

Well Name: **Mosier K23-20D**

Surface Location: Schmidt K23-24D Pad Sec.23-T4N-R66W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

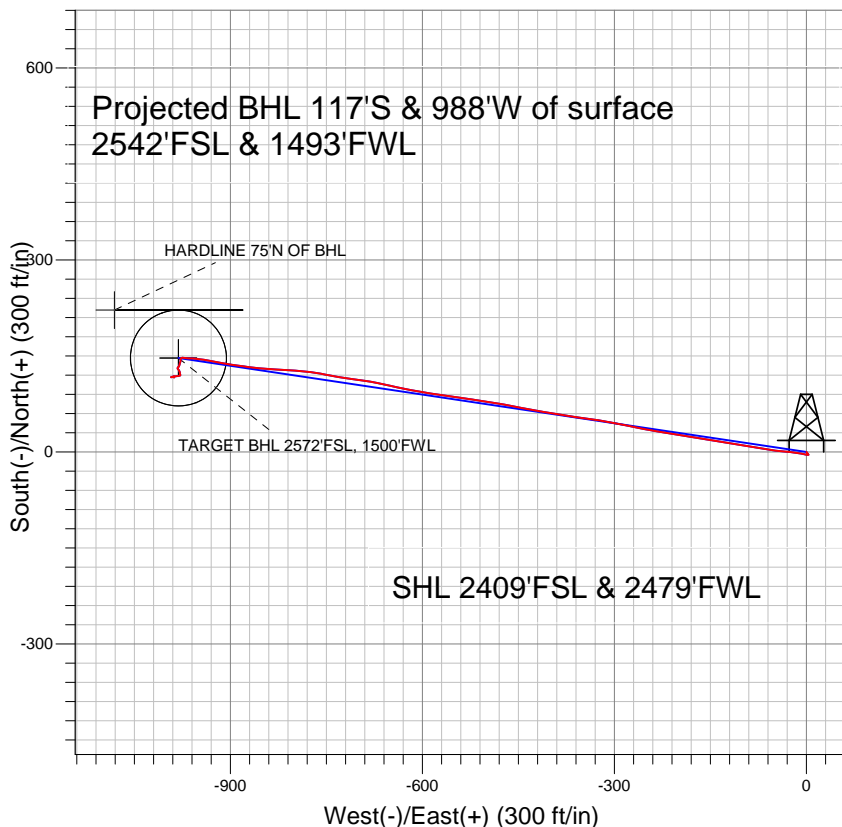
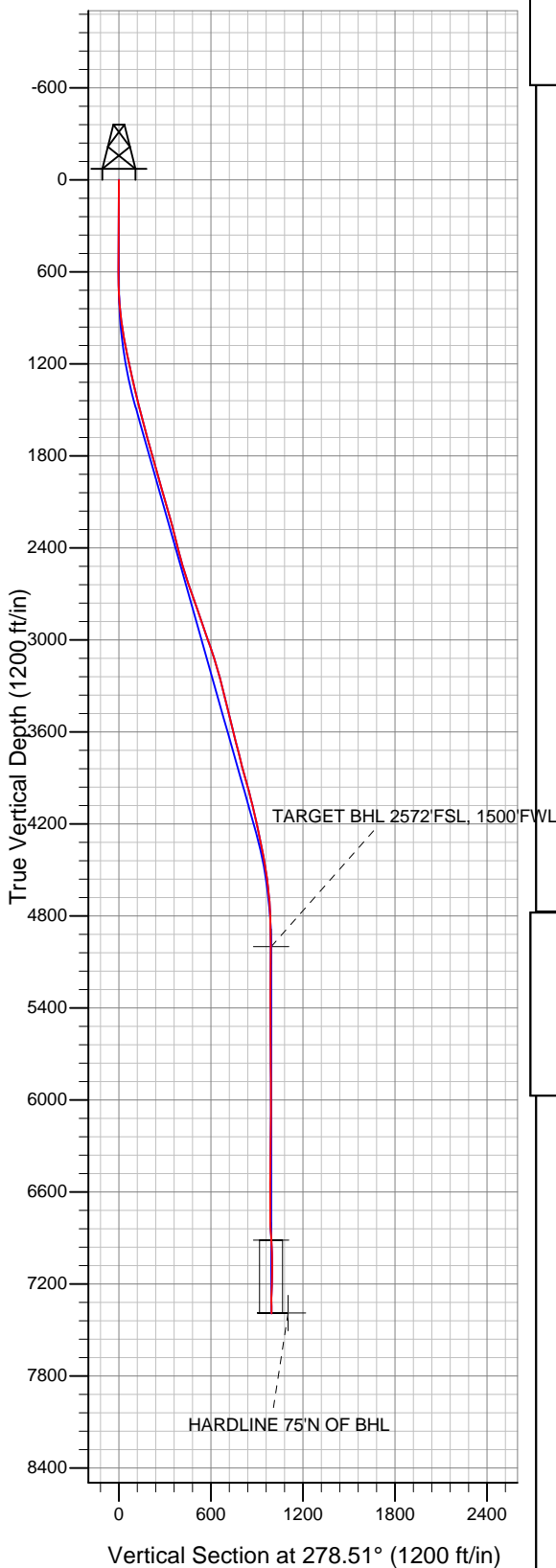
Ground Elevation: 4726.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1351850.73	3210567.86	40.296770	-104.745090

Original Well Elev WELL @ 4739.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- Mosier K23-20D, Wellbore #1, Noble Mosier K23-20D Plan #3 (3-22-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7520'MD & 7391'TVD @ 994'VS
0.7 deg Inc 214.2 deg AZ

Project: SEC.23-T4N-R66W
Site: Schmidt K23-24D Pad Sec.23-T4N-R66W
Well: Mosier K23-20D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.23-T4N-R66W

Schmidt K23-24D Pad Sec.23-T4N-R66W

Mosier K23-20D

Wellbore #1

Survey: Survey #1

Standard Survey Report

09 May, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Mosier K23-20D
Project:	SEC.23-T4N-R66W	TVD Reference:	WELL @ 4739.0ft (Original Well Elev)
Site:	Schmidt K23-24D Pad Sec.23-T4N-R66W	MD Reference:	WELL @ 4739.0ft (Original Well Elev)
Well:	Mosier K23-20D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.23-T4N-R66W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Schmidt K23-24D Pad Sec.23-T4N-R66W		
Site Position:		Northing:	1,351,771.22 ft
From:	Lat/Long	Easting:	3,210,641.06 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40.296550
		Longitude:	-104.744830
		Grid Convergence:	0.49 °

Well	Mosier K23-20D		
Well Position	+N/-S	0.0 ft	Northing: 1,351,850.73 ft
	+E/-W	0.0 ft	Easting: 3,210,567.86 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40.296770
		Longitude:	-104.745090
		Ground Level:	4,726.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/8/2011	8.87	66.98	53,100

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	278.51

Survey Program	Date	5/9/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
602.0	7,520.0	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
602.0	1.00	140.40	602.0	-4.0	3.3	-3.9	0.17	0.17	0.00
687.0	1.90	271.10	687.0	-4.6	2.4	-3.1	3.13	1.06	153.77
773.0	4.00	284.50	772.8	-3.8	-1.9	1.3	2.55	2.44	15.58
858.0	6.00	280.70	857.5	-2.2	-9.2	8.7	2.38	2.35	-4.47
944.0	7.90	276.20	942.9	-0.8	-19.4	19.1	2.30	2.21	-5.23
1,029.0	9.80	274.90	1,026.9	0.5	-32.5	32.2	2.25	2.24	-1.53
1,115.0	11.30	277.10	1,111.4	2.1	-48.1	47.9	1.81	1.74	2.56
1,200.0	12.20	278.40	1,194.6	4.5	-65.3	65.2	1.10	1.06	1.53
1,286.0	12.70	280.00	1,278.6	7.5	-83.6	83.7	0.71	0.58	1.86
1,371.0	13.50	280.60	1,361.4	10.9	-102.5	103.0	0.95	0.94	0.71
1,457.0	13.60	279.40	1,445.0	14.4	-122.4	123.1	0.35	0.12	-1.40
1,542.0	14.40	278.60	1,527.5	17.6	-142.7	143.7	0.97	0.94	-0.94

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Mosier K23-20D
Project:	SEC.23-T4N-R66W	TVD Reference:	WELL @ 4739.0ft (Original Well Elev)
Site:	Schmidt K23-24D Pad Sec.23-T4N-R66W	MD Reference:	WELL @ 4739.0ft (Original Well Elev)
Well:	Mosier K23-20D	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)	
1,628.0	15.40	279.10	1,610.6	21.0	-164.5	165.8	1.17	1.16	0.58	
1,714.0	15.30	279.10	1,693.5	24.6	-187.0	188.6	0.12	-0.12	0.00	
1,799.0	15.40	279.50	1,775.5	28.3	-209.2	211.1	0.17	0.12	0.47	
1,885.0	15.90	279.80	1,858.3	32.1	-232.1	234.3	0.59	0.58	0.35	
1,970.0	15.50	279.90	1,940.1	36.1	-254.7	257.3	0.47	-0.47	0.12	
2,056.0	16.10	282.70	2,022.9	40.7	-277.7	280.7	1.13	0.70	3.26	
2,141.0	16.40	280.50	2,104.5	45.5	-301.0	304.4	0.81	0.35	-2.59	
2,227.0	15.70	278.90	2,187.1	49.5	-324.4	328.2	0.96	-0.81	-1.86	
2,312.0	14.50	278.30	2,269.2	52.8	-346.3	350.3	1.42	-1.41	-0.71	
2,398.0	14.30	278.10	2,352.5	55.8	-367.5	371.7	0.24	-0.23	-0.23	
2,483.0	14.00	278.00	2,434.9	58.7	-388.1	392.5	0.35	-0.35	-0.12	
2,569.0	17.50	281.40	2,517.7	62.7	-411.0	415.8	4.21	4.07	3.95	
2,654.0	18.20	280.20	2,598.6	67.6	-436.6	441.8	0.93	0.82	-1.41	
2,740.0	18.00	280.60	2,680.3	72.4	-462.9	468.5	0.27	-0.23	0.47	
2,825.0	19.90	277.90	2,760.7	76.9	-490.2	496.1	2.46	2.24	-3.18	
2,911.0	20.00	279.00	2,841.5	81.2	-519.2	525.5	0.45	0.12	1.28	
2,996.0	18.00	278.70	2,921.9	85.4	-546.5	553.1	2.36	-2.35	-0.35	
3,082.0	19.50	278.50	3,003.3	89.6	-573.9	580.8	1.75	1.74	-0.23	
3,164.0	18.90	279.10	3,080.8	93.7	-600.5	607.8	0.77	-0.73	0.73	
3,249.0	17.00	281.50	3,161.6	98.3	-626.3	633.9	2.40	-2.24	2.82	
3,336.0	14.40	282.00	3,245.4	103.1	-649.3	657.4	2.99	-2.99	0.57	
3,422.0	14.50	282.50	3,328.7	107.7	-670.3	678.8	0.19	0.12	0.58	
3,507.0	13.50	277.80	3,411.1	111.3	-690.5	699.4	1.78	-1.18	-5.53	
3,593.0	13.80	276.90	3,494.7	113.9	-710.6	719.7	0.43	0.35	-1.05	
3,678.0	13.80	280.20	3,577.3	116.9	-730.7	739.9	0.93	0.00	3.88	
3,764.0	14.00	281.30	3,660.7	120.8	-751.0	760.6	0.39	0.23	1.28	
3,850.0	14.40	278.50	3,744.1	124.4	-771.8	781.7	0.92	0.47	-3.26	
3,935.0	14.90	274.00	3,826.4	126.7	-793.1	803.1	1.46	0.59	-5.29	
4,021.0	15.40	273.50	3,909.4	128.2	-815.5	825.5	0.60	0.58	-0.58	
4,106.0	15.30	273.40	3,991.3	129.6	-838.0	847.9	0.12	-0.12	-0.12	
4,192.0	13.90	276.40	4,074.6	131.4	-859.6	869.6	1.85	-1.63	3.49	
4,277.0	13.10	276.80	4,157.2	133.7	-879.3	889.4	0.95	-0.94	0.47	
4,363.0	12.20	279.70	4,241.1	136.3	-897.9	908.2	1.28	-1.05	3.37	
4,448.0	10.90	280.70	4,324.4	139.3	-914.7	925.2	1.55	-1.53	1.18	
4,534.0	10.50	279.70	4,408.9	142.2	-930.4	941.2	0.51	-0.47	-1.16	
4,619.0	9.30	278.70	4,492.6	144.5	-944.8	955.8	1.43	-1.41	-1.18	
4,705.0	7.00	274.40	4,577.8	146.0	-956.9	968.0	2.76	-2.67	-5.00	
4,790.0	5.40	272.30	4,662.3	146.5	-966.1	977.1	1.90	-1.88	-2.47	
4,876.0	3.80	277.70	4,748.0	147.1	-973.0	984.0	1.93	-1.86	6.28	
4,961.0	1.50	231.50	4,832.9	146.8	-976.6	987.6	3.49	-2.71	-54.35	
5,047.0	1.10	200.60	4,918.9	145.3	-977.8	988.5	0.92	-0.47	-35.93	
5,128.1	0.42	164.55	5,000.0	144.3	-978.0	988.6	0.98	-0.84	-44.44	
TARGET BHL 2572'FSL, 1500'FWL										
5,132.0	0.40	160.10	5,003.9	144.2	-978.0	988.6	0.98	-0.55	-114.43	
5,218.0	0.50	168.30	5,089.9	143.6	-977.8	988.3	0.14	0.12	9.53	
5,303.0	0.80	182.90	5,174.9	142.6	-977.7	988.1	0.40	0.35	17.18	
5,389.0	1.00	195.90	5,260.8	141.3	-978.0	988.1	0.33	0.23	15.12	
5,474.0	1.40	198.50	5,345.8	139.6	-978.5	988.4	0.47	0.47	3.06	
5,560.0	1.50	193.50	5,431.8	137.5	-979.1	988.7	0.19	0.12	-5.81	
5,645.0	1.20	193.20	5,516.8	135.6	-979.6	988.9	0.35	-0.35	-0.35	
5,731.0	0.80	205.70	5,602.8	134.2	-980.0	989.1	0.53	-0.47	14.53	
5,816.0	0.90	213.40	5,687.8	133.1	-980.7	989.6	0.18	0.12	9.06	
5,902.0	0.30	291.60	5,773.8	132.6	-981.2	990.1	1.03	-0.70	90.93	
5,988.0	0.50	229.50	5,859.7	132.4	-981.7	990.5	0.52	0.23	-72.21	

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6,073.0	0.70	201.40	5,944.7	131.7	-982.2	990.9	0.41	0.24	-33.06	
6,159.0	0.60	170.20	6,030.7	130.8	-982.3	990.9	0.42	-0.12	-36.28	
6,244.0	0.60	149.50	6,115.7	129.9	-982.0	990.4	0.25	0.00	-24.35	
6,330.0	0.70	132.80	6,201.7	129.2	-981.4	989.7	0.25	0.12	-19.42	
6,415.0	0.70	147.10	6,286.7	128.4	-980.8	989.0	0.21	0.00	16.82	
6,501.0	1.00	156.80	6,372.7	127.3	-980.2	988.2	0.39	0.35	11.28	
6,586.0	1.10	157.90	6,457.7	125.8	-979.6	987.4	0.12	0.12	1.29	
6,672.0	1.40	161.90	6,543.7	124.1	-978.9	986.5	0.36	0.35	4.65	
6,757.0	1.50	168.40	6,628.7	122.0	-978.4	985.7	0.23	0.12	7.65	
6,843.0	0.90	175.30	6,714.6	120.2	-978.1	985.1	0.72	-0.70	8.02	
6,928.0	2.30	255.30	6,799.6	119.1	-979.7	986.5	2.73	1.65	94.12	
7,014.0	4.50	264.30	6,885.4	118.4	-984.7	991.4	2.62	2.56	10.47	
7,042.1	3.84	263.53	6,913.4	118.1	-986.8	993.4	2.37	-2.36	-2.76	
TARGET CIRCLE 2572'FSL, 1500'FWL										
7,099.0	2.50	260.70	6,970.3	117.7	-989.9	996.4	2.37	-2.35	-4.96	
7,185.0	1.20	235.90	7,056.2	116.9	-992.5	998.8	1.74	-1.51	-28.84	
7,270.0	1.60	73.56	7,141.2	116.8	-992.1	998.4	3.26	0.47	-190.99	
7,356.0	2.60	74.41	7,227.2	117.6	-989.0	995.6	1.16	1.16	0.99	
7,441.0	1.00	195.00	7,312.1	117.4	-987.4	993.9	3.80	-1.88	141.87	
7,474.0	0.70	214.20	7,345.1	117.0	-987.6	994.0	1.24	-0.91	58.18	
7,517.4	0.70	214.20	7,388.6	116.5	-987.9	994.2	0.00	0.00	0.00	
HARDLINE 75'N OF BHL										
7,520.0	0.70	214.20	7,391.1	116.5	-987.9	994.2	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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