



LEGEND

- Wellbore #1
- Thomsen USX X07-30D, Wellbore #1, Noble Thomsen USX X07-30D Plan #3 (6-15-12) R V0
- Survey #1

Final Survey Plot

Projected Final Survey -
 8160'MD & 7982'TVD @ 1226'VS
 0.60 deg Inc 256.20 deg AZ

Project: Sec.6-T2N-R65W
 Site: Rehder X06-33D Pad Sec.6-T2N-R65W
 Well: Thomsen USX X07-30D
 Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

Sec.6-T2N-R65W

Rehder X06-33D Pad Sec.6-T2N-R65W

Thomsen USX X07-30D

Wellbore #1

Survey: Survey #1

Standard Survey Report

26 June, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Thomsen USX X07-30D
Project:	Sec.6-T2N-R65W	TVD Reference:	WELL @ 4991.0ft (Original Well Elev)
Site:	Rehder X06-33D Pad Sec.6-T2N-R65W	MD Reference:	WELL @ 4991.0ft (Original Well Elev)
Well:	Thomsen USX X07-30D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	Sec.6-T2N-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	Rehder X06-33D Pad Sec.6-T2N-R65W				
Site Position:		Northing:	1,303,261.68ft	Latitude:	40.163170
From:	Lat/Long	Easting:	3,219,914.13ft	Longitude:	-104.713130
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.51 °

Well	Thomsen USX X07-30D					
Well Position	+N/-S	0.0 ft	Northing:	1,303,261.86 ft	Latitude:	40.163170
	+E/-W	0.0 ft	Easting:	3,219,936.49 ft	Longitude:	-104.713050
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,978.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/15/2012	8.68	66.83	52,906

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	5,400.0	0.0	0.0	214.83	

Survey Program	Date	6/26/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
178.0	8,160.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

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	
178.0	0.50	203.30	178.0	-0.7	-0.3	0.8	0.28	0.28	0.00	
368.0	0.70	211.90	368.0	-2.5	-1.2	2.7	0.12	0.11	4.53	
421.0	0.50	209.90	421.0	-2.9	-1.5	3.3	0.38	-0.38	-3.77	
548.0	1.70	223.30	548.0	-4.8	-3.1	5.7	0.96	0.94	10.55	
676.0	4.40	229.50	675.8	-9.4	-8.1	12.3	2.12	2.11	4.84	
803.0	6.30	225.20	802.2	-17.4	-16.8	23.9	1.53	1.50	-3.39	
931.0	7.60	220.50	929.3	-28.8	-27.3	39.2	1.11	1.02	-3.67	
1,020.0	9.30	222.40	1,017.3	-38.6	-35.9	52.2	1.94	1.91	2.13	
1,065.0	9.30	222.40	1,061.7	-44.0	-40.8	59.4	0.00	0.00	0.00	
1,117.0	10.40	224.00	1,112.9	-50.5	-46.9	68.2	2.18	2.12	3.08	
1,245.0	12.30	220.10	1,238.4	-69.2	-63.7	93.2	1.60	1.48	-3.05	
1,373.0	14.70	222.80	1,362.9	-91.5	-83.6	122.9	1.94	1.88	2.11	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Thomsen USX X07-30D
Project:	Sec.6-T2N-R65W	TVD Reference:	WELL @ 4991.0ft (Original Well Elev)
Site:	Rehder X06-33D Pad Sec.6-T2N-R65W	MD Reference:	WELL @ 4991.0ft (Original Well Elev)
Well:	Thomsen USX X07-30D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

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)
1,502.0	17.60	221.00	1,486.8	-118.3	-107.5	158.5	2.28	2.25	-1.40
1,630.0	18.60	220.30	1,608.4	-148.5	-133.4	198.0	0.80	0.78	-0.55
1,758.0	18.20	217.50	1,729.9	-179.9	-158.8	238.3	0.76	-0.31	-2.19
1,886.0	18.30	218.40	1,851.5	-211.5	-183.4	278.4	0.23	0.08	0.70
2,015.0	18.70	219.40	1,973.8	-243.3	-209.1	319.2	0.40	0.31	0.78
2,143.0	18.60	219.30	2,095.1	-275.0	-235.1	360.0	0.08	-0.08	-0.08
2,271.0	18.30	216.30	2,216.5	-307.0	-259.9	400.4	0.78	-0.23	-2.34
2,399.0	18.00	212.40	2,338.1	-339.9	-282.4	440.3	0.98	-0.23	-3.05
2,528.0	17.10	213.60	2,461.1	-372.5	-303.6	479.2	0.75	-0.70	0.93
2,656.0	18.10	211.70	2,583.1	-405.1	-324.4	517.8	0.90	0.78	-1.48
2,784.0	17.30	210.50	2,705.1	-438.4	-344.5	556.7	0.69	-0.63	-0.94
2,912.0	17.90	214.50	2,827.1	-471.0	-365.3	595.3	1.05	0.47	3.13
3,041.0	18.60	212.60	2,949.6	-504.7	-387.7	635.7	0.71	0.54	-1.47
3,169.0	19.30	213.10	3,070.7	-539.6	-410.2	677.2	0.56	0.55	0.39
3,297.0	18.60	212.10	3,191.7	-574.6	-432.6	718.8	0.60	-0.55	-0.78
3,425.0	19.40	208.20	3,312.8	-610.7	-453.5	760.3	1.17	0.63	-3.05
3,554.0	18.60	209.10	3,434.7	-647.5	-473.6	802.0	0.66	-0.62	0.70
3,682.0	17.40	210.90	3,556.5	-681.8	-493.4	841.4	1.03	-0.94	1.41
3,810.0	17.10	209.20	3,678.7	-714.6	-512.4	879.3	0.46	-0.23	-1.33
3,938.0	17.90	212.10	3,800.8	-747.7	-532.0	917.6	0.92	0.63	2.27
4,067.0	17.20	209.40	3,923.8	-781.1	-551.9	956.4	0.83	-0.54	-2.09
4,195.0	16.80	209.40	4,046.2	-813.7	-570.3	993.7	0.31	-0.31	0.00
4,323.0	17.90	213.80	4,168.4	-846.2	-590.3	1,031.8	1.34	0.86	3.44
4,451.0	17.50	213.50	4,290.3	-878.6	-611.9	1,070.7	0.32	-0.31	-0.23
4,580.0	15.50	214.70	4,414.0	-908.9	-632.4	1,107.3	1.57	-1.55	0.93
4,708.0	13.00	218.60	4,538.0	-934.3	-651.1	1,138.8	2.09	-1.95	3.05
4,836.0	12.30	216.70	4,662.9	-956.4	-668.3	1,166.8	0.64	-0.55	-1.48
4,964.0	10.10	214.30	4,788.5	-976.6	-682.7	1,191.6	1.76	-1.72	-1.88
5,093.0	6.90	213.10	4,916.1	-992.5	-693.3	1,210.7	2.48	-2.48	-0.93
5,221.0	4.80	217.40	5,043.4	-1,003.2	-700.8	1,223.7	1.67	-1.64	3.36
5,349.0	2.00	214.20	5,171.1	-1,009.3	-705.3	1,231.3	2.19	-2.19	-2.50
5,477.0	0.40	180.20	5,299.1	-1,011.6	-706.6	1,233.9	1.32	-1.25	-26.56
5,577.9	0.67	291.37	5,400.0	-1,011.7	-707.1	1,234.3	0.89	0.27	110.19
TARGET BHL 75'FSL, 75'FWL									
5,606.0	0.90	298.00	5,428.1	-1,011.6	-707.5	1,234.4	0.89	0.83	23.59
5,734.0	0.50	305.60	5,556.1	-1,010.8	-708.8	1,234.5	0.32	-0.31	5.94
5,862.0	0.10	339.70	5,684.1	-1,010.3	-709.3	1,234.4	0.33	-0.31	26.64
5,990.0	0.20	128.00	5,812.1	-1,010.4	-709.2	1,234.4	0.23	0.08	115.86
6,119.0	0.40	149.10	5,941.1	-1,010.9	-708.7	1,234.6	0.17	0.16	16.36
6,247.0	0.30	108.00	6,069.1	-1,011.4	-708.2	1,234.7	0.21	-0.08	-32.11
6,375.0	0.40	98.30	6,197.1	-1,011.5	-707.4	1,234.4	0.09	0.08	-7.58
6,503.0	0.80	105.00	6,325.1	-1,011.8	-706.1	1,233.9	0.32	0.31	5.23
6,632.0	1.00	82.30	6,454.1	-1,011.9	-704.1	1,232.8	0.31	0.16	-17.60
6,760.0	1.10	55.10	6,582.1	-1,011.1	-702.0	1,230.9	0.39	0.08	-21.25
6,888.0	0.90	76.90	6,710.0	-1,010.1	-700.0	1,229.0	0.33	-0.16	17.03
7,016.0	0.60	89.50	6,838.0	-1,009.9	-698.4	1,227.9	0.27	-0.23	9.84
7,145.0	0.50	96.20	6,967.0	-1,010.0	-697.2	1,227.2	0.09	-0.08	5.19
7,251.9	0.41	77.29	7,073.9	-1,009.9	-696.3	1,226.7	0.16	-0.08	-17.69
TARGET CIRCLE 75'FSL & 75'FWL									
7,273.0	0.40	72.70	7,095.0	-1,009.9	-696.2	1,226.6	0.16	-0.05	-21.74
7,401.0	0.30	68.40	7,223.0	-1,009.6	-695.4	1,226.0	0.08	-0.08	-3.36
7,529.0	0.40	6.00	7,351.0	-1,009.1	-695.1	1,225.3	0.29	0.08	-48.75
7,658.0	0.50	12.40	7,480.0	-1,008.1	-694.9	1,224.4	0.09	0.08	4.96
7,786.0	0.40	54.40	7,608.0	-1,007.3	-694.4	1,223.4	0.26	-0.08	32.81

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7,914.0	0.70	244.00	7,736.0	-1,007.3	-694.8	1,223.7	0.86	0.23	-133.13
8,042.0	0.70	244.20	7,864.0	-1,008.0	-696.2	1,225.1	0.00	0.00	0.16
8,115.0	0.60	256.20	7,937.0	-1,008.3	-697.0	1,225.7	0.23	-0.14	16.44
8,160.0	0.60	256.20	7,982.0	-1,008.4	-697.4	1,226.1	0.00	0.00	0.00

HARD LINES 75'S & 75'W OF TARGET BHL

Checked By: _____ Approved By: _____ Date: _____