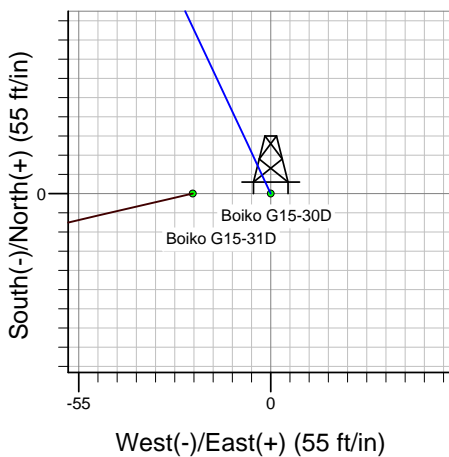
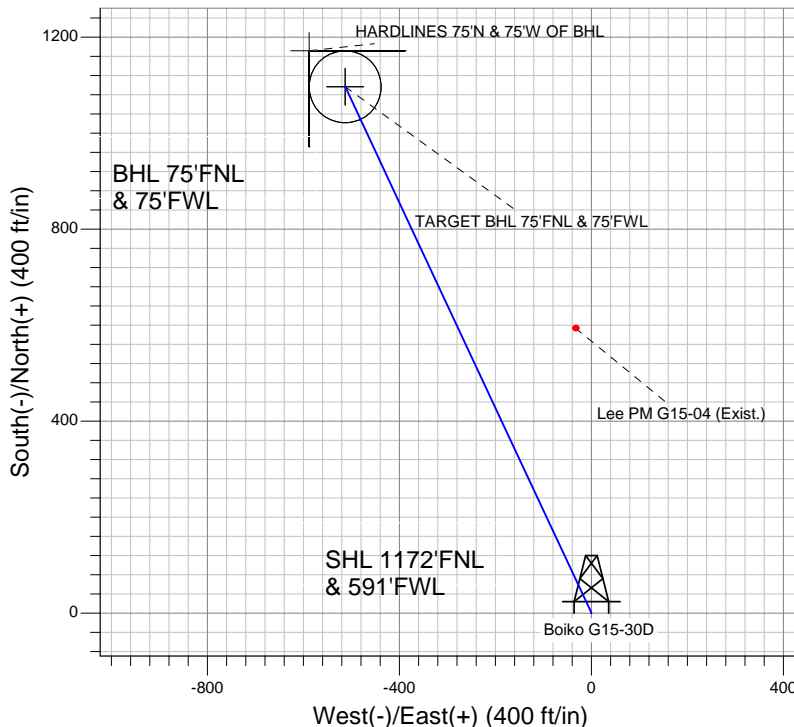
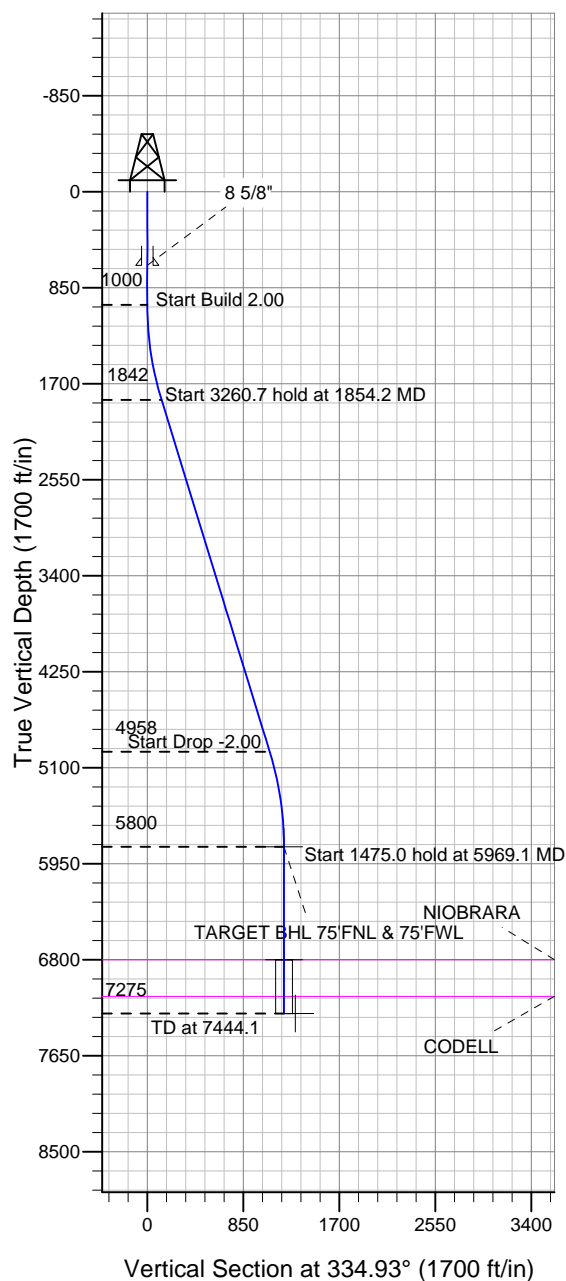


### Well Name: Boiko G15-30D

Surface Location: Boiko G15-30D Pad Sec.15-T4N-R65W  
North American Datum 1983, US State Plane 1983Colorado Northern Zone  
Ground Elevation: 4737.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1359260.58	3235212.08	40.316500	-104.656490	
		Original Well Elev	WELL @ 4750.0ft (Original Well Elev)			

## NOBLE ENERGY INC WELD COUNTY CO



Boiko G15-30D Pad Sec.15-T4N-R65W  
Boiko G15-30D  
Noble Boiko G15-30D Plan #1 (2-29-12)  
9:14, March 01 2012



Azimuths to True North  
Magnetic North: 8.66°  
Magnetic Field  
Strength: 53048.8snT  
Dip Angle: 66.99°  
Date: 2/29/2012  
Model: IGRF200510

### WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 75'FNL & 75'FWL	5800.0	1096.6	-513.1	40.319510	-104.658330	Point
TARGET CIRCLE 75'FNL & 75'FWL	6800.0	1096.6	-513.1	40.319510	-104.658330	Circle (Radius: 75.0)
HARDLINES 75'N & 75'W OF BHL	7275.0	1171.6	-588.1	40.319716	-104.658599	Polygon

### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1000.0	0.00	0.00	1000.0	0.0	0.0	0.00	0.00	0.0	
3	1854.2	17.08	334.93	1841.6	114.5	-53.6	2.00	334.93	126.4	
4	5114.9	17.08	334.93	4958.4	982.1	-459.5	0.00	0.00	1084.3	
5	5969.1	0.00	0.00	5800.0	1096.6	-513.1	2.00	180.00	1210.7	TARGET BHL 75'FNL & 75'FWL
6	7444.1	0.00	0.00	7275.0	1096.6	-513.1	0.00	0.00	1210.7	



# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.15-T4N-R65W**

**Boiko G15-30D Pad Sec.15-T4N-R65W**

**Boiko G15-30D**

**Wellbore #1**

**Plan: Noble Boiko G15-30D Plan #1 (2-29-12)**

## **Standard Planning Report**

**01 March, 2012**



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

<b>Project</b>	SEC.15-T4N-R65W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site						Boiko G15-30D Pad Sec.15-T4N-R65W											
<b>Site Position:</b>						<b>Northing:</b>			1,359,260.59ft			<b>Latitude:</b>			40.316500		
<b>From:</b>			Lat/Long			<b>Easting:</b>			3,235,212.08ft			<b>Longitude:</b>			-104.656490		
<b>Position Uncertainty:</b>			0.0 ft			<b>Slot Radius:</b>			"			<b>Grid Convergence:</b>			0.55 °		

Well	Boiko G15-30D					
Well Position	+N/-S	0.0 ft	Northing:	1,359,260.58 ft	Latitude:	40.316500
	+E/-W	0.0 ft	Easting:	3,235,212.08 ft	Longitude:	-104.656490
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,737.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	2/29/2012	8.66	66.99	53,049

<b>Design</b>	Noble Boiko G15-30D Plan #1 (2-29-12)			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	334.93

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,854.2	17.08	334.93	1,841.6	114.5	-53.6	2.00	2.00	0.00	334.93	
5,114.9	17.08	334.93	4,958.4	982.1	-459.5	0.00	0.00	0.00	0.00	
5,969.1	0.00	0.00	5,800.0	1,096.6	-513.1	2.00	-2.00	0.00	180.00	TARGET BHL 75'FI
7,444.1	0.00	0.00	7,275.0	1,096.6	-513.1	0.00	0.00	0.00	0.00	

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

Planned 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
40.0	0.00	0.00	40.0	0.0	0.0	0.0	0.00	0.00	0.00
80.0	0.00	0.00	80.0	0.0	0.0	0.0	0.00	0.00	0.00
120.0	0.00	0.00	120.0	0.0	0.0	0.0	0.00	0.00	0.00
160.0	0.00	0.00	160.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
240.0	0.00	0.00	240.0	0.0	0.0	0.0	0.00	0.00	0.00
280.0	0.00	0.00	280.0	0.0	0.0	0.0	0.00	0.00	0.00
320.0	0.00	0.00	320.0	0.0	0.0	0.0	0.00	0.00	0.00
360.0	0.00	0.00	360.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
440.0	0.00	0.00	440.0	0.0	0.0	0.0	0.00	0.00	0.00
480.0	0.00	0.00	480.0	0.0	0.0	0.0	0.00	0.00	0.00
520.0	0.00	0.00	520.0	0.0	0.0	0.0	0.00	0.00	0.00
560.0	0.00	0.00	560.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
640.0	0.00	0.00	640.0	0.0	0.0	0.0	0.00	0.00	0.00
650.0	0.00	0.00	650.0	0.0	0.0	0.0	0.00	0.00	0.00
8 5/8"									
680.0	0.00	0.00	680.0	0.0	0.0	0.0	0.00	0.00	0.00
720.0	0.00	0.00	720.0	0.0	0.0	0.0	0.00	0.00	0.00
760.0	0.00	0.00	760.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
840.0	0.00	0.00	840.0	0.0	0.0	0.0	0.00	0.00	0.00
880.0	0.00	0.00	880.0	0.0	0.0	0.0	0.00	0.00	0.00
920.0	0.00	0.00	920.0	0.0	0.0	0.0	0.00	0.00	0.00
960.0	0.00	0.00	960.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,040.0	0.80	334.93	1,040.0	0.3	-0.1	0.3	2.00	2.00	0.00
1,080.0	1.60	334.93	1,080.0	1.0	-0.5	1.1	2.00	2.00	0.00
1,120.0	2.40	334.93	1,120.0	2.3	-1.1	2.5	2.00	2.00	0.00
1,160.0	3.20	334.93	1,159.9	4.0	-1.9	4.5	2.00	2.00	0.00
1,200.0	4.00	334.93	1,199.8	6.3	-3.0	7.0	2.00	2.00	0.00
1,240.0	4.80	334.93	1,239.7	9.1	-4.3	10.0	2.00	2.00	0.00
1,280.0	5.60	334.93	1,279.6	12.4	-5.8	13.7	2.00	2.00	0.00
1,320.0	6.40	334.93	1,319.3	16.2	-7.6	17.9	2.00	2.00	0.00
1,360.0	7.20	334.93	1,359.1	20.5	-9.6	22.6	2.00	2.00	0.00
1,400.0	8.00	334.93	1,398.7	25.3	-11.8	27.9	2.00	2.00	0.00
1,440.0	8.80	334.93	1,438.3	30.5	-14.3	33.7	2.00	2.00	0.00
1,480.0	9.60	334.93	1,477.8	36.3	-17.0	40.1	2.00	2.00	0.00
1,520.0	10.40	334.93	1,517.1	42.6	-19.9	47.1	2.00	2.00	0.00
1,560.0	11.20	334.93	1,556.4	49.4	-23.1	54.6	2.00	2.00	0.00
1,600.0	12.00	334.93	1,595.6	56.7	-26.5	62.6	2.00	2.00	0.00
1,640.0	12.80	334.93	1,634.7	64.5	-30.2	71.2	2.00	2.00	0.00
1,680.0	13.60	334.93	1,673.6	72.8	-34.0	80.3	2.00	2.00	0.00
1,720.0	14.40	334.93	1,712.4	81.5	-38.1	90.0	2.00	2.00	0.00
1,760.0	15.20	334.93	1,751.1	90.8	-42.5	100.2	2.00	2.00	0.00
1,800.0	16.00	334.93	1,789.6	100.5	-47.0	111.0	2.00	2.00	0.00
1,840.0	16.80	334.93	1,828.0	110.7	-51.8	122.3	2.00	2.00	0.00
1,854.2	17.08	334.93	1,841.6	114.5	-53.6	126.4	2.00	2.00	0.00
1,880.0	17.08	334.93	1,866.3	121.4	-56.8	134.0	0.00	0.00	0.00
1,920.0	17.08	334.93	1,904.5	132.0	-61.8	145.7	0.00	0.00	0.00
1,960.0	17.08	334.93	1,942.7	142.6	-66.7	157.5	0.00	0.00	0.00
2,000.0	17.08	334.93	1,981.0	153.3	-71.7	169.2	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

Planned 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)
2,040.0	17.08	334.93	2,019.2	163.9	-76.7	181.0	0.00	0.00	0.00
2,080.0	17.08	334.93	2,057.4	174.6	-81.7	192.7	0.00	0.00	0.00
2,120.0	17.08	334.93	2,095.7	185.2	-86.7	204.5	0.00	0.00	0.00
2,160.0	17.08	334.93	2,133.9	195.9	-91.6	216.2	0.00	0.00	0.00
2,200.0	17.08	334.93	2,172.1	206.5	-96.6	228.0	0.00	0.00	0.00
2,240.0	17.08	334.93	2,210.4	217.1	-101.6	239.7	0.00	0.00	0.00
2,280.0	17.08	334.93	2,248.6	227.8	-106.6	251.5	0.00	0.00	0.00
2,320.0	17.08	334.93	2,286.8	238.4	-111.6	263.2	0.00	0.00	0.00
2,360.0	17.08	334.93	2,325.1	249.1	-116.5	275.0	0.00	0.00	0.00
2,400.0	17.08	334.93	2,363.3	259.7	-121.5	286.7	0.00	0.00	0.00
2,440.0	17.08	334.93	2,401.6	270.4	-126.5	298.5	0.00	0.00	0.00
2,480.0	17.08	334.93	2,439.8	281.0	-131.5	310.2	0.00	0.00	0.00
2,520.0	17.08	334.93	2,478.0	291.6	-136.5	322.0	0.00	0.00	0.00
2,560.0	17.08	334.93	2,516.3	302.3	-141.4	333.7	0.00	0.00	0.00
2,600.0	17.08	334.93	2,554.5	312.9	-146.4	345.5	0.00	0.00	0.00
2,640.0	17.08	334.93	2,592.7	323.6	-151.4	357.2	0.00	0.00	0.00
2,680.0	17.08	334.93	2,631.0	334.2	-156.4	369.0	0.00	0.00	0.00
2,720.0	17.08	334.93	2,669.2	344.9	-161.4	380.7	0.00	0.00	0.00
2,760.0	17.08	334.93	2,707.4	355.5	-166.3	392.5	0.00	0.00	0.00
2,800.0	17.08	334.93	2,745.7	366.2	-171.3	404.2	0.00	0.00	0.00
2,840.0	17.08	334.93	2,783.9	376.8	-176.3	416.0	0.00	0.00	0.00
2,880.0	17.08	334.93	2,822.1	387.4	-181.3	427.8	0.00	0.00	0.00
2,920.0	17.08	334.93	2,860.4	398.1	-186.3	439.5	0.00	0.00	0.00
2,960.0	17.08	334.93	2,898.6	408.7	-191.2	451.3	0.00	0.00	0.00
3,000.0	17.08	334.93	2,936.8	419.4	-196.2	463.0	0.00	0.00	0.00
3,040.0	17.08	334.93	2,975.1	430.0	-201.2	474.8	0.00	0.00	0.00
3,080.0	17.08	334.93	3,013.3	440.7	-206.2	486.5	0.00	0.00	0.00
3,120.0	17.08	334.93	3,051.5	451.3	-211.2	498.3	0.00	0.00	0.00
3,160.0	17.08	334.93	3,089.8	461.9	-216.1	510.0	0.00	0.00	0.00
3,200.0	17.08	334.93	3,128.0	472.6	-221.1	521.8	0.00	0.00	0.00
3,240.0	17.08	334.93	3,166.3	483.2	-226.1	533.5	0.00	0.00	0.00
3,280.0	17.08	334.93	3,204.5	493.9	-231.1	545.3	0.00	0.00	0.00
3,320.0	17.08	334.93	3,242.7	504.5	-236.1	557.0	0.00	0.00	0.00
3,360.0	17.08	334.93	3,281.0	515.2	-241.0	568.8	0.00	0.00	0.00
3,400.0	17.08	334.93	3,319.2	525.8	-246.0	580.5	0.00	0.00	0.00
3,440.0	17.08	334.93	3,357.4	536.4	-251.0	592.3	0.00	0.00	0.00
3,480.0	17.08	334.93	3,395.7	547.1	-256.0	604.0	0.00	0.00	0.00
3,520.0	17.08	334.93	3,433.9	557.7	-261.0	615.8	0.00	0.00	0.00
3,560.0	17.08	334.93	3,472.1	568.4	-265.9	627.5	0.00	0.00	0.00
3,600.0	17.08	334.93	3,510.4	579.0	-270.9	639.3	0.00	0.00	0.00
3,640.0	17.08	334.93	3,548.6	589.7	-275.9	651.0	0.00	0.00	0.00
3,680.0	17.08	334.93	3,586.8	600.3	-280.9	662.8	0.00	0.00	0.00
3,720.0	17.08	334.93	3,625.1	610.9	-285.9	674.5	0.00	0.00	0.00
3,760.0	17.08	334.93	3,663.3	621.6	-290.8	686.3	0.00	0.00	0.00
3,800.0	17.08	334.93	3,701.5	632.2	-295.8	698.0	0.00	0.00	0.00
3,840.0	17.08	334.93	3,739.8	642.9	-300.8	709.8	0.00	0.00	0.00
3,880.0	17.08	334.93	3,778.0	653.5	-305.8	721.5	0.00	0.00	0.00
3,920.0	17.08	334.93	3,816.3	664.2	-310.8	733.3	0.00	0.00	0.00
3,960.0	17.08	334.93	3,854.5	674.8	-315.7	745.0	0.00	0.00	0.00
4,000.0	17.08	334.93	3,892.7	685.4	-320.7	756.8	0.00	0.00	0.00
4,040.0	17.08	334.93	3,931.0	696.1	-325.7	768.5	0.00	0.00	0.00
4,080.0	17.08	334.93	3,969.2	706.7	-330.7	780.3	0.00	0.00	0.00
4,120.0	17.08	334.93	4,007.4	717.4	-335.7	792.0	0.00	0.00	0.00
4,160.0	17.08	334.93	4,045.7	728.0	-340.6	803.8	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

Planned 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)
4,200.0	17.08	334.93	4,083.9	738.7	-345.6	815.5	0.00	0.00	0.00
4,240.0	17.08	334.93	4,122.1	749.3	-350.6	827.3	0.00	0.00	0.00
4,280.0	17.08	334.93	4,160.4	759.9	-355.6	839.0	0.00	0.00	0.00
4,320.0	17.08	334.93	4,198.6	770.6	-360.6	850.8	0.00	0.00	0.00
4,360.0	17.08	334.93	4,236.8	781.2	-365.5	862.5	0.00	0.00	0.00
4,400.0	17.08	334.93	4,275.1	791.9	-370.5	874.3	0.00	0.00	0.00
4,440.0	17.08	334.93	4,313.3	802.5	-375.5	886.0	0.00	0.00	0.00
4,480.0	17.08	334.93	4,351.5	813.2	-380.5	897.8	0.00	0.00	0.00
4,520.0	17.08	334.93	4,389.8	823.8	-385.5	909.5	0.00	0.00	0.00
4,560.0	17.08	334.93	4,428.0	834.4	-390.4	921.3	0.00	0.00	0.00
4,600.0	17.08	334.93	4,466.2	845.1	-395.4	933.0	0.00	0.00	0.00
4,640.0	17.08	334.93	4,504.5	855.7	-400.4	944.8	0.00	0.00	0.00
4,680.0	17.08	334.93	4,542.7	866.4	-405.4	956.5	0.00	0.00	0.00
4,720.0	17.08	334.93	4,581.0	877.0	-410.4	968.3	0.00	0.00	0.00
4,760.0	17.08	334.93	4,619.2	887.7	-415.3	980.0	0.00	0.00	0.00
4,800.0	17.08	334.93	4,657.4	898.3	-420.3	991.8	0.00	0.00	0.00
4,840.0	17.08	334.93	4,695.7	908.9	-425.3	1,003.5	0.00	0.00	0.00
4,880.0	17.08	334.93	4,733.9	919.6	-430.3	1,015.3	0.00	0.00	0.00
4,920.0	17.08	334.93	4,772.1	930.2	-435.3	1,027.0	0.00	0.00	0.00
4,960.0	17.08	334.93	4,810.4	940.9	-440.2	1,038.8	0.00	0.00	0.00
5,000.0	17.08	334.93	4,848.6	951.5	-445.2	1,050.5	0.00	0.00	0.00
5,040.0	17.08	334.93	4,886.8	962.2	-450.2	1,062.3	0.00	0.00	0.00
5,080.0	17.08	334.93	4,925.1	972.8	-455.2	1,074.0	0.00	0.00	0.00
5,114.9	17.08	334.93	4,958.4	982.1	-459.5	1,084.3	0.00	0.00	0.00
5,120.0	16.98	334.93	4,963.3	983.4	-460.2	1,085.8	2.00	-2.00	0.00
5,160.0	16.18	334.93	5,001.6	993.8	-465.0	1,097.2	2.00	-2.00	0.00
5,200.0	15.38	334.93	5,040.1	1,003.6	-469.6	1,108.1	2.00	-2.00	0.00
5,240.0	14.58	334.93	5,078.8	1,013.0	-474.0	1,118.4	2.00	-2.00	0.00
5,280.0	13.78	334.93	5,117.6	1,021.9	-478.1	1,128.2	2.00	-2.00	0.00
5,320.0	12.98	334.93	5,156.5	1,030.3	-482.1	1,137.5	2.00	-2.00	0.00
5,360.0	12.18	334.93	5,195.5	1,038.2	-485.8	1,146.2	2.00	-2.00	0.00
5,400.0	11.38	334.93	5,234.7	1,045.6	-489.2	1,154.3	2.00	-2.00	0.00
5,440.0	10.58	334.93	5,273.9	1,052.5	-492.4	1,162.0	2.00	-2.00	0.00
5,480.0	9.78	334.93	5,313.3	1,058.9	-495.4	1,169.0	2.00	-2.00	0.00
5,520.0	8.98	334.93	5,352.8	1,064.8	-498.2	1,175.6	2.00	-2.00	0.00
5,560.0	8.18	334.93	5,392.3	1,070.2	-500.7	1,181.5	2.00	-2.00	0.00
5,600.0	7.38	334.93	5,432.0	1,075.1	-503.0	1,186.9	2.00	-2.00	0.00
5,640.0	6.58	334.93	5,471.7	1,079.5	-505.1	1,191.8	2.00	-2.00	0.00
5,680.0	5.78	334.93	5,511.4	1,083.4	-506.9	1,196.1	2.00	-2.00	0.00
5,720.0	4.98	334.93	5,551.2	1,086.8	-508.5	1,199.9	2.00	-2.00	0.00
5,760.0	4.18	334.93	5,591.1	1,089.7	-509.9	1,203.1	2.00	-2.00	0.00
5,800.0	3.38	334.93	5,631.0	1,092.1	-511.0	1,205.7	2.00	-2.00	0.00
5,840.0	2.58	334.93	5,671.0	1,093.9	-511.9	1,207.8	2.00	-2.00	0.00
5,880.0	1.78	334.93	5,710.9	1,095.3	-512.5	1,209.3	2.00	-2.00	0.00
5,920.0	0.98	334.93	5,750.9	1,096.2	-512.9	1,210.3	2.00	-2.00	0.00
5,960.0	0.18	334.93	5,790.9	1,096.6	-513.1	1,210.7	2.00	-2.00	0.00
5,969.1	0.00	0.00	5,800.0	1,096.6	-513.1	1,210.7	2.00	-2.00	0.00
TARGET BHL 75'FNL & 75'FWL									
6,000.0	0.00	0.00	5,830.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,040.0	0.00	0.00	5,870.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,080.0	0.00	0.00	5,910.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,120.0	0.00	0.00	5,950.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,160.0	0.00	0.00	5,990.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,030.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00

<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

Planned 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)
6,240.0	0.00	0.00	6,070.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,280.0	0.00	0.00	6,110.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,320.0	0.00	0.00	6,150.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,360.0	0.00	0.00	6,190.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,230.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,440.0	0.00	0.00	6,270.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,480.0	0.00	0.00	6,310.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,520.0	0.00	0.00	6,350.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,560.0	0.00	0.00	6,390.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,430.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,640.0	0.00	0.00	6,470.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,680.0	0.00	0.00	6,510.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,720.0	0.00	0.00	6,550.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,760.0	0.00	0.00	6,590.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,630.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,840.0	0.00	0.00	6,670.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,880.0	0.00	0.00	6,710.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,920.0	0.00	0.00	6,750.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,960.0	0.00	0.00	6,790.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
6,969.1	0.00	0.00	6,800.0	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
NIOBRARA - TARGET CIRCLE 75'FNL & 75'FWL									
7,000.0	0.00	0.00	6,830.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,040.0	0.00	0.00	6,870.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,080.0	0.00	0.00	6,910.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,120.0	0.00	0.00	6,950.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,160.0	0.00	0.00	6,990.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,030.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,240.0	0.00	0.00	7,070.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,280.0	0.00	0.00	7,110.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,294.1	0.00	0.00	7,125.0	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
CODELL									
7,320.0	0.00	0.00	7,150.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,360.0	0.00	0.00	7,190.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,400.0	0.00	0.00	7,230.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,440.0	0.00	0.00	7,270.9	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
7,444.1	0.00	0.00	7,275.0	1,096.6	-513.1	1,210.7	0.00	0.00	0.00
HARDLINES 75'N & 75'W OF BHL									



<b>Database:</b>	Landmark	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Project:</b>	SEC.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>North Reference:</b>	True
<b>Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
TARGET BHL 75'FNL	0.00	0.00	5,800.0	1,096.6	-513.1	1,360,352.18	3,234,688.60	40.319510	-104.658330
- plan hits target center									
- Point									
HARDLINES 75'N & 7	0.00	0.00	7,275.0	1,171.6	-588.1	1,360,426.48	3,234,612.89	40.319716	-104.658599
- plan misses target center by 106.1ft at 7444.1ft MD (7275.0 TVD, 1096.6 N, -513.1 E)									
- Polygon									
Point 1			7,275.0	0.0	0.0	1,360,426.48	3,234,612.89		
Point 2			7,275.0	0.0	200.0	1,360,428.39	3,234,812.87		
Point 3			7,275.0	0.0	0.0	1,360,426.48	3,234,612.89		
Point 4			7,275.0	-200.0	0.0	1,360,226.50	3,234,614.79		
TARGET CIRCLE 75'	0.00	0.00	6,800.0	1,096.6	-513.1	1,360,352.18	3,234,688.60	40.319510	-104.658330
- plan hits target center									
- Circle (radius 75.0)									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(ft)	(ft)	Name	(")	(")
	650.0	650.0	8 5/8"	8-5/8	12-1/4

Formations					
	Measured Depth	Vertical Depth			
	(ft)	(ft)	Name	Lithology	Dip
					(°)
					Dip Direction
					(°)
	6,969.1	6,800.0	NIOBRARA		0.00
	7,294.1	7,125.0	CODELL		0.00





# **NOBLE ENERGY INC WELD COUNTY CO**

**SEC.15-T4N-R65W**

**Boiko G15-30D Pad Sec.15-T4N-R65W**

**Boiko G15-30D**

**Wellbore #1**

**Noble Boiko G15-30D Plan #1 (2-29-12)**

## **Anticollision Report**

**01 March, 2012**



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Noble Boiko G15-30D Plan #1 (2-29		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b> 3/1/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	7,444.1	Noble Boiko G15-30D Plan #1 (2-29-12) (\ MWD		MWD - Standard

<b>Summary</b>						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Boiko G15-30D Pad Sec.15-T4N-R65W						
Boiko G15-31D - Wellbore #1 - Noble Boiko G15-31D Pl:	766.3	767.3	22.3	19.1	6.923 CC	
Boiko G15-31D - Wellbore #1 - Noble Boiko G15-31D Pl:	800.0	801.0	22.3	18.9	6.613 ES	
Boiko G15-31D - Wellbore #1 - Noble Boiko G15-31D Pl:	900.0	900.0	24.0	20.2	6.317 SF	
Boiko PC G15-28D Pad Sec.15-T4N-R65W						
Boiko PC G15-28D - Wellbore #1 - Wellbore #1	1,900.0	1,781.7	555.0	550.4	120.038 CC, ES	
Boiko PC G15-28D - Wellbore #1 - Wellbore #1	3,000.0	2,637.4	835.7	824.8	76.794 SF	
Boiko PC G15-29D - Wellbore #1 - Wellbore #1	1,989.5	1,855.8	560.2	551.1	61.674 CC	
Boiko PC G15-29D - Wellbore #1 - Wellbore #1	2,000.0	1,865.5	560.2	551.0	61.168 ES	
Boiko PC G15-29D - Wellbore #1 - Wellbore #1	7,444.1	7,378.9	1,220.6	1,176.1	27.419 SF	
Lee PM G15-04 (Exist.) - Wellbore #1 - Design #1	3,303.1	3,213.6	221.4	201.6	11.199 CC, ES	
Lee PM G15-04 (Exist.) - Wellbore #1 - Design #1	3,500.0	3,401.8	228.8	207.7	10.873 SF	

<b>Offset Design</b>												
Boiko G15-30D Pad Sec.15-T4N-R65W - Boiko G15-31D - Wellbore #1 - Noble Boiko G15-31D Plan #1												
Survey Program: 0-MWD												
<b>Reference</b>		<b>Offset</b>		<b>Semi Major Axis</b>			<b>Distance</b>					
<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Measured Depth (ft)</b>	<b>Vertical Depth (ft)</b>	<b>Reference (ft)</b>	<b>Offset (ft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Between Centres (ft)</b>	<b>Between Ellipses (ft)</b>	<b>Minimum Separation (ft)</b>	<b>Separation Factor</b>
0.0	0.0	1.0	1.0	0.0	0.0	-90.00	0.0	-22.3	22.3	22.3	0.00	N/A
100.0	100.0	101.0	101.0	0.1	0.1	-90.00	0.0	-22.3	22.3	22.1	0.23	98.273
200.0	200.0	201.0	201.0	0.3	0.3	-90.00	0.0	-22.3	22.3	21.6	0.68	32.975
300.0	300.0	301.0	301.0	0.6	0.6	-90.00	0.0	-22.3	22.3	21.2	1.13	19.811
400.0	400.0	401.0	401.0	0.8	0.8	-90.00	0.0	-22.3	22.3	20.7	1.58	14.159
500.0	500.0	501.0	501.0	1.0	1.0	-90.00	0.0	-22.3	22.3	20.3	2.03	11.016
600.0	600.0	601.0	601.0	1.2	1.2	-90.00	0.0	-22.3	22.3	19.8	2.47	9.015
700.0	700.0	701.0	701.0	1.5	1.5	-90.00	0.0	-22.3	22.3	19.4	2.92	7.629
766.3	766.3	767.3	767.3	1.6	1.6	-90.00	0.0	-22.3	22.3	19.1	3.22	6.923 CC
800.0	800.0	801.0	801.0	1.7	1.7	-90.00	0.0	-22.3	22.3	18.9	3.37	6.613 ES
900.0	900.0	900.0	900.0	1.9	1.9	-90.94	-0.4	-24.0	24.0	20.2	3.80	6.317 SF
1,000.0	1,000.0	999.2	999.0	2.1	2.1	-93.08	-1.6	-29.1	29.2	24.9	4.23	6.897
1,100.0	1,100.0	1,097.7	1,097.1	2.4	2.3	-72.62	-3.5	-37.4	37.2	32.5	4.65	7.987
1,200.0	1,199.8	1,195.5	1,194.2	2.6	2.6	-79.61	-6.2	-48.9	48.0	42.9	5.09	9.442
1,300.0	1,299.5	1,292.3	1,289.9	2.8	2.8	-86.61	-9.5	-63.4	62.4	56.9	5.54	11.277
1,400.0	1,398.7	1,390.1	1,386.2	3.1	3.1	-93.01	-13.4	-80.2	79.7	73.7	6.02	13.248

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
1,500.0	1,497.5	1,487.9	1,482.5	3.3	3.5	-98.98	-17.3	-97.0	98.2	91.7	6.53	15.033	
1,600.0	1,595.6	1,585.3	1,578.3	3.6	3.8	-104.55	-21.2	-113.7	118.3	111.2	7.10	16.674	
1,700.0	1,693.1	1,682.0	1,673.5	4.0	4.1	-109.68	-25.0	-130.3	140.5	132.8	7.71	18.219	
1,800.0	1,789.6	1,778.0	1,768.0	4.4	4.5	-114.36	-28.9	-146.8	165.0	156.6	8.37	19.707	
1,900.0	1,885.4	1,873.3	1,861.8	4.9	4.9	-118.74	-32.7	-163.2	191.8	182.7	9.07	21.145	
2,000.0	1,981.0	1,968.5	1,955.5	5.3	5.2	-122.36	-36.5	-179.5	219.8	210.0	9.80	22.438	
2,100.0	2,076.6	2,063.6	2,049.1	5.9	5.6	-125.16	-40.2	-195.9	248.5	238.0	10.53	23.594	
2,200.0	2,172.1	2,158.8	2,142.8	6.4	6.0	-127.39	-44.0	-212.2	277.6	266.3	11.27	24.623	
2,300.0	2,267.7	2,254.0	2,236.5	6.9	6.3	-129.19	-47.8	-228.6	307.0	295.0	12.02	25.541	
2,400.0	2,363.3	2,349.2	2,330.2	7.5	6.7	-130.68	-51.6	-244.9	336.6	323.9	12.77	26.360	
2,500.0	2,458.9	2,444.3	2,423.9	8.0	7.1	-131.93	-55.4	-261.3	366.5	352.9	13.53	27.095	
2,600.0	2,554.5	2,539.5	2,517.5	8.6	7.5	-133.00	-59.2	-277.6	396.4	382.1	14.28	27.756	
2,700.0	2,650.1	2,634.7	2,611.2	9.2	7.8	-133.91	-63.0	-294.0	426.5	411.4	15.04	28.353	
2,800.0	2,745.7	2,729.8	2,704.9	9.7	8.2	-134.71	-66.8	-310.3	456.6	440.8	15.80	28.894	
2,900.0	2,841.3	2,825.0	2,798.6	10.3	8.6	-135.40	-70.6	-326.7	486.8	470.3	16.57	29.386	
3,000.0	2,936.8	2,920.2	2,892.2	10.9	9.0	-136.02	-74.4	-343.0	517.1	499.8	17.33	29.836	
3,100.0	3,032.4	3,015.3	2,985.9	11.5	9.4	-136.56	-78.2	-359.4	547.4	529.3	18.10	30.248	
3,200.0	3,128.0	3,110.5	3,079.6	12.1	9.7	-137.05	-81.9	-375.7	577.8	558.9	18.87	30.626	
3,300.0	3,223.6	3,205.7	3,173.3	12.6	10.1	-137.49	-85.7	-392.1	608.2	588.6	19.64	30.975	
3,400.0	3,319.2	3,300.8	3,266.9	13.2	10.5	-137.89	-89.5	-408.4	638.6	618.2	20.41	31.297	
3,500.0	3,414.8	3,396.0	3,360.6	13.8	10.9	-138.25	-93.3	-424.8	669.1	647.9	21.18	31.596	
3,600.0	3,510.4	3,491.2	3,454.3	14.4	11.3	-138.59	-97.1	-441.1	699.5	677.6	21.95	31.873	
3,700.0	3,606.0	3,586.3	3,548.0	15.0	11.7	-138.89	-100.9	-457.5	730.0	707.3	22.72	32.131	
3,800.0	3,701.5	3,681.5	3,641.7	15.6	12.0	-139.17	-104.7	-473.8	760.6	737.1	23.49	32.373	
3,900.0	3,797.1	3,776.7	3,735.3	16.2	12.4	-139.43	-108.5	-490.2	791.1	766.8	24.27	32.598	
4,000.0	3,892.7	3,871.9	3,829.0	16.8	12.8	-139.66	-112.3	-506.5	821.6	796.6	25.04	32.810	
4,100.0	3,988.3	3,967.0	3,922.7	17.4	13.2	-139.89	-116.1	-522.9	852.2	826.4	25.82	33.008	
4,200.0	4,083.9	4,062.2	4,016.4	17.9	13.6	-140.09	-119.8	-539.2	882.7	856.1	26.59	33.195	
4,300.0	4,179.5	4,157.4	4,110.0	18.5	14.0	-140.28	-123.6	-555.6	913.3	885.9	27.37	33.371	
4,400.0	4,275.1	4,252.5	4,203.7	19.1	14.4	-140.46	-127.4	-572.0	943.9	915.7	28.14	33.537	
4,500.0	4,370.7	4,347.7	4,297.4	19.7	14.8	-140.63	-131.2	-588.3	974.5	945.6	28.92	33.694	
4,600.0	4,466.2	4,442.9	4,391.1	20.3	15.1	-140.79	-135.0	-604.7	1,005.1	975.4	29.70	33.842	
4,700.0	4,561.8	4,538.0	4,484.7	20.9	15.5	-140.94	-138.8	-621.0	1,035.7	1,005.2	30.48	33.983	
4,800.0	4,657.4	4,649.2	4,594.4	21.5	15.9	-141.19	-142.8	-638.4	1,065.7	1,034.4	31.22	34.137	
4,900.0	4,753.0	4,762.8	4,707.2	22.1	16.2	-141.66	-146.0	-651.9	1,094.1	1,062.2	31.88	34.323	
5,000.0	4,848.6	4,876.9	4,820.9	22.7	16.4	-142.31	-148.1	-661.0	1,120.9	1,088.5	32.47	34.523	
5,100.0	4,944.2	4,990.9	4,934.8	23.3	16.6	-143.14	-149.2	-665.8	1,146.4	1,113.4	33.00	34.743	
5,200.0	5,040.1	5,097.2	5,041.1	23.8	16.7	-144.25	-149.3	-666.5	1,169.7	1,136.2	33.50	34.915	
5,300.0	5,137.0	5,194.1	5,138.0	24.2	16.8	-145.18	-149.3	-666.5	1,190.2	1,156.2	33.94	35.071	
5,400.0	5,234.7	5,291.8	5,235.7	24.6	17.0	-145.96	-149.3	-666.5	1,208.0	1,173.6	34.34	35.174	
5,500.0	5,333.0	5,390.1	5,334.0	24.9	17.1	-146.60	-149.3	-666.5	1,223.0	1,188.3	34.72	35.225	
5,600.0	5,432.0	5,489.1	5,433.0	25.2	17.3	-147.10	-149.3	-666.5	1,235.3	1,200.2	35.07	35.226	
5,700.0	5,531.3	5,588.4	5,532.3	25.4	17.4	-147.48	-149.3	-666.5	1,244.7	1,209.3	35.38	35.175	
5,800.0	5,631.0	5,688.1	5,632.0	25.6	17.5	-147.74	-149.3	-666.5	1,251.1	1,215.4	35.67	35.075	
5,900.0	5,730.9	5,788.0	5,731.9	25.8	17.7	-147.88	-149.3	-666.5	1,254.6	1,218.7	35.92	34.924	
6,000.0	5,830.9	5,888.0	5,831.9	25.9	17.8	-172.98	-149.3	-666.5	1,255.3	1,219.2	36.17	34.707	
6,100.0	5,930.9	5,988.0	5,931.9	26.0	18.0	-172.98	-149.3	-666.5	1,255.3	1,218.9	36.47	34.419	
6,200.0	6,030.9	6,088.0	6,031.9	26.1	18.1	-172.98	-149.3	-666.5	1,255.3	1,218.6	36.78	34.133	
6,300.0	6,130.9	6,188.0	6,131.9	26.2	18.3	-172.98	-149.3	-666.5	1,255.3	1,218.2	37.09	33.849	
6,400.0	6,230.9	6,288.0	6,231.9	26.3	18.4	-172.98	-149.3	-666.5	1,255.3	1,217.9	37.40	33.567	
6,500.0	6,330.9	6,388.0	6,331.9	26.4	18.6	-172.98	-149.3	-666.5	1,255.3	1,217.6	37.71	33.287	
6,600.0	6,430.9	6,488.0	6,431.9	26.5	18.8	-172.98	-149.3	-666.5	1,255.3	1,217.3	38.03	33.010	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Boiko G15-30D Pad Sec.15-T4N-R65W - Boiko G15-31D - Wellbore #1 - Noble Boiko G15-31D Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)			
6,700.0	6,530.9	6,588.0	6,531.9	26.7	18.9	-172.98	-149.3	-666.5	1,255.3	1,217.0	38.35	32.735		
6,800.0	6,630.9	6,688.0	6,631.9	26.8	19.1	-172.98	-149.3	-666.5	1,255.3	1,216.7	38.67	32.462		
6,900.0	6,730.9	6,788.0	6,731.9	26.9	19.2	-172.98	-149.3	-666.5	1,255.3	1,216.3	39.00	32.192		
7,000.0	6,830.9	6,888.0	6,831.9	27.0	19.4	-172.98	-149.3	-666.5	1,255.3	1,216.0	39.32	31.924		
7,100.0	6,930.9	6,988.0	6,931.9	27.1	19.6	-172.98	-149.3	-666.5	1,255.3	1,215.7	39.65	31.659		
7,200.0	7,030.9	7,088.0	7,031.9	27.2	19.7	-172.98	-149.3	-666.5	1,255.3	1,215.4	39.98	31.396		
7,300.0	7,130.9	7,188.0	7,131.9	27.4	19.9	-172.98	-149.3	-666.5	1,255.3	1,215.0	40.32	31.136		
7,400.0	7,230.9	7,288.0	7,231.9	27.5	20.1	-172.98	-149.3	-666.5	1,255.3	1,214.7	40.65	30.878		
7,429.0	7,260.0	7,317.1	7,261.0	27.5	20.1	-172.98	-149.3	-666.5	1,255.3	1,214.6	40.75	30.804		
7,444.1	7,275.0	7,331.1	7,275.0	27.5	20.1	-172.98	-149.3	-666.5	1,255.3	1,214.5	40.80	30.767		

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 94-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0		3.35	572.0	33.5	573.1				
100.0	100.0	90.8	90.8	0.1		3.37	571.7	33.7	572.7	572.5	0.21	2,667.441	
200.0	200.0	189.2	189.2	0.3		3.40	571.3	33.9	572.3	572.0	0.34	1,697.501	
215.0	215.0	203.0	203.0	0.4		3.40	571.3	33.9	572.3	571.9	0.37	1,543.393	
300.0	300.0	282.6	282.6	0.6		3.40	571.8	33.9	572.8	572.2	0.56	1,019.347	
400.0	400.0	388.2	388.2	0.8		3.39	572.2	33.9	573.2	572.4	0.79	728.674	
500.0	500.0	491.6	491.6	1.0		3.37	571.8	33.6	572.8	571.8	1.01	566.332	
600.0	600.0	592.0	592.0	1.2		3.37	571.1	33.6	572.2	570.9	1.24	462.825	
700.0	700.0	690.2	690.2	1.5		3.39	570.5	33.8	571.5	570.1	1.46	391.184	
762.9	762.9	750.9	750.9	1.6		3.39	570.4	33.8	571.4	569.8	1.60	356.607	
800.0	800.0	786.8	786.8	1.7		3.43	570.4	34.2	571.4	569.8	1.69	338.981	
900.0	900.0	880.6	880.5	1.9		3.70	570.9	36.9	572.2	570.2	1.91	299.478	
1,000.0	1,000.0	984.2	983.9	2.1		4.31	571.7	43.1	573.3	571.2	2.14	268.496	
1,100.0	1,100.0	1,077.9	1,077.2	2.4		30.32	572.1	51.7	573.0	570.7	2.36	242.958	
1,200.0	1,199.8	1,168.1	1,166.7	2.6		31.69	573.4	62.9	571.3	568.7	2.58	221.383	
1,300.0	1,299.5	1,257.8	1,255.3	2.8		33.50	575.7	77.0	568.6	565.8	2.80	202.730	
1,400.0	1,398.7	1,341.8	1,337.7	3.1		35.63	579.0	92.7	565.6	562.6	3.04	186.341	
1,500.0	1,497.5	1,431.8	1,425.5	3.3		38.30	583.8	111.8	562.9	559.7	3.28	171.631	
1,600.0	1,595.6	1,520.5	1,511.7	3.6		41.29	588.8	132.3	559.9	556.3	3.55	157.819	
1,700.0	1,693.1	1,607.3	1,595.8	4.0		44.48	594.5	153.0	557.4	553.6	3.85	144.767	
1,800.0	1,789.6	1,698.9	1,684.3	4.4		48.13	601.1	175.6	555.8	551.6	4.20	132.178	
1,875.8	1,862.3	1,764.0	1,747.0	4.7		50.94	605.2	192.7	555.0	550.5	4.52	122.786	
1,900.0	1,885.4	1,781.7	1,764.0	4.9		51.76	606.4	197.5	555.0	550.4	4.62	120.038 CC, ES	
2,000.0	1,981.0	1,855.6	1,834.6	5.3		55.06	612.6	218.4	559.6	554.5	5.09	109.941	
2,100.0	2,076.6	1,931.6	1,906.6	5.9		58.44	620.2	241.4	570.0	564.4	5.60	101.864	
2,200.0	2,172.1	2,023.0	1,992.7	6.4		62.53	629.0	270.8	584.4	578.3	6.15	95.100	
2,300.0	2,267.7	2,104.5	2,069.2	6.9		66.14	636.1	298.1	602.5	595.8	6.71	89.743	
2,400.0	2,363.3	2,174.9	2,134.8	7.5		69.11	643.0	322.6	625.4	618.1	7.29	85.785	
2,500.0	2,458.9	2,253.6	2,207.6	8.0		72.16	653.0	350.9	653.2	645.4	7.88	82.879	
2,600.0	2,554.5	2,338.8	2,286.3	8.6		75.29	663.3	381.8	683.6	675.2	8.48	80.574	
2,700.0	2,650.1	2,415.5	2,356.7	9.2		78.04	671.4	411.1	717.1	708.0	9.09	78.918	
2,800.0	2,745.7	2,493.0	2,427.3	9.7		80.74	678.9	442.3	753.8	744.1	9.69	77.804	
2,900.0	2,841.3	2,567.9	2,495.0	10.3		83.28	684.9	473.8	793.4	783.1	10.29	77.119	
3,000.0	2,936.8	2,637.4	2,557.3	10.9		85.60	688.9	504.2	835.7	824.8	10.88	76.794 SF	
3,100.0	3,032.4	2,698.7	2,611.7	11.5		87.57	691.9	532.3	881.2	869.8	11.47	76.827	
3,200.0	3,128.0	2,750.3	2,656.8	12.1		89.16	694.5	557.2	930.6	918.5	12.05	77.199	
3,300.0	3,223.6	2,814.4	2,712.0	12.6		91.02	697.8	589.7	983.3	970.7	12.63	77.836	
3,400.0	3,319.2	2,893.7	2,780.2	13.2		93.12	702.2	630.0	1,037.4	1,024.2	13.20	78.579	
3,500.0	3,414.8	2,974.4	2,849.7	13.8		95.04	707.1	670.6	1,092.3	1,078.5	13.76	79.362	
3,600.0	3,510.4	3,047.6	2,912.7	14.4		96.60	712.2	707.5	1,148.0	1,133.7	14.32	80.167	
3,700.0	3,606.0	3,107.9	2,964.4	15.0		97.74	717.3	738.2	1,205.2	1,190.3	14.88	80.991	
3,800.0	3,701.5	3,175.2	3,021.4	15.6		98.84	724.7	773.1	1,263.9	1,248.5	15.44	81.885	
3,900.0	3,797.1	3,270.2	3,102.2	16.2		100.23	735.8	822.0	1,322.8	1,306.8	15.98	82.800	
4,000.0	3,892.7	3,377.9	3,194.6	16.8		101.56	749.8	875.5	1,380.5	1,364.0	16.51	83.623	
4,100.0	3,988.3	3,502.6	3,303.0	17.4		102.94	766.1	934.8	1,436.7	1,419.7	17.03	84.354	
4,200.0	4,083.9	3,590.0	3,379.9	17.9		103.81	777.4	974.7	1,491.2	1,473.6	17.57	84.874	
4,300.0	4,179.5	3,733.2	3,506.6	18.5		104.93	800.2	1,037.5	1,544.5	1,526.4	18.09	85.388	
4,400.0	4,275.1	3,808.0	3,573.3	19.1		105.45	812.3	1,069.1	1,596.4	1,577.8	18.63	85.669	
4,500.0	4,370.7	3,855.0	3,615.0	19.7		105.79	819.4	1,089.5	1,649.6	1,630.5	19.19	85.959	
4,600.0	4,466.2	3,902.0	3,656.3	20.3		106.13	826.0	1,111.0	1,704.8	1,685.0	19.75	86.340	
4,700.0	4,561.8	3,952.3	3,700.1	20.9		106.49	833.0	1,134.8	1,761.6	1,741.3	20.30	86.794	
4,800.0	4,657.4	4,006.7	3,746.9	21.5		106.85	841.0	1,161.3	1,819.9	1,799.1	20.85	87.301	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0ft
Boiko PC G15-28D Pad Sec.15-T4N-R65W - Boiko PC G15-28D - Wellbore #1 - Wellbore #1												<b>Offset Well Error:</b>	0.0ft
Survey Program: 94-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.0	4,753.0	4,091.9	3,820.0	22.1		107.35	854.0	1,203.1	1,878.7	1,857.3	21.38	87.860	
5,000.0	4,848.6	4,170.3	3,887.1	22.7		107.77	866.5	1,241.6	1,937.5	1,915.6	21.92	88.374	
5,100.0	4,944.2	4,290.4	3,990.4	23.3		108.32	886.7	1,299.5	1,995.8	1,973.3	22.45	88.900	
5,200.0	5,040.1	4,431.4	4,113.5	23.8		109.95	909.9	1,364.0	2,051.2	2,028.4	22.81	89.941	
5,300.0	5,137.0	4,534.6	4,204.7	24.2		111.40	926.3	1,409.7	2,104.4	2,081.4	23.06	91.265	
5,400.0	5,234.7	4,643.8	4,301.7	24.6		112.70	941.9	1,457.2	2,155.8	2,132.5	23.27	92.630	
5,500.0	5,333.0	4,721.3	4,370.7	24.9		113.78	953.6	1,490.6	2,205.6	2,182.1	23.46	94.012	
5,600.0	5,432.0	4,811.7	4,450.8	25.2		114.68	968.7	1,529.7	2,254.5	2,230.9	23.62	95.449	
5,700.0	5,531.3	5,123.0	4,733.2	25.4		115.14	1,012.1	1,652.7	2,300.2	2,276.4	23.79	96.701	
5,800.0	5,631.0	5,174.0	4,780.5	25.6		115.80	1,018.4	1,670.5	2,338.3	2,314.4	23.88	97.906	
5,900.0	5,730.9	5,235.9	4,837.5	25.8		116.38	1,026.2	1,693.4	2,376.7	2,352.8	23.94	99.260	
6,000.0	5,830.9	5,374.7	4,966.2	25.9		91.42	1,040.5	1,743.3	2,412.8	2,388.8	24.03	100.403	
6,100.0	5,930.9	6,096.1	5,665.0	26.0		90.17	1,089.4	1,904.1	2,430.5	2,406.2	24.30	100.008	
6,200.0	6,030.9	6,385.7	5,953.9	26.1		90.10	1,092.2	1,921.7	2,435.7	2,411.2	24.42	99.724	
6,300.0	6,130.9	6,479.3	6,047.5	26.2		90.10	1,092.3	1,924.3	2,438.5	2,413.9	24.54	99.376	
6,400.0	6,230.9	6,587.0	6,155.1	26.3		90.11	1,092.0	1,927.3	2,441.3	2,416.6	24.65	99.026	
6,500.0	6,330.9	6,672.8	6,240.9	26.4		90.12	1,091.5	1,929.8	2,444.1	2,419.4	24.77	98.680	
6,600.0	6,430.9	6,759.8	6,327.8	26.5		90.13	1,090.8	1,932.8	2,447.6	2,422.7	24.88	98.359	
6,700.0	6,530.9	6,855.8	6,423.8	26.7		90.16	1,089.9	1,936.6	2,451.5	2,426.5	25.00	98.053	
6,800.0	6,630.9	7,030.0	6,597.9	26.8		90.19	1,088.4	1,940.7	2,453.9	2,428.7	25.12	97.689	
6,900.0	6,730.9	7,143.9	6,711.8	26.9		90.27	1,084.9	1,940.9	2,454.0	2,428.8	25.23	97.257	
7,000.0	6,830.9	7,222.3	6,790.1	27.0		90.32	1,083.0	1,941.4	2,454.7	2,429.4	25.35	96.830	
7,100.0	6,930.9	7,320.4	6,888.2	27.1		90.35	1,081.4	1,942.6	2,455.9	2,430.5	25.47	96.417	
7,200.0	7,030.9	7,427.5	6,995.3	27.2		90.37	1,080.5	1,943.8	2,457.1	2,431.5	25.60	95.993	
7,300.0	7,130.9	7,576.6	7,144.4	27.4		90.38	1,080.4	1,944.1	2,457.4	2,431.6	25.72	95.526	
7,400.0	7,230.9	7,679.6	7,247.3	27.5		90.39	1,079.9	1,942.8	2,456.1	2,430.3	25.85	95.004	
7,444.1	7,275.0	7,722.0	7,289.8	27.5		90.39	1,079.8	1,942.3	2,455.6	2,429.7	25.91	94.774	



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 94-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.0	0.0	0.0	0.0	0.0	0.0	1.38	579.2	13.9	579.5				
100.0	100.0	81.8	81.8	0.1	0.1	1.38	579.7	14.0	579.9	579.7	0.21	2,826.547	
200.0	200.0	183.6	183.6	0.3	0.3	1.42	580.7	14.4	580.9	580.3	0.63	918.176	
300.0	300.0	286.9	286.8	0.6	0.5	1.49	581.2	15.1	581.4	580.3	1.07	544.028	
400.0	400.0	386.2	386.2	0.8	0.7	1.50	581.4	15.2	581.6	580.1	1.50	387.827	
500.0	500.0	486.8	486.8	1.0	0.9	1.55	581.7	15.7	581.9	580.0	1.94	300.643	
600.0	600.0	582.9	582.9	1.2	1.1	1.59	582.0	16.1	582.3	579.9	2.36	246.622	
700.0	700.0	687.5	687.5	1.5	1.3	1.57	582.8	16.0	583.0	580.2	2.80	207.956	
800.0	800.0	781.0	781.0	1.7	1.5	1.59	583.3	16.2	583.6	580.4	3.23	180.914	
900.0	900.0	877.7	877.6	1.9	1.7	1.78	584.9	18.2	585.3	581.6	3.66	159.968	
1,000.0	1,000.0	977.2	977.1	2.1	2.0	2.09	586.5	21.4	587.0	582.9	4.10	143.206	
1,100.0	1,100.0	1,069.4	1,069.2	2.4	2.2	27.55	588.5	24.8	587.8	583.3	4.53	129.866	
1,200.0	1,199.8	1,160.8	1,160.4	2.6	2.4	28.22	592.0	29.5	587.3	582.3	4.95	118.569	
1,300.0	1,299.5	1,254.6	1,253.8	2.8	2.6	29.29	596.4	36.7	584.7	579.3	5.39	108.403	
1,400.0	1,398.7	1,341.3	1,339.9	3.1	2.8	30.71	601.3	45.9	580.8	575.0	5.83	99.580	
1,500.0	1,497.5	1,423.9	1,421.5	3.3	3.1	32.40	608.1	56.7	577.2	570.9	6.28	91.917	
1,600.0	1,595.6	1,512.2	1,508.4	3.6	3.4	34.50	616.9	69.6	573.4	566.6	6.77	84.747	
1,700.0	1,693.1	1,602.6	1,597.1	4.0	3.7	36.96	626.8	83.9	568.9	561.6	7.29	77.998	
1,800.0	1,789.6	1,686.9	1,679.4	4.4	4.0	39.63	636.8	99.3	564.5	556.7	7.85	71.933	
1,900.0	1,885.4	1,773.0	1,763.1	4.9	4.3	42.58	648.3	115.8	561.1	552.7	8.46	66.290	
1,989.5	1,970.9	1,855.8	1,843.5	5.3	4.7	45.46	659.9	132.0	560.2	551.1	9.08	61.674 CC	
2,000.0	1,981.0	1,865.5	1,852.9	5.3	4.7	45.80	661.2	134.0	560.2	551.0	9.16	61.168 ES	
2,100.0	2,076.6	1,956.2	1,940.7	5.9	5.1	49.04	674.0	152.8	561.8	551.9	9.89	56.798	
2,200.0	2,172.1	2,058.4	2,039.8	6.4	5.6	52.55	688.4	172.9	565.1	554.4	10.66	53.013	
2,300.0	2,267.7	2,149.0	2,127.8	6.9	5.9	55.56	701.4	190.1	570.2	558.8	11.41	49.987	
2,400.0	2,363.3	2,249.3	2,225.2	7.5	6.4	58.93	715.0	209.8	577.0	564.8	12.21	47.248	
2,500.0	2,458.9	2,342.2	2,315.6	8.0	6.8	62.04	726.8	228.1	585.1	572.1	13.01	44.971	
2,600.0	2,554.5	2,431.0	2,401.7	8.6	7.2	64.98	737.9	246.4	595.6	581.8	13.82	43.087	
2,700.0	2,650.1	2,520.4	2,488.2	9.2	7.6	67.96	748.6	266.2	608.7	594.0	14.65	41.542	
2,800.0	2,745.7	2,607.0	2,571.8	9.7	8.1	70.78	759.2	286.2	624.5	609.0	15.48	40.346	
2,900.0	2,841.3	2,679.9	2,641.9	10.3	8.5	73.01	769.3	303.6	643.8	627.5	16.27	39.575	
3,000.0	2,936.8	2,759.4	2,717.6	10.9	8.9	75.25	782.5	324.0	667.4	650.3	17.08	39.067	
3,100.0	3,032.4	2,848.1	2,801.9	11.5	9.4	77.57	798.0	347.1	693.2	675.3	17.93	38.662	
3,200.0	3,128.0	2,957.5	2,905.8	12.1	10.0	80.18	817.3	375.0	720.0	701.2	18.83	38.239	
3,300.0	3,223.6	3,063.9	3,008.0	12.6	10.6	82.54	834.5	399.3	744.6	724.9	19.71	37.784	
3,400.0	3,319.2	3,161.3	3,101.6	13.2	11.1	84.53	850.1	420.9	769.5	749.0	20.57	37.419	
3,500.0	3,414.8	3,272.2	3,208.7	13.8	11.6	86.76	866.0	444.9	794.2	772.7	21.46	37.002	
3,600.0	3,510.4	3,359.2	3,293.0	14.4	12.0	88.56	876.2	463.9	818.8	796.5	22.30	36.722	
3,700.0	3,606.0	3,447.1	3,378.1	15.0	12.5	90.37	885.5	484.2	845.0	821.9	23.14	36.513	
3,800.0	3,701.5	3,558.0	3,485.5	15.6	13.0	92.48	897.5	508.9	871.5	847.5	24.05	36.240	
3,900.0	3,797.1	3,632.9	3,558.1	16.2	13.4	93.73	906.9	525.0	898.5	873.7	24.86	36.147	
4,000.0	3,892.7	3,731.7	3,653.2	16.8	13.9	95.12	922.3	546.4	927.2	901.5	25.75	36.007	
4,100.0	3,988.3	3,824.6	3,742.8	17.4	14.3	96.24	938.4	565.4	955.6	929.0	26.64	35.877	
4,200.0	4,083.9	3,908.9	3,823.8	17.9	14.8	97.18	953.4	583.1	985.0	957.5	27.51	35.810	
4,300.0	4,179.5	4,001.7	3,912.7	18.5	15.3	98.13	970.6	603.1	1,015.3	986.9	28.41	35.745	
4,400.0	4,275.1	4,118.8	4,025.4	19.1	15.9	99.28	991.5	627.4	1,045.1	1,015.7	29.37	35.577	
4,500.0	4,370.7	4,221.5	4,124.7	19.7	16.4	100.28	1,008.8	647.1	1,073.3	1,043.0	30.29	35.433	
4,600.0	4,466.2	4,323.3	4,223.2	20.3	16.9	101.24	1,025.2	666.4	1,101.5	1,070.3	31.21	35.296	
4,700.0	4,561.8	4,479.6	4,376.2	20.9	17.5	102.85	1,045.4	691.1	1,126.1	1,093.8	32.26	34.905	
4,800.0	4,657.4	4,592.8	4,487.9	21.5	17.9	104.07	1,057.1	705.9	1,148.2	1,115.1	33.16	34.622	
4,900.0	4,753.0	4,749.0	4,642.8	22.1	18.3	105.87	1,068.4	721.7	1,167.5	1,133.4	34.14	34.201	
5,000.0	4,848.6	4,878.5	4,772.0	22.7	18.6	107.50	1,073.2	730.0	1,183.3	1,148.3	34.99	33.815	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Boiko PC G15-28D Pad Sec.15-T4N-R65W - Boiko PC G15-29D - Wellbore #1 - Wellbore #1												<b>Offset Well Error:</b>	0.0 ft
Survey Program: 94-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,944.2	5,002.2	4,895.5	23.3	18.8	108.96	1,078.2	735.0	1,197.4	1,161.6	35.82	33.427	
5,200.0	5,040.1	5,135.8	5,029.0	23.8	19.0	110.69	1,081.5	736.7	1,208.8	1,172.2	36.62	33.012	
5,300.0	5,137.0	5,246.1	5,139.3	24.2	19.2	111.97	1,083.4	735.8	1,217.3	1,180.1	37.25	32.679	
5,400.0	5,234.7	5,347.2	5,240.3	24.6	19.3	112.96	1,085.1	734.3	1,224.3	1,186.4	37.82	32.372	
5,500.0	5,333.0	5,445.4	5,338.5	24.9	19.4	113.76	1,086.6	732.8	1,230.1	1,191.7	38.33	32.087	
5,600.0	5,432.0	5,543.8	5,436.9	25.2	19.5	114.39	1,088.0	731.4	1,234.7	1,195.9	38.80	31.820	
5,700.0	5,531.3	5,645.0	5,538.1	25.4	19.6	114.86	1,089.4	730.0	1,237.9	1,198.6	39.22	31.558	
5,800.0	5,631.0	5,745.2	5,638.2	25.6	19.8	115.14	1,090.9	728.4	1,239.6	1,200.0	39.60	31.301	
5,900.0	5,730.9	5,847.0	5,740.1	25.8	19.9	115.23	1,092.7	726.8	1,239.7	1,199.8	39.93	31.044	
6,000.0	5,830.9	5,949.6	5,842.6	25.9	20.0	90.13	1,093.9	725.0	1,238.3	1,198.0	40.22	30.787	
6,100.0	5,930.9	6,050.7	5,943.6	26.0	20.1	90.07	1,095.1	722.9	1,236.3	1,195.8	40.50	30.526	
6,200.0	6,030.9	6,147.2	6,040.2	26.1	20.2	89.99	1,096.8	721.1	1,234.4	1,193.6	40.78	30.272	
6,300.0	6,130.9	6,244.7	6,137.6	26.2	20.4	89.90	1,098.7	719.6	1,232.8	1,191.7	41.06	30.022	
6,400.0	6,230.9	6,340.1	6,233.0	26.3	20.5	89.81	1,100.6	718.3	1,231.4	1,190.1	41.35	29.780	
6,500.0	6,330.9	6,436.3	6,329.2	26.4	20.6	89.71	1,102.7	717.4	1,230.5	1,188.9	41.64	29.550	
6,600.0	6,430.9	6,537.5	6,430.4	26.5	20.8	89.63	1,104.4	716.5	1,229.6	1,187.7	41.94	29.318	
6,700.0	6,530.9	6,642.6	6,535.4	26.7	20.9	89.55	1,106.2	715.3	1,228.5	1,186.3	42.25	29.079	
6,800.0	6,630.9	6,748.9	6,641.7	26.8	21.1	89.45	1,108.4	713.6	1,226.9	1,184.4	42.56	28.828	
6,900.0	6,730.9	6,848.7	6,741.4	26.9	21.2	89.36	1,110.3	711.6	1,225.0	1,182.1	42.86	28.580	
7,000.0	6,830.9	6,942.8	6,835.5	27.0	21.3	89.29	1,111.8	710.0	1,223.3	1,180.2	43.15	28.347	
7,100.0	6,930.9	7,034.0	6,926.7	27.1	21.4	89.20	1,113.6	709.1	1,222.4	1,178.9	43.45	28.135	
7,200.0	7,030.9	7,129.3	7,021.9	27.2	21.6	89.12	1,115.4	708.7	1,222.0	1,178.2	43.75	27.931	
7,300.0	7,130.9	7,233.0	7,125.7	27.4	21.7	89.05	1,116.9	708.4	1,221.7	1,177.6	44.07	27.722	
7,400.0	7,230.9	7,335.5	7,228.2	27.5	21.9	88.97	1,118.5	707.6	1,220.9	1,176.6	44.38	27.509	
7,444.1	7,275.0	7,378.9	7,271.6	27.5	22.0	88.95	1,119.0	707.3	1,220.6	1,176.1	44.52	27.419 SF	

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.0ft
Survey Program: 0-MWD												Offset Well Error:	0.0ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-3.23	593.8	-33.5	594.9				
100.0	100.0	87.0	87.0	0.1	0.1	-3.23	593.8	-33.5	594.8	594.6	0.21	2,829.746	
200.0	200.0	187.0	187.0	0.3	0.3	-3.23	593.8	-33.5	594.8	594.1	0.65	922.000	
300.0	300.0	287.0	287.0	0.6	0.5	-3.23	593.8	-33.5	594.8	593.7	1.09	543.355	
400.0	400.0	387.0	387.0	0.8	0.8	-3.23	593.8	-33.5	594.8	593.2	1.54	385.173	
500.0	500.0	487.0	487.0	1.0	1.0	-3.23	593.8	-33.5	594.8	592.8	1.99	298.325	
600.0	600.0	587.0	587.0	1.2	1.2	-3.23	593.8	-33.5	594.8	592.3	2.44	243.435	
700.0	700.0	687.0	687.0	1.5	1.4	-3.23	593.8	-33.5	594.8	591.9	2.89	205.605	
800.0	800.0	787.0	787.0	1.7	1.7	-3.23	593.8	-33.5	594.8	591.4	3.34	177.952	
900.0	900.0	887.0	887.0	1.9	1.9	-3.23	593.8	-33.5	594.8	591.0	3.79	156.855	
1,000.0	1,000.0	987.0	987.0	2.1	2.1	-3.23	593.8	-33.5	594.8	590.5	4.24	140.230	
1,100.0	1,100.0	1,087.0	1,087.0	2.4	2.3	21.92	593.8	-33.5	593.1	588.5	4.69	126.490	
1,200.0	1,199.8	1,186.8	1,186.8	2.6	2.6	22.15	593.8	-33.5	588.3	583.2	5.13	114.582	
1,300.0	1,299.5	1,286.5	1,286.5	2.8	2.8	22.54	593.8	-33.5	580.2	574.6	5.58	104.039	
1,400.0	1,398.7	1,385.7	1,385.7	3.1	3.0	23.10	593.8	-33.5	569.0	563.0	6.02	94.538	
1,500.0	1,497.5	1,484.5	1,484.5	3.3	3.2	23.85	593.8	-33.5	554.6	548.1	6.46	85.837	
1,600.0	1,595.6	1,582.6	1,582.6	3.6	3.4	24.81	593.8	-33.5	537.2	530.3	6.91	77.757	
1,700.0	1,693.1	1,680.1	1,680.1	4.0	3.7	26.04	593.8	-33.5	516.8	509.4	7.37	70.161	
1,800.0	1,789.6	1,776.6	1,776.6	4.4	3.9	27.57	593.8	-33.5	493.5	485.6	7.84	62.948	
1,900.0	1,885.4	1,872.4	1,872.4	4.9	4.1	29.33	593.8	-33.5	467.9	459.5	8.36	55.972	
2,000.0	1,981.0	1,968.0	1,968.0	5.3	4.3	31.17	593.8	-33.5	442.2	433.3	8.93	49.528	
2,100.0	2,076.6	2,063.6	2,063.6	5.9	4.5	33.23	593.8	-33.5	417.0	407.5	9.53	43.761	
2,200.0	2,172.1	2,159.1	2,159.1	6.4	4.7	35.55	593.8	-33.5	392.4	382.3	10.17	38.602	
2,300.0	2,267.7	2,254.7	2,254.7	6.9	5.0	38.16	593.8	-33.5	368.5	357.7	10.84	33.990	
2,400.0	2,363.3	2,350.3	2,350.3	7.5	5.2	41.12	593.8	-33.5	345.5	333.9	11.56	29.877	
2,500.0	2,458.9	2,445.9	2,445.9	8.0	5.4	44.47	593.8	-33.5	323.5	311.2	12.34	26.223	
2,600.0	2,554.5	2,541.5	2,541.5	8.6	5.6	48.27	593.8	-33.5	302.7	289.6	13.16	22.999	
2,700.0	2,650.1	2,637.1	2,637.1	9.2	5.8	52.58	593.8	-33.5	283.5	269.5	14.05	20.183	
2,800.0	2,745.7	2,732.7	2,732.7	9.7	6.0	57.45	593.8	-33.5	266.2	251.2	14.99	17.761	
2,900.0	2,841.3	2,828.3	2,828.3	10.3	6.2	62.92	593.8	-33.5	251.0	235.1	15.97	15.723	
3,000.0	2,936.8	2,923.8	2,923.8	10.9	6.5	68.97	593.8	-33.5	238.6	221.6	16.97	14.060	
3,100.0	3,032.4	3,019.4	3,019.4	11.5	6.7	75.55	593.8	-33.5	229.3	211.3	17.96	12.764	
3,200.0	3,128.0	3,115.0	3,115.0	12.1	6.9	82.55	593.8	-33.5	223.4	204.5	18.90	11.822	
3,300.0	3,223.6	3,210.6	3,210.6	12.6	7.1	89.78	593.8	-33.5	221.4	201.6	19.74	11.213	
3,303.1	3,226.6	3,213.6	3,213.6	12.7	7.1	90.00	593.8	-33.5	221.4	201.6	19.77	11.199 CC, ES	
3,400.0	3,319.2	3,306.2	3,306.2	13.2	7.3	97.01	593.8	-33.5	223.2	202.7	20.46	10.908	
3,500.0	3,414.8	3,401.8	3,401.8	13.8	7.5	104.03	593.8	-33.5	228.8	207.7	21.04	10.873 SF	
3,600.0	3,510.4	3,497.4	3,497.4	14.4	7.7	110.64	593.8	-33.5	237.9	216.4	21.50	11.067	
3,700.0	3,606.0	3,593.0	3,593.0	15.0	8.0	116.73	593.8	-33.5	250.2	228.3	21.85	11.448	
3,800.0	3,701.5	3,688.5	3,688.5	15.6	8.2	122.23	593.8	-33.5	265.2	243.0	22.14	11.976	
3,900.0	3,797.1	3,784.1	3,784.1	16.2	8.4	127.13	593.8	-33.5	282.4	260.0	22.39	12.614	
4,000.0	3,892.7	3,879.7	3,879.7	16.8	8.6	131.48	593.8	-33.5	301.5	278.9	22.62	13.331	
4,100.0	3,988.3	3,975.3	3,975.3	17.4	8.8	135.31	593.8	-33.5	322.2	299.3	22.85	14.103	
4,200.0	4,083.9	4,070.9	4,070.9	17.9	9.0	138.69	593.8	-33.5	344.1	321.0	23.08	14.907	
4,300.0	4,179.5	4,166.5	4,166.5	18.5	9.3	141.67	593.8	-33.5	367.1	343.8	23.34	15.730	
4,400.0	4,275.1	4,262.1	4,262.1	19.1	9.5	144.30	593.8	-33.5	390.9	367.3	23.61	16.557	
4,500.0	4,370.7	4,357.7	4,357.7	19.7	9.7	146.63	593.8	-33.5	415.5	391.6	23.90	17.382	
4,600.0	4,466.2	4,453.2	4,453.2	20.3	9.9	148.71	593.8	-33.5	440.6	416.4	24.22	18.196	
4,700.0	4,561.8	4,548.8	4,548.8	20.9	10.1	150.56	593.8	-33.5	466.3	441.7	24.55	18.996	
4,800.0	4,657.4	4,644.4	4,644.4	21.5	10.3	152.23	593.8	-33.5	492.3	467.4	24.89	19.778	
4,900.0	4,753.0	4,740.0	4,740.0	22.1	10.5	153.73	593.8	-33.5	518.7	493.5	25.25	20.540	
5,000.0	4,848.6	4,835.6	4,835.6	22.7	10.8	155.08	593.8	-33.5	545.4	519.8	25.63	21.281	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>												<b>Offset Site Error:</b>	0.0 ft
Boiko PC G15-28D Pad Sec.15-T4N-R65W - Lee PM G15-04 (Exist.) - Wellbore #1 - Design #1												<b>Offset Well Error:</b>	0.0 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.0	4,944.2	4,931.2	4,931.2	23.3	11.0	156.31	593.8	-33.5	572.4	546.4	26.02	21.999	
5,200.0	5,040.1	5,027.1	5,027.1	23.8	11.2	157.56	593.8	-33.5	598.5	572.0	26.45	22.630	
5,300.0	5,137.0	5,124.0	5,124.0	24.2	11.4	158.61	593.8	-33.5	621.6	594.8	26.85	23.147	
5,400.0	5,234.7	5,221.7	5,221.7	24.6	11.6	159.45	593.8	-33.5	641.7	614.4	27.26	23.541	
5,500.0	5,333.0	5,320.0	5,320.0	24.9	11.8	160.12	593.8	-33.5	658.6	631.0	27.65	23.821	
5,600.0	5,432.0	5,419.0	5,419.0	25.2	12.1	160.63	593.8	-33.5	672.4	644.4	28.02	23.993	
5,700.0	5,531.3	5,518.3	5,518.3	25.4	12.3	161.01	593.8	-33.5	682.9	654.5	28.38	24.064	
5,800.0	5,631.0	5,618.0	5,618.0	25.6	12.5	161.26	593.8	-33.5	690.1	661.4	28.71	24.038	
5,900.0	5,730.9	5,717.9	5,717.9	25.8	12.7	161.40	593.8	-33.5	694.1	665.0	29.01	23.921	
6,000.0	5,830.9	5,817.9	5,817.9	25.9	13.0	136.35	593.8	-33.5	694.8	665.5	29.33	23.693	
6,100.0	5,930.9	5,917.9	5,917.9	26.0	13.2	136.35	593.8	-33.5	694.8	665.1	29.72	23.383	
6,200.0	6,030.9	6,017.9	6,017.9	26.1	13.4	136.35	593.8	-33.5	694.8	664.7	30.11	23.080	
6,300.0	6,130.9	6,117.9	6,117.9	26.2	13.6	136.35	593.8	-33.5	694.8	664.3	30.50	22.783	
6,400.0	6,230.9	6,217.9	6,217.9	26.3	13.9	136.35	593.8	-33.5	694.8	664.0	30.89	22.493	
6,500.0	6,330.9	6,317.9	6,317.9	26.4	14.1	136.35	593.8	-33.5	694.8	663.6	31.29	22.210	
6,600.0	6,430.9	6,417.9	6,417.9	26.5	14.3	136.35	593.8	-33.5	694.8	663.2	31.68	21.932	
6,700.0	6,530.9	6,517.9	6,517.9	26.7	14.5	136.35	593.8	-33.5	694.8	662.8	32.08	21.661	
6,800.0	6,630.9	6,617.9	6,617.9	26.8	14.8	136.35	593.8	-33.5	694.8	662.4	32.48	21.396	
6,900.0	6,730.9	6,717.9	6,717.9	26.9	15.0	136.35	593.8	-33.5	694.8	662.0	32.88	21.136	
7,000.0	6,830.9	6,817.9	6,817.9	27.0	15.2	136.35	593.8	-33.5	694.8	661.6	33.28	20.882	
7,100.0	6,930.9	6,917.9	6,917.9	27.1	15.4	136.35	593.8	-33.5	694.8	661.2	33.68	20.633	
7,200.0	7,030.9	7,017.9	7,017.9	27.2	15.7	136.35	593.8	-33.5	694.8	660.8	34.08	20.389	
7,300.0	7,130.9	7,117.9	7,117.9	27.4	15.9	136.35	593.8	-33.5	694.8	660.4	34.48	20.151	
7,400.0	7,230.9	7,217.9	7,217.9	27.5	16.1	136.35	593.8	-33.5	694.8	660.0	34.89	19.917	
7,444.1	7,275.0	7,262.0	7,262.0	27.5	16.2	136.35	593.8	-33.5	694.8	659.8	35.07	19.816	

**Company:** NOBLE ENERGY INC WELD COUNTY CO  
**Project:** SEC.15-T4N-R65W  
**Reference Site:** Boiko G15-30D Pad Sec.15-T4N-R65W  
**Site Error:** 0.0ft  
**Reference Well:** Boiko G15-30D  
**Well Error:** 0.0ft  
**Reference Wellbore:** Wellbore #1  
**Reference Design:** Noble Boiko G15-30D Plan #1 (2-29-12)

**Local Co-ordinate Reference:** Well Boiko G15-30D  
**TVD Reference:** WELL @ 4750.0ft (Original Well Elev)  
**MD Reference:** WELL @ 4750.0ft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 2.00 sigma  
**Database:** Landmark  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to WELL @ 4750.0ft (Original Well Elev) Coordinates are relative to: Boiko G15-30D

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

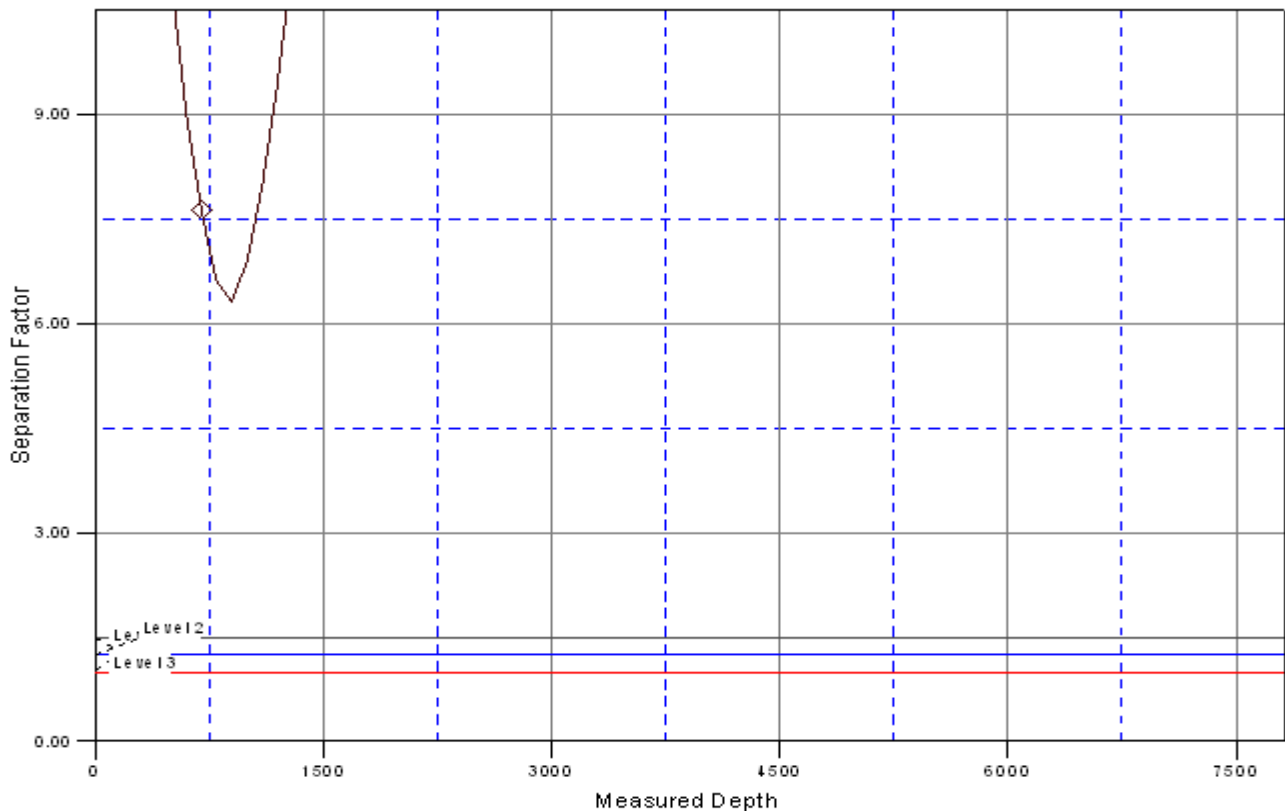
Grid Convergence at Surface is: 0.55°



<b>Company:</b>	NOBLE ENERGY INC WELD COUNTY CO	<b>Local Co-ordinate Reference:</b>	Well Boiko G15-30D
<b>Project:</b>	SEC.15-T4N-R65W	<b>TVD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Reference Site:</b>	Boiko G15-30D Pad Sec.15-T4N-R65W	<b>MD Reference:</b>	WELL @ 4750.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Boiko G15-30D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	Landmark
<b>Reference Design:</b>	Noble Boiko G15-30D Plan #1 (2-29-12)	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4750.0ft (Original Well Elev) Coordinates are relative to: Boiko G15-30D  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is -105.500000 ° Grid Convergence at Surface is: 0.55°

## Separation Factor Plot



### LEGEND

Wellbore #1, Noble Boiko G15-31D Plan #1 (2-29-12) \0  
D, Wellbore #1, Wellbore #1 \0  
Lee PM G15-04 (Exist.), Wellbore #1, Design #1 \0