



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Thomason 16-9 Pad**

**P\_Thomason 37-9**

**P\_Thomason 37-9**

**Plan: PLAN #1 9-13-10 RHS**

## **Standard Planning Report**

**13 September, 2010**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Thomason 37-9
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
<b>Site:</b>	WELD_Thomason 16-9 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Thomason 37-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Thomason 37-9		
<b>Design:</b>	PLAN #1 9-13-10 RHS		

<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_Thomason 16-9 Pad, SECTION 9 T2NR65W		
<b>Site Position:</b>		<b>Northing:</b>	1,297,390.68 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,234,729.34 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Latitude:</b>	40° 8' 48.052 N
		<b>Longitude:</b>	104° 39' 37.159 W
		<b>Grid Convergence:</b>	0.54 °

<b>Well</b>	P_Thomason 37-9, 254' FSL 208' FEL		
<b>Well Position</b>	<b>+N/-S</b>	-0.01 ft	<b>Northing:</b> 1,297,390.52 usft
	<b>+E/-W</b>	-15.93 ft	<b>Easting:</b> 3,234,713.41 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	
		<b>Latitude:</b>	40° 8' 48.051 N
		<b>Longitude:</b>	104° 39' 37.364 W
		<b>Ground Level:</b>	4,867.00 ft

<b>Wellbore</b>	P_Thomason 37-9				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	07/01/2010	8.91	66.90	53,110

<b>Design</b>	PLAN #1 9-13-10 RHS			
<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	259.03

<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	
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,547.63	13.95	259.03	1,540.76	-16.09	-82.98	2.00	2.00	0.00	259.03	
5,330.74	13.95	259.03	5,212.24	-189.70	-978.49	0.00	0.00	0.00	0.00	
6,028.37	0.00	0.00	5,903.00	-205.79	-1,061.47	2.00	-2.00	0.00	180.00	
7,902.37	0.00	0.00	7,777.00	-205.79	-1,061.47	0.00	0.00	0.00	0.00	PBHL_Thomason 37-

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Thomason 37-9
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
<b>Site:</b>	WELD_Thomason 16-9 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Thomason 37-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Thomason 37-9		
<b>Design:</b>	PLAN #1 9-13-10 RHS		

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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
8 5/8"									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
850.00	0.00	0.00	850.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
900.00	1.00	259.03	900.00	-0.08	-0.43	0.44	2.00	2.00	0.00
1,000.00	3.00	259.03	999.93	-0.75	-3.85	3.93	2.00	2.00	0.00
1,100.00	5.00	259.03	1,099.68	-2.07	-10.70	10.90	2.00	2.00	0.00
1,200.00	7.00	259.03	1,199.13	-4.06	-20.96	21.35	2.00	2.00	0.00
1,300.00	9.00	259.03	1,298.15	-6.71	-34.63	35.27	2.00	2.00	0.00
1,400.00	11.00	259.03	1,396.63	-10.02	-51.67	52.63	2.00	2.00	0.00
1,500.00	13.00	259.03	1,494.44	-13.97	-72.08	73.42	2.00	2.00	0.00
1,547.63	13.95	259.03	1,540.76	-16.09	-82.98	84.52	2.00	2.00	0.00
Start 3783.10 hold at 1547.63 MD									
1,600.00	13.95	259.03	1,591.58	-18.49	-95.38	97.15	0.00	0.00	0.00
1,700.00	13.95	259.03	1,688.63	-23.08	-119.05	121.26	0.00	0.00	0.00
1,800.00	13.95	259.03	1,785.68	-27.67	-142.72	145.38	0.00	0.00	0.00
1,900.00	13.95	259.03	1,882.73	-32.26	-166.39	169.49	0.00	0.00	0.00
2,000.00	13.95	259.03	1,979.78	-36.85	-190.06	193.60	0.00	0.00	0.00
2,100.00	13.95	259.03	2,076.83	-41.44	-213.73	217.71	0.00	0.00	0.00
2,200.00	13.95	259.03	2,173.88	-46.03	-237.40	241.82	0.00	0.00	0.00
2,300.00	13.95	259.03	2,270.93	-50.61	-261.07	265.94	0.00	0.00	0.00
2,400.00	13.95	259.03	2,367.98	-55.20	-284.75	290.05	0.00	0.00	0.00
2,500.00	13.95	259.03	2,465.03	-59.79	-308.42	314.16	0.00	0.00	0.00
2,600.00	13.95	259.03	2,562.08	-64.38	-332.09	338.27	0.00	0.00	0.00
2,700.00	13.95	259.03	2,659.13	-68.97	-355.76	362.38	0.00	0.00	0.00
2,800.00	13.95	259.03	2,756.17	-73.56	-379.43	386.50	0.00	0.00	0.00
2,900.00	13.95	259.03	2,853.22	-78.15	-403.10	410.61	0.00	0.00	0.00
3,000.00	13.95	259.03	2,950.27	-82.74	-426.77	434.72	0.00	0.00	0.00
3,100.00	13.95	259.03	3,047.32	-87.33	-450.44	458.83	0.00	0.00	0.00
3,200.00	13.95	259.03	3,144.37	-91.92	-474.12	482.94	0.00	0.00	0.00
3,300.00	13.95	259.03	3,241.42	-96.51	-497.79	507.06	0.00	0.00	0.00
3,400.00	13.95	259.03	3,338.47	-101.10	-521.46	531.17	0.00	0.00	0.00
3,500.00	13.95	259.03	3,435.52	-105.68	-545.13	555.28	0.00	0.00	0.00
3,600.00	13.95	259.03	3,532.57	-110.27	-568.80	579.39	0.00	0.00	0.00
3,700.00	13.95	259.03	3,629.62	-114.86	-592.47	603.50	0.00	0.00	0.00
3,800.00	13.95	259.03	3,726.67	-119.45	-616.14	627.61	0.00	0.00	0.00
3,900.00	13.95	259.03	3,823.72	-124.04	-639.81	651.73	0.00	0.00	0.00
4,000.00	13.95	259.03	3,920.77	-128.63	-663.49	675.84	0.00	0.00	0.00
4,100.00	13.95	259.03	4,017.82	-133.22	-687.16	699.95	0.00	0.00	0.00
4,200.00	13.95	259.03	4,114.87	-137.81	-710.83	724.06	0.00	0.00	0.00
4,253.72	13.95	259.03	4,167.00	-140.27	-723.54	737.02	0.00	0.00	0.00
PARKMAN									
4,300.00	13.95	259.03	4,211.92	-142.40	-734.50	748.17	0.00	0.00	0.00
4,400.00	13.95	259.03	4,308.97	-146.99	-758.17	772.29	0.00	0.00	0.00

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
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<b>Well:</b>	P_Thomason 37-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Thomason 37-9		
<b>Design:</b>	PLAN #1 9-13-10 RHS		

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	13.95	259.03	4,406.02	-151.58	-781.84	796.40	0.00	0.00	0.00
4,579.32	13.95	259.03	4,483.00	-155.22	-800.62	815.53	0.00	0.00	0.00
<b>SUSSEX</b>									
4,600.00	13.95	259.03	4,503.07	-156.17	-805.51	820.51	0.00	0.00	0.00
4,700.00	13.95	259.03	4,600.12	-160.75	-829.18	844.62	0.00	0.00	0.00
4,800.00	13.95	259.03	4,697.17	-165.34	-852.85	868.73	0.00	0.00	0.00
4,900.00	13.95	259.03	4,794.22	-169.93	-876.53	892.85	0.00	0.00	0.00
5,000.00	13.95	259.03	4,891.26	-174.52	-900.20	916.96	0.00	0.00	0.00
5,100.00	13.95	259.03	4,988.31	-179.11	-923.87	941.07	0.00	0.00	0.00
5,200.00	13.95	259.03	5,085.36	-183.70	-947.54	965.18	0.00	0.00	0.00
5,300.00	13.95	259.03	5,182.41	-188.29	-971.21	989.29	0.00	0.00	0.00
5,330.74	13.95	259.03	5,212.24	-189.70	-978.49	996.71	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,400.00	12.57	259.03	5,279.66	-192.72	-994.08	1,012.59	2.00	-2.00	0.00
5,500.00	10.57	259.03	5,377.62	-196.54	-1,013.77	1,032.64	2.00	-2.00	0.00
5,600.00	8.57	259.03	5,476.23	-199.70	-1,030.08	1,049.26	2.00	-2.00	0.00
5,700.00	6.57	259.03	5,575.35	-202.21	-1,043.01	1,062.43	2.00	-2.00	0.00
5,800.00	4.57	259.03	5,674.87	-204.06	-1,052.54	1,072.13	2.00	-2.00	0.00
5,900.00	2.57	259.03	5,774.67	-205.24	-1,058.64	1,078.35	2.00	-2.00	0.00
6,000.00	0.57	259.03	5,874.63	-205.76	-1,061.33	1,081.09	2.00	-2.00	0.00
6,028.37	0.00	0.00	5,903.00	-205.79	-1,061.47	1,081.23	2.00	-2.00	0.00
<b>Start 1874.00 hold at 6028.37 MD</b>									
6,100.00	0.00	0.00	5,974.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,200.00	0.00	0.00	6,074.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,300.00	0.00	0.00	6,174.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,400.00	0.00	0.00	6,274.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,500.00	0.00	0.00	6,374.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,600.00	0.00	0.00	6,474.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,700.00	0.00	0.00	6,574.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,800.00	0.00	0.00	6,674.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
6,900.00	0.00	0.00	6,774.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,000.00	0.00	0.00	6,874.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,028.37	0.00	0.00	6,903.00	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
<b>NIO</b>									
7,100.00	0.00	0.00	6,974.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,200.00	0.00	0.00	7,074.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,300.00	0.00	0.00	7,174.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,312.37	0.00	0.00	7,187.00	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
<b>CODELL</b>									
7,396.37	0.00	0.00	7,271.00	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
<b>GREENHORN</b>									
7,400.00	0.00	0.00	7,274.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,500.00	0.00	0.00	7,374.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,600.00	0.00	0.00	7,474.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,700.00	0.00	0.00	7,574.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,752.37	0.00	0.00	7,627.00	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
<b>JSAND</b>									
7,800.00	0.00	0.00	7,674.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,900.00	0.00	0.00	7,774.63	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
7,902.37	0.00	0.00	7,777.00	-205.79	-1,061.47	1,081.23	0.00	0.00	0.00
<b>PBHL_Thomason 37-9(50' FSL 1265' FEL)</b>									

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4867' & RKB 15' @ 4882.00ft (ASSUMED)
<b>Site:</b>	WELD_Thomason 16-9 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Thomason 37-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Thomason 37-9		
<b>Design:</b>	PLAN #1 9-13-10 RHS		

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)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target - Shape PBHL_Thomason 37-9(1) - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,777.00	-205.79	-1,061.47	1,297,174.69	3,233,653.94	40° 8' 46.018 N	104° 39' 51.034 W

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
700.00	700.00	8 5/8"	8.620	11.000	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,253.72	4,167.00	PARKMAN				
4,579.32	4,483.00	SUSSEX				
7,028.37	6,903.00	NIO				
7,312.37	7,187.00	CODELL				
7,396.37	7,271.00	GREENHORN				
7,752.37	7,627.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
850.00	850.00	0.00	0.00	Start Build 2.00	
1,547.63	1,540.76	-16.09	-82.98	Start 3783.10 hold at 1547.63 MD	
5,330.74	5,212.24	-189.70	-978.49	Start Drop -2.00	
6,028.37	5,903.00	-205.79	-1,061.47	Start 1874.00 hold at 6028.37 MD	
7,902.37	7,777.00	-205.79	-1,061.47	TD at 7902.37	