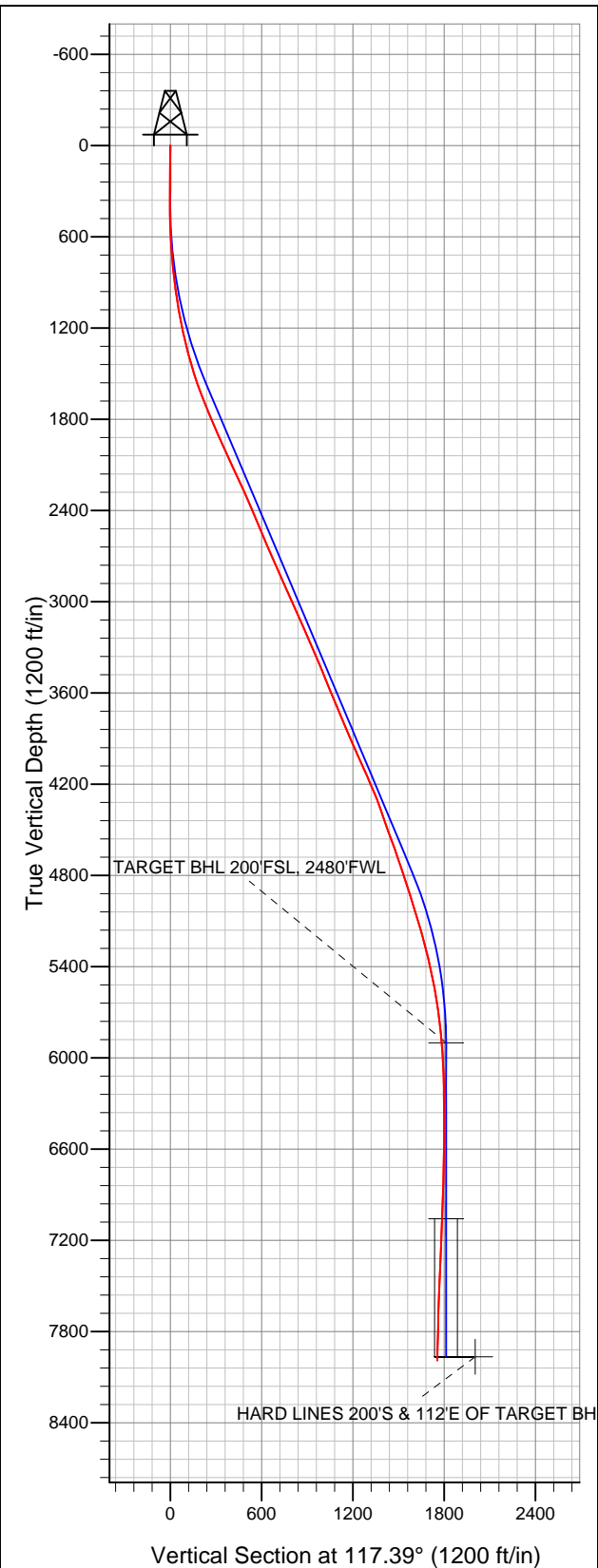


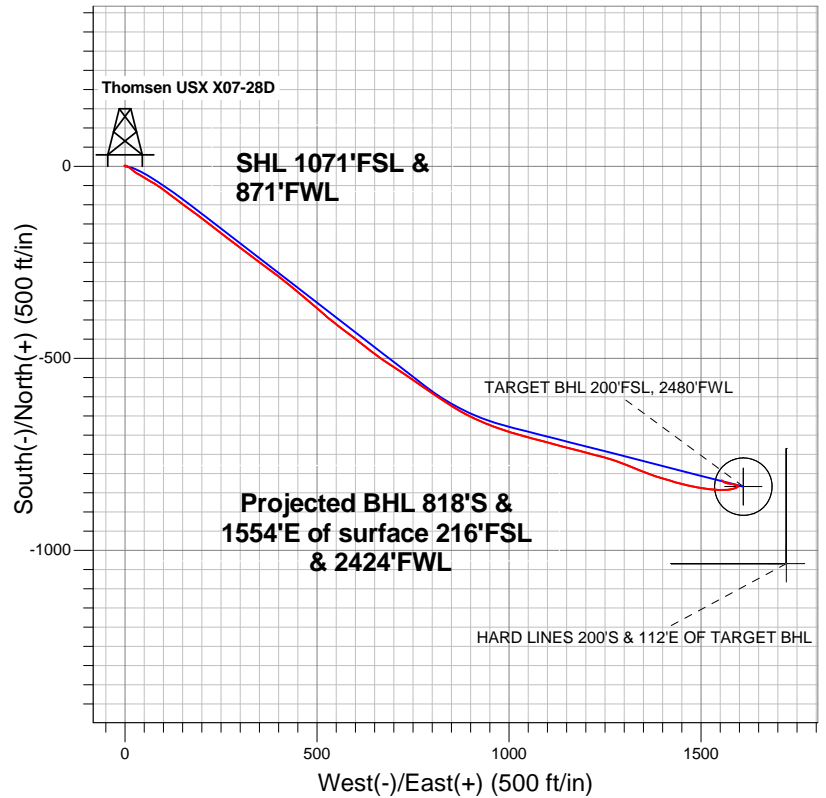
Well Name: Thomsen USX X07-28D

Surface Location: Rehder X06-33D Pad Sec.6-T2N-R65W
North American Datum 1983 US State Plane 1983Colorado Northern Zone
Ground Elevation: 4976.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1303262.65	3220025.92	40.163170	-104.712730	
Original Well Elev		WELL @ 4989.0ft (Original Well Elev)				



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Wellbore #1
- ✕ Thomsen USX X07-28D, Wellbore #1, Noble Thomsen USX X07-28D Plan #1 (7-06-12) R V0
- Survey #1

Final Survey Plot

Projected Final Survey -
8325'MD & 7989'TVD @ 1756'VS
1.10 deg Inc 313.50 deg AZ

Project: Sec.6-T2N-R65W
Site: Rehder X06-33D Pad Sec.6-T2N-R65W
Well: Thomsen USX X07-28D
Plan: Wellbore #1



NOBLE ENERGY INC WELD COUNTY CO

Sec.6-T2N-R65W

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

Thomsen USX X07-28D

Wellbore #1

Survey: Survey #1

Standard Survey Report

20 July, 2012



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Thomsen USX X07-28D
Project:	Sec.6-T2N-R65W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Rehder X06-33D Pad Sec.6-T2N-R65W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Well:	Thomsen USX X07-28D	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
From:	Lat/Long	Easting:	3,219,914.13ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.163170
		Longitude:	-104.713130
		Grid Convergence:	0.51 °

Well	Thomsen USX X07-28D		
Well Position	+N/-S	0.0 ft	Northing: 1,303,262.65 ft
	+E/-W	0.0 ft	Easting: 3,220,025.92 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.163170
		Longitude:	-104.712730
		Ground Level:	4,976.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/6/2012	8.67	66.83	52,900

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 (°)	
	0.0	0.0	0.0	117.39	

Survey Program	Date	7/18/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
140.0	8,325.0	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	
140.0	0.60	304.70	140.0	0.4	-0.6	-0.7	0.43	0.43	0.00	
330.0	0.40	343.20	330.0	1.6	-1.6	-2.2	0.20	-0.11	20.26	
445.0	0.80	110.50	445.0	1.7	-1.0	-1.7	0.95	0.35	110.70	
573.0	2.60	98.50	572.9	1.0	2.7	2.0	1.43	1.41	-9.38	
700.0	4.00	121.70	699.7	-1.8	9.4	9.1	1.50	1.10	18.27	
828.0	6.10	133.00	827.2	-8.8	18.1	20.1	1.81	1.64	8.83	
956.0	8.10	122.40	954.2	-18.2	30.7	35.7	1.86	1.56	-8.28	
999.0	9.00	120.50	996.8	-21.6	36.2	42.0	2.19	2.09	-4.42	
1,074.0	9.60	119.60	1,070.8	-27.6	46.7	54.1	0.82	0.80	-1.20	
1,202.0	11.60	120.30	1,196.6	-39.4	67.1	77.7	1.57	1.56	0.55	
1,331.0	14.10	124.20	1,322.3	-54.8	91.3	106.2	2.05	1.94	3.02	
1,459.0	17.10	128.10	1,445.6	-75.2	119.0	140.2	2.48	2.34	3.05	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Thomsen USX X07-28D
Project:	Sec.6-T2N-R65W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Rehder X06-33D Pad Sec.6-T2N-R65W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Well:	Thomsen USX X07-28D	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)
1,587.0	19.30	126.30	1,567.2	-99.3	150.8	179.6	1.77	1.72	-1.41
1,715.0	22.00	126.30	1,687.0	-126.0	187.2	224.2	2.11	2.11	0.00
1,844.0	23.40	128.40	1,806.0	-156.2	226.8	273.2	1.25	1.09	1.63
1,972.0	23.90	126.30	1,923.2	-187.4	267.6	323.8	0.77	0.39	-1.64
2,100.0	25.70	128.70	2,039.4	-220.1	310.1	376.6	1.61	1.41	1.88
2,228.0	25.50	124.70	2,154.9	-253.1	354.4	431.2	1.36	-0.16	-3.13
2,357.0	24.10	128.60	2,272.0	-285.4	397.9	484.5	1.67	-1.09	3.02
2,485.0	23.20	128.70	2,389.2	-317.4	438.0	534.9	0.70	-0.70	0.08
2,613.0	23.30	130.80	2,506.8	-349.7	476.8	584.2	0.65	0.08	1.64
2,741.0	24.20	131.40	2,624.0	-383.6	515.7	634.3	0.73	0.70	0.47
2,870.0	24.30	126.30	2,741.6	-416.8	556.9	686.2	1.63	0.08	-3.95
2,998.0	23.70	127.90	2,858.6	-448.2	598.4	737.5	0.69	-0.47	1.25
3,126.0	24.80	128.40	2,975.3	-480.7	639.7	789.2	0.87	0.86	0.39
3,254.0	24.60	122.90	3,091.6	-511.8	683.2	842.0	1.80	-0.16	-4.30
3,383.0	23.80	124.30	3,209.2	-541.1	727.2	894.6	0.76	-0.62	1.09
3,511.0	22.70	123.80	3,326.8	-569.4	769.1	944.8	0.87	-0.86	-0.39
3,639.0	22.90	125.00	3,444.8	-597.4	810.0	994.0	0.40	0.16	0.94
3,767.0	22.10	121.90	3,563.1	-624.4	850.8	1,042.7	1.12	-0.63	-2.42
3,896.0	22.70	117.00	3,682.4	-648.6	893.6	1,091.8	1.52	0.47	-3.80
4,024.0	23.10	112.70	3,800.3	-669.5	938.8	1,141.5	1.34	0.31	-3.36
4,152.0	24.00	108.00	3,917.6	-687.2	986.7	1,192.2	1.63	0.70	-3.67
4,280.0	24.10	105.20	4,034.5	-702.1	1,036.7	1,243.5	0.89	0.08	-2.19
4,409.0	25.10	105.20	4,151.8	-716.2	1,088.5	1,296.0	0.78	0.78	0.00
4,537.0	22.60	104.50	4,268.9	-729.5	1,138.5	1,346.5	1.97	-1.95	-0.55
4,665.0	19.30	104.30	4,388.4	-740.8	1,182.9	1,391.1	2.58	-2.58	-0.16
4,793.0	20.30	104.70	4,508.8	-751.7	1,224.8	1,433.3	0.79	0.78	0.31
4,922.0	20.00	107.80	4,629.9	-764.1	1,267.5	1,476.9	0.86	-0.23	2.40
5,050.0	17.80	111.70	4,751.0	-778.0	1,306.5	1,518.0	1.98	-1.72	3.05
5,178.0	18.10	112.40	4,872.8	-792.9	1,343.1	1,557.3	0.29	0.23	0.55
5,306.0	18.50	108.00	4,994.3	-806.7	1,380.8	1,597.1	1.12	0.31	-3.44
5,435.0	16.40	106.20	5,117.4	-818.1	1,417.7	1,635.2	1.68	-1.63	-1.40
5,563.0	15.20	105.20	5,240.6	-827.6	1,451.3	1,669.3	0.96	-0.94	-0.78
5,691.0	13.40	101.10	5,364.6	-834.8	1,482.0	1,699.9	1.61	-1.41	-3.20
5,819.0	12.30	96.20	5,489.4	-839.1	1,510.1	1,726.9	1.21	-0.86	-3.83
5,948.0	9.90	94.50	5,616.0	-841.5	1,534.9	1,749.9	1.88	-1.86	-1.32
6,076.0	8.00	91.30	5,742.4	-842.6	1,554.7	1,768.1	1.53	-1.48	-2.50
6,204.0	6.10	86.10	5,869.4	-842.3	1,570.4	1,781.9	1.56	-1.48	-4.06
6,238.0	5.55	84.09	5,903.3	-842.0	1,573.9	1,784.8	1.71	-1.60	-5.91
TARGET BHL 200'FSL, 2480'FWL									
6,332.0	4.10	75.80	5,996.9	-840.7	1,581.6	1,791.1	1.71	-1.55	-8.82
6,461.0	3.00	66.20	6,125.7	-838.2	1,589.2	1,796.7	0.97	-0.85	-7.44
6,589.0	1.80	51.00	6,253.6	-835.6	1,593.8	1,799.6	1.05	-0.94	-11.88
6,717.0	1.10	38.40	6,381.5	-833.4	1,596.2	1,800.6	0.60	-0.55	-9.84
6,845.0	0.70	312.40	6,509.5	-831.9	1,596.3	1,800.1	0.99	-0.31	-67.19
6,974.0	0.90	276.60	6,638.5	-831.2	1,594.8	1,798.4	0.41	0.16	-27.75
7,102.0	1.10	289.70	6,766.5	-830.7	1,592.6	1,796.2	0.24	0.16	10.23
7,230.0	1.50	289.60	6,894.4	-829.7	1,589.9	1,793.3	0.31	0.31	-0.08
7,358.0	1.80	287.80	7,022.4	-828.6	1,586.4	1,789.7	0.24	0.23	-1.41
7,391.6	2.08	285.16	7,056.0	-828.2	1,585.3	1,788.6	0.88	0.84	-7.86
TARGET CIRCLE 200'FSL & 2480'FWL									
7,487.0	2.90	280.50	7,151.3	-827.3	1,581.2	1,784.6	0.88	0.86	-4.88
7,615.0	3.50	274.50	7,279.1	-826.4	1,574.2	1,777.9	0.54	0.47	-4.69
7,743.0	2.30	283.30	7,406.9	-825.5	1,567.8	1,771.8	1.00	-0.94	6.88
7,871.0	1.80	296.30	7,534.8	-824.1	1,563.5	1,767.3	0.53	-0.39	10.16

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Thomsen USX X07-28D
Project:	Sec.6-T2N-R65W	TVD Reference:	WELL @ 4989.0ft (Original Well Elev)
Site:	Rehder X06-33D Pad Sec.6-T2N-R65W	MD Reference:	WELL @ 4989.0ft (Original Well Elev)
Well:	Thomsen USX X07-28D	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)	
8,000.0	1.60	300.70	7,663.8	-822.2	1,560.1	1,763.5	0.19	-0.16	3.41	
8,128.0	1.40	301.50	7,791.7	-820.5	1,557.2	1,760.1	0.16	-0.16	0.63	
8,256.0	1.10	313.50	7,919.7	-818.9	1,555.0	1,757.4	0.31	-0.23	9.38	
8,296.1	1.10	313.50	7,959.8	-818.3	1,554.4	1,756.6	0.00	0.00	0.00	
HARD LINES 200'S & 112'E OF TARGET BHL										
8,325.0	1.10	313.50	7,988.7	-817.9	1,554.0	1,756.1	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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