

WELL DETAILS: P_Cook 41-9					
GL 4873' & RKB 15' @ 4888.00ft ASSUMED					
+N-S 0.00	+E-W 0.00	Northing 1299969.22	Easting 3232300.09	Latitude 40° 9' 13.759 N	Longitude 104° 40' 8.130 W

DESIGN TARGET DETAILS								
Name PBHL	TVD 7782.00	+N-S 1068.95	+E-W 2579.04	Northing 1301062.29	Easting 3234868.99	Latitude 40° 9' 24.322 N	Longitude 104° 39' 34.913 W	Shape Circle (Radius: 50.00)
- plan hits target center								

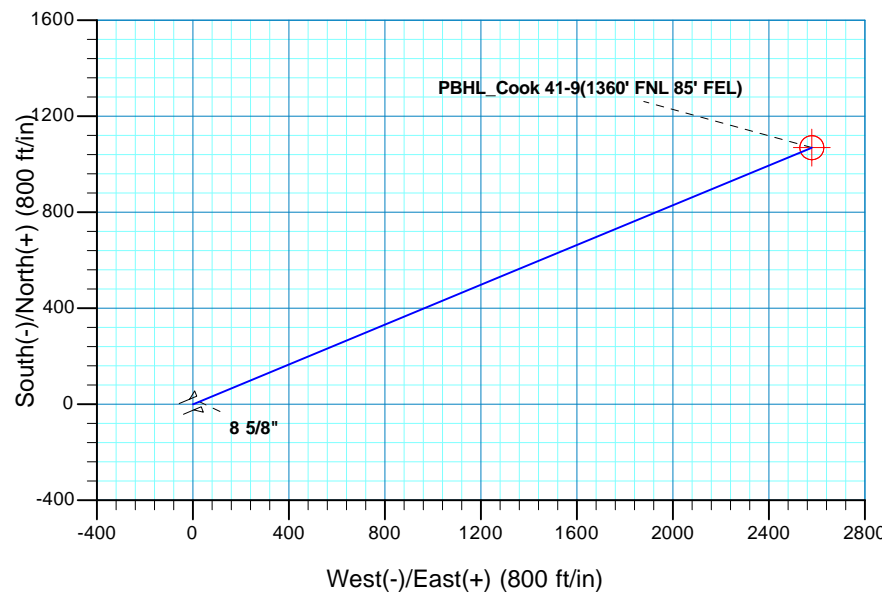
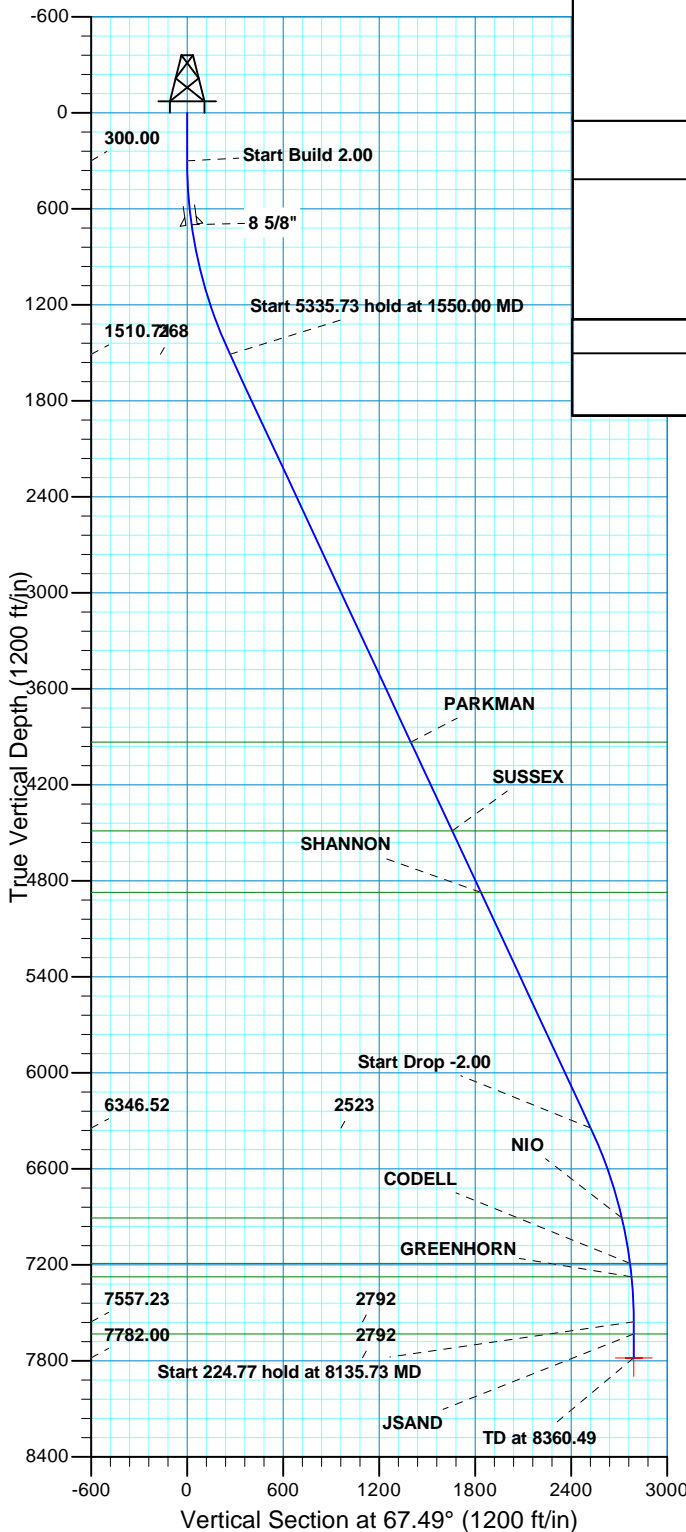
SECTION DETAILS										
MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	VSect	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00		
1550.00	25.00	67.49	1510.71	102.77	247.95	2.00	67.49	268.41		
6885.73	25.00	67.49	6346.52	966.18	2331.09	0.00	0.00	2523.38		
8135.73	0.00	0.00	7557.23	1068.95	2579.04	2.00	180.00	2791.79		
8360.49	0.00	0.00	7782.00	1068.95	2579.04	0.00	0.00	2791.79	PBHL_Cook 41-9(1360' FNL 85' FEL)	

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83			FORMATION TOP DETAILS		
Geodetic System: US State Plane 1983 Datum: North American Datum 1983 Ellipsoid: GRS 1980 Zone: Colorado Northern Zone Location: SECTION 9 T2N R65W System Datum: Mean Sea Level			TVDPath	MDPath	Formation
			3934.00	4223.80	PARKMAN
			4488.00	4835.07	SUSSEX
			4872.00	5258.77	SHANNON
			6908.00	7480.80	NIO
			7192.00	7769.49	CODELL
			7276.00	7854.04	GREENHORN
			7632.00	8210.49	JSAND

CASING DETAILS				
TVD	MD	Name	Size	
700.00	701.31	8 5/8"	8.625	





**Scientific Drilling**  
Rocky Mountain Operations

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_COOK 25-9 PAD**

**P\_Cook 41-9**

**P\_Cook 41-9**

**Plan: PLAN #1 8-16-10 RHS**

## **Standard Planning Report**

**16 August, 2010**



<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Cook 41-9
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Site:</b>	WELD_COOK 25-9 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Cook 41-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Cook 41-9		
<b>Design:</b>	PLAN #1 8-16-10 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_COOK 25-9 PAD, SECTION 9 T2N R65W				
<b>Site Position:</b>	<b>Northing:</b>	1,300,001.29 usft	<b>Latitude:</b>	40° 9' 14.076 N	
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,232,300.07 usft	<b>Longitude:</b>	104° 40' 8.126 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_Cook 41-9, 2438' FNL 2623' FWL					
<b>Well Position</b>	<b>+N/-S</b>	-32.07 ft	<b>Northing:</b>	1,299,969.22 usft	<b>Latitude:</b>	40° 9' 13.759 N
	<b>+E/-W</b>	-0.28 ft	<b>Easting:</b>	3,232,300.09 usft	<b>Longitude:</b>	104° 40' 8.130 W
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	4,873.00 ft	

<b>Wellbore</b>	P_Cook 41-9				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	08/16/2010	8.90	66.90	53,100

<b>Design</b>	PLAN #1 8-16-10 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	67.49

<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	67.49	1,510.71	102.77	247.95	2.00	2.00	0.00	67.49	
6,885.73	25.00	67.49	6,346.52	966.18	2,331.09	0.00	0.00	0.00	0.00	
8,135.73	0.00	0.00	7,557.23	1,068.95	2,579.04	2.00	-2.00	0.00	180.00	
8,360.49	0.00	0.00	7,782.00	1,068.95	2,579.04	0.00	0.00	0.00	0.00	PBHL_Cook 41-9(13€

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Cook 41-9
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Site:</b>	WELD_COOK 25-9 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Cook 41-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Cook 41-9		
<b>Design:</b>	PLAN #1 8-16-10 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	0.00
100.00	0.00	0.00	100.00	0.00	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	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>										
400.00	2.00	67.49	399.98	0.67	1.61	1.75	2.00	2.00	0.00	
500.00	4.00	67.49	499.84	2.67	6.45	6.98	2.00	2.00	0.00	
600.00	6.00	67.49	599.45	6.01	14.50	15.69	2.00	2.00	0.00	
700.00	8.00	67.49	698.70	10.67	25.76	27.88	2.00	2.00	0.00	
701.31	8.03	67.49	700.00	10.74	25.92	28.06	2.00	2.00	0.00	
<b>8 5/8"</b>										
800.00	10.00	67.49	797.47	16.66	40.21	43.52	2.00	2.00	0.00	
900.00	12.00	67.49	895.62	23.97	57.83	62.60	2.00	2.00	0.00	
1,000.00	14.00	67.49	993.06	32.58	78.61	85.10	2.00	2.00	0.00	
1,100.00	16.00	67.49	1,089.64	42.49	102.52	110.98	2.00	2.00	0.00	
1,200.00	18.00	67.49	1,185.27	53.69	129.53	140.21	2.00	2.00	0.00	
1,300.00	20.00	67.49	1,279.82	66.15	159.60	172.77	2.00	2.00	0.00	
1,400.00	22.00	67.49	1,373.17	79.87	192.71	208.60	2.00	2.00	0.00	
1,500.00	24.00	67.49	1,465.21	94.83	228.80	247.67	2.00	2.00	0.00	
1,550.00	25.00	67.49	1,510.71	102.77	247.95	268.41	2.00	2.00	0.00	
<b>Start 5335.73 hold at 1550.00 MD</b>										
1,600.00	25.00	67.49	1,556.03	110.86	267.47	289.54	0.00	0.00	0.00	
1,700.00	25.00	67.49	1,646.66	127.04	306.52	331.80	0.00	0.00	0.00	
1,800.00	25.00	67.49	1,737.29	143.22	345.56	374.06	0.00	0.00	0.00	
1,900.00	25.00	67.49	1,827.92	159.41	384.60	416.32	0.00	0.00	0.00	
2,000.00	25.00	67.49	1,918.55	175.59	423.64	458.59	0.00	0.00	0.00	
2,100.00	25.00	67.49	2,009.18	191.77	462.68	500.85	0.00	0.00	0.00	
2,200.00	25.00	67.49	2,099.81	207.95	501.72	543.11	0.00	0.00	0.00	
2,300.00	25.00	67.49	2,190.44	224.13	540.76	585.37	0.00	0.00	0.00	
2,400.00	25.00	67.49	2,281.07	240.31	579.80	627.63	0.00	0.00	0.00	
2,500.00	25.00	67.49	2,371.70	256.50	618.85	669.90	0.00	0.00	0.00	
2,600.00	25.00	67.49	2,462.34	272.68	657.89	712.16	0.00	0.00	0.00	
2,700.00	25.00	67.49	2,552.97	288.86	696.93	754.42	0.00	0.00	0.00	
2,800.00	25.00	67.49	2,643.60	305.04	735.97	796.68	0.00	0.00	0.00	
2,900.00	25.00	67.49	2,734.23	321.22	775.01	838.94	0.00	0.00	0.00	
3,000.00	25.00	67.49	2,824.86	337.40	814.05	881.20	0.00	0.00	0.00	
3,100.00	25.00	67.49	2,915.49	353.59	853.09	923.47	0.00	0.00	0.00	
3,200.00	25.00	67.49	3,006.12	369.77	892.13	965.73	0.00	0.00	0.00	
3,300.00	25.00	67.49	3,096.75	385.95	931.18	1,007.99	0.00	0.00	0.00	
3,400.00	25.00	67.49	3,187.38	402.13	970.22	1,050.25	0.00	0.00	0.00	
3,500.00	25.00	67.49	3,278.01	418.31	1,009.26	1,092.51	0.00	0.00	0.00	
3,600.00	25.00	67.49	3,368.64	434.49	1,048.30	1,134.78	0.00	0.00	0.00	
3,700.00	25.00	67.49	3,459.27	450.68	1,087.34	1,177.04	0.00	0.00	0.00	
3,800.00	25.00	67.49	3,549.90	466.86	1,126.38	1,219.30	0.00	0.00	0.00	
3,900.00	25.00	67.49	3,640.54	483.04	1,165.42	1,261.56	0.00	0.00	0.00	
4,000.00	25.00	67.49	3,731.17	499.22	1,204.46	1,303.82	0.00	0.00	0.00	
4,100.00	25.00	67.49	3,821.80	515.40	1,243.51	1,346.09	0.00	0.00	0.00	
4,200.00	25.00	67.49	3,912.43	531.58	1,282.55	1,388.35	0.00	0.00	0.00	
4,223.80	25.00	67.49	3,934.00	535.44	1,291.84	1,398.41	0.00	0.00	0.00	
<b>PARKMAN</b>										

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Site:</b>	WELD_COOK 25-9 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Cook 41-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Cook 41-9		
<b>Design:</b>	PLAN #1 8-16-10 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)	
4,300.00	25.00	67.49	4,003.06	547.77	1,321.59	1,430.61	0.00	0.00	0.00	
4,400.00	25.00	67.49	4,093.69	563.95	1,360.63	1,472.87	0.00	0.00	0.00	
4,500.00	25.00	67.49	4,184.32	580.13	1,399.67	1,515.13	0.00	0.00	0.00	
4,600.00	25.00	67.49	4,274.95	596.31	1,438.71	1,557.39	0.00	0.00	0.00	
4,700.00	25.00	67.49	4,365.58	612.49	1,477.75	1,599.66	0.00	0.00	0.00	
4,800.00	25.00	67.49	4,456.21	628.67	1,516.79	1,641.92	0.00	0.00	0.00	
4,835.07	25.00	67.49	4,488.00	634.35	1,530.49	1,656.74	0.00	0.00	0.00	
<b>SUSSEX</b>										
4,900.00	25.00	67.49	4,546.84	644.86	1,555.84	1,684.18	0.00	0.00	0.00	
5,000.00	25.00	67.49	4,637.47	661.04	1,594.88	1,726.44	0.00	0.00	0.00	
5,100.00	25.00	67.49	4,728.10	677.22	1,633.92	1,768.70	0.00	0.00	0.00	
5,200.00	25.00	67.49	4,818.74	693.40	1,672.96	1,810.97	0.00	0.00	0.00	
5,258.77	25.00	67.49	4,872.00	702.91	1,695.90	1,835.80	0.00	0.00	0.00	
<b>SHANNON</b>										
5,300.00	25.00	67.49	4,909.37	709.58	1,712.00	1,853.23	0.00	0.00	0.00	
5,400.00	25.00	67.49	5,000.00	725.76	1,751.04	1,895.49	0.00	0.00	0.00	
5,500.00	25.00	67.49	5,090.63	741.94	1,790.08	1,937.75	0.00	0.00	0.00	
5,600.00	25.00	67.49	5,181.26	758.13	1,829.12	1,980.01	0.00	0.00	0.00	
5,700.00	25.00	67.49	5,271.89	774.31	1,868.16	2,022.27	0.00	0.00	0.00	
5,800.00	25.00	67.49	5,362.52	790.49	1,907.21	2,064.54	0.00	0.00	0.00	
5,900.00	25.00	67.49	5,453.15	806.67	1,946.25	2,106.80	0.00	0.00	0.00	
6,000.00	25.00	67.49	5,543.78	822.85	1,985.29	2,149.06	0.00	0.00	0.00	
6,100.00	25.00	67.49	5,634.41	839.03	2,024.33	2,191.32	0.00	0.00	0.00	
6,200.00	25.00	67.49	5,725.04	855.22	2,063.37	2,233.58	0.00	0.00	0.00	
6,300.00	25.00	67.49	5,815.67	871.40	2,102.41	2,275.85	0.00	0.00	0.00	
6,400.00	25.00	67.49	5,906.31	887.58	2,141.45	2,318.11	0.00	0.00	0.00	
6,500.00	25.00	67.49	5,996.94	903.76	2,180.49	2,360.37	0.00	0.00	0.00	
6,600.00	25.00	67.49	6,087.57	919.94	2,219.54	2,402.63	0.00	0.00	0.00	
6,700.00	25.00	67.49	6,178.20	936.12	2,258.58	2,444.89	0.00	0.00	0.00	
6,800.00	25.00	67.49	6,268.83	952.31	2,297.62	2,487.15	0.00	0.00	0.00	
6,885.73	25.00	67.49	6,346.52	966.18	2,331.09	2,523.38	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
6,900.00	24.71	67.49	6,359.47	968.48	2,336.63	2,529.38	2.00	-2.00	0.00	
7,000.00	22.71	67.49	6,451.03	983.87	2,373.78	2,569.60	2.00	-2.00	0.00	
7,100.00	20.71	67.49	6,543.92	998.04	2,407.96	2,606.60	2.00	-2.00	0.00	
7,200.00	18.71	67.49	6,638.06	1,010.95	2,439.12	2,640.33	2.00	-2.00	0.00	
7,300.00	16.71	67.49	6,733.31	1,022.60	2,467.23	2,670.75	2.00	-2.00	0.00	
7,400.00	14.71	67.49	6,829.57	1,032.97	2,492.25	2,697.84	2.00	-2.00	0.00	
7,480.80	13.10	67.49	6,908.00	1,040.41	2,510.18	2,717.26	2.00	-2.00	0.00	
<b>NIO</b>										
7,500.00	12.71	67.49	6,926.71	1,042.05	2,514.15	2,721.54	2.00	-2.00	0.00	
7,600.00	10.71	67.49	7,024.63	1,049.82	2,532.90	2,741.85	2.00	-2.00	0.00	
7,700.00	8.71	67.49	7,123.19	1,056.29	2,548.49	2,758.72	2.00	-2.00	0.00	
7,769.50	7.32	67.49	7,192.00	1,060.00	2,557.44	2,768.41	2.00	-2.00	0.00	
<b>CODELL</b>										
7,800.00	6.71	67.49	7,222.28	1,061.42	2,560.89	2,772.14	2.00	-2.00	0.00	
7,854.04	5.63	67.49	7,276.00	1,063.65	2,566.26	2,777.95	2.00	-2.00	0.00	
<b>GREENHORN</b>										
7,900.00	4.71	67.49	7,321.77	1,065.24	2,570.09	2,782.10	2.00	-2.00	0.00	
8,000.00	2.71	67.49	7,421.56	1,067.72	2,576.07	2,788.58	2.00	-2.00	0.00	

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<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Site:</b>	WELD_COOK 25-9 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Cook 41-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Cook 41-9		
<b>Design:</b>	PLAN #1 8-16-10 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)	
8,100.00	0.71	67.49	7,521.51	1,068.86	2,578.83	2,791.57	2.00	-2.00	0.00	
8,135.73	0.00	0.00	7,557.23	1,068.95	2,579.04	2,791.79	2.00	-2.00	0.00	
<b>Start 224.77 hold at 8135.73 MD</b>										
8,200.00	0.00	0.00	7,621.51	1,068.95	2,579.04	2,791.79	0.00	0.00	0.00	
8,210.49	0.00	0.00	7,632.00	1,068.95	2,579.04	2,791.79	0.00	0.00	0.00	
<b>JSAND</b>										
8,300.00	0.00	0.00	7,721.51	1,068.95	2,579.04	2,791.79	0.00	0.00	0.00	
8,360.49	0.00	0.00	7,782.00	1,068.95	2,579.04	2,791.79	0.00	0.00	0.00	
<b>PBHL_Cook 41-9(1360' FNL 85' FEL)</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL_Cook 41-9(1360' - hit/miss target - Shape - plan hits target center - Circle (radius 50.00)	0.00	0.00	7,782.00	1,068.95	2,579.04	1,301,062.29	3,234,868.99	40° 9' 24.322 N	104° 39' 34.913 W	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
701.31	700.00	8 5/8"	8.625	11.000		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,223.80	3,934.00	PARKMAN				
4,835.07	4,488.00	SUSSEX				
5,258.77	4,872.00	SHANNON				
7,480.80	6,908.00	NIO				
7,769.50	7,192.00	CODELL				
7,854.04	7,276.00	GREENHORN				
8,210.49	7,632.00	JSAND				

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Cook 41-9
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4873' & RKB 15' @ 4888.00ft (ASSUMED )
<b>Site:</b>	WELD_COOK 25-9 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Cook 41-9	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Cook 41-9		
<b>Design:</b>	PLAN #1 8-16-10 RHS		

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	102.77	247.95	Start 5335.73 hold at 1550.00 MD	
6,885.73	6,346.52	966.18	2,331.09	Start Drop -2.00	
8,135.73	7,557.23	1,068.95	2,579.04	Start 224.77 hold at 8135.73 MD	
8,360.49	7,782.00	1,068.95	2,579.04	TD at 8360.49	