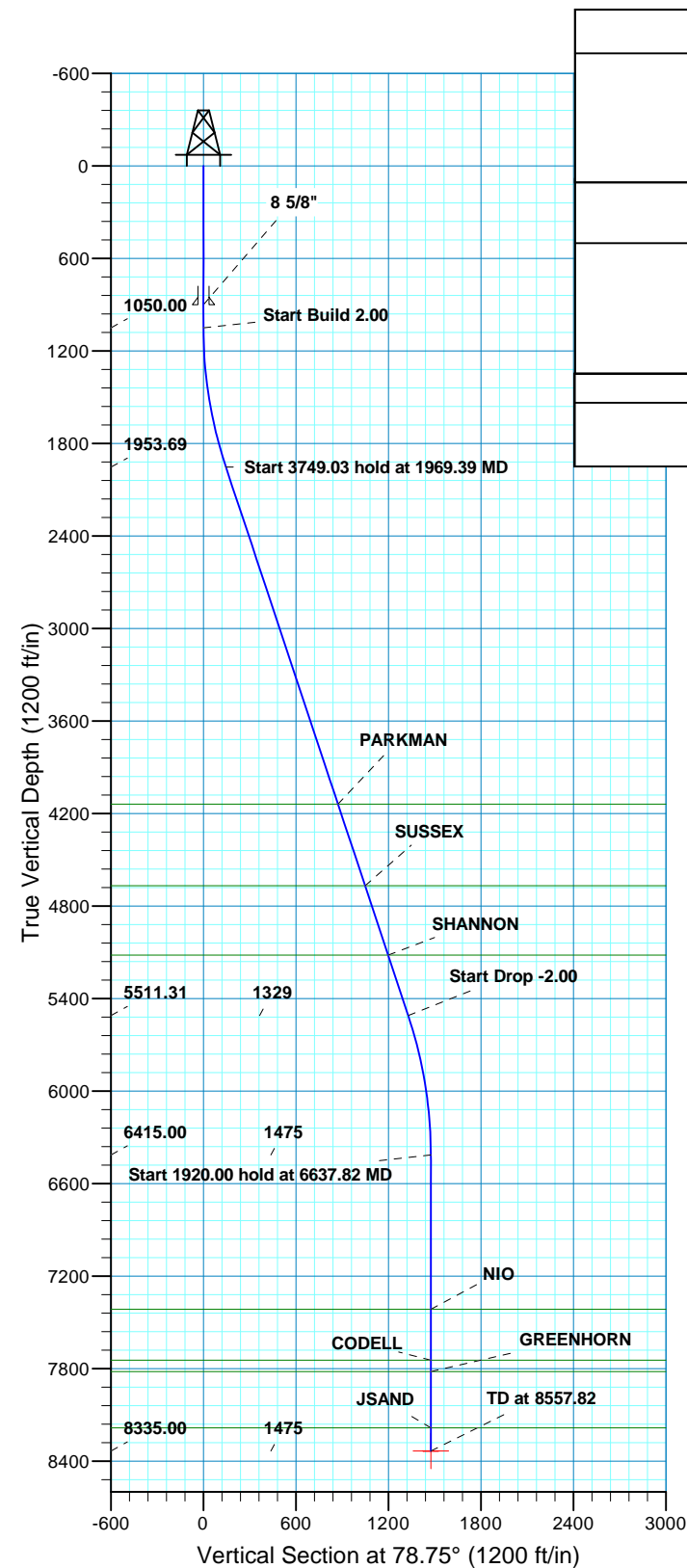


WELL DETAILS: P_Pinnacle 16-2					
GL 5005' & RKB 15' @ 5020.00ft (ASSUMED)					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1270310.77	3148842.63	40° 4' 27.005 N	104° 58' 5.264 W

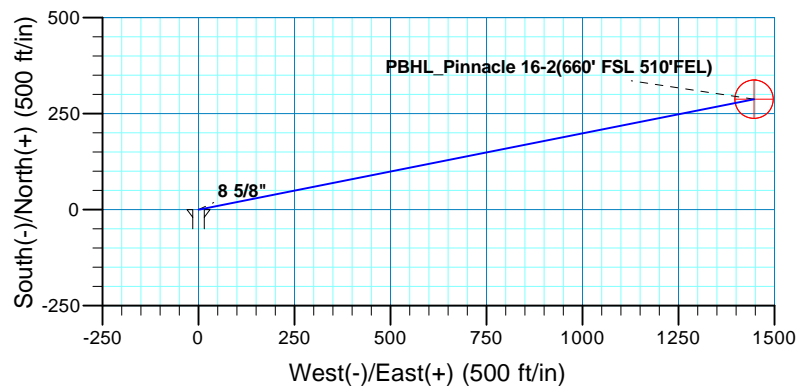
DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8335.00	287.83	1446.80	1270607.27	3150287.68	40° 4' 29.849 N	104° 57' 46.652 W	Circle (Radius: 50.00)
- plan hits target center								



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			
1969.39	18.39	78.75	1953.69	28.54	143.46	2.00	78.75	146.27			
5718.42	18.39	78.75	5511.31	259.29	1303.35	0.00	0.00	1328.89			
6637.82	0.00	0.00	6415.00	287.83	1446.80	2.00	180.00	1475.16			
8557.82	0.00	0.00	8335.00	287.83	1446.80	0.00	0.00	1475.16PBHL_Pinnacle 16-2(660' FSL 510'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 2 T1N R68W System Datum: Mean Sea Level				TVDPath	MDPath	Formation
				4139.00	4272.28	PARKMAN
				4669.00	4830.80	SUSSEX
				5119.00	5305.01	SHANNON
				7415.00	7637.82	NIO
				7745.00	7967.82	CODELL
				7820.00	8042.82	GREENHORN
				8185.00	8407.82	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 16-2**

**P\_Pinnacle 16-2**

**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 16-2
<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 16-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 16-2		
<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 16-2, 386' FSL 1958' FEL		
<b>Well Position</b>	<b>+N/-S</b>	0.35 ft	<b>Northing:</b> 1,270,310.77 usft
	<b>+E/-W</b>	29.94 ft	<b>Easting:</b> 3,148,842.63 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	
		<b>Latitude:</b>	40° 4' 27.001 N
		<b>Longitude:</b>	104° 58' 5.650 W
		<b>Ground Level:</b>	5,005.00 ft

<b>Wellbore</b>	P_Pinnacle 16-2				
<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	78.75

<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	
1,969.39	18.39	78.75	1,953.69	28.54	143.46	2.00	2.00	0.00	78.75	
5,718.42	18.39	78.75	5,511.31	259.29	1,303.35	0.00	0.00	0.00	0.00	
6,637.82	0.00	0.00	6,415.00	287.83	1,446.81	2.00	-2.00	0.00	180.00	
8,557.82	0.00	0.00	8,335.00	287.83	1,446.81	0.00	0.00	0.00	0.00	PBHL_Pinnacle 16-2(

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 16-2
<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 16-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 16-2		
<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	78.75	1,100.00	0.09	0.43	0.44	2.00	2.00	0.00
1,200.00	3.00	78.75	1,199.93	0.77	3.85	3.93	2.00	2.00	0.00
1,300.00	5.00	78.75	1,299.68	2.13	10.69	10.90	2.00	2.00	0.00
1,400.00	7.00	78.75	1,399.13	4.17	20.94	21.35	2.00	2.00	0.00
1,500.00	9.00	78.75	1,498.15	6.88	34.59	35.27	2.00	2.00	0.00
1,600.00	11.00	78.75	1,596.63	10.27	51.62	52.63	2.00	2.00	0.00
1,700.00	13.00	78.75	1,694.44	14.33	72.01	73.42	2.00	2.00	0.00
1,800.00	15.00	78.75	1,791.46	19.05	95.74	97.62	2.00	2.00	0.00
1,900.00	17.00	78.75	1,887.58	24.42	122.77	125.18	2.00	2.00	0.00
1,969.39	18.39	78.75	1,953.69	28.54	143.46	146.27	2.00	2.00	0.00
Start 3749.03 hold at 1969.39 MD									
2,000.00	18.39	78.75	1,982.74	30.42	152.93	155.92	0.00	0.00	0.00
2,100.00	18.39	78.75	2,077.63	36.58	183.86	187.47	0.00	0.00	0.00
2,200.00	18.39	78.75	2,172.52	42.73	214.80	219.01	0.00	0.00	0.00
2,300.00	18.39	78.75	2,267.42	48.89	245.74	250.56	0.00	0.00	0.00
2,400.00	18.39	78.75	2,362.31	55.04	276.68	282.10	0.00	0.00	0.00
2,500.00	18.39	78.75	2,457.21	61.20	307.62	313.65	0.00	0.00	0.00
2,600.00	18.39	78.75	2,552.10	67.35	338.56	345.19	0.00	0.00	0.00
2,700.00	18.39	78.75	2,647.00	73.51	369.50	376.74	0.00	0.00	0.00
2,800.00	18.39	78.75	2,741.89	79.66	400.43	408.28	0.00	0.00	0.00
2,900.00	18.39	78.75	2,836.78	85.82	431.37	439.83	0.00	0.00	0.00
3,000.00	18.39	78.75	2,931.68	91.97	462.31	471.37	0.00	0.00	0.00
3,100.00	18.39	78.75	3,026.57	98.13	493.25	502.92	0.00	0.00	0.00
3,200.00	18.39	78.75	3,121.47	104.28	524.19	534.46	0.00	0.00	0.00
3,300.00	18.39	78.75	3,216.36	110.44	555.13	566.00	0.00	0.00	0.00
3,400.00	18.39	78.75	3,311.26	116.59	586.06	597.55	0.00	0.00	0.00
3,500.00	18.39	78.75	3,406.15	122.75	617.00	629.09	0.00	0.00	0.00
3,600.00	18.39	78.75	3,501.05	128.90	647.94	660.64	0.00	0.00	0.00
3,700.00	18.39	78.75	3,595.94	135.06	678.88	692.18	0.00	0.00	0.00
3,800.00	18.39	78.75	3,690.83	141.21	709.82	723.73	0.00	0.00	0.00
3,900.00	18.39	78.75	3,785.73	147.37	740.76	755.27	0.00	0.00	0.00
4,000.00	18.39	78.75	3,880.62	153.52	771.69	786.82	0.00	0.00	0.00
4,100.00	18.39	78.75	3,975.52	159.68	802.63	818.36	0.00	0.00	0.00
4,200.00	18.39	78.75	4,070.41	165.83	833.57	849.91	0.00	0.00	0.00
4,272.28	18.39	78.75	4,139.00	170.28	855.93	872.71	0.00	0.00	0.00
PARKMAN									
4,300.00	18.39	78.75	4,165.31	171.99	864.51	881.45	0.00	0.00	0.00
4,400.00	18.39	78.75	4,260.20	178.14	895.45	913.00	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 16-2
<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 16-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 16-2		
<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	18.39	78.75	4,355.09	184.30	926.39	944.54	0.00	0.00	0.00
4,600.00	18.39	78.75	4,449.99	190.45	957.33	976.09	0.00	0.00	0.00
4,700.00	18.39	78.75	4,544.88	196.61	988.26	1,007.63	0.00	0.00	0.00
4,800.00	18.39	78.75	4,639.78	202.76	1,019.20	1,039.18	0.00	0.00	0.00
4,830.80	18.39	78.75	4,669.00	204.66	1,028.73	1,048.89	0.00	0.00	0.00
<b>SUSSEX</b>									
4,900.00	18.39	78.75	4,734.67	208.92	1,050.14	1,070.72	0.00	0.00	0.00
5,000.00	18.39	78.75	4,829.57	215.07	1,081.08	1,102.27	0.00	0.00	0.00
5,100.00	18.39	78.75	4,924.46	221.23	1,112.02	1,133.81	0.00	0.00	0.00
5,200.00	18.39	78.75	5,019.35	227.38	1,142.96	1,165.36	0.00	0.00	0.00
5,300.00	18.39	78.75	5,114.25	233.54	1,173.89	1,196.90	0.00	0.00	0.00
5,305.01	18.39	78.75	5,119.00	233.85	1,175.44	1,198.48	0.00	0.00	0.00
<b>SHANNON</b>									
5,400.00	18.39	78.75	5,209.14	239.70	1,204.83	1,228.44	0.00	0.00	0.00
5,500.00	18.39	78.75	5,304.04	245.85	1,235.77	1,259.99	0.00	0.00	0.00
5,600.00	18.39	78.75	5,398.93	252.01	1,266.71	1,291.53	0.00	0.00	0.00
5,700.00	18.39	78.75	5,493.83	258.16	1,297.65	1,323.08	0.00	0.00	0.00
5,718.42	18.39	78.75	5,511.31	259.29	1,303.35	1,328.89	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,800.00	16.76	78.75	5,589.08	264.10	1,327.50	1,353.52	2.00	-2.00	0.00
5,900.00	14.76	78.75	5,685.31	269.40	1,354.13	1,380.67	2.00	-2.00	0.00
6,000.00	12.76	78.75	5,782.44	274.04	1,377.46	1,404.45	2.00	-2.00	0.00
6,100.00	10.76	78.75	5,880.34	278.01	1,397.44	1,424.82	2.00	-2.00	0.00
6,200.00	8.76	78.75	5,978.89	281.32	1,414.06	1,441.77	2.00	-2.00	0.00
6,300.00	6.76	78.75	6,077.97	283.95	1,427.29	1,455.26	2.00	-2.00	0.00
6,400.00	4.76	78.75	6,177.46	285.91	1,437.13	1,465.29	2.00	-2.00	0.00
6,500.00	2.76	78.75	6,277.24	287.19	1,443.55	1,471.84	2.00	-2.00	0.00
6,600.00	0.76	78.75	6,377.18	287.79	1,446.56	1,474.91	2.00	-2.00	0.00
6,637.82	0.00	0.00	6,415.00	287.83	1,446.81	1,475.16	2.00	-2.00	0.00
<b>Start 1920.00 hold at 6637.82 MD</b>									
6,700.00	0.00	0.00	6,477.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
6,800.00	0.00	0.00	6,577.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
6,900.00	0.00	0.00	6,677.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,000.00	0.00	0.00	6,777.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,100.00	0.00	0.00	6,877.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,200.00	0.00	0.00	6,977.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,300.00	0.00	0.00	7,077.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,400.00	0.00	0.00	7,177.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,500.00	0.00	0.00	7,277.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,600.00	0.00	0.00	7,377.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,637.82	0.00	0.00	7,415.00	287.83	1,446.81	1,475.16	0.00	0.00	0.00
<b>NIO</b>									
7,700.00	0.00	0.00	7,477.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,800.00	0.00	0.00	7,577.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,900.00	0.00	0.00	7,677.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
7,967.82	0.00	0.00	7,745.00	287.83	1,446.81	1,475.16	0.00	0.00	0.00
<b>CODELL</b>									
8,000.00	0.00	0.00	7,777.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
8,042.82	0.00	0.00	7,820.00	287.83	1,446.81	1,475.16	0.00	0.00	0.00
<b>GREENHORN</b>									
8,100.00	0.00	0.00	7,877.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00

<b>Database:</b>	EDM5000-RobertS-Local	<b>Local Co-ordinate Reference:</b>	Well P_Pinnacle 16-2
<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 16-2	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Pinnacle 16-2		
<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	7,977.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
8,300.00	0.00	0.00	8,077.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
8,400.00	0.00	0.00	8,177.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
8,407.82	0.00	0.00	8,185.00	287.83	1,446.81	1,475.16	0.00	0.00	0.00
JSAND									
8,500.00	0.00	0.00	8,277.18	287.83	1,446.81	1,475.16	0.00	0.00	0.00
8,557.82	0.00	0.00	8,335.00	287.83	1,446.81	1,475.16	0.00	0.00	0.00
PBHL_Pinnacle 16-2(660' FSL 510'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 16-2(66	0.00	0.00	8,335.00	287.83	1,446.81	1,270,607.27	3,150,287.68	40° 4' 29.849 N		104° 57' 46.652 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 (°)	
4,272.28	4,139.00	PARKMAN				
4,830.80	4,669.00	SUSSEX				
5,305.01	5,119.00	SHANNON				
7,637.82	7,415.00	NIO				
7,967.82	7,745.00	CODELL				
8,042.82	7,820.00	GREENHORN				
8,407.82	8,185.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,050.00	1,050.00	0.00	0.00	Start Build 2.00	
1,969.39	1,953.69	28.54	143.46	Start 3749.03 hold at 1969.39 MD	
5,718.42	5,511.31	259.29	1,303.35	Start Drop -2.00	
6,637.82	6,415.00	287.83	1,446.81	Start 1920.00 hold at 6637.82 MD	
8,557.82	8,335.00	287.83	1,446.81	TD at 8557.82	