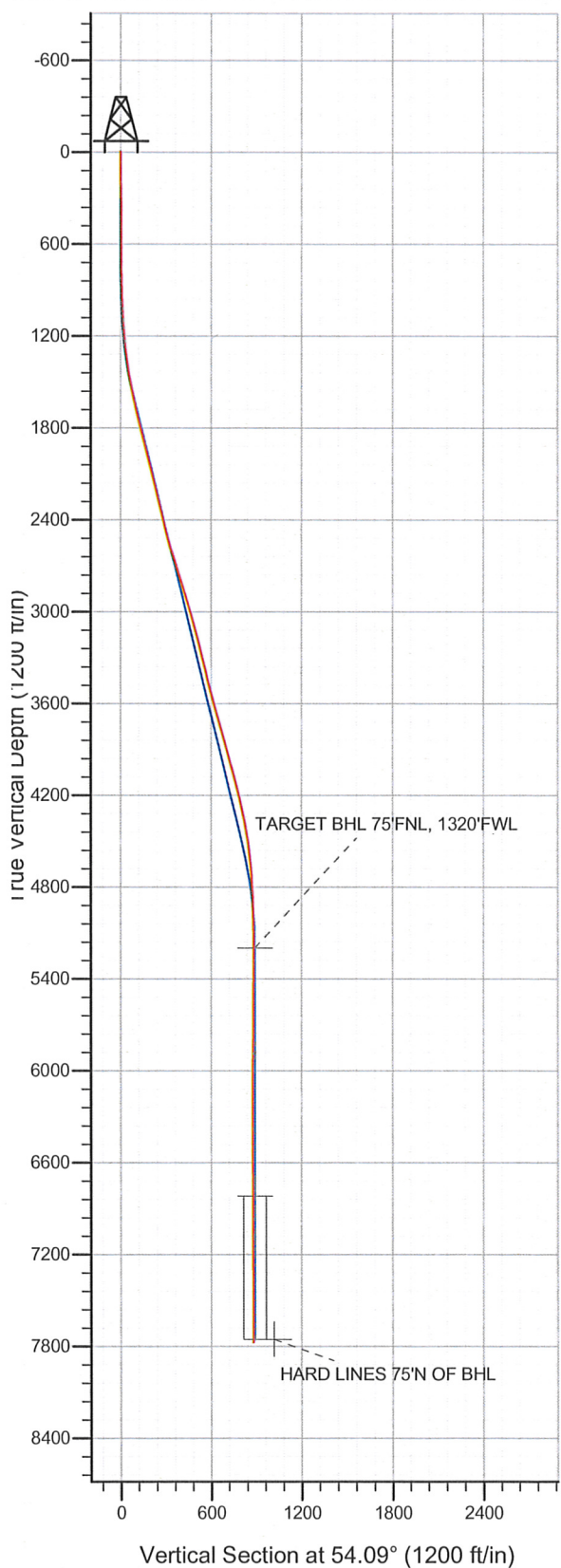
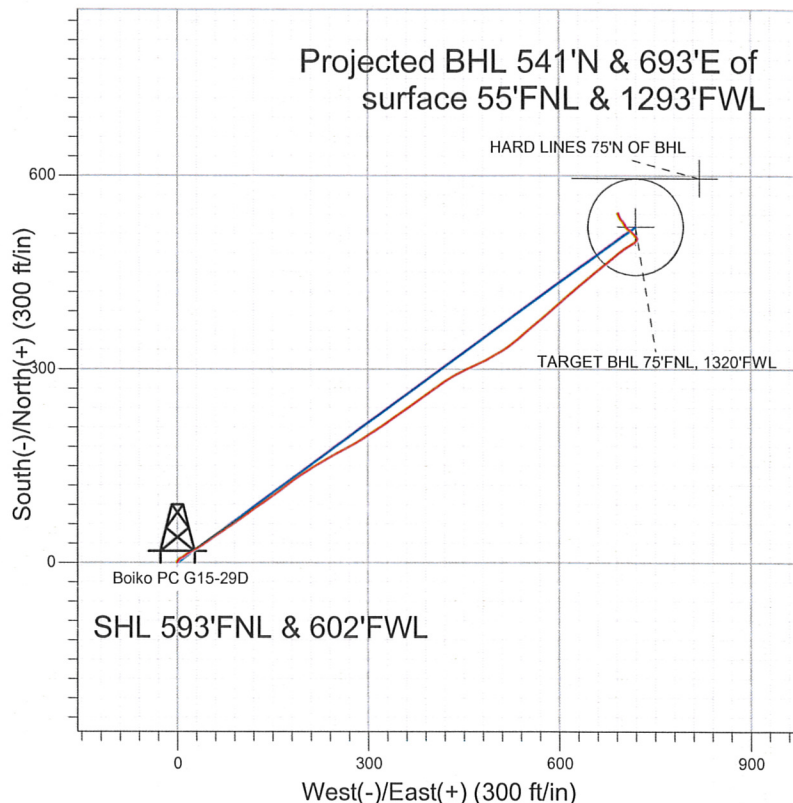


Surface Location: Boiko PC G15-28D Pad Sec.15-T4N-R65W
North American Datum 1983 US State Plane 1983 Colorado Northern Zone
Ground Elevation: 4725.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1359839.90 3235220.51 40.318090 -104.656440
Original Well EleWELL @ 4738.0ft (Original Well Elev)



NOBLE ENERGY INC WELD COUNTY CO



LEGEND

- ✕ Boiko PC G15-29D, Wellbore #1, Noble Boiko PC G15-29D Plan #2 (4-11-11) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
7883'MD & 7776'TVD @ 879' VS
0.6 deg Inc 88.0 deg AZ

Project: SEC.15-T4N-R65W
Site: Boiko PC G15-28D Pad Sec.15-T4N-R65W
Well: Boiko PC G15-29D
Plan: Wellbore #1



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.15-T4N-R65W

Boiko PC G15-28D Pad Sec.15-T4N-R65W

Boiko PC G15-29D

Wellbore #1

Survey: Survey #1

Standard Survey Report

19 September, 2011



Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.15-T4N-R65W
Site: Boiko PC G15-28D Pad Sec.15-T4N-R65W
Well: Boiko PC G15-29D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Boiko PC G15-29D
TVD Reference: WELL @ 4738.0ft (Original Well Elev)
MD Reference: WELL @ 4738.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Database: Landmark

Project	SEC.15-T4N-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 Boiko PC G15-28D Pad Sec.15-T4N-R65W

Site Position:		Northing:	1,359,832.82 ft	Latitude:	40.318070
From:	Lat/Long	Easting:	3,235,240.10 ft	Longitude:	-104.656370
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.55 °

Well	Boiko PC G15-29D					
Well Position	+N/-S	0.0 ft	Northing:	1,359,839.90 ft	Latitude:	40.318090
	+E/-W	0.0 ft	Easting:	3,235,220.51 ft	Longitude:	-104.656440
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,725.0 ft	

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/12/2011	8.78	67.02	53,141

Design Wellbore #1

Audit Notes:

Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
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Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	5,200.0	0.0	0.0	54.09

Survey Program Date 9/19/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
94.0	7,883.0	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
94.0	0.70	3.80	94.0	0.6	0.0	0.4	0.74	0.74	0.00
211.0	0.70	61.30	211.0	1.6	0.7	1.5	0.58	0.00	49.15
303.0	0.10	311.10	303.0	2.0	1.1	2.1	0.80	-0.65	-119.78
426.0	0.40	55.00	426.0	2.3	1.4	2.5	0.35	0.24	84.47
518.0	0.30	81.30	518.0	2.5	1.9	3.0	0.20	-0.11	28.59
610.0	0.70	11.20	610.0	3.1	2.3	3.6	0.72	0.43	-76.20
680.0	0.40	272.60	680.0	3.5	2.1	3.8	1.22	-0.43	-140.86
740.0	0.40	18.00	740.0	3.7	2.0	3.8	1.06	0.00	175.67
834.0	1.70	51.80	834.0	4.9	3.2	5.4	1.47	1.38	35.96
928.0	2.10	65.50	927.9	6.5	5.8	8.5	0.64	0.43	14.57
1,022.0	2.30	61.10	1,021.8	8.1	9.0	12.1	0.28	0.21	-4.68
1,116.0	3.70	51.00	1,115.7	10.9	13.0	17.0	1.59	1.49	-10.74

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.15-T4N-R65W
Site: Boiko PC G15-28D Pad Sec.15-T4N-R65W
Well: Boiko PC G15-29D
Wellbore: Wellbore #1
Design: Wellbore #1

Local Co-ordinate Reference: Well Boiko PC G15-29D
TVD Reference: WELL @ 4738.0ft (Original Well Elev)
MD Reference: WELL @ 4738.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
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)
1,210.0	5.10	58.80	1,209.4	15.0	19.0	24.2	1.62	1.49	8.30
1,303.0	7.00	62.90	1,301.9	19.7	27.6	33.9	2.09	2.04	4.41
1,397.0	9.30	57.20	1,395.0	26.4	39.0	47.1	2.59	2.45	-6.06
1,491.0	10.50	55.00	1,487.6	35.5	52.4	63.3	1.34	1.28	-2.34
1,585.0	11.30	55.70	1,579.9	45.6	67.1	81.0	0.86	0.85	0.74
1,679.0	13.30	57.40	1,671.7	56.6	83.8	101.0	2.16	2.13	1.81
1,773.0	13.70	53.40	1,763.1	69.0	101.8	123.0	1.08	0.43	-4.26
1,867.0	14.30	55.80	1,854.3	82.2	120.4	145.7	0.89	0.64	2.55
1,961.0	14.70	56.00	1,945.3	95.4	139.9	169.2	0.43	0.43	0.21
2,055.0	13.30	52.30	2,036.5	108.7	158.3	192.0	1.77	-1.49	-3.94
2,149.0	14.20	53.40	2,127.8	122.2	176.1	214.3	1.00	0.96	1.17
2,243.0	13.50	57.20	2,219.1	135.0	194.6	236.8	1.22	-0.74	4.04
2,337.0	13.60	57.60	2,310.5	146.9	213.1	258.8	0.15	0.11	0.43
2,431.0	14.30	59.70	2,401.7	158.6	232.5	281.4	0.92	0.74	2.23
2,525.0	14.90	63.20	2,492.7	169.9	253.3	304.8	1.13	0.64	3.72
2,619.0	15.40	60.90	2,583.4	181.5	275.0	329.2	0.83	0.53	-2.45
2,713.0	17.90	57.10	2,673.5	195.4	298.0	356.0	2.90	2.66	-4.04
2,806.0	18.30	56.00	2,761.9	211.3	322.2	384.9	0.57	0.43	-1.18
2,900.0	18.50	55.30	2,851.1	228.0	346.6	414.5	0.32	0.21	-0.74
2,994.0	16.10	55.10	2,940.8	244.0	369.6	442.5	2.55	-2.55	-0.21
3,088.0	16.00	53.60	3,031.1	259.1	390.7	468.4	0.45	-0.11	-1.60
3,182.0	15.60	55.20	3,121.6	274.0	411.5	494.0	0.63	-0.43	1.70
3,276.0	14.20	58.80	3,212.4	287.2	431.8	518.2	1.78	-1.49	3.83
3,370.0	14.60	65.50	3,303.5	298.1	452.4	541.3	1.82	0.43	7.13
3,464.0	14.90	65.50	3,394.4	308.0	474.2	564.7	0.32	0.32	0.00
3,558.0	13.60	62.00	3,485.5	318.2	494.9	587.5	1.66	-1.38	-3.72
3,652.0	15.60	56.70	3,576.4	330.4	515.3	611.1	2.56	2.13	-5.64
3,746.0	15.50	49.50	3,667.0	345.5	535.4	636.3	2.05	-0.11	-7.66
3,840.0	15.70	49.90	3,757.6	361.8	554.7	661.5	0.24	0.21	0.43
3,934.0	16.60	49.30	3,847.8	378.8	574.6	687.5	0.97	0.96	-0.64
4,028.0	16.40	49.30	3,938.0	396.2	594.8	714.1	0.21	-0.21	0.00
4,122.0	15.00	49.00	4,028.5	412.8	614.1	739.5	1.49	-1.49	-0.32
4,216.0	14.60	48.60	4,119.3	428.6	632.1	763.4	0.44	-0.43	-0.43
4,310.0	14.30	50.40	4,210.4	443.9	650.0	786.8	0.57	-0.32	1.91
4,404.0	11.50	50.60	4,302.0	457.2	666.1	807.7	2.98	-2.98	0.21
4,497.0	9.90	51.30	4,393.4	468.1	679.5	824.9	1.73	-1.72	0.75
4,591.0	9.10	52.30	4,486.1	477.7	691.7	840.4	0.87	-0.85	1.06
4,685.0	6.80	54.80	4,579.2	485.4	702.2	853.4	2.47	-2.45	2.66
4,779.0	4.60	61.10	4,672.7	490.5	710.0	862.7	2.43	-2.34	6.70
4,873.0	3.50	59.50	4,766.5	493.8	715.8	869.3	1.18	-1.17	-1.70
4,967.0	3.40	36.50	4,860.3	497.5	719.9	874.9	1.47	-0.11	-24.47
5,061.0	1.50	34.20	4,954.2	500.7	722.3	878.7	2.02	-2.02	-2.45
5,155.0	1.10	341.10	5,048.2	502.6	722.7	880.1	1.29	-0.43	-56.49
5,280.0	1.30	318.80	5,173.2	504.8	721.3	880.3	0.40	0.16	-17.84
5,307.1	1.28	317.94	5,200.3	505.2	720.9	880.2	0.11	-0.08	-3.15
TARGET BHL 75'FNL, 1320'FWL									
5,405.0	1.20	314.60	5,298.1	506.8	719.5	880.0	0.11	-0.08	-3.42
5,530.0	1.10	314.60	5,423.1	508.5	717.7	879.5	0.08	-0.08	0.00
5,656.0	1.20	313.00	5,549.1	510.3	715.9	879.1	0.08	0.08	-1.27
5,781.0	1.40	320.60	5,674.0	512.4	713.9	878.7	0.21	0.16	6.08
5,907.0	1.20	298.80	5,800.0	514.2	711.8	878.1	0.42	-0.16	-17.30
6,031.0	1.40	302.80	5,924.0	515.6	709.4	877.0	0.18	0.16	3.23
6,157.0	1.50	319.70	6,049.9	517.7	707.0	876.3	0.35	0.08	13.41
6,282.0	1.40	323.90	6,174.9	520.2	705.1	876.2	0.12	-0.08	3.36

Company: NOBLE ENERGY INC WELD COUNTY CO
Project: SEC.15-T4N-R65W
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Wellbore: Wellbore #1
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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)
6,407.0	1.40	340.40	6,299.9	522.9	703.7	876.6	0.32	0.00	13.20
6,532.0	0.90	324.30	6,424.8	525.1	702.6	877.0	0.47	-0.40	-12.88
6,658.0	1.50	327.20	6,550.8	527.3	701.1	877.1	0.48	0.48	2.30
6,783.0	1.60	313.00	6,675.8	529.9	698.9	876.9	0.32	0.08	-11.36
6,908.0	1.30	312.10	6,800.7	532.0	696.6	876.2	0.24	-0.24	-0.72
6,924.8	1.27	316.39	6,817.5	532.3	696.3	876.2	0.59	-0.15	25.55
TARGET CIRCLE 75'FNL & 1320'FWL									
7,034.0	1.30	345.50	6,926.7	534.3	695.2	876.5	0.59	0.02	26.66
7,159.0	0.80	352.70	7,051.7	536.6	694.7	877.4	0.41	-0.40	5.76
7,284.0	1.10	333.60	7,176.7	538.5	694.1	878.0	0.35	0.24	-15.28
7,409.0	0.50	309.30	7,301.6	539.9	693.1	878.1	0.54	-0.48	-19.44
7,534.0	0.30	308.20	7,426.6	540.5	692.5	877.9	0.16	-0.16	-0.88
7,660.0	0.40	307.10	7,552.6	541.0	691.8	877.6	0.08	0.08	-0.87
7,837.0	0.60	88.00	7,729.6	541.4	692.3	878.2	0.53	0.11	79.60
7,862.7	0.60	88.00	7,755.3	541.4	692.5	878.4	0.00	0.00	0.00
HARD LINES 75'N OF BHL									
7,883.0	0.60	88.00	7,775.6	541.4	692.8	878.6	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____