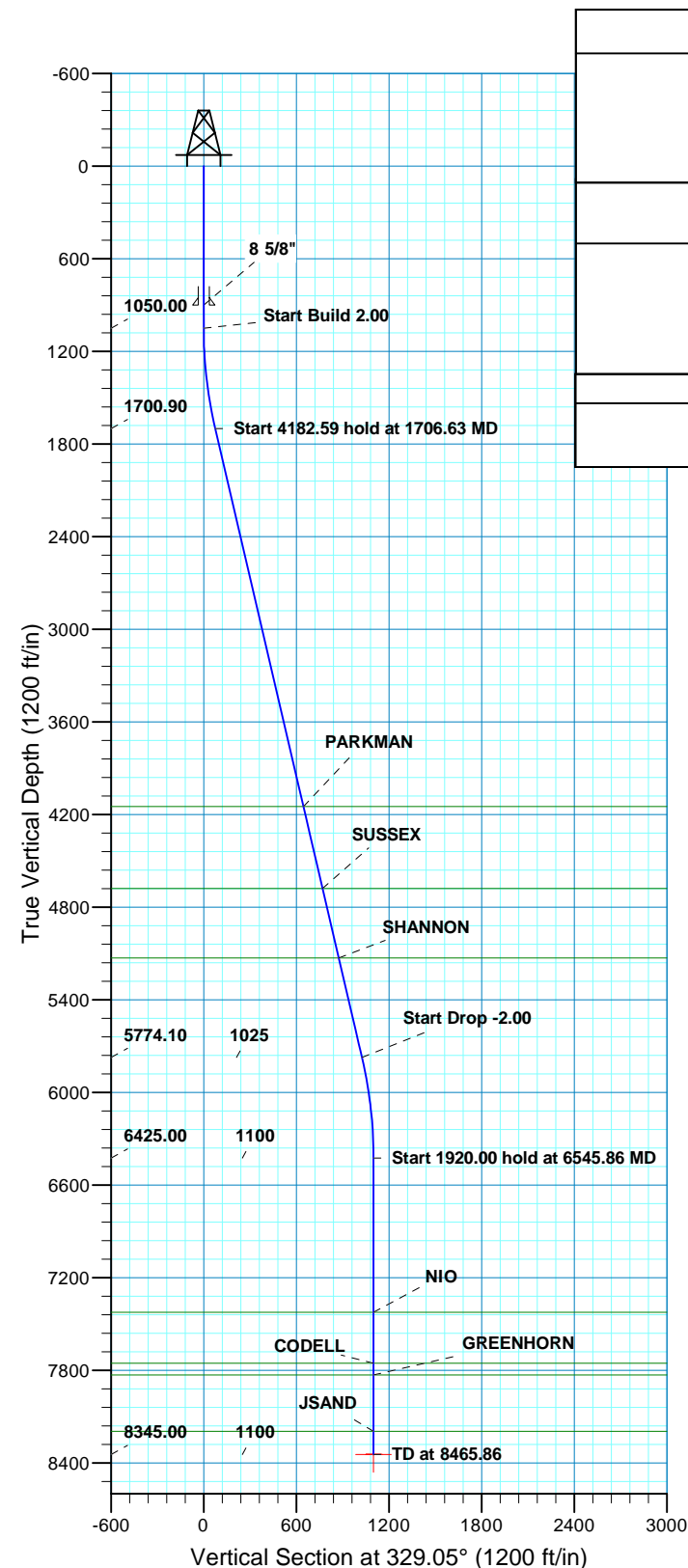


WELL DETAILS: P_Pinnacle 23-2					
GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1270309.68	3148782.47	40° 4' 26.997 N	104° 58' 6.038 W

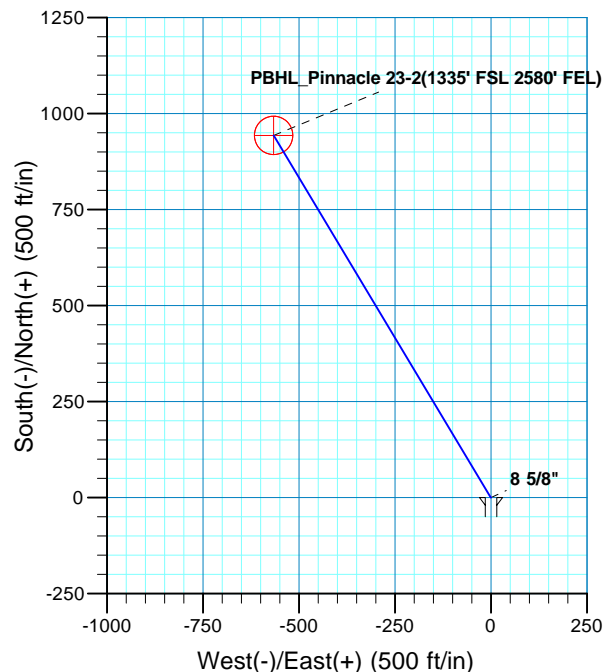
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8345.00	943.50	-565.83	1271249.76	3148210.99	40° 4' 36.322 N	104° 58' 13.318 W	Circle (Radius: 50.00)
- plan hits target center								



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			
1050.00	0.00	0.00	1050.00	0.00	0.00	0.00	0.00	0.00			
1706.63	13.13	329.05	1700.90	64.26	-38.53	2.00	329.05	74.92			
5889.22	13.13	329.05	5774.10	879.24	-527.30	0.00	0.00	1025.24			
6545.86	0.00	0.00	6425.00	943.50	-565.83	2.00	180.00	1100.16			
8465.86	0.00	0.00	8345.00	943.50	-565.83	0.00	0.00	1100.16	PBHL_Pinnacle 23-2(1335' FSL 2580' FEL)		

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83						FORMATION TOP DETAILS					
Geodetic System: US State Plane 1983						TVDPath	MDPath	Formation			
Datum: North American Datum 1983						4149.00	4220.48	PARKMAN			
Ellipsoid: GRS 1980						4679.00	4764.71	SUSSEX			
Zone: Colorado Northern Zone						5129.00	5226.80	SHANNON			
Location: SECTION 2 T1N R68W						7425.00	7545.86	NIO			
System Datum: Mean Sea Level						7755.00	7875.86	CODELL			
						7830.00	7950.86	GREENHORN			
						8195.00	8315.86	JSAND			

CASING DETAILS				
TVD	MD	Name	Size	
900.00	900.00	8 5/8"	8.625	



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Pinnacle 15-2 Pad**

**P\_Pinnacle 23-2**

**P\_Pinnacle 23-2**

**Plan: PLAN #1 8-17-10 RHS**

## **Standard Planning Report**

**10 September, 2010**

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 23-2
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Site:</b>	WELD_Pinnacle 15-2 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Pinnacle 23-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 23-2		
<b>Design:</b>	PLAN #1 8-17-10 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_Pinnacle 15-2 Pad, SECTION 2 T1N R68W		
<b>Site Position:</b>		<b>Northing:</b>	1,270,310.23 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,148,812.69 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13.200 in
		<b>Grid Convergence:</b>	0.34 °

<b>Well</b>	P_Pinnacle 23-2, 386' FSL 2018' FEL		
<b>Well Position</b>	<b>+N/-S</b>	-0.38 ft	<b>Northing:</b> 1,270,309.68 usft
	<b>+E/-W</b>	-30.22 ft	<b>Easting:</b> 3,148,782.47 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	5,005.00 ft

<b>Wellbore</b>	P_Pinnacle 23-2				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	08/17/2010	9.05	66.78	53,023

<b>Design</b>	PLAN #1 8-17-10 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	329.05

<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	
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,706.63	13.13	329.05	1,700.90	64.26	-38.53	2.00	2.00	0.00	329.05	
5,889.22	13.13	329.05	5,774.10	879.24	-527.30	0.00	0.00	0.00	0.00	
6,545.86	0.00	0.00	6,425.00	943.50	-565.83	2.00	-2.00	0.00	180.00	
8,465.86	0.00	0.00	8,345.00	943.50	-565.83	0.00	0.00	0.00	0.00	PBHL_Pinnacle 23-2(

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 23-2
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Site:</b>	WELD_Pinnacle 15-2 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Pinnacle 23-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 23-2		
<b>Design:</b>	PLAN #1 8-17-10 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
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
8 5/8"									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,100.00	1.00	329.05	1,100.00	0.37	-0.22	0.44	2.00	2.00	0.00
1,200.00	3.00	329.05	1,199.93	3.37	-2.02	3.93	2.00	2.00	0.00
1,300.00	5.00	329.05	1,299.68	9.35	-5.61	10.90	2.00	2.00	0.00
1,400.00	7.00	329.05	1,399.13	18.31	-10.98	21.35	2.00	2.00	0.00
1,500.00	9.00	329.05	1,498.15	30.25	-18.14	35.27	2.00	2.00	0.00
1,600.00	11.00	329.05	1,596.63	45.14	-27.07	52.63	2.00	2.00	0.00
1,700.00	13.00	329.05	1,694.44	62.97	-37.76	73.42	2.00	2.00	0.00
1,706.63	13.13	329.05	1,700.90	64.26	-38.53	74.92	2.00	2.00	0.00
Start 4182.59 hold at 1706.63 MD									
1,800.00	13.13	329.05	1,791.82	82.45	-49.45	96.14	0.00	0.00	0.00
1,900.00	13.13	329.05	1,889.21	101.93	-61.13	118.86	0.00	0.00	0.00
2,000.00	13.13	329.05	1,986.59	121.42	-72.82	141.58	0.00	0.00	0.00
2,100.00	13.13	329.05	2,083.98	140.90	-84.50	164.30	0.00	0.00	0.00
2,200.00	13.13	329.05	2,181.36	160.39	-96.19	187.02	0.00	0.00	0.00
2,300.00	13.13	329.05	2,278.75	179.87	-107.87	209.74	0.00	0.00	0.00
2,400.00	13.13	329.05	2,376.13	199.36	-119.56	232.46	0.00	0.00	0.00
2,500.00	13.13	329.05	2,473.52	218.84	-131.25	255.18	0.00	0.00	0.00
2,600.00	13.13	329.05	2,570.90	238.33	-142.93	277.90	0.00	0.00	0.00
2,700.00	13.13	329.05	2,668.29	257.81	-154.62	300.62	0.00	0.00	0.00
2,800.00	13.13	329.05	2,765.67	277.30	-166.30	323.34	0.00	0.00	0.00
2,900.00	13.13	329.05	2,863.05	296.79	-177.99	346.07	0.00	0.00	0.00
3,000.00	13.13	329.05	2,960.44	316.27	-189.67	368.79	0.00	0.00	0.00
3,100.00	13.13	329.05	3,057.82	335.76	-201.36	391.51	0.00	0.00	0.00
3,200.00	13.13	329.05	3,155.21	355.24	-213.04	414.23	0.00	0.00	0.00
3,300.00	13.13	329.05	3,252.59	374.73	-224.73	436.95	0.00	0.00	0.00
3,400.00	13.13	329.05	3,349.98	394.21	-236.42	459.67	0.00	0.00	0.00
3,500.00	13.13	329.05	3,447.36	413.70	-248.10	482.39	0.00	0.00	0.00
3,600.00	13.13	329.05	3,544.75	433.18	-259.79	505.11	0.00	0.00	0.00
3,700.00	13.13	329.05	3,642.13	452.67	-271.47	527.83	0.00	0.00	0.00
3,800.00	13.13	329.05	3,739.52	472.15	-283.16	550.55	0.00	0.00	0.00
3,900.00	13.13	329.05	3,836.90	491.64	-294.84	573.27	0.00	0.00	0.00
4,000.00	13.13	329.05	3,934.29	511.12	-306.53	595.99	0.00	0.00	0.00
4,100.00	13.13	329.05	4,031.67	530.61	-318.22	618.71	0.00	0.00	0.00
4,200.00	13.13	329.05	4,129.06	550.09	-329.90	641.43	0.00	0.00	0.00
4,220.48	13.13	329.05	4,149.00	554.08	-332.30	646.09	0.00	0.00	0.00
PARKMAN									
4,300.00	13.13	329.05	4,226.44	569.58	-341.59	664.16	0.00	0.00	0.00
4,400.00	13.13	329.05	4,323.82	589.06	-353.27	686.88	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 23-2
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Site:</b>	WELD_Pinnacle 15-2 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Pinnacle 23-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 23-2		
<b>Design:</b>	PLAN #1 8-17-10 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	13.13	329.05	4,421.21	608.55	-364.96	709.60	0.00	0.00	0.00	
4,600.00	13.13	329.05	4,518.59	628.03	-376.64	732.32	0.00	0.00	0.00	
4,700.00	13.13	329.05	4,615.98	647.52	-388.33	755.04	0.00	0.00	0.00	
4,764.71	13.13	329.05	4,679.00	660.13	-395.89	769.74	0.00	0.00	0.00	
<b>SUSSEX</b>										
4,800.00	13.13	329.05	4,713.36	667.01	-400.02	777.76	0.00	0.00	0.00	
4,900.00	13.13	329.05	4,810.75	686.49	-411.70	800.48	0.00	0.00	0.00	
5,000.00	13.13	329.05	4,908.13	705.98	-423.39	823.20	0.00	0.00	0.00	
5,100.00	13.13	329.05	5,005.52	725.46	-435.07	845.92	0.00	0.00	0.00	
5,200.00	13.13	329.05	5,102.90	744.95	-446.76	868.64	0.00	0.00	0.00	
5,226.80	13.13	329.05	5,129.00	750.17	-449.89	874.73	0.00	0.00	0.00	
<b>SHANNON</b>										
5,300.00	13.13	329.05	5,200.29	764.43	-458.44	891.36	0.00	0.00	0.00	
5,400.00	13.13	329.05	5,297.67	783.92	-470.13	914.08	0.00	0.00	0.00	
5,500.00	13.13	329.05	5,395.06	803.40	-481.82	936.80	0.00	0.00	0.00	
5,600.00	13.13	329.05	5,492.44	822.89	-493.50	959.52	0.00	0.00	0.00	
5,700.00	13.13	329.05	5,589.83	842.37	-505.19	982.24	0.00	0.00	0.00	
5,800.00	13.13	329.05	5,687.21	861.86	-516.87	1,004.97	0.00	0.00	0.00	
5,889.22	13.13	329.05	5,774.10	879.24	-527.30	1,025.24	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
5,900.00	12.92	329.05	5,784.60	881.33	-528.55	1,027.67	2.00	-2.00	0.00	
6,000.00	10.92	329.05	5,882.44	899.03	-539.17	1,048.32	2.00	-2.00	0.00	
6,100.00	8.92	329.05	5,980.94	913.80	-548.03	1,065.54	2.00	-2.00	0.00	
6,200.00	6.92	329.05	6,079.98	925.62	-555.11	1,079.31	2.00	-2.00	0.00	
6,300.00	4.92	329.05	6,179.44	934.46	-560.41	1,089.62	2.00	-2.00	0.00	
6,400.00	2.92	329.05	6,279.20	940.31	-563.92	1,096.45	2.00	-2.00	0.00	
6,500.00	0.92	329.05	6,379.14	943.18	-565.65	1,099.80	2.00	-2.00	0.00	
6,545.86	0.00	0.00	6,425.00	943.50	-565.83	1,100.16	2.00	-2.00	67.49	
<b>Start 1920.00 hold at 6545.86 MD</b>										
6,600.00	0.00	0.00	6,479.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,579.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,679.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,779.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,879.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,979.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,079.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,179.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,400.00	0.00	0.00	7,279.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,379.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,545.86	0.00	0.00	7,425.00	943.50	-565.83	1,100.16	0.00	0.00	0.00	
<b>NIO</b>										
7,600.00	0.00	0.00	7,479.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,579.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,679.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,875.86	0.00	0.00	7,755.00	943.50	-565.83	1,100.16	0.00	0.00	0.00	
<b>CODELL</b>										
7,900.00	0.00	0.00	7,779.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
7,950.86	0.00	0.00	7,830.00	943.50	-565.83	1,100.16	0.00	0.00	0.00	
<b>GREENHORN</b>										
8,000.00	0.00	0.00	7,879.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
8,100.00	0.00	0.00	7,979.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 23-2
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)
<b>Site:</b>	WELD_Pinnacle 15-2 Pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Pinnacle 23-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 23-2		
<b>Design:</b>	PLAN #1 8-17-10 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)	
8,200.00	0.00	0.00	8,079.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
8,300.00	0.00	0.00	8,179.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
8,315.86	0.00	0.00	8,195.00	943.50	-565.83	1,100.16	0.00	0.00	0.00	
JSAND										
8,400.00	0.00	0.00	8,279.14	943.50	-565.83	1,100.16	0.00	0.00	0.00	
8,465.86	0.00	0.00	8,345.00	943.50	-565.83	1,100.16	0.00	0.00	0.00	
PBHL_Pinnacle 23-2(1335' FSL 2580' FEL)										

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_Pinnacle 23-2(1335' FSL 2580' FEL)	0.00	0.00	8,345.00	943.50	-565.83	1,271,249.76	3,148,210.99	40° 4' 36.322 N	104° 58' 13.318 W	
- plan hits target center										
- Circle (radius 50.00)										

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
900.00	900.00	8 5/8"	8.625	11.000	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,220.48	4,149.00	PARKMAN				
4,764.71	4,679.00	SUSSEX				
5,226.80	5,129.00	SHANNON				
7,545.86	7,425.00	NIO				
7,875.86	7,755.00	CODELL				
7,950.86	7,830.00	GREENHORN				
8,315.86	8,195.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
1,050.00	1,050.00	0.00	0.00	Start Build 2.00	
1,706.63	1,700.90	64.26	-38.53	Start 4182.59 hold at 1706.63 MD	
5,889.22	5,774.10	879.24	-527.30	Start Drop -2.00	
6,545.86	6,425.00	943.50	-565.83	Start 1920.00 hold at 6545.86 MD	
8,465.86	8,345.00	943.50	-565.83	TD at 8465.86	