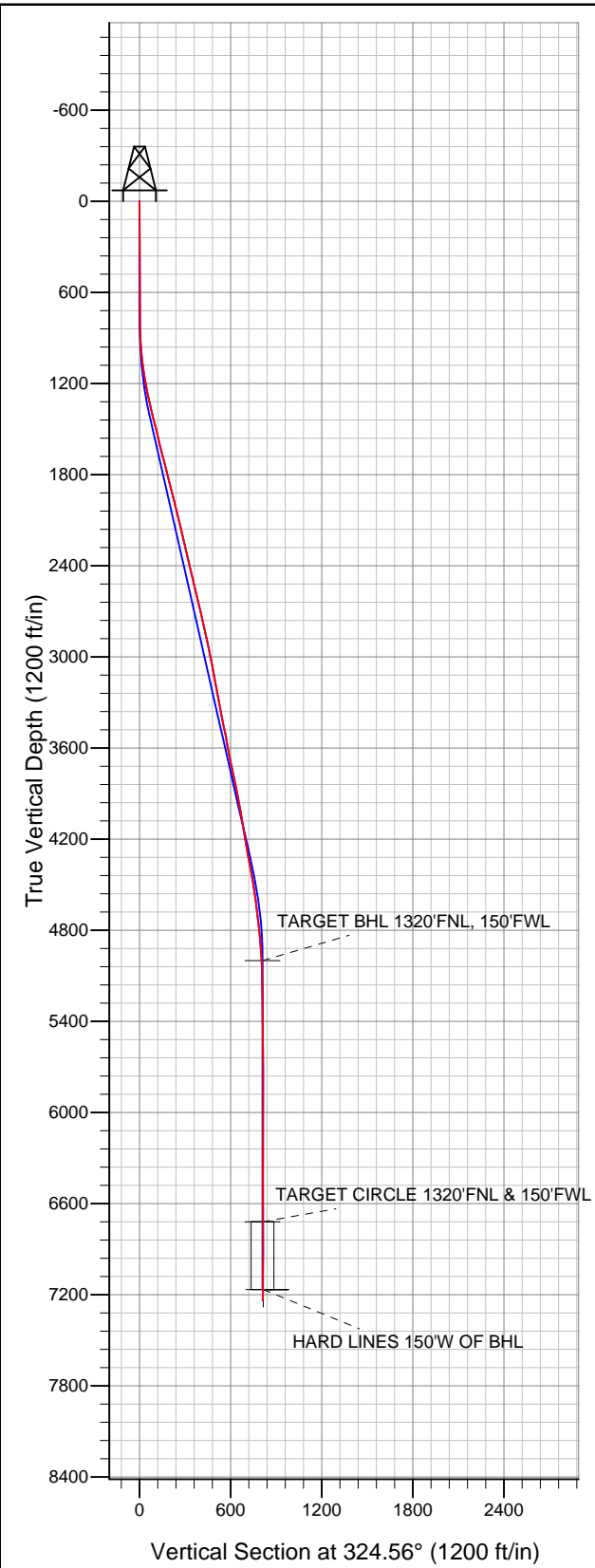




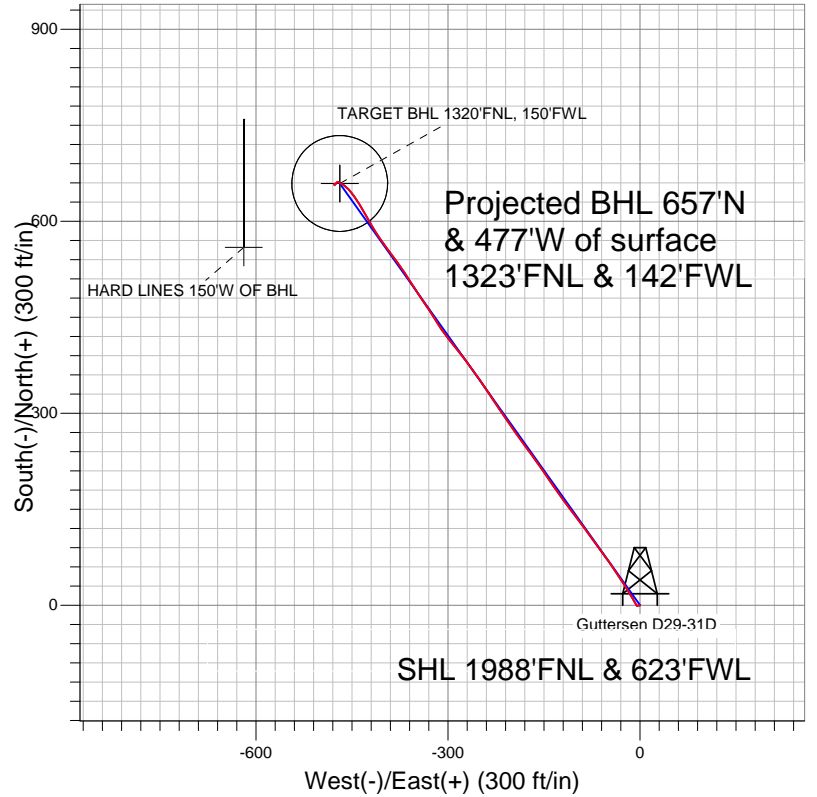
Well Name: **Guttersen D29-31D**
 Surface Location: Guttersen D29-31D Pad Sec.29-T3N-R64W
 North American Datum 1983 US State Plane 1983Colorado Northern Zone
 Ground Elevation: 4784.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1316322.14	3256337.32	40.198060	-104.582330	

 Original Well EleWELL @ 4797.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- ◆ Guttersen D29-31D, Wellbore #1, Noble Guttersen D29-31D Plan #1 (7-20-11) VO
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
 7320'MD & 7238'TVD @ 811'VS
 0.4 deg Inc 172.4 deg AZ

Project: SEC.29-T3N-R64W
 Site: Guttersen D29-31D Pad Sec.29-T3N-R64W
 Well: Guttersen D29-31D
 Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.29-T3N-R64W

Guttersen D29-31D Pad Sec.29-T3N-R64W

Guttersen D29-31D

Wellbore #1

Survey: Survey #1

Standard Survey Report

17 October, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Guttersen D29-31D
Project:	SEC.29-T3N-R64W	TVD Reference:	WELL @ 4797.0ft (Original Well Elev)
Site:	Guttersen D29-31D Pad Sec.29-T3N-R64W	MD Reference:	WELL @ 4797.0ft (Original Well Elev)
Well:	Guttersen D29-31D	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.29-T3N-R64W, 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	Guttersen D29-31D Pad Sec.29-T3N-R64W				
Site Position:		Northing:	1,316,322.14 ft	Latitude:	40.198060
From:	Lat/Long	Easting:	3,256,337.32 ft	Longitude:	-104.582330
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.59 °

Well	Guttersen D29-31D					
Well Position	+N/-S	0.0 ft	Northing:	1,316,322.14 ft	Latitude:	40.198060
	+E/-W	0.0 ft	Easting:	3,256,337.32 ft	Longitude:	-104.582330
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,784.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/20/2011	8.74	66.91	53,035

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 (°)	
	5,000.0	0.0	0.0	324.56	

Survey Program	Date	10/17/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
769.0	7,320.0	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	
769.0	0.70	260.40	769.0	-0.8	-4.6	2.0	0.09	0.09	0.00	
893.0	2.40	335.80	892.9	1.5	-6.4	4.9	1.87	1.37	60.81	
1,018.0	5.70	330.40	1,017.6	9.2	-10.6	13.7	2.65	2.64	-4.32	
1,143.0	9.00	327.30	1,141.6	22.9	-18.9	29.6	2.66	2.64	-2.48	
1,268.0	11.60	326.40	1,264.5	41.6	-31.2	51.9	2.08	2.08	-0.72	
1,393.0	14.10	326.50	1,386.4	64.7	-46.5	79.7	2.00	2.00	0.08	
1,517.0	13.80	325.20	1,506.7	89.5	-63.3	109.6	0.35	-0.24	-1.05	
1,642.0	13.90	321.40	1,628.1	113.5	-81.2	139.5	0.73	0.08	-3.04	
1,767.0	14.50	322.30	1,749.3	137.6	-100.1	170.1	0.51	0.48	0.72	
1,891.0	14.10	325.00	1,869.5	162.2	-118.3	200.8	0.63	-0.32	2.18	
2,016.0	13.80	324.90	1,990.8	186.9	-135.6	230.9	0.24	-0.24	-0.08	
2,141.0	14.00	325.30	2,112.1	211.5	-152.8	260.9	0.18	0.16	0.32	

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well Guttersen D29-31D
Project:	SEC.29-T3N-R64W	TVD Reference:	WELL @ 4797.0ft (Original Well Elev)
Site:	Guttersen D29-31D Pad Sec.29-T3N-R64W	MD Reference:	WELL @ 4797.0ft (Original Well Elev)
Well:	Guttersen D29-31D	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)
2,266.0	13.60	324.90	2,233.5	236.0	-169.8	290.7	0.33	-0.32	-0.32
2,391.0	12.90	323.00	2,355.2	259.1	-186.7	319.4	0.66	-0.56	-1.52
2,516.0	13.70	326.20	2,476.8	282.6	-203.3	348.1	0.87	0.64	2.56
2,641.0	13.10	325.40	2,598.4	306.6	-219.6	377.1	0.50	-0.48	-0.64
2,765.0	13.30	326.70	2,719.1	330.0	-235.4	405.4	0.29	0.16	1.05
2,890.0	12.50	325.10	2,841.0	353.2	-251.0	433.3	0.70	-0.64	-1.28
3,015.0	11.60	323.40	2,963.2	374.3	-266.3	459.4	0.77	-0.72	-1.36
3,140.0	10.50	321.80	3,085.9	393.4	-280.8	483.3	0.91	-0.88	-1.28
3,264.0	10.80	320.30	3,207.8	411.2	-295.2	506.2	0.33	0.24	-1.21
3,389.0	10.50	326.10	3,330.6	429.7	-309.0	529.3	0.89	-0.24	4.64
3,514.0	11.70	327.60	3,453.3	449.8	-322.2	553.3	0.99	0.96	1.20
3,639.0	10.60	325.80	3,575.9	470.0	-335.4	577.4	0.92	-0.88	-1.44
3,763.0	11.80	327.30	3,697.6	490.1	-348.7	601.5	1.00	0.97	1.21
3,888.0	11.40	326.40	3,820.0	511.2	-362.4	626.6	0.35	-0.32	-0.72
4,013.0	11.10	325.30	3,942.6	531.4	-376.1	651.0	0.30	-0.24	-0.88
4,138.0	9.50	323.00	4,065.6	549.5	-389.2	673.4	1.32	-1.28	-1.84
4,262.0	9.30	322.80	4,187.9	565.6	-401.4	693.6	0.16	-0.16	-0.16
4,387.0	11.00	328.60	4,311.0	583.9	-413.7	715.6	1.59	1.36	4.64
4,512.0	10.00	331.60	4,433.9	603.6	-425.1	738.3	0.91	-0.80	2.40
4,637.0	8.30	329.00	4,557.3	620.9	-434.9	758.0	1.40	-1.36	-2.08
4,762.0	6.50	326.60	4,681.2	634.5	-443.4	774.1	1.46	-1.44	-1.92
4,886.0	6.20	320.30	4,804.5	645.5	-451.6	787.8	0.61	-0.24	-5.08
5,011.0	4.60	309.80	4,928.9	653.9	-459.8	799.4	1.50	-1.28	-8.40
5,082.6	2.98	306.09	5,000.3	656.9	-463.5	803.9	2.28	-2.26	-5.19
TARGET BHL 1320'FNL, 150'FWL									
5,136.0	1.80	299.00	5,053.7	658.1	-465.3	806.0	2.28	-2.22	-13.27
5,261.0	1.20	296.50	5,178.7	659.6	-468.2	808.9	0.48	-0.48	-2.00
5,386.0	0.80	299.60	5,303.6	660.6	-470.1	810.9	0.32	-0.32	2.48
5,511.0	0.70	306.30	5,428.6	661.5	-471.5	812.4	0.11	-0.08	5.36
5,635.0	0.60	249.40	5,552.6	661.7	-472.7	813.3	0.50	-0.08	-45.89
5,760.0	0.60	216.30	5,677.6	661.0	-473.7	813.2	0.27	0.00	-26.48
5,885.0	0.30	204.20	5,802.6	660.2	-474.3	812.8	0.25	-0.24	-9.68
6,010.0	0.30	199.60	5,927.6	659.6	-474.5	812.5	0.02	0.00	-3.68
6,135.0	0.50	237.00	6,052.6	659.0	-475.1	812.3	0.26	0.16	29.92
6,259.0	0.50	259.20	6,176.6	658.6	-476.1	812.6	0.16	0.00	17.90
6,384.0	0.30	286.80	6,301.6	658.5	-476.9	813.1	0.22	-0.16	22.08
6,509.0	0.40	218.00	6,426.6	658.3	-477.5	813.2	0.32	0.08	-55.04
6,634.0	0.20	292.20	6,551.6	658.0	-478.0	813.3	0.32	-0.16	59.36
6,759.0	0.10	103.30	6,676.6	658.1	-478.0	813.4	0.24	-0.08	136.88
6,801.4	0.10	147.95	6,719.0	658.1	-478.0	813.3	0.18	-0.01	105.30
TARGET CIRCLE 1320'FNL & 150'FWL									
6,883.0	0.20	190.50	6,800.6	657.9	-478.0	813.1	0.18	0.13	52.14
7,008.0	0.10	44.00	6,925.6	657.7	-477.9	813.0	0.23	-0.08	-117.20
7,133.0	0.40	119.30	7,050.6	657.6	-477.5	812.6	0.31	0.24	60.24
7,248.4	0.38	163.51	7,166.0	657.0	-477.0	811.9	0.25	-0.02	38.30
HARD LINES 150'W OF BHL									
7,274.0	0.40	172.40	7,191.6	656.9	-477.0	811.7	0.25	0.10	34.75
7,320.0	0.40	172.40	7,237.6	656.5	-477.0	811.5	0.00	0.00	0.00

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Checked By: _____ Approved By: _____ Date: _____