

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Saddleback 18-29 pad**

**Saddleback 31-29**

**Saddleback 31-29**

**Plan: Saddleback 31-29 (wp01)**

## **Standard Planning Report**

**27 July, 2011**



Project: COLORADO NORTHERN - 83  
 Site: WELD\_Saddleback 18-29 pad  
 Well: Saddleback 31-29  
 Wellbore: Saddleback 31-29  
 Section:  
 SHL:  
 Design: Saddleback 31-29 (wp01)  
 Latitude: 40.113082  
 Longitude: -104.919448  
 GL: 5015.00  
 KB: 15' RKB + 5015' GL @ 5030.00ft

FORMATION TOP DETAILS		
TVDPPath	MDPath	Formation
4165.00	4341.02	PK Depth
4570.00	4748.15	SX Depth
7328.00	7506.18	NIO Depth
7615.00	7793.18	CD Depth
7692.00	7870.18	GH Depth
8041.00	8219.18	J Depth



Azimuths to True North  
 Magnetic North: 8.91°

Magnetic Field  
 Strength: 52950.1snT  
 Dip Angle: 66.79°  
 Date: 7/26/2011  
 Model: IGRF2010

#### WELL DETAILS: Saddleback 31-29

+N/-S	+E/-W	Northing	Ground Level: Easting	5015.00 Latitude	Longitude	Slot
0.00	0.00	1284571.42	3162372.88	40.113082	-104.919448	

#### CASING DETAILS

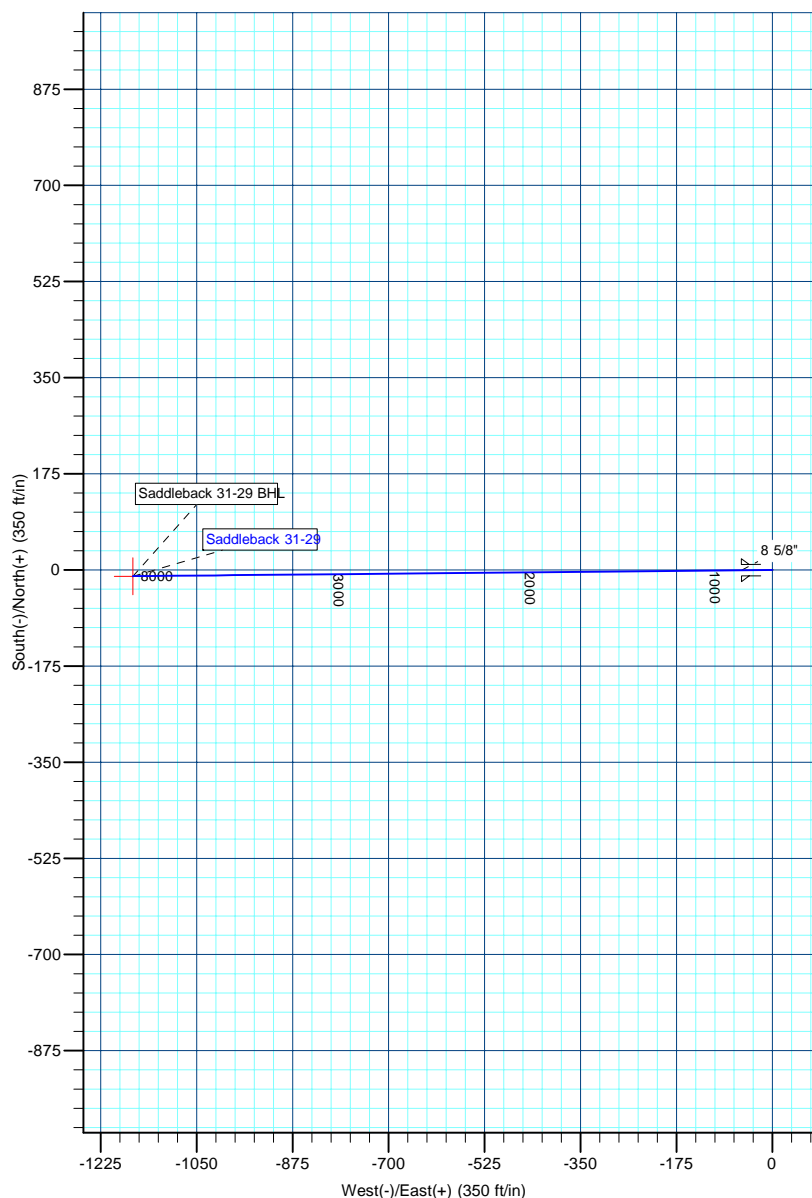
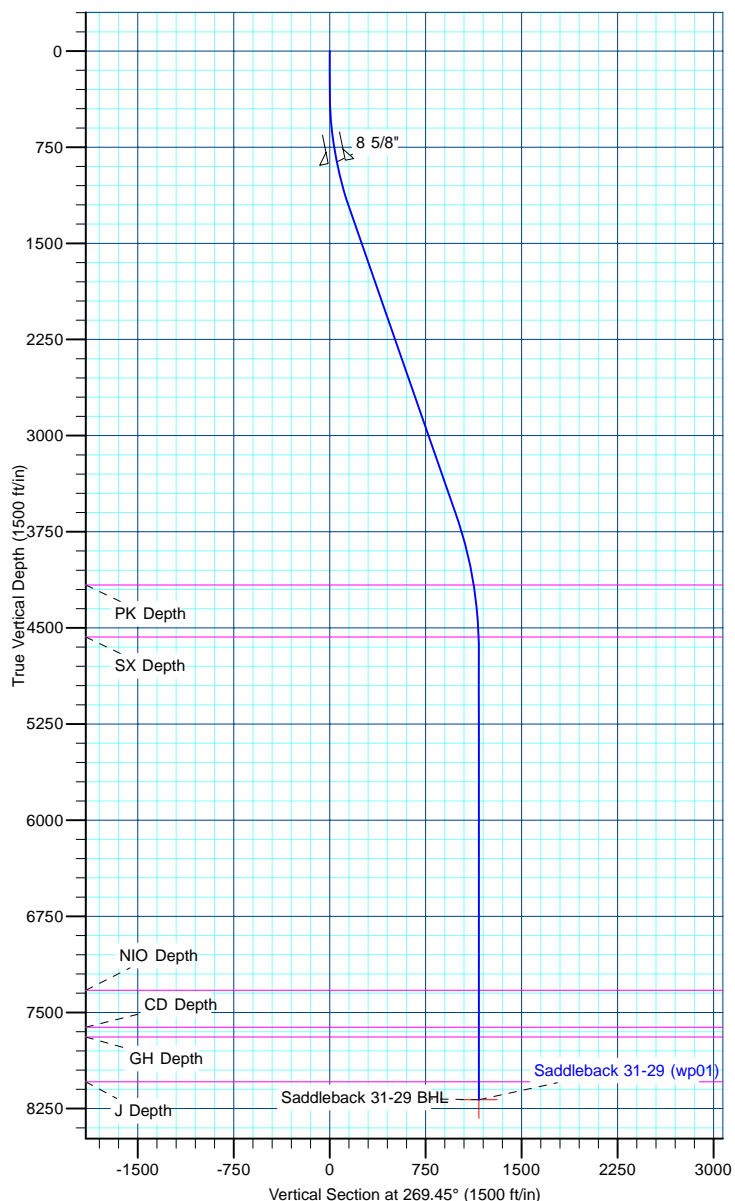
TVD	MD	Name	Size
865.00	868.73	8 5/8"	8-5/8

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Saddleback 31-29 BHL	8181.00	-11.25	-1166.30	1284552.53	3161206.67	40.113051	-104.923618	

#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
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
1262.50	19.25	269.45	1244.49	-1.55	-160.17	2.00	269.45	160.17
3759.18	19.25	269.45	3601.58	-9.49	-983.26	0.00	0.00	983.30
4859.18	0.00	0.00	4681.00	-11.25	-1166.30	1.75	180.00	1166.36
8359.18	0.00	0.00	8181.00	-11.25	-1166.30	0.00	0.00	1166.36



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 31-29
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Site:</b>	WELD_Saddleback 18-29 pad	<b>North Reference:</b>	True
<b>Well:</b>	Saddleback 31-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 31-29		
<b>Design:</b>	Saddleback 31-29 (wp01)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<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		

Site						WELD_Saddleback 18-29 pad											
<b>Site Position:</b>						<b>Northing:</b>			1,284,591.46 ft			<b>Latitude:</b>			40.113137		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,162,372.75 ft			<b>Longitude:</b>			-104.919448		
<b>Position Uncertainty:</b>			0.00 ft			<b>Slot Radius:</b>			0 "			<b>Grid Convergence:</b>			0.38		

Well	Saddleback 31-29					
Well Position	+N-S	-20.05 ft	Northing:	1,284,571.42 ft	Latitude:	40.113082
	+E-W	0.00 ft	Easting:	3,162,372.88 ft	Longitude:	-104.919448
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,015.00 ft

<b>Wellbore</b>	Saddleback 31-29				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	7/26/2011	8.91	66.79	52,950

<b>Design</b>	Saddleback 31-29 (wp01)			
<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	269.45

<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	
1,262.50	19.25	269.45	1,244.49	-1.55	-160.17	2.00	2.00	0.00	269.45	
3,759.18	19.25	269.45	3,601.58	-9.49	-983.26	0.00	0.00	0.00	0.00	
4,859.18	0.00	0.00	4,681.00	-11.25	-1,166.30	1.75	-1.75	0.00	180.00	
8,359.18	0.00	0.00	8,181.00	-11.25	-1,166.30	0.00	0.00	0.00	0.00	Saddleback 31-29 f

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 31-29
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Site:</b>	WELD_Saddleback 18-29 pad	<b>North Reference:</b>	True
<b>Well:</b>	Saddleback 31-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 31-29		
<b>Design:</b>	Saddleback 31-29 (wp01)		

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	2.00	269.45	399.98	-0.02	-1.75	1.75	2.00	2.00	0.00
500.00	4.00	269.45	499.84	-0.07	-6.98	6.98	2.00	2.00	0.00
600.00	6.00	269.45	599.45	-0.15	-15.69	15.69	2.00	2.00	0.00
700.00	8.00	269.45	698.70	-0.27	-27.88	27.88	2.00	2.00	0.00
800.00	10.00	269.45	797.47	-0.42	-43.52	43.52	2.00	2.00	0.00
868.73	11.37	269.45	865.00	-0.54	-56.27	56.27	2.00	2.00	0.00
8 5/8"									
900.00	12.00	269.45	895.62	-0.60	-62.60	62.60	2.00	2.00	0.00
1,000.00	14.00	269.45	993.06	-0.82	-85.09	85.10	2.00	2.00	0.00
1,100.00	16.00	269.45	1,089.64	-1.07	-110.97	110.98	2.00	2.00	0.00
1,200.00	18.00	269.45	1,185.27	-1.35	-140.21	140.21	2.00	2.00	0.00
1,262.50	19.25	269.45	1,244.49	-1.55	-160.17	160.17	2.00	2.00	0.00
1,300.00	19.25	269.45	1,279.90	-1.66	-172.53	172.54	0.00	0.00	0.00
1,400.00	19.25	269.45	1,374.31	-1.98	-205.50	205.51	0.00	0.00	0.00
1,500.00	19.25	269.45	1,468.72	-2.30	-238.46	238.47	0.00	0.00	0.00
1,600.00	19.25	269.45	1,563.12	-2.62	-271.43	271.44	0.00	0.00	0.00
1,700.00	19.25	269.45	1,657.53	-2.94	-304.40	304.41	0.00	0.00	0.00
1,800.00	19.25	269.45	1,751.94	-3.25	-337.37	337.38	0.00	0.00	0.00
1,900.00	19.25	269.45	1,846.35	-3.57	-370.33	370.35	0.00	0.00	0.00
2,000.00	19.25	269.45	1,940.76	-3.89	-403.30	403.32	0.00	0.00	0.00
2,100.00	19.25	269.45	2,035.17	-4.21	-436.27	436.29	0.00	0.00	0.00
2,200.00	19.25	269.45	2,129.58	-4.53	-469.24	469.26	0.00	0.00	0.00
2,300.00	19.25	269.45	2,223.99	-4.85	-502.20	502.23	0.00	0.00	0.00
2,400.00	19.25	269.45	2,318.40	-5.16	-535.17	535.20	0.00	0.00	0.00
2,500.00	19.25	269.45	2,412.80	-5.48	-568.14	568.17	0.00	0.00	0.00
2,600.00	19.25	269.45	2,507.21	-5.80	-601.11	601.13	0.00	0.00	0.00
2,700.00	19.25	269.45	2,601.62	-6.12	-634.07	634.10	0.00	0.00	0.00
2,800.00	19.25	269.45	2,696.03	-6.44	-667.04	667.07	0.00	0.00	0.00
2,900.00	19.25	269.45	2,790.44	-6.75	-700.01	700.04	0.00	0.00	0.00
3,000.00	19.25	269.45	2,884.85	-7.07	-732.98	733.01	0.00	0.00	0.00
3,100.00	19.25	269.45	2,979.26	-7.39	-765.94	765.98	0.00	0.00	0.00
3,200.00	19.25	269.45	3,073.67	-7.71	-798.91	798.95	0.00	0.00	0.00
3,300.00	19.25	269.45	3,168.08	-8.03	-831.88	831.92	0.00	0.00	0.00
3,400.00	19.25	269.45	3,262.48	-8.34	-864.85	864.89	0.00	0.00	0.00
3,500.00	19.25	269.45	3,356.89	-8.66	-897.81	897.86	0.00	0.00	0.00
3,600.00	19.25	269.45	3,451.30	-8.98	-930.78	930.82	0.00	0.00	0.00
3,700.00	19.25	269.45	3,545.71	-9.30	-963.75	963.79	0.00	0.00	0.00
3,759.18	19.25	269.45	3,601.58	-9.49	-983.26	983.30	0.00	0.00	0.00
3,800.00	18.54	269.45	3,640.20	-9.61	-996.48	996.52	1.75	-1.75	0.00
3,900.00	16.79	269.45	3,735.49	-9.91	-1,026.81	1,026.86	1.75	-1.75	0.00
4,000.00	15.04	269.45	3,831.65	-10.17	-1,054.22	1,054.27	1.75	-1.75	0.00
4,100.00	13.29	269.45	3,928.61	-10.41	-1,078.68	1,078.73	1.75	-1.75	0.00
4,200.00	11.54	269.45	4,026.27	-10.61	-1,100.17	1,100.22	1.75	-1.75	0.00
4,300.00	9.79	269.45	4,124.54	-10.79	-1,118.67	1,118.72	1.75	-1.75	0.00
4,341.02	9.07	269.45	4,165.00	-10.86	-1,125.39	1,125.44	1.75	-1.75	0.00
PK Depth									
4,400.00	8.04	269.45	4,223.33	-10.94	-1,134.16	1,134.21	1.75	-1.75	0.00
4,500.00	6.29	269.45	4,322.54	-11.06	-1,146.62	1,146.68	1.75	-1.75	0.00
4,600.00	4.54	269.45	4,422.10	-11.15	-1,156.05	1,156.11	1.75	-1.75	0.00
4,700.00	2.79	269.45	4,521.89	-11.22	-1,162.44	1,162.49	1.75	-1.75	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 31-29
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Site:</b>	WELD_Saddleback 18-29 pad	<b>North Reference:</b>	True
<b>Well:</b>	Saddleback 31-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 31-29		
<b>Design:</b>	Saddleback 31-29 (wp01)		

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)
4,748.15	1.94	269.45	4,570.00	-11.23	-1,164.42	1,164.48	1.75	-1.75	0.00
<b>SX Depth</b>									
4,800.00	1.04	269.45	4,621.83	-11.25	-1,165.77	1,165.82	1.75	-1.75	0.00
4,859.18	0.00	0.00	4,681.00	-11.25	-1,166.30	1,166.36	1.75	-1.75	0.00
4,900.00	0.00	0.00	4,721.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,000.00	0.00	0.00	4,821.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,100.00	0.00	0.00	4,921.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,200.00	0.00	0.00	5,021.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,300.00	0.00	0.00	5,121.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,400.00	0.00	0.00	5,221.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,500.00	0.00	0.00	5,321.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,600.00	0.00	0.00	5,421.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,700.00	0.00	0.00	5,521.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,800.00	0.00	0.00	5,621.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
5,900.00	0.00	0.00	5,721.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,000.00	0.00	0.00	5,821.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,100.00	0.00	0.00	5,921.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,200.00	0.00	0.00	6,021.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,300.00	0.00	0.00	6,121.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,400.00	0.00	0.00	6,221.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,500.00	0.00	0.00	6,321.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,600.00	0.00	0.00	6,421.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,700.00	0.00	0.00	6,521.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,800.00	0.00	0.00	6,621.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
6,900.00	0.00	0.00	6,721.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,000.00	0.00	0.00	6,821.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,100.00	0.00	0.00	6,921.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,200.00	0.00	0.00	7,021.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,300.00	0.00	0.00	7,121.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,400.00	0.00	0.00	7,221.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,500.00	0.00	0.00	7,321.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,506.18	0.00	0.00	7,328.00	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
<b>NIO Depth</b>									
7,600.00	0.00	0.00	7,421.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,700.00	0.00	0.00	7,521.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,793.18	0.00	0.00	7,615.00	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
<b>CD Depth</b>									
7,800.00	0.00	0.00	7,621.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
7,870.18	0.00	0.00	7,692.00	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
<b>GH Depth</b>									
7,900.00	0.00	0.00	7,721.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
8,000.00	0.00	0.00	7,821.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
8,100.00	0.00	0.00	7,921.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
8,200.00	0.00	0.00	8,021.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
8,219.18	0.00	0.00	8,041.00	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
<b>J Depth</b>									
8,300.00	0.00	0.00	8,121.82	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
8,359.18	0.00	0.00	8,181.00	-11.25	-1,166.30	1,166.36	0.00	0.00	0.00
<b>Saddleback 31-29 BHL</b>									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 31-29
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 5015' GL @ 5030.00ft
<b>Site:</b>	WELD_Saddleback 18-29 pad	<b>North Reference:</b>	True
<b>Well:</b>	Saddleback 31-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 31-29		
<b>Design:</b>	Saddleback 31-29 (wp01)		

#### 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									
Saddleback 31-29 BH	0.00	0.00	8,181.00	-11.25	-1,166.30	1,284,552.53	3,161,206.67	40.113051	-104.923618
- plan hits target center									
- Point									

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
868.73	865.00	8 5/8"	8-5/8	11

#### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,341.02	4,165.00	PK Depth			
4,748.15	4,570.00	SX Depth			
7,506.18	7,328.00	NIO Depth			
7,793.18	7,615.00	CD Depth			
7,870.18	7,692.00	GH Depth			
8,219.18	8,041.00	J Depth			