

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_Saddleback 18-29 pad**

**Saddleback 21-29**

**Saddleback 21-29**

**Plan: Saddleback 21-29 (wp01)**

## **Standard Planning Report**

**27 July, 2011**



Project: COLORADO NORTHERN ZONE - 83  
 Site: WELD\_Saddleback 18-29 pad  
 Well: Saddleback 21-29  
 Wellbore: Saddleback 21-29  
 Section:  
 SHL:  
 Design: Saddleback 21-29 (wp01)  
 Latitude: 40.113055  
 Longitude: -104.919448  
 GL: 5015.00  
 KB: 15' rkb + 5015' gl @ 5030.00ft

TVDPPath	MDPath	Formation
4165.00	4353.49	PK Depth
4570.00	4771.94	SX Depth
7328.00	7533.54	NIO Depth
7615.00	7820.54	CD Depth
7692.00	7897.54	GH Depth
8041.00	8246.54	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 21-29

+N/-S	+E/-W	Northing	Ground Level: Easting	5015.00 Latitude	Longitude	Slot
0.00	0.00	1284561.58	3162372.94	40.113055	-104.919448	

#### CASING DETAILS

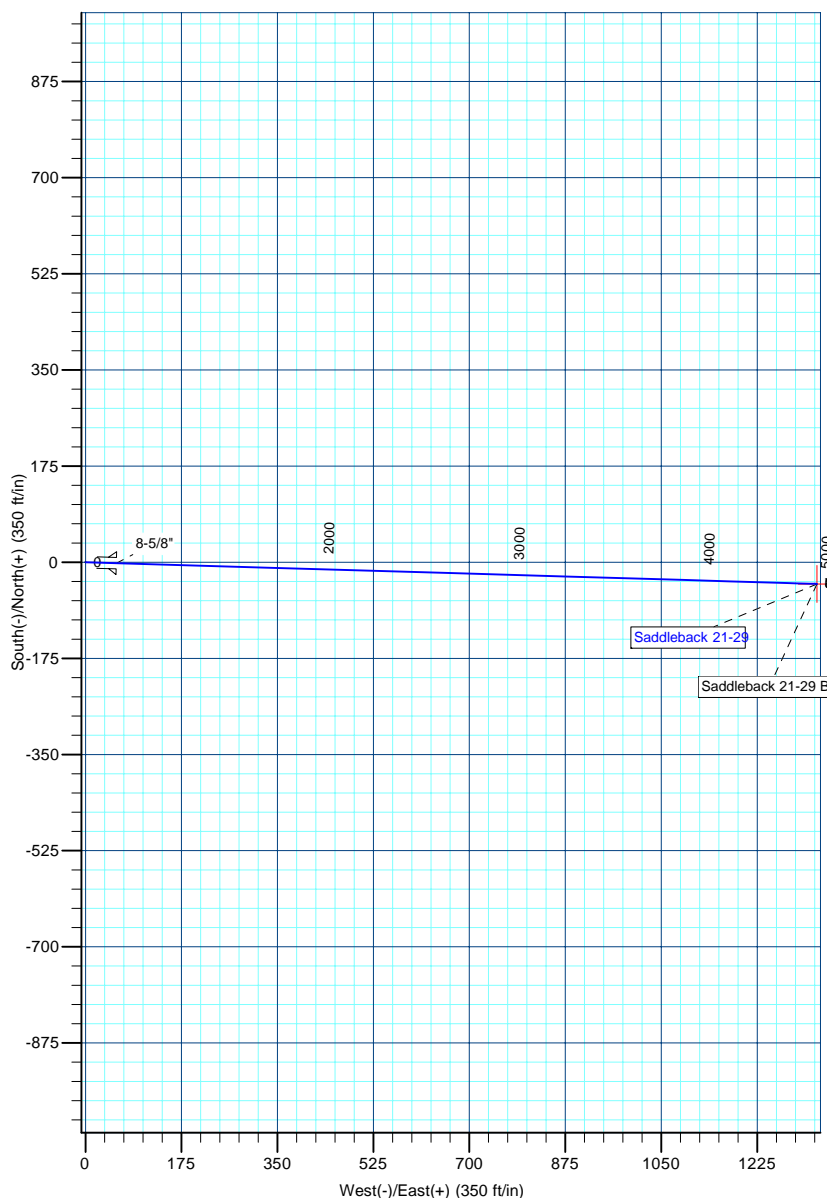
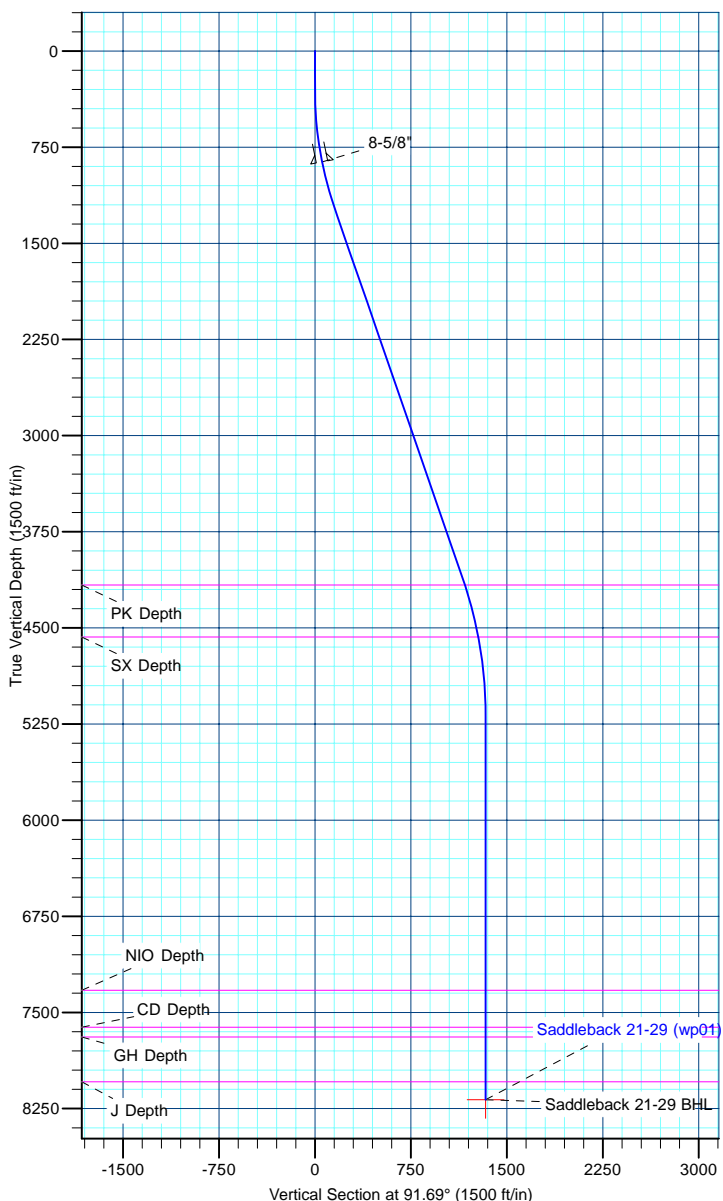
TVD	MD	Name	Size
865.00	868.73	8-5/8"	8-5/8

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Saddleback 21-29 BHL	8181.00	-39.29	1333.56	1284531.02	3163706.73	40.112947	-104.914680	

#### 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
1256.41	19.13	91.69	1238.74	-4.66	158.10	2.00	91.69	158.17
4293.51	19.13	91.69	4108.16	-33.97	1152.87	0.00	0.00	1153.37
5386.54	0.00	0.00	5181.00	-39.29	1333.56	1.75	180.00	1334.14
8386.54	0.00	0.00	8181.00	-39.29	1333.56	0.00	0.00	1334.14



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 21-29
<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 21-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 21-29		
<b>Design:</b>	Saddleback 21-29 (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			
Site Position:		Northing:	1,284,591.46 ft	Latitude:	40.113137
From:	Lat/Long	Easting:	3,162,372.75 ft	Longitude:	-104.919448
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.38 °

Well		Saddleback 21-29				
Well Position	+N/-S	-29.88 ft	Northing:	1,284,561.58 ft	Latitude:	40.113055
	+E/-W	0.00 ft	Easting:	3,162,372.94 ft	Longitude:	-104.919448
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	5,015.00 ft

<b>Wellbore</b>	Saddleback 21-29				
<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 21-29 (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)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	91.69

<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	
1,256.41	19.13	91.69	1,238.74	-4.66	158.10	2.00	2.00	0.00	91.69	
4,293.51	19.13	91.69	4,108.16	-33.97	1,152.87	0.00	0.00	0.00	0.00	
5,386.54	0.00	0.00	5,181.00	-39.29	1,333.56	1.75	-1.75	0.00	180.00	
8,386.54	0.00	0.00	8,181.00	-39.29	1,333.56	0.00	0.00	0.00	0.00	Saddleback 21-29 BH

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 21-29
<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 21-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 21-29		
<b>Design:</b>	Saddleback 21-29 (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	91.69	399.98	-0.05	1.74	1.75	2.00	2.00	0.00
500.00	4.00	91.69	499.84	-0.21	6.98	6.98	2.00	2.00	0.00
600.00	6.00	91.69	599.45	-0.46	15.69	15.69	2.00	2.00	0.00
700.00	8.00	91.69	698.70	-0.82	27.87	27.88	2.00	2.00	0.00
800.00	10.00	91.69	797.47	-1.28	43.50	43.52	2.00	2.00	0.00
868.73	11.37	91.69	865.00	-1.66	56.24	56.27	2.00	2.00	0.00
8-5/8"									
900.00	12.00	91.69	895.62	-1.84	62.58	62.60	2.00	2.00	0.00
1,000.00	14.00	91.69	993.06	-2.51	85.06	85.10	2.00	2.00	0.00
1,100.00	16.00	91.69	1,089.64	-3.27	110.93	110.98	2.00	2.00	0.00
1,200.00	18.00	91.69	1,185.27	-4.13	140.15	140.21	2.00	2.00	0.00
1,256.41	19.13	91.69	1,238.74	-4.66	158.10	158.17	2.00	2.00	0.00
1,300.00	19.13	91.69	1,279.93	-5.08	172.38	172.46	0.00	0.00	0.00
1,400.00	19.13	91.69	1,374.40	-6.04	205.13	205.22	0.00	0.00	0.00
1,500.00	19.13	91.69	1,468.88	-7.01	237.89	237.99	0.00	0.00	0.00
1,600.00	19.13	91.69	1,563.36	-7.97	270.64	270.76	0.00	0.00	0.00
1,700.00	19.13	91.69	1,657.84	-8.94	303.40	303.53	0.00	0.00	0.00
1,800.00	19.13	91.69	1,752.32	-9.90	336.15	336.30	0.00	0.00	0.00
1,900.00	19.13	91.69	1,846.80	-10.87	368.90	369.06	0.00	0.00	0.00
2,000.00	19.13	91.69	1,941.28	-11.83	401.66	401.83	0.00	0.00	0.00
2,100.00	19.13	91.69	2,035.76	-12.80	434.41	434.60	0.00	0.00	0.00
2,200.00	19.13	91.69	2,130.24	-13.77	467.17	467.37	0.00	0.00	0.00
2,300.00	19.13	91.69	2,224.71	-14.73	499.92	500.14	0.00	0.00	0.00
2,400.00	19.13	91.69	2,319.19	-15.70	532.67	532.91	0.00	0.00	0.00
2,500.00	19.13	91.69	2,413.67	-16.66	565.43	565.67	0.00	0.00	0.00
2,600.00	19.13	91.69	2,508.15	-17.63	598.18	598.44	0.00	0.00	0.00
2,700.00	19.13	91.69	2,602.63	-18.59	630.94	631.21	0.00	0.00	0.00
2,800.00	19.13	91.69	2,697.11	-19.56	663.69	663.98	0.00	0.00	0.00
2,900.00	19.13	91.69	2,791.59	-20.52	696.44	696.75	0.00	0.00	0.00
3,000.00	19.13	91.69	2,886.07	-21.49	729.20	729.51	0.00	0.00	0.00
3,100.00	19.13	91.69	2,980.54	-22.45	761.95	762.28	0.00	0.00	0.00
3,200.00	19.13	91.69	3,075.02	-23.42	794.71	795.05	0.00	0.00	0.00
3,300.00	19.13	91.69	3,169.50	-24.38	827.46	827.82	0.00	0.00	0.00
3,400.00	19.13	91.69	3,263.98	-25.35	860.21	860.59	0.00	0.00	0.00
3,500.00	19.13	91.69	3,358.46	-26.31	892.97	893.36	0.00	0.00	0.00
3,600.00	19.13	91.69	3,452.94	-27.28	925.72	926.12	0.00	0.00	0.00
3,700.00	19.13	91.69	3,547.42	-28.24	958.48	958.89	0.00	0.00	0.00
3,800.00	19.13	91.69	3,641.90	-29.21	991.23	991.66	0.00	0.00	0.00
3,900.00	19.13	91.69	3,736.38	-30.17	1,023.98	1,024.43	0.00	0.00	0.00
4,000.00	19.13	91.69	3,830.85	-31.14	1,056.74	1,057.20	0.00	0.00	0.00
4,100.00	19.13	91.69	3,925.33	-32.10	1,089.49	1,089.96	0.00	0.00	0.00
4,200.00	19.13	91.69	4,019.81	-33.07	1,122.25	1,122.73	0.00	0.00	0.00
4,293.51	19.13	91.69	4,108.16	-33.97	1,152.87	1,153.37	0.00	0.00	0.00
4,300.00	19.01	91.69	4,114.29	-34.03	1,154.99	1,155.49	1.75	-1.75	0.00
4,353.49	18.08	91.69	4,165.00	-34.53	1,172.00	1,172.51	1.75	-1.75	0.00
PK Depth									
4,400.00	17.26	91.69	4,209.32	-34.95	1,186.11	1,186.63	1.75	-1.75	0.00
4,500.00	15.51	91.69	4,305.25	-35.78	1,214.31	1,214.84	1.75	-1.75	0.00
4,600.00	13.76	91.69	4,402.00	-36.52	1,239.58	1,240.11	1.75	-1.75	0.00
4,700.00	12.01	91.69	4,499.48	-37.18	1,261.87	1,262.42	1.75	-1.75	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 21-29
<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 21-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 21-29		
<b>Design:</b>	Saddleback 21-29 (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)
4,771.94	10.76	91.69	4,570.00	-37.60	1,276.07	1,276.62	1.75	-1.75	0.00
<b>SX Depth</b>									
4,800.00	10.26	91.69	4,597.59	-37.75	1,281.18	1,281.74	1.75	-1.75	0.00
4,900.00	8.51	91.69	4,696.25	-38.23	1,297.49	1,298.05	1.75	-1.75	0.00
5,000.00	6.76	91.69	4,795.35	-38.62	1,310.78	1,311.35	1.75	-1.75	0.00
5,100.00	5.01	91.69	4,894.82	-38.92	1,321.03	1,321.61	1.75	-1.75	0.00
5,200.00	3.26	91.69	4,994.56	-39.14	1,328.25	1,328.83	1.75	-1.75	0.00
5,300.00	1.51	91.69	5,094.47	-39.26	1,332.42	1,333.00	1.75	-1.75	0.00
5,386.54	0.00	0.00	5,181.00	-39.29	1,333.56	1,334.14	1.75	-1.75	0.00
5,400.00	0.00	0.00	5,194.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
5,500.00	0.00	0.00	5,294.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
5,600.00	0.00	0.00	5,394.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
5,700.00	0.00	0.00	5,494.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
5,800.00	0.00	0.00	5,594.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
5,900.00	0.00	0.00	5,694.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,000.00	0.00	0.00	5,794.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,100.00	0.00	0.00	5,894.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,200.00	0.00	0.00	5,994.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,300.00	0.00	0.00	6,094.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,400.00	0.00	0.00	6,194.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,500.00	0.00	0.00	6,294.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,600.00	0.00	0.00	6,394.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,700.00	0.00	0.00	6,494.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,800.00	0.00	0.00	6,594.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
6,900.00	0.00	0.00	6,694.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,000.00	0.00	0.00	6,794.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,100.00	0.00	0.00	6,894.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,200.00	0.00	0.00	6,994.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,300.00	0.00	0.00	7,094.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,400.00	0.00	0.00	7,194.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,500.00	0.00	0.00	7,294.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,533.54	0.00	0.00	7,328.00	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
<b>NIO Depth</b>									
7,600.00	0.00	0.00	7,394.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,700.00	0.00	0.00	7,494.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,800.00	0.00	0.00	7,594.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
7,820.54	0.00	0.00	7,615.00	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
<b>CD Depth</b>									
7,897.54	0.00	0.00	7,692.00	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
<b>GH Depth</b>									
7,900.00	0.00	0.00	7,694.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
8,000.00	0.00	0.00	7,794.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
8,100.00	0.00	0.00	7,894.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
8,200.00	0.00	0.00	7,994.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
8,246.54	0.00	0.00	8,041.00	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
<b>J Depth</b>									
8,300.00	0.00	0.00	8,094.46	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
8,386.54	0.00	0.00	8,181.00	-39.29	1,333.56	1,334.14	0.00	0.00	0.00
<b>Saddleback 21-29 BHL</b>									

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well Saddleback 21-29
<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 21-29	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Saddleback 21-29		
<b>Design:</b>	Saddleback 21-29 (wp01)		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Saddleback 21-29 BHL	0.00	0.00	8,181.00	-39.29	1,333.56	1,284,531.02	3,163,706.73	40.112947	-104.914680
- plan hits target center									
- Point									

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

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
4,353.49	4,165.00	PK Depth				
4,771.94	4,570.00	SX Depth				
7,533.54	7,328.00	NIO Depth				
7,820.54	7,615.00	CD Depth				
7,897.54	7,692.00	GH Depth				
8,246.54	8,041.00	J Depth				