.00	0.00	
600.00	6.00	174.43	599.45	-15.62	1.52	15.69	2.00	2.00	0.00	
700.00	8.00	174.43	698.70	-27.75	2.71	27.88	2.00	2.00	0.00	
701.31	8.03	174.43	700.00	-27.93	2.72	28.06	2.00	2.00	0.00	
<b>9 5/8"</b>										
800.00	10.00	174.43	797.47	-43.32	4.23	43.52	2.00	2.00	0.00	
900.00	12.00	174.43	895.62	-62.31	6.08	62.60	2.00	2.00	0.00	
1,000.00	14.00	174.43	993.06	-84.69	8.26	85.10	2.00	2.00	0.00	
1,100.00	16.00	174.43	1,089.64	-110.45	10.77	110.98	2.00	2.00	0.00	
1,200.00	18.00	174.43	1,185.27	-139.55	13.61	140.21	2.00	2.00	0.00	
1,300.00	20.00	174.43	1,279.82	-171.95	16.77	172.77	2.00	2.00	0.00	
1,400.00	22.00	174.43	1,373.17	-207.62	20.25	208.60	2.00	2.00	0.00	
1,500.00	24.00	174.43	1,465.21	-246.50	24.04	247.67	2.00	2.00	0.00	
1,550.00	25.00	174.43	1,510.71	-267.14	26.06	268.41	2.00	2.00	0.00	
<b>Start 3920.02 hold at 1550.00 MD</b>										
1,600.00	25.00	174.43	1,556.03	-288.17	28.11	289.54	0.00	0.00	0.00	
1,700.00	25.00	174.43	1,646.66	-330.23	32.21	331.80	0.00	0.00	0.00	
1,800.00	25.00	174.43	1,737.29	-372.30	36.32	374.06	0.00	0.00	0.00	
1,900.00	25.00	174.43	1,827.92	-414.36	40.42	416.32	0.00	0.00	0.00	
2,000.00	25.00	174.43	1,918.55	-456.42	44.52	458.59	0.00	0.00	0.00	
2,100.00	25.00	174.43	2,009.18	-498.48	48.62	500.85	0.00	0.00	0.00	
2,200.00	25.00	174.43	2,099.81	-540.54	52.73	543.11	0.00	0.00	0.00	
2,300.00	25.00	174.43	2,190.44	-582.61	56.83	585.37	0.00	0.00	0.00	
2,400.00	25.00	174.43	2,281.07	-624.67	60.93	627.63	0.00	0.00	0.00	
2,500.00	25.00	174.43	2,371.70	-666.73	65.04	669.90	0.00	0.00	0.00	
2,600.00	25.00	174.43	2,462.34	-708.79	69.14	712.16	0.00	0.00	0.00	
2,700.00	25.00	174.43	2,552.97	-750.86	73.24	754.42	0.00	0.00	0.00	
2,800.00	25.00	174.43	2,643.60	-792.92	77.34	796.68	0.00	0.00	0.00	
2,900.00	25.00	174.43	2,734.23	-834.98	81.45	838.94	0.00	0.00	0.00	
3,000.00	25.00	174.43	2,824.86	-877.04	85.55	881.20	0.00	0.00	0.00	
3,100.00	25.00	174.43	2,915.49	-919.10	89.65	923.47	0.00	0.00	0.00	
3,200.00	25.00	174.43	3,006.12	-961.17	93.76	965.73	0.00	0.00	0.00	
3,300.00	25.00	174.43	3,096.75	-1,003.23	97.86	1,007.99	0.00	0.00	0.00	
3,400.00	25.00	174.43	3,187.38	-1,045.29	101.96	1,050.25	0.00	0.00	0.00	
3,500.00	25.00	174.43	3,278.01	-1,087.35	106.06	1,092.51	0.00	0.00	0.00	
3,600.00	25.00	174.43	3,368.64	-1,129.42	110.17	1,134.78	0.00	0.00	0.00	
3,700.00	25.00	174.43	3,459.27	-1,171.48	114.27	1,177.04	0.00	0.00	0.00	
3,800.00	25.00	174.43	3,549.90	-1,213.54	118.37	1,219.30	0.00	0.00	0.00	
3,900.00	25.00	174.43	3,640.54	-1,255.60	122.48	1,261.56	0.00	0.00	0.00	
4,000.00	25.00	174.43	3,731.17	-1,297.66	126.58	1,303.82	0.00	0.00	0.00	
4,100.00	25.00	174.43	3,821.80	-1,339.73	130.68	1,346.09	0.00	0.00	0.00	
4,200.00	25.00	174.43	3,912.43	-1,381.79	134.78	1,388.35	0.00	0.00	0.00	
4,300.00	25.00	174.43	4,003.06	-1,423.85	138.89	1,430.61	0.00	0.00	0.00	
4,400.00	25.00	174.43	4,093.69	-1,465.91	142.99	1,472.87	0.00	0.00	0.00	
4,472.06	25.00	174.43	4,159.00	-1,496.22	145.95	1,503.33	0.00	0.00	0.00	
<b>PARKMAN</b>										

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_MOSER 36-4
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Site:</b>	WELD_MOSER 11-4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_MOSER 36-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_MOSER 36-4		
<b>Design:</b>	PLAN #2		

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)	
4,500.00	25.00	174.43	4,184.32	-1,507.98	147.09	1,515.13	0.00	0.00	0.00	
4,600.00	25.00	174.43	4,274.95	-1,550.04	151.20	1,557.39	0.00	0.00	0.00	
4,700.00	25.00	174.43	4,365.58	-1,592.10	155.30	1,599.66	0.00	0.00	0.00	
4,755.63	25.00	174.43	4,416.00	-1,615.50	157.58	1,623.17	0.00	0.00	0.00	
<b>SUSSEX</b>										
4,800.00	25.00	174.43	4,456.21	-1,634.16	159.40	1,641.92	0.00	0.00	0.00	
4,900.00	25.00	174.43	4,546.84	-1,676.22	163.50	1,684.18	0.00	0.00	0.00	
5,000.00	25.00	174.43	4,637.47	-1,718.29	167.61	1,726.44	0.00	0.00	0.00	
5,100.00	25.00	174.43	4,728.10	-1,760.35	171.71	1,768.70	0.00	0.00	0.00	
5,200.00	25.00	174.43	4,818.74	-1,802.41	175.81	1,810.97	0.00	0.00	0.00	
5,300.00	25.00	174.43	4,909.37	-1,844.47	179.92	1,853.23	0.00	0.00	0.00	
5,400.00	25.00	174.43	5,000.00	-1,886.54	184.02	1,895.49	0.00	0.00	0.00	
5,470.02	25.00	174.43	5,063.46	-1,915.99	186.89	1,925.08	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
5,500.00	24.40	174.43	5,090.69	-1,928.46	188.11	1,937.61	2.00	-2.00	0.00	
5,600.00	22.40	174.43	5,182.46	-1,967.98	191.96	1,977.32	2.00	-2.00	0.00	
5,700.00	20.40	174.43	5,275.56	-2,004.30	195.51	2,013.81	2.00	-2.00	0.00	
5,800.00	18.40	174.43	5,369.88	-2,037.35	198.73	2,047.02	2.00	-2.00	0.00	
5,900.00	16.40	174.43	5,465.30	-2,067.12	201.63	2,076.93	2.00	-2.00	0.00	
6,000.00	14.40	174.43	5,561.71	-2,093.55	204.21	2,103.48	2.00	-2.00	0.00	
6,100.00	12.40	174.43	5,658.98	-2,116.61	206.46	2,126.66	2.00	-2.00	0.00	
6,200.00	10.40	174.43	5,757.00	-2,136.28	208.38	2,146.42	2.00	-2.00	0.00	
6,300.00	8.40	174.43	5,855.65	-2,152.54	209.97	2,162.75	2.00	-2.00	0.00	
6,400.00	6.40	174.43	5,954.81	-2,165.36	211.22	2,175.63	2.00	-2.00	0.00	
6,500.00	4.40	174.43	6,054.37	-2,174.72	212.13	2,185.04	2.00	-2.00	0.00	
6,600.00	2.40	174.43	6,154.18	-2,180.63	212.71	2,190.98	2.00	-2.00	0.00	
6,700.00	0.40	174.43	6,254.15	-2,183.06	212.94	2,193.42	2.00	-2.00	0.00	
6,720.02	0.00	0.00	6,274.17	-2,183.13	212.95	2,193.49	2.00	-2.00	0.00	
<b>Start 1494.83 hold at 6720.02 MD</b>										
6,800.00	0.00	0.00	6,354.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,454.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,554.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,654.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,754.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,300.00	0.00	0.00	6,854.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,333.85	0.00	0.00	6,888.00	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
<b>NIO</b>										
7,400.00	0.00	0.00	6,954.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,054.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,154.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,612.85	0.00	0.00	7,167.00	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
<b>CODELL</b>										
7,695.85	0.00	0.00	7,250.00	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
<b>GREENHORN</b>										
7,700.00	0.00	0.00	7,254.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,354.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,454.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,554.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
8,063.85	0.00	0.00	7,618.00	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
<b>JSAND</b>										
8,100.00	0.00	0.00	7,654.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_MOSER 36-4
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4859' & RKB 15' @ 4874.00ft (ASSUMED)
<b>Site:</b>	WELD_MOSER 11-4 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_MOSER 36-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_MOSER 36-4		
<b>Design:</b>	PLAN #2		

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)	
8,200.00	0.00	0.00	7,754.15	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
8,214.85	0.00	0.00	7,769.00	-2,183.13	212.95	2,193.49	0.00	0.00	0.00	
TD at 8214.85 - PBHL MOSER 36-4										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL MOSER 36-4	0.00	0.00	7,769.00	-2,183.13	212.95	1,302,457.42	3,232,381.56	40° 9' 38.340 N	104° 40' 6.780 W	
- hit/miss target										
- Shape										
- plan hits target center										
- Circle (radius 50.00)										

Casing Points							
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)			
701.31	700.00	9 5/8"	9.625	12.250			

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,472.06	4,159.00	PARKMAN				
4,755.63	4,416.00	SUSSEX				
7,333.85	6,888.00	NIO				
7,612.85	7,167.00	CODELL				
7,695.85	7,250.00	GREENHORN				
8,063.85	7,618.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
300.00	300.00	0.00	0.00	Start Build 2.00	
1,550.00	1,510.71	-267.14	26.06	Start 3920.02 hold at 1550.00 MD	
5,470.02	5,063.46	-1,915.99	186.89	Start Drop -2.00	
6,720.02	6,274.17	-2,183.13	212.95	Start 1494.83 hold at 6720.02 MD	
8,214.85	7,769.00	-2,183.13	212.95	TD at 8214.85	