

# NOBLE ENERGY INC WELD COUNTY CO

Well Name: **FRICK C 17-79HN**

Surface Location: FRICK PAD 18-4N-64W

North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4759.0

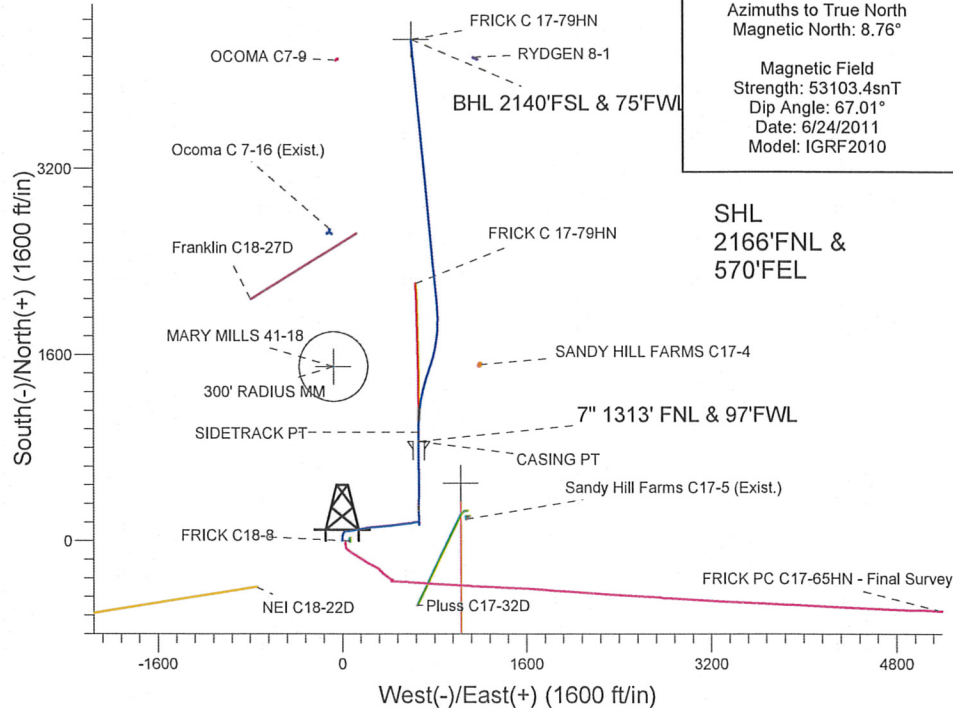
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1358421.10	3254903.25	40.313660	-104.585910	

ENSIGN 132 RKB 13' RKB @ 4772.0ft (ENSIGN 132 RKB 13')

## WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
300' RADIUS MM	1.0	1497.3	-72.5	Circle (Radius: 300.0)
BHL 2140'FSL & 75'FWL	6885.0	4313.4	610.6	Point

FRICK PAD 18-4N-64W  
FRICK C 17-79HN  
PLAN 6 (July 27,2011) tie to sun  
14:15, July 27 2011



SHL  
2166'FNL &  
570'FEL

Azimuths to True North  
Magnetic North: 8.76°

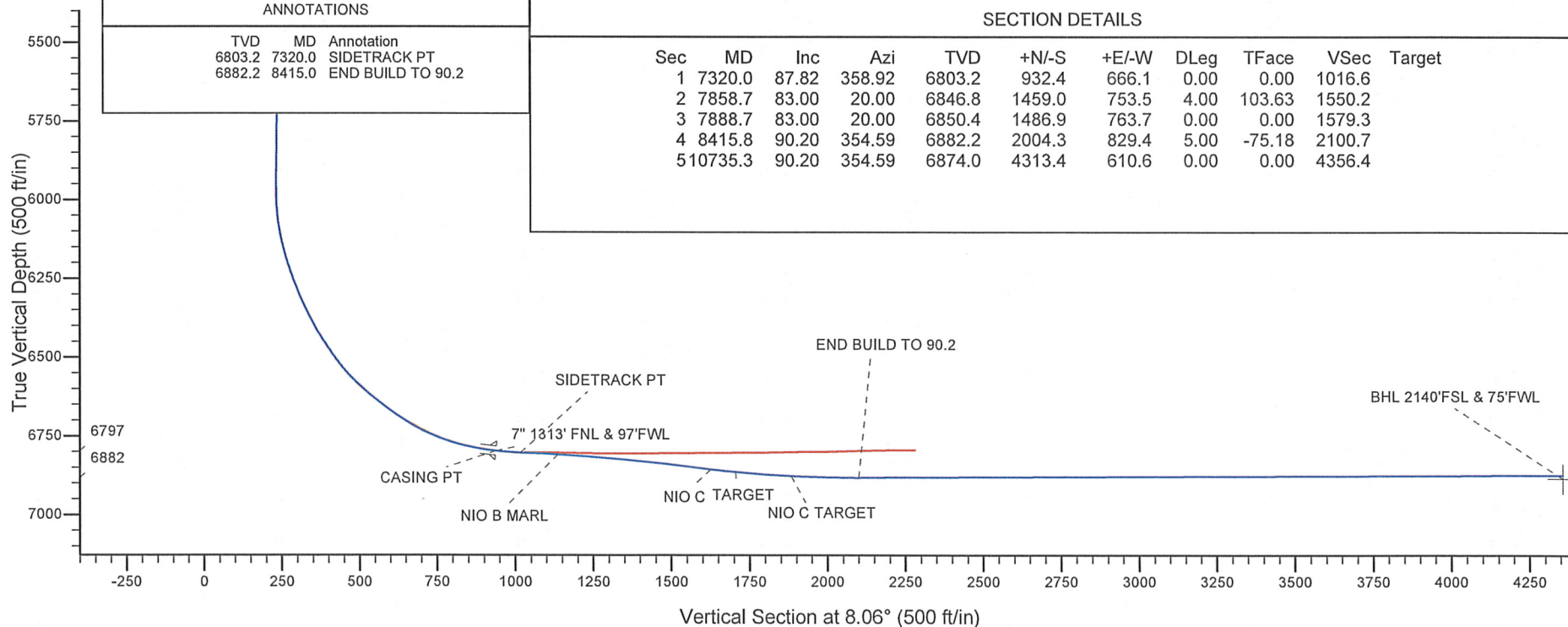
Magnetic Field  
Strength: 53103.4snT  
Dip Angle: 67.01°  
Date: 6/24/2011  
Model: IGRF2010

## ANNOTATIONS

TVD	MD	Annotation
6803.2	7320.0	SIDETRACK PT
6882.2	8415.0	END BUILD TO 90.2

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	7320.0	87.82	358.92	6803.2	932.4	666.1	0.00	0.00	1016.6	
2	7858.7	83.00	20.00	6846.8	1459.0	753.5	4.00	103.63	1550.2	
3	7888.7	83.00	20.00	6850.4	1486.9	763.7	0.00	0.00	1579.3	
4	8415.8	90.20	354.59	6882.2	2004.3	829.4	5.00	-75.18	2100.7	
5	10735.3	90.20	354.59	6874.0	4313.4	610.6	0.00	0.00	4356.4	



FOR 05-123-33279-01



## Directional

### NOBLE ENERGY INC WELD COUNTY CO

SEC.18-T4N-R64W

FRICK PAD 18-4N-64W

FRICK C 17-79HN

Wellbore #1

Plan: PLAN 6 (July 27, 2011) tie to survey

### Standard Planning Report

27 July, 2011

for 05-123-33279-01





Planning Report



Database:	Landmark	Local Co-ordinate Reference:	Well FRICK C 17-79HN
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	RKB @ 4772.0ft (ENSIGN 132 RKB 13')
Project:	SEC.18-T4N-R64W	MD Reference:	RKB @ 4772.0ft (ENSIGN 132 RKB 13')
Site:	FRICK PAD 18-4N-64W	North Reference:	True
Well:	FRICK C 17-79HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAN 6 (July 27,2011) tie to survey		

Project	SEC.18-T4N-R64W, Weld County, Colorado	System Datum:	Mean Sea Level Using Well Reference Point Using geodetic scale factor
Map System:	US State Plane 1983		
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	FRICK PAD 18-4N-64W		
Site Position:		Northing:	1,358,417.70 ft
From:	Lat/Long	Easting:	3,254,925.59 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Grid Convergence:	

Well	FRICK C 17-79HN					
Well Position	+N/-S	3.6 ft	Northing:	1,358,421.10 ft	Latitude:	40.313660
	+E/-W	-22.3 ft	Easting:	3,254,903.25 ft	Longitude:	-104.585910
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,759.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/24/2011	8.76	67.01	53.103

Design	PLAN 6 (July 27, 2011) tie to survey				
Audit Notes:					
Version:	Phase:	PROTOTYPE		Tie On Depth:	7,320.0
Vertical Section:	Depth From (TVD) (ft)	+N-S (ft)	+E-W (ft)	Direction (°)	
	0.0	0.0	0.0	8.06	

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 (°)
7,320.0	87.82	358.92	6,803.2	932.4	666.1	0.00	0.00	0.00	0.00
7,858.7	83.00	20.00	6,846.8	1,459.0	753.5	4.00	-0.89	3.91	103.63
7,888.7	83.00	20.00	6,850.4	1,486.9	763.7	0.00	0.00	0.00	0.00
8,415.8	90.20	354.59	6,882.2	2,004.3	829.4	5.00	1.37	-4.82	-75.18
10,735.3	90.20	354.59	6,874.0	4,313.4	610.6	0.00	0.00	0.00	0.00





Planning Report



**Database:** Landmark  
**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC. 18-T4N-R64W  
**Site:** FRICK PAD 18-4N-64W  
**Well:** FRICK C 17-79HN  
**Wellbore:** Wellbore #1  
**Design:** PLAN 6 (July 27,2011) tie to survey

**Local Co-ordinate Reference:**  
**TVD Reference:**  
**MD Reference:**  
**North Reference:**  
**Survey Calculation Method:**

**Well FRICK C 17-79HN**  
**RKB @ 4772.0ft (ENSIGN 132 RKB 13)**  
**RKB @ 4772.0ft (ENSIGN 132 RKB 13)**  
**True**  
**Minimum Curvature**

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)
7,320.0	87.82	358.92	6,803.2	932.4	666.1	1,016.6	0.00	0.00	0.00
SIDETRACK PT									
7,400.0	87.07	2.04	6,806.7	1,012.3	666.7	1,095.8	4.00	-0.94	3.89
7,441.6	86.68	3.66	6,809.0	1,053.8	668.8	1,137.2	4.00	-0.93	3.90
NIO B MARL									
7,500.0	86.14	5.93	6,812.7	1,111.9	673.7	1,195.3	4.00	-0.92	3.90
7,600.0	85.24	9.84	6,820.2	1,210.6	687.4	1,295.0	4.00	-0.91	3.91
7,700.0	84.35	13.76	6,829.3	1,308.1	707.7	1,394.4	4.00	-0.89	3.92
7,800.0	83.49	17.69	6,839.8	1,403.8	734.7	1,492.9	4.00	-0.86	3.93
7,858.7	83.00	20.00	6,846.8	1,459.0	753.5	1,550.2	4.00	-0.84	3.94
7,888.7	83.00	20.00	6,850.4	1,486.9	763.7	1,579.3	0.00	0.00	0.00
7,900.0	83.14	19.45	6,851.8	1,497.5	767.5	1,590.3	5.00	1.28	-4.87
7,936.7	83.62	17.67	6,856.0	1,532.1	779.1	1,626.1	5.00	1.29	-4.86
NIO C									
8,000.0	84.45	14.60	6,862.6	1,592.5	796.5	1,688.5	5.00	1.32	-4.85
8,017.6	84.69	13.74	6,864.2	1,609.6	800.8	1,705.9	5.00	1.33	-4.84
TARGET									
8,100.0	85.80	9.76	6,871.1	1,689.9	817.6	1,787.8	5.00	1.35	-4.83
8,195.8	87.12	5.15	6,877.0	1,784.7	830.0	1,883.4	5.00	1.38	-4.82
NIO C TARGET									
8,200.0	87.18	4.95	6,877.2	1,788.8	830.3	1,887.6	5.00	1.39	-4.81
8,300.0	88.57	0.14	6,880.9	1,888.6	834.8	1,987.0	5.00	1.40	-4.80
8,400.0	89.98	355.34	6,882.2	1,988.5	830.8	2,085.4	5.00	1.41	-4.80
8,415.0	90.19	354.62	6,882.2	2,003.5	829.5	2,100.0	5.00	1.41	-4.80
END BUILD TO 90.2									
8,415.8	90.20	354.59	6,882.2	2,004.3	829.4	2,100.7	5.00	1.41	-4.80
8,500.0	90.20	354.59	6,881.9	2,088.1	821.5	2,182.6	0.00	0.00	0.00
8,600.0	90.20	354.59	6,881.5	2,187.6	812.1	2,279.9	0.00	0.00	0.00
8,700.0	90.20	354.59	6,881.2	2,287.2	802.6	2,377.1	0.00	0.00	0.00
8,800.0	90.20	354.59	6,880.8	2,386.8	793.2	2,474.4	0.00	0.00	0.00
8,900.0	90.20	354.59	6,880.5	2,486.3	783.8	2,571.6	0.00	0.00	0.00
9,000.0	90.20	354.59	6,880.1	2,585.9	774.3	2,668.9	0.00	0.00	0.00
9,100.0	90.20	354.59	6,879.8	2,685.4	764.9	2,766.1	0.00	0.00	0.00
9,200.0	90.20	354.59	6,879.4	2,785.0	755.5	2,863.4	0.00	0.00	0.00
9,300.0	90.20	354.59	6,879.0	2,884.5	746.0	2,960.6	0.00	0.00	0.00
9,400.0	90.20	354.59	6,878.7	2,984.1	736.6	3,057.9	0.00	0.00	0.00
9,500.0	90.20	354.59	6,878.3	3,083.6	727.2	3,155.1	0.00	0.00	0.00
9,600.0	90.20	354.59	6,878.0	3,183.2	717.7	3,252.4	0.00	0.00	0.00
9,700.0	90.20	354.59	6,877.6	3,282.7	708.3	3,349.6	0.00	0.00	0.00
9,800.0	90.20	354.59	6,877.3	3,382.3	698.9	3,446.9	0.00	0.00	0.00
9,900.0	90.20	354.59	6,876.9	3,481.8	689.4	3,544.1	0.00	0.00	0.00
10,000.0	90.20	354.59	6,876.6	3,581.4	680.0	3,641.4	0.00	0.00	0.00
10,100.0	90.20	354.59	6,876.2	3,680.9	670.6	3,738.6	0.00	0.00	0.00
10,200.0	90.20	354.59	6,875.9	3,780.5	661.1	3,835.9	0.00	0.00	0.00
10,300.0	90.20	354.59	6,875.5	3,880.1	651.7	3,933.1	0.00	0.00	0.00
10,400.0	90.20	354.59	6,875.2	3,979.6	642.3	4,030.3	0.00	0.00	0.00
10,500.0	90.20	354.59	6,874.8	4,079.2	632.8	4,127.6	0.00	0.00	0.00
10,600.0	90.20	354.59	6,874.5	4,178.7	623.4	4,224.8	0.00	0.00	0.00
10,700.0	90.20	354.59	6,874.1	4,278.3	614.0	4,322.1	0.00	0.00	0.00
10,735.3	90.20	354.59	6,874.0	4,313.4	610.6	4,356.4	0.00	0.00	0.00



Database:	Landmark	Local Co-ordinate Reference:	Well FRICK C 17-79HN
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	RKB @ 4772.0ft (ENSIGN 132 RKB 13)
Project:	SEC.18-14N-R64W	MD Reference:	RKB @ 4772.0ft (ENSIGN 132 RKB 13)
Site:	FRICK PAD 18-4N-64W	North Reference:	True
Well:	FRICK C 17-79HN	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	PLAN 6 (July 27,2011) tie to survey		

Targets						
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)
- hit/miss target						
- Shape						
300' RADIUS MM	0.00	0.00	1.0	1,497.3	-72.5	1,359,917.52
- plan misses target center by 6862.6ft at 7441.6ft MD (6809.0 TVD, 1053.8 N, 668.8 E)						3,254,815.32
- Circle (radius 300.0)						
BHL 2140'FSL & 75'F	0.00	0.00	6,885.0	4,313.4	610.6	1,362,740.39
- plan misses target center by 11.0ft at 10735.3ft MD (6874.0 TVD, 4313.4 N, 610.6 E)						3,255,469.36
- Point						
						40 325500
						-104.583720

Casing Points			
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")
7,240.0	6,797.3	7" 1313' FNL & 97'FVL	7
			8-3/4

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,875.5	6,672.0	SHARON SPRINGS MRKR		0.00	
6,926.4	6,700.0	NIOBRARA		0.00	
6,966.5	6,720.0	NIOBRARA A		0.00	
7,004.5	6,737.0	NIOBRARA A MARL		0.00	
7,198.1	6,792.0	NIOBRARA B		0.00	
7,441.6	6,809.0	NIO B MARL		0.00	
7,936.7	6,856.0	NIO C		0.00	
8,195.8	6,877.0	NIO C TARGET		0.00	
8,017.6	6,882.0	TARGET		-0.60	7.00

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
7,320.0	6,803.2	932.4	666.1	SIDETRACK PT
8,415.0	6,882.2	2,003.5	829.5	END BUILD TO 90.2