

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_FEHRN 17-32 PAD

FEHRN 1-32SX

FEHRN 1-32SX

Plan: FEHRN 1-32SX (wp02)

Standard Planning Report

25 February, 2011



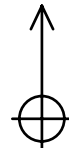
Project: COLORADO NORTHERN ZONE - 83
Site: WELD_FEHRN 17-32 PAD
Well: FEHRN 1-32SX
Wellbore: FEHRN 1-32SX
Section:
SHL:
Design: FEHRN 1-32SX (wp02)
Latitude: 40.097327
Longitude: -104.795699
GL: 4916.00
KB: GL @ 4916.00ft

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4116.00	4254.00	PK Depth
4502.00	4656.28	SX Depth
4644.00	4804.27	SX (pay zone TOP)
4766.00	4931.41	SX (pay zone BASE)



T/M

Azimuths to True North
Magnetic North: 0.00°Magnetic Field
Strength: 0.0snT
Dip Angle: 0.00°
Date: 11/22/2010
Model: USER DEFINED

WELL DETAILS: FEHRN 1-32SX

+N/-S	+E/-W	Northing	Ground Level: Easting	4916.00 Latitude	Longitude	Slot
0.00	0.00	1279083.12	3197028.79	40.097327	-104.795699	

CASING DETAILS

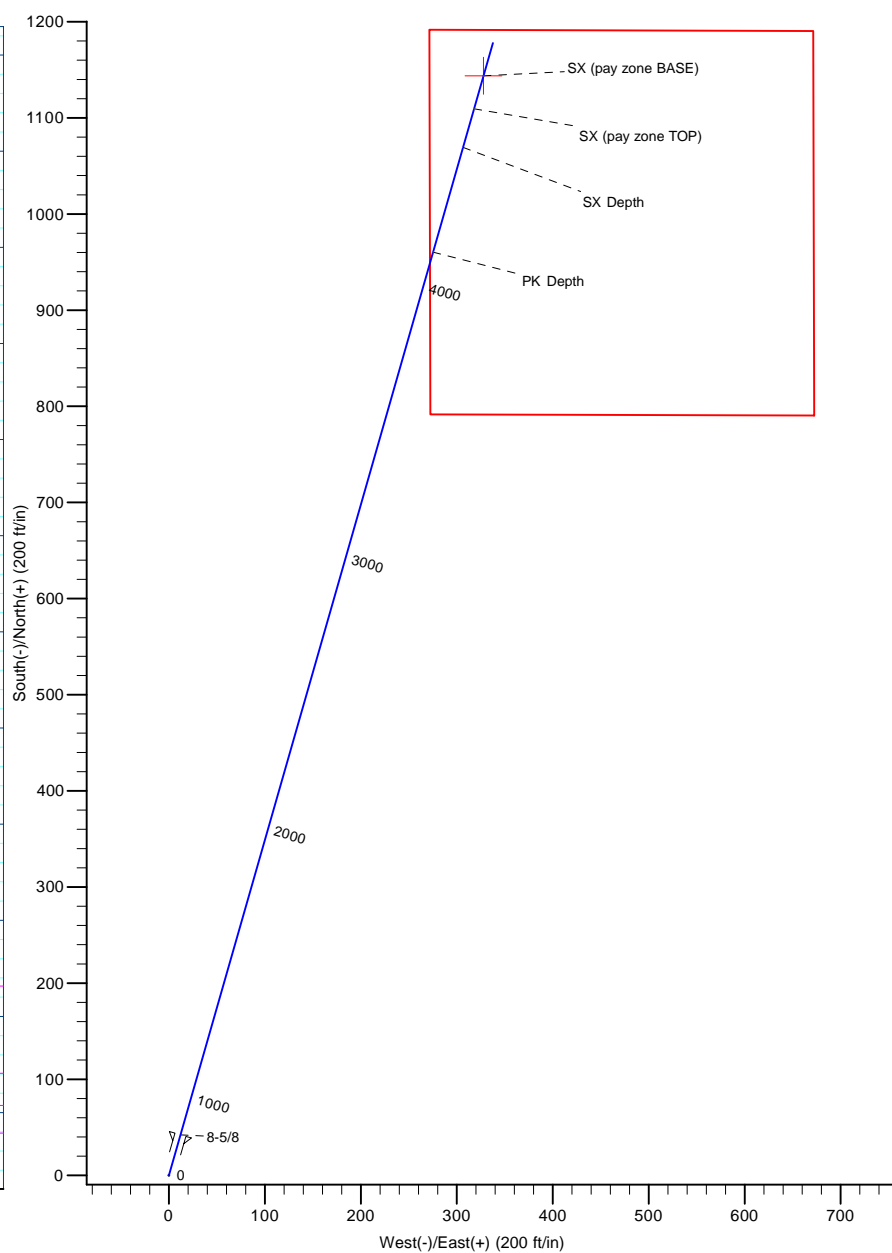
TVD	MD	Name	Size
800.00	802.57	8-5/8	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
FEHRN 1-32SX target	4766.00	1143.87	327.86	1280229.56	3197347.55	40.100467	-104.794527	

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
1117.85	16.36	15.99	1106.78	111.46	31.95	2.00	15.99	115.95
4931.42	16.36	15.99	4766.00	1143.87	327.86	0.00	0.00	1189.93
5056.48	16.36	15.99	4886.00	1177.73	337.56	0.00	0.00	1225.15



Database:	edm5000p	Local Co-ordinate Reference:	Well FEHRN 1-32SX
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL @ 4916.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL @ 4916.00ft
Site:	WELD_FEHRN 17-32 PAD	North Reference:	True
Well:	FEHRN 1-32SX	Survey Calculation Method:	Minimum Curvature
Wellbore:	FEHRN 1-32SX		
Design:	FEHRN 1-32SX (wp02)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		WELD_FEHRN 17-32 PAD			
Site Position:		Northing:	1,279,083.46 ft	Latitude:	40.097327
From:	Lat/Long	Easting:	3,197,067.90 ft	Longitude:	-104.795559
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.46

Well	FEHRN 1-32SX					
Well Position	+N-S	-0.04 ft	Northing:	1,279,083.12 ft	Latitude:	40.097327
	+E-W	-39.11 ft	Easting:	3,197,028.79 ft	Longitude:	-104.795699
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,916.00 ft

Wellbore	FEHRN 1-32SX				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	11/22/2010	0.00	0.00	0

Design	FEHRN 1-32SX (wp02)			
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	15.99

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	
1,117.85	16.36	15.99	1,106.78	111.46	31.95	2.00	2.00	0.00	15.99	
4,931.42	16.36	15.99	4,766.00	1,143.87	327.86	0.00	0.00	0.00	0.00	FEHRN 1-32SX tar
5,056.48	16.36	15.99	4,886.00	1,177.73	337.56	0.00	0.00	0.00	0.00	

Database:	edm5000p	Local Co-ordinate Reference:	Well FEHRN 1-32SX
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL @ 4916.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL @ 4916.00ft
Site:	WELD_FEHRN 17-32 PAD	North Reference:	True
Well:	FEHRN 1-32SX	Survey Calculation Method:	Minimum Curvature
Wellbore:	FEHRN 1-32SX		
Design:	FEHRN 1-32SX (wp02)		

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	15.99	399.98	1.68	0.48	1.75	2.00	2.00	0.00
500.00	4.00	15.99	499.84	6.71	1.92	6.98	2.00	2.00	0.00
600.00	6.00	15.99	599.45	15.09	4.32	15.69	2.00	2.00	0.00
700.00	8.00	15.99	698.70	26.80	7.68	27.88	2.00	2.00	0.00
800.00	10.00	15.99	797.47	41.84	11.99	43.52	2.00	2.00	0.00
802.57	10.05	15.99	800.00	42.27	12.12	43.97	2.00	2.00	0.00
8-5/8									
900.00	12.00	15.99	895.62	60.18	17.25	62.60	2.00	2.00	0.00
1,000.00	14.00	15.99	993.06	81.80	23.45	85.10	2.00	2.00	0.00
1,100.00	16.00	15.99	1,089.64	106.68	30.58	110.98	2.00	2.00	0.00
1,117.85	16.36	15.99	1,106.78	111.46	31.95	115.95	2.00	2.00	0.00
1,200.00	16.36	15.99	1,185.61	133.70	38.32	139.09	0.00	0.00	0.00
1,300.00	16.36	15.99	1,281.56	160.77	46.08	167.25	0.00	0.00	0.00
1,400.00	16.36	15.99	1,377.52	187.85	53.84	195.41	0.00	0.00	0.00
1,500.00	16.36	15.99	1,473.47	214.92	61.60	223.57	0.00	0.00	0.00
1,600.00	16.36	15.99	1,569.42	241.99	69.36	251.73	0.00	0.00	0.00
1,700.00	16.36	15.99	1,665.37	269.06	77.12	279.90	0.00	0.00	0.00
1,800.00	16.36	15.99	1,761.33	296.13	84.88	308.06	0.00	0.00	0.00
1,900.00	16.36	15.99	1,857.28	323.21	92.64	336.22	0.00	0.00	0.00
2,000.00	16.36	15.99	1,953.23	350.28	100.40	364.38	0.00	0.00	0.00
2,100.00	16.36	15.99	2,049.18	377.35	108.16	392.54	0.00	0.00	0.00
2,200.00	16.36	15.99	2,145.14	404.42	115.92	420.71	0.00	0.00	0.00
2,300.00	16.36	15.99	2,241.09	431.49	123.67	448.87	0.00	0.00	0.00
2,400.00	16.36	15.99	2,337.04	458.57	131.43	477.03	0.00	0.00	0.00
2,500.00	16.36	15.99	2,432.99	485.64	139.19	505.19	0.00	0.00	0.00
2,600.00	16.36	15.99	2,528.95	512.71	146.95	533.36	0.00	0.00	0.00
2,700.00	16.36	15.99	2,624.90	539.78	154.71	561.52	0.00	0.00	0.00
2,800.00	16.36	15.99	2,720.85	566.85	162.47	589.68	0.00	0.00	0.00
2,900.00	16.36	15.99	2,816.80	593.93	170.23	617.84	0.00	0.00	0.00
3,000.00	16.36	15.99	2,912.76	621.00	177.99	646.00	0.00	0.00	0.00
3,100.00	16.36	15.99	3,008.71	648.07	185.75	674.17	0.00	0.00	0.00
3,200.00	16.36	15.99	3,104.66	675.14	193.51	702.33	0.00	0.00	0.00
3,300.00	16.36	15.99	3,200.62	702.22	201.27	730.49	0.00	0.00	0.00
3,400.00	16.36	15.99	3,296.57	729.29	209.03	758.65	0.00	0.00	0.00
3,500.00	16.36	15.99	3,392.52	756.36	216.79	786.81	0.00	0.00	0.00
3,600.00	16.36	15.99	3,488.47	783.43	224.55	814.98	0.00	0.00	0.00
3,700.00	16.36	15.99	3,584.43	810.50	232.31	843.14	0.00	0.00	0.00
3,800.00	16.36	15.99	3,680.38	837.58	240.07	871.30	0.00	0.00	0.00
3,900.00	16.36	15.99	3,776.33	864.65	247.82	899.46	0.00	0.00	0.00
4,000.00	16.36	15.99	3,872.28	891.72	255.58	927.62	0.00	0.00	0.00
4,100.00	16.36	15.99	3,968.24	918.79	263.34	955.79	0.00	0.00	0.00
4,200.00	16.36	15.99	4,064.19	945.86	271.10	983.95	0.00	0.00	0.00
4,254.00	16.36	15.99	4,116.00	960.48	275.29	999.16	0.00	0.00	0.00
PK Depth									
4,300.00	16.36	15.99	4,160.14	972.94	278.86	1,012.11	0.00	0.00	0.00
4,400.00	16.36	15.99	4,256.09	1,000.01	286.62	1,040.27	0.00	0.00	0.00
4,500.00	16.36	15.99	4,352.05	1,027.08	294.38	1,068.43	0.00	0.00	0.00
4,600.00	16.36	15.99	4,448.00	1,054.15	302.14	1,096.60	0.00	0.00	0.00
4,656.28	16.36	15.99	4,502.00	1,069.39	306.51	1,112.45	0.00	0.00	0.00

Database:	edm5000p	Local Co-ordinate Reference:	Well FEHRN 1-32SX
Company:	US ROCKIES REGION PLANNING	TVD Reference:	GL @ 4916.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	GL @ 4916.00ft
Site:	WELD_FEHRN 17-32 PAD	North Reference:	True
Well:	FEHRN 1-32SX	Survey Calculation Method:	Minimum Curvature
Wellbore:	FEHRN 1-32SX		
Design:	FEHRN 1-32SX (wp02)		

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)
SX Depth									
4,700.00	16.36	15.99	4,543.95	1,081.22	309.90	1,124.76	0.00	0.00	0.00
4,800.00	16.36	15.99	4,639.90	1,108.30	317.66	1,152.92	0.00	0.00	0.00
4,804.27	16.36	15.99	4,644.00	1,109.45	317.99	1,154.12	0.00	0.00	0.00
SX (pay zone TOP)									
4,900.00	16.36	15.99	4,735.86	1,135.37	325.42	1,181.08	0.00	0.00	0.00
4,931.42	16.36	15.99	4,766.00	1,143.87	327.86	1,189.93	0.00	0.00	0.00
SX (pay zone BASE) - FEHRN 1-32SX target									
5,000.00	16.36	15.99	4,831.81	1,162.44	333.18	1,209.25	0.00	0.00	0.00
5,056.48	16.36	15.99	4,886.00	1,177.73	337.56	1,225.15	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
FEHRN 1-32SX target	0.00	0.00	4,766.00	1,143.87	327.86	1,280,229.56	3,197,347.55	40.100467	-104.794527
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
802.57	800.00	8-5/8	8-5/8	11	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,254.00	4,116.00	PK Depth		0.00	
4,656.28	4,502.00	SX Depth		0.00	
4,804.27	4,644.00	SX (pay zone TOP)		0.00	
4,931.41	4,766.00	SX (pay zone BASE)		0.00	