



# **US ROCKIES REGION PLANNING**

COLORADO NORTHERN ZONE - 83

WELD\_SATER 25-8 PAD

P\_SATER 28-8

P\_SATER 28-8

Plan: PLAN #1 5-10-10 RHS

## **Standard Planning Report**

10 May, 2010

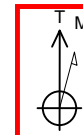




Project: COLORADO NORTHERN ZONE - 83  
Site: WELD\_SATER 25-8 PAD  
Well: P\_SATER 28-8  
Wellbore: P\_SATER 28-8  
Section: SECTION 8 T2N R67W  
SHL: 2466 FNL 2538 FEL  
Design: PLAN #1 5-10-10 RHS  
Latitude: 40° 9' 12.578 N  
Longitude: 104° 54' 49.115 W  
GL: 4908.00  
KB: WELL @ 4923.00ft (Original Well Elev)



**Weatherford**



Azimuths to True North  
Magnetic North: 9.07°

Magnetic Field  
Strength: 53100.4snT  
Dip Angle: 66.86°  
Date: 5/10/2010  
Model: IGRF2010

#### LEGEND

- P\_SATER 21-8, P\_SATER 21-8, PLAN #1 5-10-10 RHS V0
- P\_SATER 24-8, P\_SATER 24-8, PLAN #1 5-10-10 RHS V0
- P\_SATER 2-8, P\_SATER 2-8, PLAN #1 5-10-10 RHS V0
- P\_SATER 7-8, P\_SATER 7-8, PLAN #1 5-10-10 RHS V0
- P\_SATER 8-8, P\_SATER 8-8, PLAN #1 5-10-10 RHS V0
- PLAN #1 5-10-10 RHS

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3860.00	4142.15	PARKMAN
4378.00	4713.70	SUSSEX
7168.00	7663.72	NIO
7428.00	7923.72	CODELL
7500.00	7995.72	GREEN HORN
7850.00	8345.72	JSAND

#### CASING DETAILS

TVD	MD	Name	Size
950.00	955.71	8 5/8"	8.62

#### SECTION DETAILS

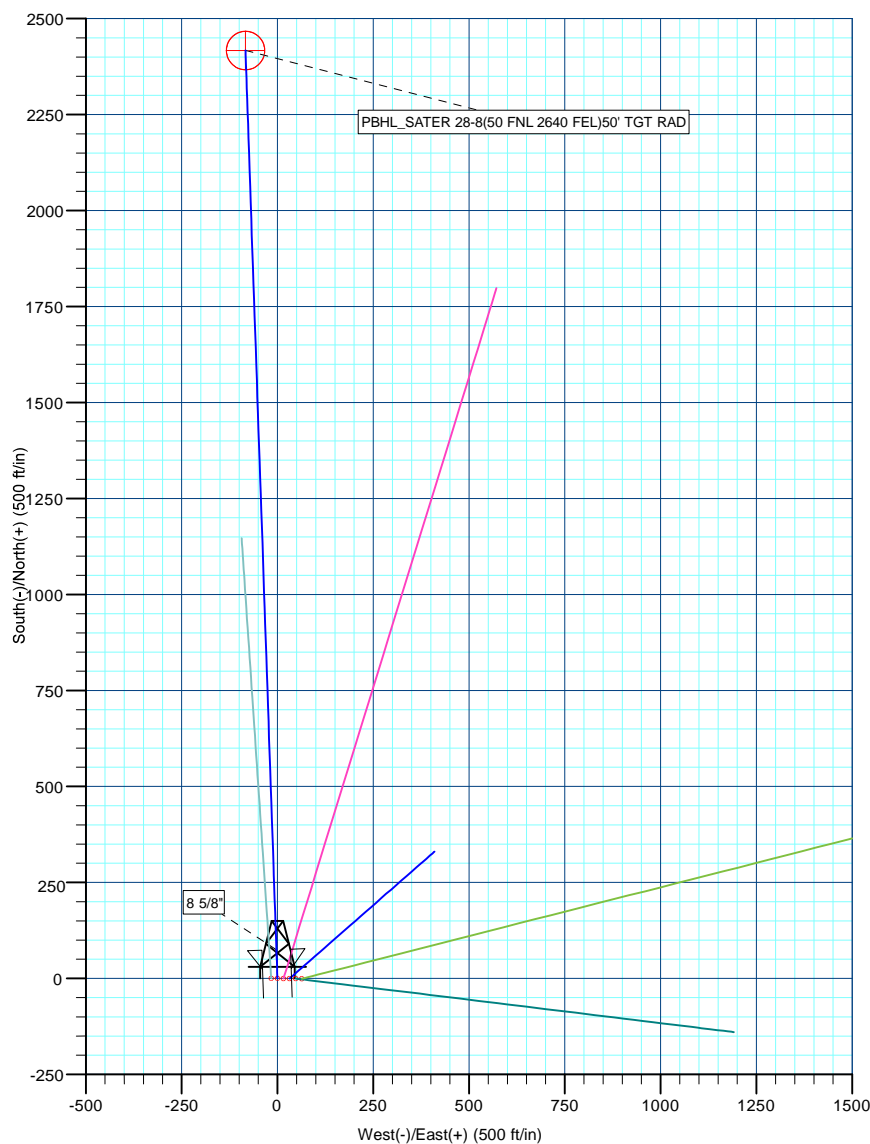
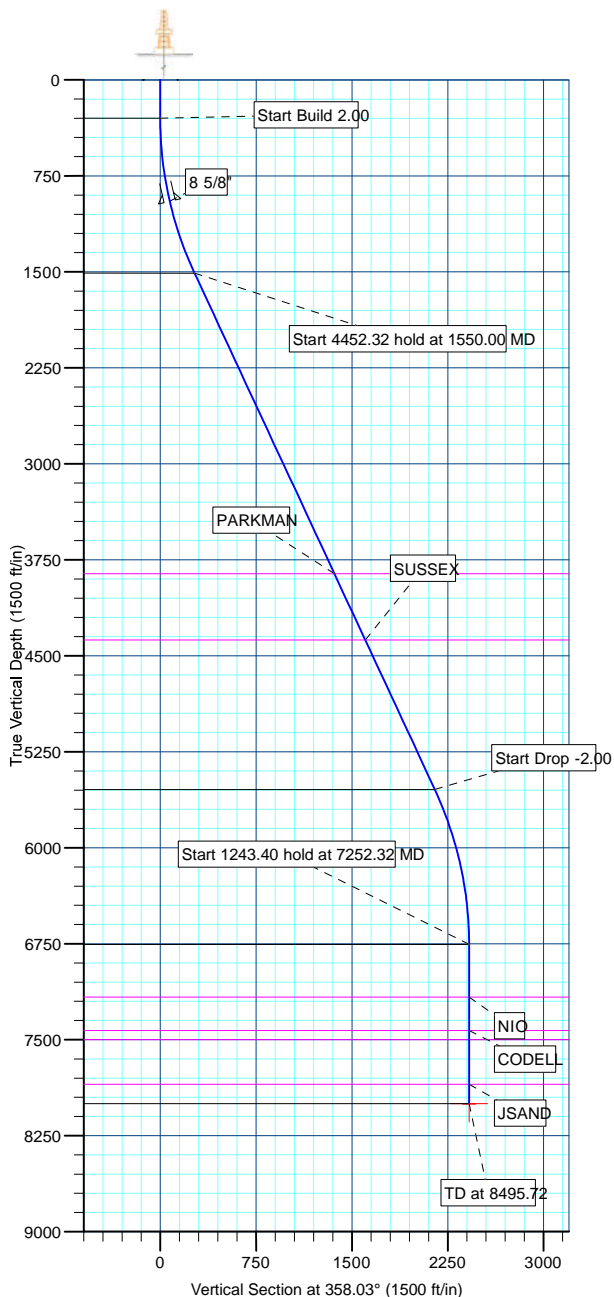
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1550.00	25.00	358.03	1510.71	268.25	-9.21	2.00	358.03	268.41	Start 4452.32 hold at 1550.00 MD
6002.32	25.00	358.03	5545.89	2148.77	-73.80	0.00	0.00	2150.04	Start Drop -2.00
7252.32	0.00	0.00	6756.60	2417.02	-83.01	2.00	180.00	2418.45	Start 1243.40 hold at 7252.32 MD
8495.72	0.00	0.00	8000.00	2417.02	-83.01	0.00	0.00	2418.45	TD at 8495.72

#### WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	8000.00	2417.02	-83.01	40° 9' 36.464 N	104° 54' 50.184 W	Circle (Radius: 50.00)

#### WELL DETAILS: P\_SATER 28-8

+N/-S	+E/-W	Northing	Ground Level: Easting	4908.00 Latitude	Longitude	Slot
0.00	0.00	1299303.04	3163899.10	40° 9' 12.578 N	104° 54' 49.115 W	



Plan: PLAN #1 5-10-10 RHS (P\_SATER 28-8/P\_SATER 28-8)

Created By: Robert H. Scott Date: 11:25, May 10 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_SATER 28-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4923.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4923.00ft (Original Well Elev)
Site:	WELD_SATER 25-8 PAD	North Reference:	True
Well:	P_SATER 28-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_SATER 28-8		
Design:	PLAN #1 5-10-10 RHS		

Project	COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						WELD_SATER 25-8 PAD, SECTION 8 T2N R67W											
Site Position:			Northing:			1,299,302.95 ft			Latitude:			40° 9' 12.578 N					
From:			Lat/Long			Easting:			3,163,883.16 ft			Longitude:			104° 54' 49.320 W		
Position Uncertainty:			0.00 ft			Slot Radius:			in			Grid Convergence:			0.38 °		

Well	P_SATER 28-8					
Well Position	+N/-S	-0.02 ft	Northing:	1,299,303.04 ft	Latitude:	40° 9' 12.578 N
	+E/-W	15.93 ft	Easting:	3,163,899.10 ft	Longitude:	104° 54' 49.115 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,908.00 ft

Wellbore	P_SATER 28-8				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/10/2010	9.07	66.86	53,100

Design	PLAN #1 5-10-10 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	358.03

Plan Sections										
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	358.03	1,510.71	268.25	-9.21	2.00	2.00	0.00	358.03	
6,002.32	25.00	358.03	5,545.89	2,148.77	-73.80	0.00	0.00	0.00	0.00	
7,252.32	0.00	0.00	6,756.60	2,417.02	-83.01	2.00	-2.00	0.00	180.00	
8,495.72	0.00	0.00	8,000.00	2,417.02	-83.01	0.00	0.00	0.00	0.00	PBHL_SATER 28-8

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_SATER 28-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4923.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4923.00ft (Original Well Elev)
Site:	WELD_SATER 25-8 PAD	North Reference:	True
Well:	P_SATER 28-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_SATER 28-8		
Design:	PLAN #1 5-10-10 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)
Start Build 2.00									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	2.00	358.03	399.98	1.74	-0.06	1.75	2.00	2.00	0.00
500.00	4.00	358.03	499.84	6.97	-0.24	6.98	2.00	2.00	0.00
600.00	6.00	358.03	599.45	15.68	-0.54	15.69	2.00	2.00	0.00
700.00	8.00	358.03	698.70	27.86	-0.96	27.88	2.00	2.00	0.00
800.00	10.00	358.03	797.47	43.50	-1.49	43.52	2.00	2.00	0.00
900.00	12.00	358.03	895.62	62.57	-2.15	62.60	2.00	2.00	0.00
8 5/8"									
955.71	13.11	358.03	950.00	74.67	-2.56	74.71	2.00	2.00	0.00
1,000.00	14.00	358.03	993.06	85.05	-2.92	85.10	2.00	2.00	0.00
1,100.00	16.00	358.03	1,089.64	110.91	-3.81	110.98	2.00	2.00	0.00
1,200.00	18.00	358.03	1,185.27	140.13	-4.81	140.21	2.00	2.00	0.00
1,300.00	20.00	358.03	1,279.82	172.67	-5.93	172.77	2.00	2.00	0.00
1,400.00	22.00	358.03	1,373.17	208.48	-7.16	208.60	2.00	2.00	0.00
1,500.00	24.00	358.03	1,465.21	247.53	-8.50	247.67	2.00	2.00	0.00
Start 4452.32 hold at 1550.00 MD									
1,550.00	25.00	358.03	1,510.71	268.25	-9.21	268.41	2.00	2.00	0.00
1,600.00	25.00	358.03	1,556.03	289.37	-9.94	289.54	0.00	0.00	0.00
1,700.00	25.00	358.03	1,646.66	331.61	-11.39	331.80	0.00	0.00	0.00
1,800.00	25.00	358.03	1,737.29	373.84	-12.84	374.06	0.00	0.00	0.00
1,900.00	25.00	358.03	1,827.92	416.08	-14.29	416.32	0.00	0.00	0.00
2,000.00	25.00	358.03	1,918.55	458.32	-15.74	458.59	0.00	0.00	0.00
2,100.00	25.00	358.03	2,009.18	500.55	-17.19	500.85	0.00	0.00	0.00
2,200.00	25.00	358.03	2,099.81	542.79	-18.64	543.11	0.00	0.00	0.00
2,300.00	25.00	358.03	2,190.44	585.03	-20.09	585.37	0.00	0.00	0.00
2,400.00	25.00	358.03	2,281.07	627.26	-21.54	627.63	0.00	0.00	0.00
2,500.00	25.00	358.03	2,371.70	669.50	-22.99	669.90	0.00	0.00	0.00
2,600.00	25.00	358.03	2,462.34	711.74	-24.44	712.16	0.00	0.00	0.00
2,700.00	25.00	358.03	2,552.97	753.97	-25.89	754.42	0.00	0.00	0.00
2,800.00	25.00	358.03	2,643.60	796.21	-27.35	796.68	0.00	0.00	0.00
2,900.00	25.00	358.03	2,734.23	838.45	-28.80	838.94	0.00	0.00	0.00
3,000.00	25.00	358.03	2,824.86	880.69	-30.25	881.20	0.00	0.00	0.00
3,100.00	25.00	358.03	2,915.49	922.92	-31.70	923.47	0.00	0.00	0.00
3,200.00	25.00	358.03	3,006.12	965.16	-33.15	965.73	0.00	0.00	0.00
3,300.00	25.00	358.03	3,096.75	1,007.40	-34.60	1,007.99	0.00	0.00	0.00
3,400.00	25.00	358.03	3,187.38	1,049.63	-36.05	1,050.25	0.00	0.00	0.00
3,500.00	25.00	358.03	3,278.01	1,091.87	-37.50	1,092.51	0.00	0.00	0.00
3,600.00	25.00	358.03	3,368.64	1,134.11	-38.95	1,134.78	0.00	0.00	0.00
3,700.00	25.00	358.03	3,459.27	1,176.34	-40.40	1,177.04	0.00	0.00	0.00
3,800.00	25.00	358.03	3,549.90	1,218.58	-41.85	1,219.30	0.00	0.00	0.00
3,900.00	25.00	358.03	3,640.54	1,260.82	-43.30	1,261.56	0.00	0.00	0.00
4,000.00	25.00	358.03	3,731.17	1,303.05	-44.75	1,303.82	0.00	0.00	0.00
4,100.00	25.00	358.03	3,821.80	1,345.29	-46.20	1,346.08	0.00	0.00	0.00
PARKMAN									
4,142.15	25.00	358.03	3,860.00	1,363.10	-46.81	1,363.90	0.00	0.00	0.00
4,200.00	25.00	358.03	3,912.43	1,387.53	-47.65	1,388.35	0.00	0.00	0.00
4,300.00	25.00	358.03	4,003.06	1,429.77	-49.10	1,430.61	0.00	0.00	0.00
4,400.00	25.00	358.03	4,093.69	1,472.00	-50.55	1,472.87	0.00	0.00	0.00
4,500.00	25.00	358.03	4,184.32	1,514.24	-52.01	1,515.13	0.00	0.00	0.00
4,600.00	25.00	358.03	4,274.95	1,556.48	-53.46	1,557.39	0.00	0.00	0.00
4,700.00	25.00	358.03	4,365.58	1,598.71	-54.91	1,599.66	0.00	0.00	0.00
SUSSEX									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_SATER 28-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4923.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4923.00ft (Original Well Elev)
Site:	WELD_SATER 25-8 PAD	North Reference:	True
Well:	P_SATER 28-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_SATER 28-8		
Design:	PLAN #1 5-10-10 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)
4,713.70	25.00	358.03	4,378.00	1,604.50	-55.11	1,605.45	0.00	0.00	0.00
4,800.00	25.00	358.03	4,456.21	1,640.95	-56.36	1,641.92	0.00	0.00	0.00
4,900.00	25.00	358.03	4,546.84	1,683.19	-57.81	1,684.18	0.00	0.00	0.00
5,000.00	25.00	358.03	4,637.47	1,725.42	-59.26	1,726.44	0.00	0.00	0.00
5,100.00	25.00	358.03	4,728.10	1,767.66	-60.71	1,768.70	0.00	0.00	0.00
5,200.00	25.00	358.03	4,818.74	1,809.90	-62.16	1,810.97	0.00	0.00	0.00
5,300.00	25.00	358.03	4,909.37	1,852.13	-63.61	1,853.23	0.00	0.00	0.00
5,400.00	25.00	358.03	5,000.00	1,894.37	-65.06	1,895.49	0.00	0.00	0.00
5,500.00	25.00	358.03	5,090.63	1,936.61	-66.51	1,937.75	0.00	0.00	0.00
5,600.00	25.00	358.03	5,181.26	1,978.85	-67.96	1,980.01	0.00	0.00	0.00
5,700.00	25.00	358.03	5,271.89	2,021.08	-69.41	2,022.27	0.00	0.00	0.00
5,800.00	25.00	358.03	5,362.52	2,063.32	-70.86	2,064.54	0.00	0.00	0.00
5,900.00	25.00	358.03	5,453.15	2,105.56	-72.31	2,106.80	0.00	0.00	0.00
6,000.00	25.00	358.03	5,543.78	2,147.79	-73.76	2,149.06	0.00	0.00	0.00
Start Drop -2.00									
6,002.32	25.00	358.03	5,545.89	2,148.77	-73.80	2,150.04	0.00	0.00	0.00
6,100.00	23.05	358.03	5,635.10	2,188.51	-75.16	2,189.80	2.00	-2.00	0.00
6,200.00	21.05	358.03	5,727.78	2,226.03	-76.45	2,227.34	2.00	-2.00	0.00
6,300.00	19.05	358.03	5,821.72	2,260.28	-77.63	2,261.61	2.00	-2.00	0.00
6,400.00	17.05	358.03	5,916.79	2,291.24	-78.69	2,292.59	2.00	-2.00	0.00
6,500.00	15.05	358.03	6,012.89	2,318.87	-79.64	2,320.23	2.00	-2.00	0.00
6,600.00	13.05	358.03	6,109.90	2,343.12	-80.47	2,344.50	2.00	-2.00	0.00
6,700.00	11.05	358.03	6,207.69	2,363.98	-81.19	2,365.37	2.00	-2.00	0.00
6,800.00	9.05	358.03	6,306.15	2,381.41	-81.79	2,382.82	2.00	-2.00	0.00
6,900.00	7.05	358.03	6,405.16	2,395.40	-82.27	2,396.81	2.00	-2.00	0.00
7,000.00	5.05	358.03	6,504.60	2,405.93	-82.63	2,407.34	2.00	-2.00	0.00
7,100.00	3.05	358.03	6,604.35	2,412.98	-82.87	2,414.40	2.00	-2.00	0.00
7,200.00	1.05	358.03	6,704.28	2,416.55	-82.99	2,417.97	2.00	-2.00	0.00
Start 1243.40 hold at 7252.32 MD									
7,252.32	0.00	0.00	6,756.60	2,417.02	-83.01	2,418.45	2.00	-2.00	0.00
7,300.00	0.00	0.00	6,804.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,400.00	0.00	0.00	6,904.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,500.00	0.00	0.00	7,004.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,600.00	0.00	0.00	7,104.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
NIO									
7,663.72	0.00	0.00	7,168.00	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,700.00	0.00	0.00	7,204.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,800.00	0.00	0.00	7,304.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
7,900.00	0.00	0.00	7,404.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
CODELL									
7,923.72	0.00	0.00	7,428.00	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
GREEN HORN									
7,995.72	0.00	0.00	7,500.00	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
8,000.00	0.00	0.00	7,504.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
8,100.00	0.00	0.00	7,604.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
8,200.00	0.00	0.00	7,704.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
8,300.00	0.00	0.00	7,804.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
JSAND									
8,345.72	0.00	0.00	7,850.00	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
8,400.00	0.00	0.00	7,904.28	2,417.02	-83.01	2,418.45	0.00	0.00	0.00
PBHL_SATER 28-8(50 FNL 2640 FEL)50' TGT RAD									
8,495.72	0.00	0.00	8,000.00	2,417.02	-83.01	2,418.45	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_SATER 28-8
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4923.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4923.00ft (Original Well Elev)
Site:	WELD_SATER 25-8 PAD	North Reference:	True
Well:	P_SATER 28-8	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_SATER 28-8		
Design:	PLAN #1 5-10-10 RHS		

#### Design Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_SATER 28-8(5	0.00	0.00	8,000.00	2,417.02	-83.01	1,301,719.46	3,163,800.10	40° 9' 36.464 N	104° 54' 50.184 W
- plan hits target center									
- Circle (radius 50.00)									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
955.71	950.00	8 5/8"	8.62	11.00

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,142.15	3,860.00	PARKMAN			
4,713.70	4,378.00	SUSSEX			
7,663.72	7,168.00	NIO			
7,923.72	7,428.00	CODELL			
7,995.72	7,500.00	GREEN HORN			
8,345.72	7,850.00	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	268.25	-9.21	Start 4452.32 hold at 1550.00 MD
6,002.32	5,545.89	2,148.77	-73.80	Start Drop -2.00
7,252.32	6,756.60	2,417.02	-83.01	Start 1243.40 hold at 7252.32 MD
8,495.72	8,000.00	2,417.02	-83.01	TD at 8495.72