

Well Name: **Guttersen C33-33D**

Surface Location: Guttersen C33-33D Pad Sec.33-T4N-R64W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

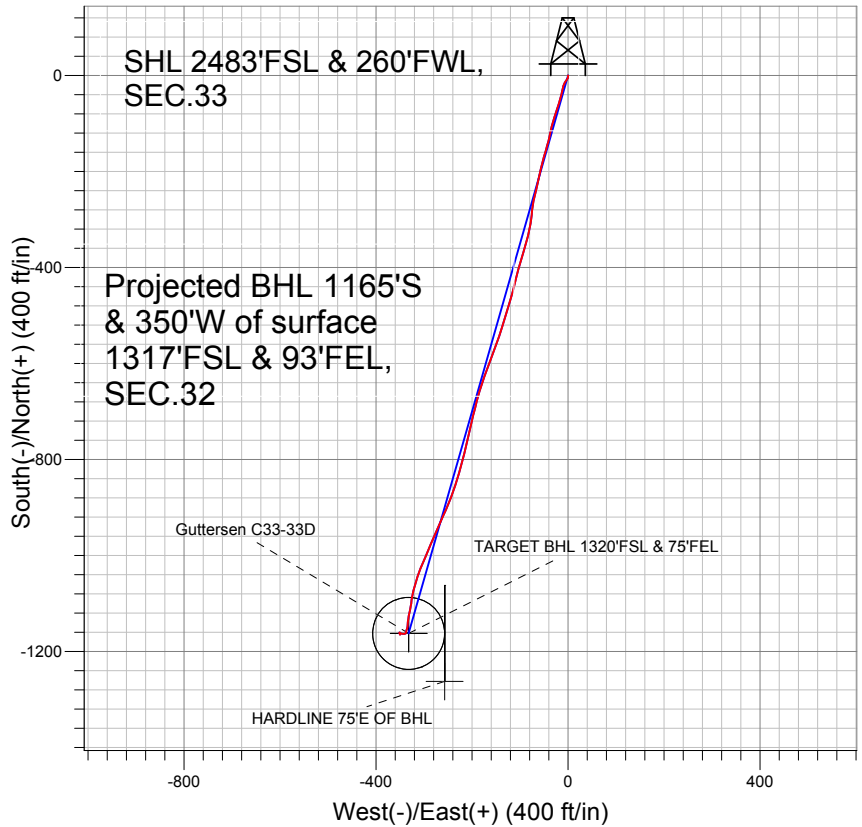
Ground Elevation: 4747.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1342051.33	3261060.74	40.268550	-104.564450

Original Well Elev WELL @ 4760.0ft (Original Well Elev)

Slot

NOBLE ENERGY INC WELD COUNTY CO



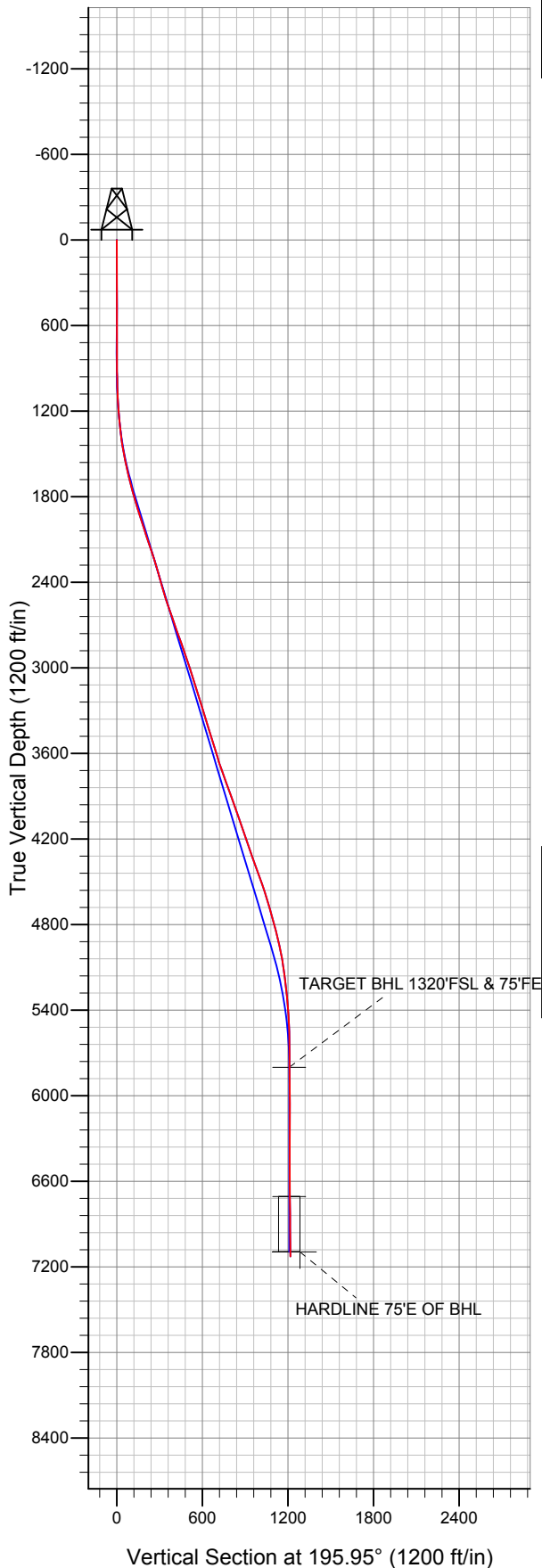
LEGEND

- x Guttersen C33-33D, Wellbore #1, Noble Guttersen C33-33D Plan #1 (8-09-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7305'MD & 7126'TVD @ 1216'VS
0.4 deg Inc 130.0 deg AZ

Project: SEC.33-T4N-R64W
Site: Guttersen C33-33D Pad Sec.33-T4N-R64W
Well: Guttersen C33-33D
Plan: Wellbore #1





Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.33-T4N-R64W

Guttersen C33-33D Pad Sec.33-T4N-R64W

Guttersen C33-33D

Wellbore #1

Survey: Survey #1

Standard Survey Report

28 October, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Gutteresen C33-33D
Project:	SEC.33-T4N-R64W	TVD Reference:	WELL @ 4760.0ft (Original Well Elev)
Site:	Gutteresen C33-33D Pad Sec.33-T4N-R64W	MD Reference:	WELL @ 4760.0ft (Original Well Elev)
Well:	Gutteresen C33-33D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.33-T4N-R64W, Weld County, CO		
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		Gutteresen C33-33D Pad Sec.33-T4N-R64W			
Site Position:		Northing:	1,342,051.37 ft	Latitude:	40.268550
From:	Lat/Long	Easting:	3,261,060.74 ft	Longitude:	-104.564450
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.60 °

Well	Gutteresen C33-33D					
Well Position	+N/-S	0.0 ft	Northing:	1,342,051.33 ft	Latitude:	40.268550
	+E/-W	0.0 ft	Easting:	3,261,060.74 ft	Longitude:	-104.564450
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,747.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/9/2011	8.73	66.97	53,069

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	195.95	

Survey Program	Date	10/28/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
738.0	7,305.0	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	
738.0	0.20	160.80	738.0	-1.2	0.4	1.1	0.03	0.03	0.00	
832.0	0.40	265.00	832.0	-1.4	0.2	1.3	0.52	0.21	110.85	
922.0	0.20	134.40	922.0	-1.5	-0.1	1.5	0.61	-0.22	-145.11	
1,016.0	1.60	175.80	1,016.0	-3.0	0.2	2.8	1.55	1.49	44.04	
1,110.0	3.00	216.10	1,109.9	-6.3	-1.2	6.3	2.19	1.49	42.87	
1,204.0	4.80	214.70	1,203.7	-11.5	-4.9	12.4	1.92	1.91	-1.49	
1,298.0	5.80	200.30	1,297.3	-19.2	-8.8	20.8	1.76	1.06	-15.32	
1,392.0	7.80	191.50	1,390.6	-29.9	-11.7	31.9	2.39	2.13	-9.36	
1,485.0	10.00	193.40	1,482.5	-43.9	-14.8	46.3	2.39	2.37	2.04	
1,579.0	12.20	199.80	1,574.7	-61.2	-20.1	64.4	2.68	2.34	6.81	
1,672.0	14.00	197.20	1,665.3	-81.2	-26.7	85.4	2.04	1.94	-2.80	
1,766.0	15.10	194.60	1,756.3	-103.9	-33.2	109.0	1.36	1.17	-2.77	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Gutteresen C33-33D
Project:	SEC.33-T4N-R64W	TVD Reference:	WELL @ 4760.0ft (Original Well Elev)
Site:	Gutteresen C33-33D Pad Sec.33-T4N-R64W	MD Reference:	WELL @ 4760.0ft (Original Well Elev)
Well:	Gutteresen C33-33D	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)	
1,860.0	16.30	192.10	1,846.8	-128.7	-39.0	134.4	1.47	1.28	-2.66	
1,953.0	18.20	197.20	1,935.6	-155.3	-46.1	162.0	2.61	2.04	5.48	
2,046.0	17.50	194.30	2,024.1	-182.7	-53.8	190.5	1.22	-0.75	-3.12	
2,140.0	18.50	191.40	2,113.5	-211.0	-60.2	219.5	1.43	1.06	-3.09	
2,233.0	19.10	194.60	2,201.6	-240.2	-67.0	249.4	1.28	0.65	3.44	
2,327.0	16.30	190.10	2,291.1	-268.1	-73.2	277.9	3.31	-2.98	-4.79	
2,421.0	15.60	183.80	2,381.5	-293.7	-76.3	303.4	1.99	-0.74	-6.70	
2,514.0	16.80	192.50	2,470.8	-319.3	-80.1	329.0	2.91	1.29	9.35	
2,608.0	18.80	195.80	2,560.3	-347.1	-87.1	357.7	2.38	2.13	3.51	
2,701.0	19.50	196.30	2,648.2	-376.5	-95.6	388.2	0.77	0.75	0.54	
2,795.0	18.80	195.00	2,737.0	-406.2	-103.9	419.1	0.87	-0.74	-1.38	
2,889.0	20.00	193.60	2,825.6	-436.4	-111.6	450.3	1.37	1.28	-1.49	
2,982.0	19.40	197.30	2,913.2	-466.6	-119.9	481.6	1.49	-0.65	3.98	
3,076.0	17.80	196.10	3,002.3	-495.3	-128.6	511.6	1.75	-1.70	-1.28	
3,169.0	18.30	198.50	3,090.7	-522.8	-137.1	540.4	0.96	0.54	2.58	
3,263.0	16.80	198.70	3,180.3	-549.7	-146.2	568.7	1.60	-1.60	0.21	
3,357.0	16.40	200.00	3,270.4	-575.0	-155.1	595.5	0.58	-0.43	1.38	
3,451.0	16.80	199.90	3,360.5	-600.3	-164.2	622.3	0.43	0.43	-0.11	
3,544.0	18.10	199.20	3,449.2	-626.6	-173.6	650.1	1.42	1.40	-0.75	
3,638.0	17.20	199.80	3,538.8	-653.4	-183.1	678.6	0.98	-0.96	0.64	
3,732.0	17.00	192.50	3,628.6	-679.9	-190.8	706.2	2.29	-0.21	-7.77	
3,825.0	19.20	193.80	3,717.0	-708.0	-197.3	735.0	2.40	2.37	1.40	
3,919.0	20.00	192.20	3,805.6	-738.8	-204.4	766.5	1.02	0.85	-1.70	
4,012.0	20.20	194.30	3,892.9	-769.9	-211.8	798.4	0.81	0.22	2.26	
4,106.0	19.50	194.90	3,981.3	-800.8	-219.8	830.3	0.78	-0.74	0.64	
4,200.0	18.50	195.00	4,070.2	-830.3	-227.7	860.9	1.06	-1.06	0.11	
4,293.0	19.90	198.80	4,158.1	-859.6	-236.6	891.5	2.02	1.51	4.09	
4,387.0	18.90	203.10	4,246.7	-888.7	-247.7	922.6	1.85	-1.06	4.57	
4,480.0	19.40	203.50	4,334.6	-916.7	-259.8	952.8	0.56	0.54	0.43	
4,574.0	20.30	203.70	4,423.0	-946.0	-272.6	984.5	0.96	0.96	0.21	
4,668.0	19.80	203.10	4,511.3	-975.6	-285.4	1,016.4	0.58	-0.53	-0.64	
4,761.0	17.00	203.50	4,599.5	-1,002.5	-297.0	1,045.5	3.01	-3.01	0.43	
4,855.0	16.60	202.20	4,689.5	-1,027.6	-307.6	1,072.5	0.58	-0.43	-1.38	
4,948.0	15.10	196.50	4,779.0	-1,051.5	-316.0	1,097.8	2.32	-1.61	-6.13	
5,042.0	14.00	194.60	4,870.0	-1,074.2	-322.4	1,121.4	1.28	-1.17	-2.02	
5,136.0	12.40	186.30	4,961.5	-1,095.3	-326.3	1,142.8	2.63	-1.70	-8.83	
5,229.0	9.50	192.00	5,052.8	-1,112.7	-329.0	1,160.3	3.32	-3.12	6.13	
5,323.0	7.40	192.10	5,145.8	-1,126.2	-331.9	1,174.0	2.23	-2.23	0.11	
5,416.0	6.50	183.20	5,238.1	-1,137.3	-333.5	1,185.2	1.51	-0.97	-9.57	
5,510.0	5.50	188.80	5,331.6	-1,147.1	-334.4	1,194.8	1.23	-1.06	5.96	
5,604.0	4.00	201.00	5,425.2	-1,154.6	-336.3	1,202.6	1.92	-1.60	12.98	
5,697.0	2.40	178.10	5,518.1	-1,159.6	-337.4	1,207.6	2.17	-1.72	-24.62	
5,791.0	0.60	226.70	5,612.1	-1,161.9	-337.7	1,209.9	2.18	-1.91	51.70	
5,884.0	0.50	243.80	5,705.1	-1,162.4	-338.4	1,210.6	0.21	-0.11	18.39	
5,978.0	0.90	266.70	5,799.0	-1,162.6	-339.5	1,211.1	0.51	0.43	24.36	
5,978.8	0.90	266.60	5,799.9	-1,162.6	-339.5	1,211.1	0.46	0.41	-12.97	
TARGET BHL 1320'FSL & 75'FEL										
6,072.0	1.30	258.20	5,893.0	-1,162.9	-341.3	1,211.9	0.46	0.43	-9.01	
6,165.0	1.60	270.50	5,986.0	-1,163.1	-343.6	1,212.7	0.46	0.32	13.23	
6,259.0	1.90	282.30	6,080.0	-1,162.7	-346.5	1,213.2	0.50	0.32	12.55	
6,352.0	1.50	301.10	6,172.9	-1,161.8	-349.0	1,212.9	0.73	-0.43	20.22	
6,446.0	0.40	348.10	6,266.9	-1,160.8	-350.1	1,212.3	1.34	-1.17	50.00	
6,540.0	0.50	285.00	6,360.9	-1,160.4	-350.6	1,212.1	0.51	0.11	-67.13	
6,633.0	0.20	229.10	6,453.9	-1,160.4	-351.1	1,212.2	0.45	-0.32	-60.11	

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Well:	Gutteresen C33-33D	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)
6,727.0	0.50	196.70	6,547.9	-1,160.9	-351.4	1,212.7	0.37	0.32	-34.47
6,820.0	0.10	181.00	6,640.9	-1,161.4	-351.5	1,213.2	0.44	-0.43	-16.88
6,885.1	0.17	153.65	6,706.0	-1,161.5	-351.4	1,213.4	0.14	0.10	-42.00
TARGET CIRCLE 1320'FSL & 75'FEL									
6,914.0	0.20	147.80	6,734.9	-1,161.6	-351.4	1,213.4	0.14	0.12	-20.25
7,008.0	0.40	176.80	6,828.9	-1,162.0	-351.3	1,213.8	0.26	0.21	30.85
7,101.0	0.80	135.10	6,921.9	-1,162.8	-350.8	1,214.5	0.61	0.43	-44.84
7,195.0	0.60	182.00	7,015.9	-1,163.8	-350.4	1,215.3	0.62	-0.21	49.89
7,275.2	0.49	148.79	7,096.1	-1,164.5	-350.2	1,215.9	0.41	-0.13	-41.41
HARDLINE 75'E OF BHL									
7,297.0	0.50	138.50	7,117.9	-1,164.6	-350.1	1,216.0	0.41	0.03	-47.21
7,305.0	0.40	130.00	7,125.9	-1,164.7	-350.0	1,216.0	1.50	-1.25	-106.25

Checked By: _____ Approved By: _____ Date: _____