

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	2063.8	26.28	320.90	2018.2	229.7	-186.7	2.00	320.90	296.0	
4	4978.5	26.28	320.90	4631.8	1231.2	-1000.4	0.00	0.00	1586.3	
5	6292.3	0.00	0.00	5900.0	1460.9	-1187.0	2.00	180.00	1882.3	Target BHL 2550'FSL & 1240'FWL
6	7692.3	0.00	0.00	7300.0	1460.9	-1187.0	0.00	0.00	1882.3	



Directional

**NOBLE ENERGY INC WELD
COUNTY CO**

SEC.22-T3N-R65W

Moser PC H22-21D Pad Sec.22-T3N-65W

Frank PC H22-20D

Wellbore #1

Plan: Noble Frank PC H22-20D Plan #2 (9-01-10)

Standard Planning Report

01 September, 2010



Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.22-T3N-R65W
Site: Moser PC H22-21D Pad Sec.22-T3N-65W
Well: Frank PC H22-20D
Wellbore: Wellbore #1
Design: Noble Frank PC H22-20D Plan #2 (9-01-10)

Local Co-ordinate Reference: Well Frank PC H22-20D
TVD Reference: WELL @ 4821.0ft (Original Well Elev)
MD Reference: WELL @ 4821.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Project	SEC.22-T3N-R65W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Moser PC H22-21D Pad Sec.22-T3N-65W				
Site Position:		Northing:	1,319,261.29ft	Latitude:	40° 12' 23.940 N
From:	Lat/Long	Easting:	3,237,248.93ft	Longitude:	104° 39' 2.016 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.55 °

Well	Frank PC H22-20D					
Well Position	+N/-S	7.3 ft	Northing:	1,319,268.34 ft	Latitude:	40° 12' 24.012 N
	+E/-W	-22.3 ft	Easting:	3,237,226.52 ft	Longitude:	104° 39' 2.304 W
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,808.0 ft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/28/2010	8.90	66.94	53,135

Design: Noble Frank PC H22-20D Plan #2 (9-01-10)

Audit Notes:

Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	320.90

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
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,063.8	26.28	320.90	2,018.2	229.7	-186.7	2.00	2.00	0.00	320.90	
4,978.5	26.28	320.90	4,631.8	1,231.2	-1,000.4	0.00	0.00	0.00	0.00	
6,292.3	0.00	0.00	5,900.0	1,460.9	-1,187.0	2.00	-2.00	0.00	180.00	Target BHL 2550'F
7,692.3	0.00	0.00	7,300.0	1,460.9	-1,187.0	0.00	0.00	0.00	0.00	

Database: EDM den0-adp01 Server Data
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Project: SEC.22-T3N-R65W
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Local Co-ordinate Reference: Well Frank PC H22-20D
TVD Reference: WELL @ 4821.0ft (Original Well Elev)
MD Reference: WELL @ 4821.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: 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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.20	320.90	760.0	0.0	0.0	0.0	2.00	2.00	0.00
800.0	1.00	320.90	800.0	0.3	-0.3	0.4	2.00	2.00	0.00
840.0	1.80	320.90	840.0	1.1	-0.9	1.4	2.00	2.00	0.00
880.0	2.60	320.90	880.0	2.3	-1.9	2.9	2.00	2.00	0.00
920.0	3.40	320.90	919.9	3.9	-3.2	5.0	2.00	2.00	0.00
960.0	4.20	320.90	959.8	6.0	-4.9	7.7	2.00	2.00	0.00
1,000.0	5.00	320.90	999.7	8.5	-6.9	10.9	2.00	2.00	0.00
1,040.0	5.80	320.90	1,039.5	11.4	-9.2	14.7	2.00	2.00	0.00
1,080.0	6.60	320.90	1,079.3	14.7	-12.0	19.0	2.00	2.00	0.00
1,120.0	7.40	320.90	1,119.0	18.5	-15.0	23.9	2.00	2.00	0.00
1,160.0	8.20	320.90	1,158.6	22.7	-18.5	29.3	2.00	2.00	0.00
1,200.0	9.00	320.90	1,198.2	27.4	-22.2	35.3	2.00	2.00	0.00
1,240.0	9.80	320.90	1,237.6	32.4	-26.4	41.8	2.00	2.00	0.00
1,280.0	10.60	320.90	1,277.0	37.9	-30.8	48.9	2.00	2.00	0.00
1,320.0	11.40	320.90	1,316.2	43.9	-35.6	56.5	2.00	2.00	0.00
1,360.0	12.20	320.90	1,355.4	50.2	-40.8	64.7	2.00	2.00	0.00
1,400.0	13.00	320.90	1,394.4	57.0	-46.3	73.4	2.00	2.00	0.00
1,440.0	13.80	320.90	1,433.3	64.2	-52.1	82.7	2.00	2.00	0.00
1,480.0	14.60	320.90	1,472.1	71.8	-58.3	92.5	2.00	2.00	0.00
1,520.0	15.40	320.90	1,510.8	79.8	-64.9	102.9	2.00	2.00	0.00
1,560.0	16.20	320.90	1,549.3	88.3	-71.7	113.8	2.00	2.00	0.00
1,600.0	17.00	320.90	1,587.6	97.2	-78.9	125.2	2.00	2.00	0.00
1,640.0	17.80	320.90	1,625.8	106.4	-86.5	137.1	2.00	2.00	0.00
1,680.0	18.60	320.90	1,663.8	116.1	-94.4	149.6	2.00	2.00	0.00
1,720.0	19.40	320.90	1,701.6	126.2	-102.6	162.7	2.00	2.00	0.00
1,760.0	20.20	320.90	1,739.2	136.8	-111.1	176.2	2.00	2.00	0.00
1,800.0	21.00	320.90	1,776.6	147.7	-120.0	190.3	2.00	2.00	0.00
1,840.0	21.80	320.90	1,813.9	159.0	-129.2	204.9	2.00	2.00	0.00
1,880.0	22.60	320.90	1,850.9	170.7	-138.7	220.0	2.00	2.00	0.00
1,920.0	23.40	320.90	1,887.7	182.9	-148.6	235.6	2.00	2.00	0.00
1,960.0	24.20	320.90	1,924.3	195.4	-158.8	251.8	2.00	2.00	0.00
2,000.0	25.00	320.90	1,960.7	208.3	-169.3	268.4	2.00	2.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.22-T3N-R65W
Site: Moser PC H22-21D Pad Sec.22-T3N-65W
Well: Frank PC H22-20D
Wellbore: Wellbore #1
Design: Noble Frank PC H22-20D Plan #2 (9-01-10)

Local Co-ordinate Reference: Well Frank PC H22-20D
TVD Reference: WELL @ 4821.0ft (Original Well Elev)
MD Reference: WELL @ 4821.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: 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)
2,040.0	25.80	320.90	1,996.8	221.6	-180.1	285.6	2.00	2.00	0.00
2,063.8	26.28	320.90	2,018.2	229.7	-186.7	296.0	2.00	2.00	0.00
2,080.0	26.28	320.90	2,032.8	235.3	-191.2	303.2	0.00	0.00	0.00
2,120.0	26.28	320.90	2,068.6	249.0	-202.4	320.9	0.00	0.00	0.00
2,160.0	26.28	320.90	2,104.5	262.8	-213.5	338.6	0.00	0.00	0.00
2,200.0	26.28	320.90	2,140.4	276.5	-224.7	356.3	0.00	0.00	0.00
2,240.0	26.28	320.90	2,176.2	290.3	-235.9	374.0	0.00	0.00	0.00
2,280.0	26.28	320.90	2,212.1	304.0	-247.0	391.7	0.00	0.00	0.00
2,320.0	26.28	320.90	2,248.0	317.8	-258.2	409.4	0.00	0.00	0.00
2,360.0	26.28	320.90	2,283.8	331.5	-269.4	427.1	0.00	0.00	0.00
2,400.0	26.28	320.90	2,319.7	345.2	-280.5	444.8	0.00	0.00	0.00
2,440.0	26.28	320.90	2,355.6	359.0	-291.7	462.6	0.00	0.00	0.00
2,480.0	26.28	320.90	2,391.4	372.7	-302.9	480.3	0.00	0.00	0.00
2,520.0	26.28	320.90	2,427.3	386.5	-314.0	498.0	0.00	0.00	0.00
2,560.0	26.28	320.90	2,463.2	400.2	-325.2	515.7	0.00	0.00	0.00
2,600.0	26.28	320.90	2,499.0	414.0	-336.4	533.4	0.00	0.00	0.00
2,640.0	26.28	320.90	2,534.9	427.7	-347.5	551.1	0.00	0.00	0.00
2,680.0	26.28	320.90	2,570.8	441.4	-358.7	568.8	0.00	0.00	0.00
2,720.0	26.28	320.90	2,606.6	455.2	-369.9	586.5	0.00	0.00	0.00
2,760.0	26.28	320.90	2,642.5	468.9	-381.0	604.2	0.00	0.00	0.00
2,800.0	26.28	320.90	2,678.4	482.7	-392.2	621.9	0.00	0.00	0.00
2,840.0	26.28	320.90	2,714.2	496.4	-403.4	639.6	0.00	0.00	0.00
2,880.0	26.28	320.90	2,750.1	510.2	-414.5	657.3	0.00	0.00	0.00
2,920.0	26.28	320.90	2,786.0	523.9	-425.7	675.0	0.00	0.00	0.00
2,960.0	26.28	320.90	2,821.8	537.6	-436.9	692.8	0.00	0.00	0.00
3,000.0	26.28	320.90	2,857.7	551.4	-448.0	710.5	0.00	0.00	0.00
3,040.0	26.28	320.90	2,893.6	565.1	-459.2	728.2	0.00	0.00	0.00
3,080.0	26.28	320.90	2,929.4	578.9	-470.4	745.9	0.00	0.00	0.00
3,120.0	26.28	320.90	2,965.3	592.6	-481.5	763.6	0.00	0.00	0.00
3,160.0	26.28	320.90	3,001.2	606.4	-492.7	781.3	0.00	0.00	0.00
3,200.0	26.28	320.90	3,037.0	620.1	-503.9	799.0	0.00	0.00	0.00
3,240.0	26.28	320.90	3,072.9	633.8	-515.0	816.7	0.00	0.00	0.00
3,280.0	26.28	320.90	3,108.8	647.6	-526.2	834.4	0.00	0.00	0.00
3,320.0	26.28	320.90	3,144.6	661.3	-537.4	852.1	0.00	0.00	0.00
3,360.0	26.28	320.90	3,180.5	675.1	-548.5	869.8	0.00	0.00	0.00
3,400.0	26.28	320.90	3,216.4	688.8	-559.7	887.5	0.00	0.00	0.00
3,440.0	26.28	320.90	3,252.2	702.6	-570.9	905.2	0.00	0.00	0.00
3,480.0	26.28	320.90	3,288.1	716.3	-582.0	923.0	0.00	0.00	0.00
3,520.0	26.28	320.90	3,324.0	730.0	-593.2	940.7	0.00	0.00	0.00
3,560.0	26.28	320.90	3,359.8	743.8	-604.4	958.4	0.00	0.00	0.00
3,600.0	26.28	320.90	3,395.7	757.5	-615.5	976.1	0.00	0.00	0.00
3,640.0	26.28	320.90	3,431.6	771.3	-626.7	993.8	0.00	0.00	0.00
3,680.0	26.28	320.90	3,467.4	785.0	-637.9	1,011.5	0.00	0.00	0.00
3,720.0	26.28	320.90	3,503.3	798.8	-649.0	1,029.2	0.00	0.00	0.00
3,760.0	26.28	320.90	3,539.2	812.5	-660.2	1,046.9	0.00	0.00	0.00
3,800.0	26.28	320.90	3,575.0	826.2	-671.4	1,064.6	0.00	0.00	0.00
3,840.0	26.28	320.90	3,610.9	840.0	-682.5	1,082.3	0.00	0.00	0.00
3,880.0	26.28	320.90	3,646.8	853.7	-693.7	1,100.0	0.00	0.00	0.00
3,920.0	26.28	320.90	3,682.6	867.5	-704.9	1,117.7	0.00	0.00	0.00
3,960.0	26.28	320.90	3,718.5	881.2	-716.0	1,135.4	0.00	0.00	0.00
4,000.0	26.28	320.90	3,754.4	895.0	-727.2	1,153.2	0.00	0.00	0.00
4,040.0	26.28	320.90	3,790.2	908.7	-738.4	1,170.9	0.00	0.00	0.00
4,080.0	26.28	320.90	3,826.1	922.4	-749.5	1,188.6	0.00	0.00	0.00
4,120.0	26.28	320.90	3,862.0	936.2	-760.7	1,206.3	0.00	0.00	0.00

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Survey Calculation Method: 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)
4,160.0	26.28	320.90	3,897.8	949.9	-771.9	1,224.0	0.00	0.00	0.00
4,200.0	26.28	320.90	3,933.7	963.7	-783.0	1,241.7	0.00	0.00	0.00
4,240.0	26.28	320.90	3,969.6	977.4	-794.2	1,259.4	0.00	0.00	0.00
4,280.0	26.28	320.90	4,005.4	991.2	-805.4	1,277.1	0.00	0.00	0.00
4,320.0	26.28	320.90	4,041.3	1,004.9	-816.5	1,294.8	0.00	0.00	0.00
4,360.0	26.28	320.90	4,077.2	1,018.6	-827.7	1,312.5	0.00	0.00	0.00
4,400.0	26.28	320.90	4,113.0	1,032.4	-838.9	1,330.2	0.00	0.00	0.00
4,440.0	26.28	320.90	4,148.9	1,046.1	-850.0	1,347.9	0.00	0.00	0.00
4,480.0	26.28	320.90	4,184.8	1,059.9	-861.2	1,365.6	0.00	0.00	0.00
4,520.0	26.28	320.90	4,220.6	1,073.6	-872.4	1,383.4	0.00	0.00	0.00
4,560.0	26.28	320.90	4,256.5	1,087.4	-883.5	1,401.1	0.00	0.00	0.00
4,600.0	26.28	320.90	4,292.4	1,101.1	-894.7	1,418.8	0.00	0.00	0.00
4,640.0	26.28	320.90	4,328.2	1,114.9	-905.9	1,436.5	0.00	0.00	0.00
4,680.0	26.28	320.90	4,364.1	1,128.6	-917.0	1,454.2	0.00	0.00	0.00
4,720.0	26.28	320.90	4,400.0	1,142.3	-928.2	1,471.9	0.00	0.00	0.00
4,760.0	26.28	320.90	4,435.8	1,156.1	-939.4	1,489.6	0.00	0.00	0.00
4,800.0	26.28	320.90	4,471.7	1,169.8	-950.5	1,507.3	0.00	0.00	0.00
4,840.0	26.28	320.90	4,507.6	1,183.6	-961.7	1,525.0	0.00	0.00	0.00
4,880.0	26.28	320.90	4,543.4	1,197.3	-972.9	1,542.7	0.00	0.00	0.00
4,920.0	26.28	320.90	4,579.3	1,211.1	-984.0	1,560.4	0.00	0.00	0.00
4,960.0	26.28	320.90	4,615.2	1,224.8	-995.2	1,578.1	0.00	0.00	0.00
4,978.5	26.28	320.90	4,631.8	1,231.2	-1,000.4	1,586.3	0.00	0.00	0.00
5,000.0	25.85	320.90	4,651.1	1,238.5	-1,006.3	1,595.8	2.00	-2.00	0.00
5,040.0	25.05	320.90	4,687.2	1,251.8	-1,017.2	1,613.0	2.00	-2.00	0.00
5,080.0	24.25	320.90	4,723.6	1,264.8	-1,027.7	1,629.6	2.00	-2.00	0.00
5,120.0	23.45	320.90	4,760.1	1,277.3	-1,037.9	1,645.8	2.00	-2.00	0.00
5,160.0	22.65	320.90	4,796.9	1,289.5	-1,047.7	1,661.5	2.00	-2.00	0.00
5,200.0	21.85	320.90	4,834.0	1,301.2	-1,057.3	1,676.6	2.00	-2.00	0.00
5,240.0	21.05	320.90	4,871.2	1,312.6	-1,066.5	1,691.2	2.00	-2.00	0.00
5,280.0	20.25	320.90	4,908.6	1,323.5	-1,075.4	1,705.3	2.00	-2.00	0.00
5,320.0	19.45	320.90	4,946.3	1,334.1	-1,084.0	1,718.9	2.00	-2.00	0.00
5,360.0	18.65	320.90	4,984.1	1,344.2	-1,092.2	1,732.0	2.00	-2.00	0.00
5,400.0	17.85	320.90	5,022.1	1,353.9	-1,100.1	1,744.5	2.00	-2.00	0.00
5,440.0	17.05	320.90	5,060.2	1,363.2	-1,107.7	1,756.5	2.00	-2.00	0.00
5,480.0	16.25	320.90	5,098.5	1,372.1	-1,114.9	1,768.0	2.00	-2.00	0.00
5,520.0	15.45	320.90	5,137.0	1,380.6	-1,121.8	1,778.9	2.00	-2.00	0.00
5,560.0	14.65	320.90	5,175.6	1,388.6	-1,128.3	1,789.3	2.00	-2.00	0.00
5,600.0	13.85	320.90	5,214.4	1,396.3	-1,134.5	1,799.1	2.00	-2.00	0.00
5,640.0	13.05	320.90	5,253.3	1,403.5	-1,140.4	1,808.4	2.00	-2.00	0.00
5,680.0	12.25	320.90	5,292.3	1,410.3	-1,145.9	1,817.2	2.00	-2.00	0.00
5,720.0	11.45	320.90	5,331.5	1,416.7	-1,151.1	1,825.4	2.00	-2.00	0.00
5,760.0	10.65	320.90	5,370.7	1,422.6	-1,155.9	1,833.0	2.00	-2.00	0.00
5,800.0	9.85	320.90	5,410.1	1,428.1	-1,160.4	1,840.1	2.00	-2.00	0.00
5,840.0	9.05	320.90	5,449.6	1,433.2	-1,164.6	1,846.7	2.00	-2.00	0.00
5,880.0	8.25	320.90	5,489.1	1,437.9	-1,168.3	1,852.7	2.00	-2.00	0.00
5,920.0	7.45	320.90	5,528.7	1,442.1	-1,171.8	1,858.2	2.00	-2.00	0.00
5,960.0	6.65	320.90	5,568.4	1,445.9	-1,174.9	1,863.1	2.00	-2.00	0.00
6,000.0	5.85	320.90	5,608.2	1,449.3	-1,177.6	1,867.4	2.00	-2.00	0.00
6,040.0	5.05	320.90	5,648.0	1,452.3	-1,180.0	1,871.2	2.00	-2.00	0.00
6,080.0	4.25	320.90	5,687.9	1,454.8	-1,182.1	1,874.5	2.00	-2.00	0.00
6,120.0	3.45	320.90	5,727.8	1,456.9	-1,183.8	1,877.2	2.00	-2.00	0.00
6,160.0	2.65	320.90	5,767.7	1,458.5	-1,185.1	1,879.3	2.00	-2.00	0.00
6,200.0	1.85	320.90	5,807.7	1,459.7	-1,186.1	1,880.9	2.00	-2.00	0.00
6,240.0	1.05	320.90	5,847.7	1,460.5	-1,186.7	1,881.9	2.00	-2.00	0.00

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.22-T3N-R65W
Site: Moser PC H22-21D Pad Sec.22-T3N-65W
Well: Frank PC H22-20D
Wellbore: Wellbore #1
Design: Noble Frank PC H22-20D Plan #2 (9-01-10)

Local Co-ordinate Reference: Well Frank PC H22-20D
TVD Reference: WELL @ 4821.0ft (Original Well Elev)
MD Reference: WELL @ 4821.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: 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)
6,280.0	0.25	320.90	5,887.7	1,460.9	-1,187.0	1,882.3	2.00	-2.00	0.00
6,292.3	0.00	0.00	5,900.0	1,460.9	-1,187.0	1,882.3	2.00	-2.00	0.00
Target BHL 2550'FSL & 1240'FWL									
6,320.0	0.00	0.00	5,927.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,360.0	0.00	0.00	5,967.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,400.0	0.00	0.00	6,007.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,440.0	0.00	0.00	6,047.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,480.0	0.00	0.00	6,087.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,520.0	0.00	0.00	6,127.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,560.0	0.00	0.00	6,167.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,600.0	0.00	0.00	6,207.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,640.0	0.00	0.00	6,247.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,680.0	0.00	0.00	6,287.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,720.0	0.00	0.00	6,327.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,760.0	0.00	0.00	6,367.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,800.0	0.00	0.00	6,407.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,840.0	0.00	0.00	6,447.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,880.0	0.00	0.00	6,487.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,920.0	0.00	0.00	6,527.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
6,960.0	0.00	0.00	6,567.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,000.0	0.00	0.00	6,607.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,040.0	0.00	0.00	6,647.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,080.0	0.00	0.00	6,687.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,120.0	0.00	0.00	6,727.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,160.0	0.00	0.00	6,767.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,189.3	0.00	0.00	6,797.0	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
Niobrara - Target Circle 2550'FSL 1240'FWL									
7,200.0	0.00	0.00	6,807.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,240.0	0.00	0.00	6,847.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,280.0	0.00	0.00	6,887.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,320.0	0.00	0.00	6,927.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,360.0	0.00	0.00	6,967.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,400.0	0.00	0.00	7,007.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,440.0	0.00	0.00	7,047.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,480.0	0.00	0.00	7,087.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,518.3	0.00	0.00	7,126.0	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
Codell									
7,520.0	0.00	0.00	7,127.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,560.0	0.00	0.00	7,167.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,600.0	0.00	0.00	7,207.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,640.0	0.00	0.00	7,247.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,680.0	0.00	0.00	7,287.7	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
7,692.3	0.00	0.00	7,300.0	1,460.9	-1,187.0	1,882.3	0.00	0.00	0.00
Hardline 91'N of BHL									

Database: EDM den0-adp01 Server Data
Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.22-T3N-R65W
Site: Moser PC H22-21D Pad Sec.22-T3N-65W
Well: Frank PC H22-20D
Wellbore: Wellbore #1
Design: Noble Frank PC H22-20D Plan #2 (9-01-10)

Local Co-ordinate Reference: Well Frank PC H22-20D
TVD Reference: WELL @ 4821.0ft (Original Well Elev)
MD Reference: WELL @ 4821.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Target BHL 2550'FSL - plan hits target center - Point	0.00	0.00	5,900.0	1,460.9	-1,187.0	1,320,717.73	3,236,025.60	40° 12' 38.448 N	104° 39' 17.604 W
Target Circle 2550'FS - plan hits target center - Circle (radius 75.0)	0.00	0.00	6,797.0	1,460.9	-1,187.0	1,320,717.74	3,236,025.63	40° 12' 38.448 N	104° 39' 17.604 W
Hardline 91'N of BHL - plan misses target center by 135.2ft at 7692.3ft MD (7300.0 TVD, 1460.9 N, -1187.0 E) - Polygon	0.00	0.00	7,300.0	1,551.9	-1,287.0	1,320,807.75	3,235,924.77	40° 12' 39.347 N	104° 39' 18.893 W
Point 1			7,300.0	0.0	0.0	1,320,807.75	3,235,924.77		
Point 2			7,300.0	0.0	200.0	1,320,809.66	3,236,124.75		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
650.0	650.0	8 5/8"	8-5/8	12-1/4

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,189.3	6,797.0	Niobrara		0.00	
7,518.3	7,126.0	Codell		0.00	
	7,486.0	D-Sand		0.00	
	7,571.0	J-Sand		0.00	