

ENSIGN

Directional

Well Name: HBR PC G11-21D

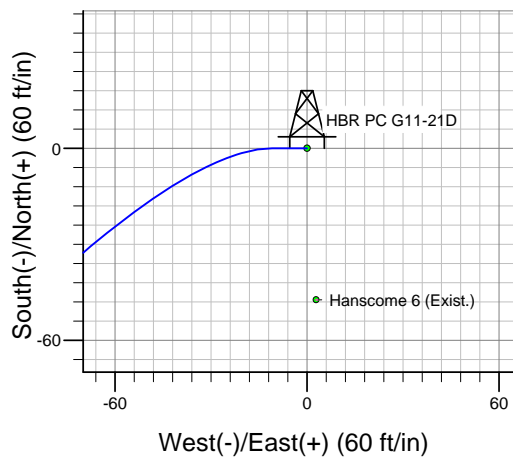
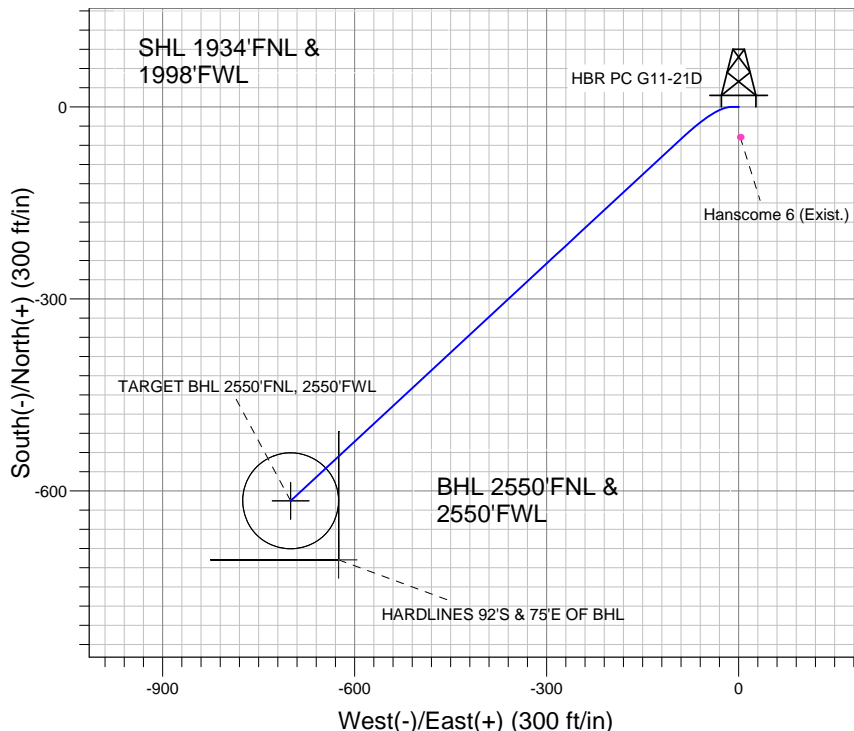
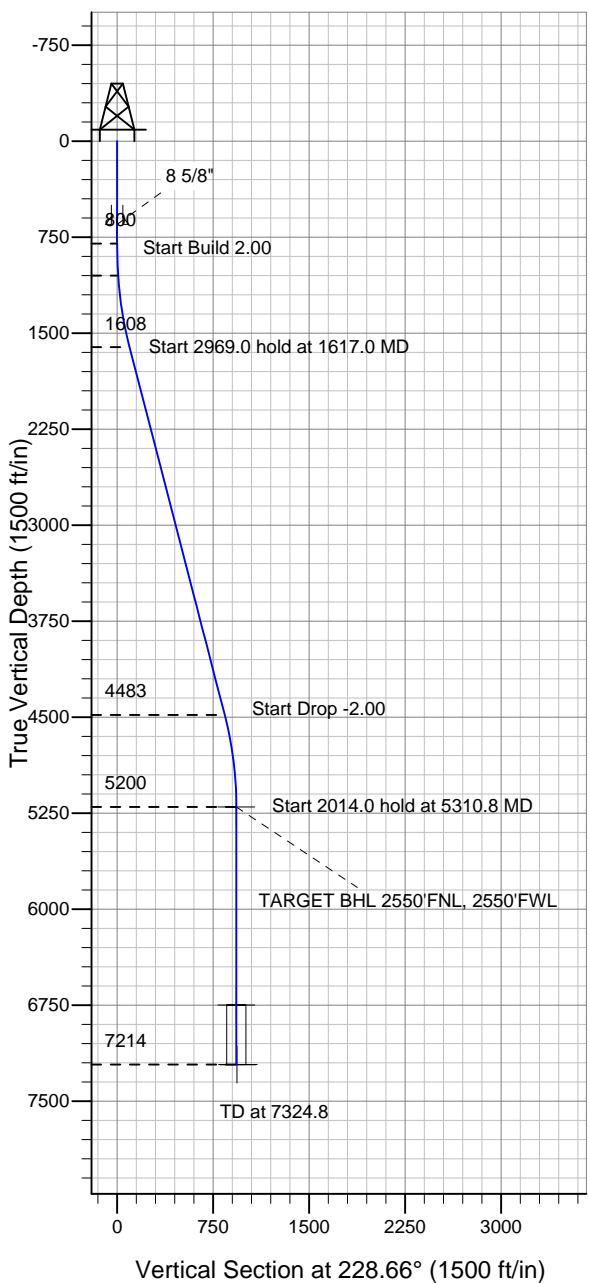
Surface Location: HBR PC G11-21D Pad Sec.11-T4N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4691.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1363868.75	3243086.58	40° 19' 44.184 N	104° 37' 41.124 W	

Original Well Elev WELL @ 4704.0ft (Original Well Elev)

NOBLE ENERGY INC WELD COUNTY CO



HBR PC G11-21D Pad Sec.11-T4N-R65W
HBR PC G11-21D
Noble HBR PC G11-21D Plan #1 (1-17-11)
11:44, January 17 2011



Azimuths to True North
Magnetic North: 8.84°

Magnetic Field
Strength: 53153.2snT
Dip Angle: 67.03°
Date: 1/17/2011
Model: IGRF2010

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
TARGET BHL 2550'FNL, 2550'FWL	5200.0	-615.7	-699.8	40° 19' 38.100 N	104° 37' 50.160 W	Point
TARGET CIRCLE 2550'FNL, 2550'FWL	6749.0	-615.7	-699.8	40° 19' 38.100 N	104° 37' 50.160 W	Circle (Radius: 75.0)
HARDLINES 92°S & 75°E OF BHL	7214.0	-707.7	-624.8	40° 19' 37.191 N	104° 37' 49.191 W	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	800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	
3	1050.0	5.00	270.00	1049.7	0.0	-10.9	2.00	270.00	8.2	
4	1617.0	14.50	227.17	1608.4	-48.4	-87.9	2.00	-59.94	98.0	
5	4586.0	14.50	227.17	4482.9	-553.7	-633.0	0.00	0.00	840.9	
6	5310.8	0.00	0.00	5200.0	-615.7	-699.8	2.00	180.00	932.1	TARGET BHL 2550'FNL, 2550'FWL
7	7324.8	0.00	0.00	7214.0	-615.7	-699.8	0.00	0.00	932.1	



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.11-T4N-R65W

HBR PC G11-21D Pad Sec.11-T4N-R65W

HBR PC G11-21D

Wellbore #1

Plan: Noble HBR PC G11-21D Plan #1 (1-17-11)

Standard Planning Report

17 January, 2011



Database:	Landmark	Local Co-ordinate Reference:	Well HBR PC G11-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

Project	SEC.11-T4N-R65W, 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						HBR PC G11-21D Pad Sec.11-T4N-R65W											
Site Position:						Northing:			1,363,868.75 ft			Latitude:			40° 19' 44.184 N		
From:			Lat/Long			Easting:			3,243,086.58 ft			Longitude:			104° 37' 41.124 W		
Position Uncertainty:			0.0 ft			Slot Radius:			"			Grid Convergence:			0.56 °		

Well	HBR PC G11-21D					
Well Position	+N/-S	0.0 ft	Northing:	1,363,868.75 ft	Latitude:	40° 19' 44.184 N
	+E/-W	0.0 ft	Easting:	3,243,086.58 ft	Longitude:	104° 37' 41.124 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,691.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/17/2011	8.84	67.03	53,153

Design	Noble HBR PC G11-21D Plan #1 (1-17-11)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	228.66

Plan Sections										
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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,050.0	5.00	270.00	1,049.7	0.0	-10.9	2.00	2.00	0.00	270.00	
1,617.0	14.50	227.17	1,608.4	-48.4	-87.9	2.00	1.67	-7.55	-59.94	
4,586.0	14.50	227.17	4,482.9	-553.7	-633.0	0.00	0.00	0.00	0.00	
5,310.8	0.00	0.00	5,200.0	-615.7	-699.8	2.00	-2.00	0.00	180.00	TARGET BHL 255C
7,324.8	0.00	0.00	7,214.0	-615.7	-699.8	0.00	0.00	0.00	0.00	

Database:	Landmark	Local Co-ordinate Reference:	Well HBR PC G11-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

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	0.80	270.00	840.0	0.0	-0.3	0.2	2.00	2.00	0.00
880.0	1.60	270.00	880.0	0.0	-1.1	0.8	2.00	2.00	0.00
920.0	2.40	270.00	920.0	0.0	-2.5	1.9	2.00	2.00	0.00
960.0	3.20	270.00	959.9	0.0	-4.5	3.4	2.00	2.00	0.00
1,000.0	4.00	270.00	999.8	0.0	-7.0	5.2	2.00	2.00	0.00
1,040.0	4.80	270.00	1,039.7	0.0	-10.0	7.5	2.00	2.00	0.00
1,050.0	5.00	270.00	1,049.7	0.0	-10.9	8.2	2.00	2.00	0.00
1,080.0	5.33	264.40	1,079.6	-0.1	-13.6	10.3	2.00	1.09	-18.68
1,120.0	5.83	257.98	1,119.4	-0.7	-17.4	13.6	2.00	1.26	-16.04
1,160.0	6.39	252.64	1,159.1	-1.8	-21.5	17.4	2.00	1.41	-13.36
1,200.0	7.00	248.18	1,198.9	-3.4	-25.9	21.7	2.00	1.52	-11.13
1,240.0	7.65	244.46	1,238.5	-5.5	-30.6	26.6	2.00	1.61	-9.31
1,280.0	8.32	241.32	1,278.2	-8.0	-35.5	32.0	2.00	1.68	-7.84
1,320.0	9.01	238.66	1,317.7	-11.0	-40.7	37.9	2.00	1.73	-6.66
1,360.0	9.72	236.37	1,357.2	-14.5	-46.2	44.3	2.00	1.77	-5.71
1,400.0	10.44	234.40	1,396.6	-18.5	-52.0	51.2	2.00	1.80	-4.93
1,440.0	11.17	232.68	1,435.8	-22.9	-58.0	58.7	2.00	1.83	-4.30
1,480.0	11.91	231.17	1,475.0	-27.9	-64.3	66.7	2.00	1.85	-3.77
1,520.0	12.66	229.84	1,514.1	-33.3	-70.9	75.2	2.00	1.87	-3.33
1,560.0	13.41	228.65	1,553.1	-39.2	-77.7	84.2	2.00	1.88	-2.97
1,600.0	14.17	227.59	1,591.9	-45.6	-84.8	93.8	2.00	1.90	-2.66
1,617.0	14.50	227.17	1,608.4	-48.4	-87.9	98.0	2.00	1.90	-2.46
1,640.0	14.50	227.17	1,630.7	-52.3	-92.1	103.7	0.00	0.00	0.00
1,680.0	14.50	227.17	1,669.4	-59.1	-99.5	113.7	0.00	0.00	0.00
1,720.0	14.50	227.17	1,708.1	-65.9	-106.8	123.7	0.00	0.00	0.00
1,760.0	14.50	227.17	1,746.9	-72.7	-114.2	133.8	0.00	0.00	0.00
1,800.0	14.50	227.17	1,785.6	-79.5	-121.5	143.8	0.00	0.00	0.00
1,840.0	14.50	227.17	1,824.3	-86.4	-128.8	153.8	0.00	0.00	0.00
1,880.0	14.50	227.17	1,863.0	-93.2	-136.2	163.8	0.00	0.00	0.00
1,920.0	14.50	227.17	1,901.8	-100.0	-143.5	173.8	0.00	0.00	0.00
1,960.0	14.50	227.17	1,940.5	-106.8	-150.9	183.8	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well HBR PC G11-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

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)
2,000.0	14.50	227.17	1,979.2	-113.6	-158.2	193.8	0.00	0.00	0.00
2,040.0	14.50	227.17	2,017.9	-120.4	-165.6	203.8	0.00	0.00	0.00
2,080.0	14.50	227.17	2,056.7	-127.2	-172.9	213.8	0.00	0.00	0.00
2,120.0	14.50	227.17	2,095.4	-134.0	-180.2	223.8	0.00	0.00	0.00
2,160.0	14.50	227.17	2,134.1	-140.8	-187.6	233.9	0.00	0.00	0.00
2,200.0	14.50	227.17	2,172.8	-147.6	-194.9	243.9	0.00	0.00	0.00
2,240.0	14.50	227.17	2,211.6	-154.4	-202.3	253.9	0.00	0.00	0.00
2,280.0	14.50	227.17	2,250.3	-161.2	-209.6	263.9	0.00	0.00	0.00
2,320.0	14.50	227.17	2,289.0	-168.0	-217.0	273.9	0.00	0.00	0.00
2,360.0	14.50	227.17	2,327.7	-174.8	-224.3	283.9	0.00	0.00	0.00
2,400.0	14.50	227.17	2,366.5	-181.7	-231.6	293.9	0.00	0.00	0.00
2,440.0	14.50	227.17	2,405.2	-188.5	-239.0	303.9	0.00	0.00	0.00
2,480.0	14.50	227.17	2,443.9	-195.3	-246.3	313.9	0.00	0.00	0.00
2,520.0	14.50	227.17	2,482.7	-202.1	-253.7	323.9	0.00	0.00	0.00
2,560.0	14.50	227.17	2,521.4	-208.9	-261.0	333.9	0.00	0.00	0.00
2,600.0	14.50	227.17	2,560.1	-215.7	-268.4	344.0	0.00	0.00	0.00
2,640.0	14.50	227.17	2,598.8	-222.5	-275.7	354.0	0.00	0.00	0.00
2,680.0	14.50	227.17	2,637.6	-229.3	-283.1	364.0	0.00	0.00	0.00
2,720.0	14.50	227.17	2,676.3	-236.1	-290.4	374.0	0.00	0.00	0.00
2,760.0	14.50	227.17	2,715.0	-242.9	-297.7	384.0	0.00	0.00	0.00
2,800.0	14.50	227.17	2,753.7	-249.7	-305.1	394.0	0.00	0.00	0.00
2,840.0	14.50	227.17	2,792.5	-256.5	-312.4	404.0	0.00	0.00	0.00
2,880.0	14.50	227.17	2,831.2	-263.3	-319.8	414.0	0.00	0.00	0.00
2,920.0	14.50	227.17	2,869.9	-270.1	-327.1	424.0	0.00	0.00	0.00
2,960.0	14.50	227.17	2,908.6	-277.0	-334.5	434.0	0.00	0.00	0.00
3,000.0	14.50	227.17	2,947.4	-283.8	-341.8	444.1	0.00	0.00	0.00
3,040.0	14.50	227.17	2,986.1	-290.6	-349.1	454.1	0.00	0.00	0.00
3,080.0	14.50	227.17	3,024.8	-297.4	-356.5	464.1	0.00	0.00	0.00
3,120.0	14.50	227.17	3,063.6	-304.2	-363.8	474.1	0.00	0.00	0.00
3,160.0	14.50	227.17	3,102.3	-311.0	-371.2	484.1	0.00	0.00	0.00
3,200.0	14.50	227.17	3,141.0	-317.8	-378.5	494.1	0.00	0.00	0.00
3,240.0	14.50	227.17	3,179.7	-324.6	-385.9	504.1	0.00	0.00	0.00
3,280.0	14.50	227.17	3,218.5	-331.4	-393.2	514.1	0.00	0.00	0.00
3,320.0	14.50	227.17	3,257.2	-338.2	-400.5	524.1	0.00	0.00	0.00
3,360.0	14.50	227.17	3,295.9	-345.0	-407.9	534.1	0.00	0.00	0.00
3,400.0	14.50	227.17	3,334.6	-351.8	-415.2	544.1	0.00	0.00	0.00
3,440.0	14.50	227.17	3,373.4	-358.6	-422.6	554.2	0.00	0.00	0.00
3,480.0	14.50	227.17	3,412.1	-365.4	-429.9	564.2	0.00	0.00	0.00
3,520.0	14.50	227.17	3,450.8	-372.2	-437.3	574.2	0.00	0.00	0.00
3,560.0	14.50	227.17	3,489.5	-379.1	-444.6	584.2	0.00	0.00	0.00
3,600.0	14.50	227.17	3,528.3	-385.9	-451.9	594.2	0.00	0.00	0.00
3,640.0	14.50	227.17	3,567.0	-392.7	-459.3	604.2	0.00	0.00	0.00
3,680.0	14.50	227.17	3,605.7	-399.5	-466.6	614.2	0.00	0.00	0.00
3,720.0	14.50	227.17	3,644.4	-406.3	-474.0	624.2	0.00	0.00	0.00
3,760.0	14.50	227.17	3,683.2	-413.1	-481.3	634.2	0.00	0.00	0.00
3,800.0	14.50	227.17	3,721.9	-419.9	-488.7	644.2	0.00	0.00	0.00
3,840.0	14.50	227.17	3,760.6	-426.7	-496.0	654.3	0.00	0.00	0.00
3,880.0	14.50	227.17	3,799.4	-433.5	-503.3	664.3	0.00	0.00	0.00
3,920.0	14.50	227.17	3,838.1	-440.3	-510.7	674.3	0.00	0.00	0.00
3,960.0	14.50	227.17	3,876.8	-447.1	-518.0	684.3	0.00	0.00	0.00
4,000.0	14.50	227.17	3,915.5	-453.9	-525.4	694.3	0.00	0.00	0.00
4,040.0	14.50	227.17	3,954.3	-460.7	-532.7	704.3	0.00	0.00	0.00
4,080.0	14.50	227.17	3,993.0	-467.5	-540.1	714.3	0.00	0.00	0.00
4,120.0	14.50	227.17	4,031.7	-474.4	-547.4	724.3	0.00	0.00	0.00

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Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

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)
4,160.0	14.50	227.17	4,070.4	-481.2	-554.7	734.3	0.00	0.00	0.00
4,200.0	14.50	227.17	4,109.2	-488.0	-562.1	744.3	0.00	0.00	0.00
4,240.0	14.50	227.17	4,147.9	-494.8	-569.4	754.3	0.00	0.00	0.00
4,280.0	14.50	227.17	4,186.6	-501.6	-576.8	764.4	0.00	0.00	0.00
4,320.0	14.50	227.17	4,225.3	-508.4	-584.1	774.4	0.00	0.00	0.00
4,360.0	14.50	227.17	4,264.1	-515.2	-591.5	784.4	0.00	0.00	0.00
4,400.0	14.50	227.17	4,302.8	-522.0	-598.8	794.4	0.00	0.00	0.00
4,440.0	14.50	227.17	4,341.5	-528.8	-606.2	804.4	0.00	0.00	0.00
4,480.0	14.50	227.17	4,380.3	-535.6	-613.5	814.4	0.00	0.00	0.00
4,520.0	14.50	227.17	4,419.0	-542.4	-620.8	824.4	0.00	0.00	0.00
4,560.0	14.50	227.17	4,457.7	-549.2	-628.2	834.4	0.00	0.00	0.00
4,586.0	14.50	227.17	4,482.9	-553.7	-633.0	840.9	0.00	0.00	0.00
4,600.0	14.22	227.17	4,496.4	-556.0	-635.5	844.4	2.00	-2.00	0.00
4,640.0	13.42	227.17	4,535.3	-562.5	-642.5	853.9	2.00	-2.00	0.00
4,680.0	12.62	227.17	4,574.3	-568.6	-649.1	863.0	2.00	-2.00	0.00
4,720.0	11.82	227.17	4,613.3	-574.4	-655.3	871.4	2.00	-2.00	0.00
4,760.0	11.02	227.17	4,652.6	-579.8	-661.1	879.3	2.00	-2.00	0.00
4,800.0	10.22	227.17	4,691.9	-584.8	-666.5	886.7	2.00	-2.00	0.00
4,840.0	9.42	227.17	4,731.3	-589.4	-671.5	893.5	2.00	-2.00	0.00
4,880.0	8.62	227.17	4,770.8	-593.7	-676.1	899.8	2.00	-2.00	0.00
4,920.0	7.82	227.17	4,810.4	-597.6	-680.3	905.5	2.00	-2.00	0.00
4,960.0	7.02	227.17	4,850.0	-601.1	-684.1	910.7	2.00	-2.00	0.00
5,000.0	6.22	227.17	4,889.8	-604.2	-687.5	915.3	2.00	-2.00	0.00
5,040.0	5.42	227.17	4,929.6	-607.0	-690.5	919.3	2.00	-2.00	0.00
5,080.0	4.62	227.17	4,969.4	-609.3	-693.0	922.8	2.00	-2.00	0.00
5,120.0	3.82	227.17	5,009.3	-611.3	-695.2	925.8	2.00	-2.00	0.00
5,160.0	3.02	227.17	5,049.2	-613.0	-696.9	928.1	2.00	-2.00	0.00
5,200.0	2.22	227.17	5,089.2	-614.2	-698.3	930.0	2.00	-2.00	0.00
5,240.0	1.42	227.17	5,129.2	-615.1	-699.2	931.2	2.00	-2.00	0.00
5,280.0	0.62	227.17	5,169.2	-615.5	-699.7	931.9	2.00	-2.00	0.00
5,310.8	0.00	0.00	5,200.0	-615.7	-699.8	932.1	2.00	-2.00	0.00
TARGET BHL 2550'FNL, 2550'FWL									
5,320.0	0.00	0.00	5,209.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,360.0	0.00	0.00	5,249.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,400.0	0.00	0.00	5,289.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,440.0	0.00	0.00	5,329.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,480.0	0.00	0.00	5,369.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,520.0	0.00	0.00	5,409.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,560.0	0.00	0.00	5,449.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,489.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,640.0	0.00	0.00	5,529.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,680.0	0.00	0.00	5,569.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,720.0	0.00	0.00	5,609.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,760.0	0.00	0.00	5,649.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,689.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,840.0	0.00	0.00	5,729.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,880.0	0.00	0.00	5,769.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,920.0	0.00	0.00	5,809.2	-615.7	-699.8	932.1	0.00	0.00	0.00
5,960.0	0.00	0.00	5,849.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,889.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,040.0	0.00	0.00	5,929.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,080.0	0.00	0.00	5,969.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,120.0	0.00	0.00	6,009.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,160.0	0.00	0.00	6,049.2	-615.7	-699.8	932.1	0.00	0.00	0.00

Database:	Landmark	Local Co-ordinate Reference:	Well HBR PC G11-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

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)
6,200.0	0.00	0.00	6,089.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,240.0	0.00	0.00	6,129.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,280.0	0.00	0.00	6,169.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,320.0	0.00	0.00	6,209.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,360.0	0.00	0.00	6,249.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,400.0	0.00	0.00	6,289.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,440.0	0.00	0.00	6,329.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,480.0	0.00	0.00	6,369.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,520.0	0.00	0.00	6,409.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,560.0	0.00	0.00	6,449.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,489.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,640.0	0.00	0.00	6,529.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,680.0	0.00	0.00	6,569.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,720.0	0.00	0.00	6,609.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,760.0	0.00	0.00	6,649.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,689.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,840.0	0.00	0.00	6,729.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,859.8	0.00	0.00	6,749.0	-615.7	-699.8	932.1	0.00	0.00	0.00
NIORARA - TARGET CIRCLE 2550'FNL, 2550'FWL									
6,880.0	0.00	0.00	6,769.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,920.0	0.00	0.00	6,809.2	-615.7	-699.8	932.1	0.00	0.00	0.00
6,960.0	0.00	0.00	6,849.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,889.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,040.0	0.00	0.00	6,929.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,080.0	0.00	0.00	6,969.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,120.0	0.00	0.00	7,009.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,160.0	0.00	0.00	7,049.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,174.8	0.00	0.00	7,064.0	-615.7	-699.8	932.1	0.00	0.00	0.00
CODELL									
7,200.0	0.00	0.00	7,089.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,240.0	0.00	0.00	7,129.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,280.0	0.00	0.00	7,169.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,320.0	0.00	0.00	7,209.2	-615.7	-699.8	932.1	0.00	0.00	0.00
7,324.8	0.00	0.00	7,214.0	-615.7	-699.8	932.1	0.00	0.00	0.00
HARDLINES 92'S & 75'E OF BHL									

Database:	Landmark	Local Co-ordinate Reference:	Well HBR PC G11-21D
Company:	NOBLE ENERGY INC WELD COUNTY CO	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Project:	SEC.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	North Reference:	True
Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)		

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 2550'F	0.00	0.00	5,200.0	-615.7	-699.8	1,363,246.26	3,242,392.86	40° 19' 38.100 N	104° 37' 50.160 W
- plan hits target center									
- Point									
HARDLINES 92'S & 7	0.00	0.00	7,214.0	-707.7	-624.8	1,363,154.98	3,242,468.80	40° 19' 37.191 N	104° 37' 49.191 W
- plan misses target center by 118.7ft at 7324.8ft MD (7214.0 TVD, -615.7 N, -699.8 E)									
- Polygon									
Point 1			7,214.0	0.0	0.0	1,363,154.98	3,242,468.80		
Point 2			7,214.0	0.0	-200.0	1,363,153.01	3,242,268.82		
Point 3			7,214.0	0.0	0.0	1,363,154.98	3,242,468.80		
Point 4			7,214.0	200.0	0.0	1,363,354.96	3,242,466.83		
TARGET CIRCLE 2550'F	0.00	0.00	6,749.0	-615.7	-699.8	1,363,246.26	3,242,392.86	40° 19' 38.100 N	104° 37' 50.160 W
- plan hits target center									
- Circle (radius 75.0)									

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

Formations					
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)
	6,859.8	6,749.0	NIOBRARA		0.00
	7,174.8	7,064.0	CODELL		0.00



Directional

NOBLE ENERGY INC WELD COUNTY CO

SEC.11-T4N-R65W

HBR PC G11-21D Pad Sec.11-T4N-R65W

HBR PC G11-21D

Wellbore #1

Noble HBR PC G11-21D Plan #1 (1-17-11)

Anticollision Report

17 January, 2011



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well HBR PC G11-21D
Project:	SEC.11-T4N-R65W	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Reference Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)	Offset TVD Reference:	Offset Datum

Reference	Noble HBR PC G11-21D Plan #1 (1-		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 1/17/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	7,324.8	Noble HBR PC G11-21D Plan #1 (1-17-11	MWD	MWD - Standard

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
HBR PC G11-21D Pad Sec.11-T4N-R65W						
Hanscome 6 (Exist.) - Wellbore #1 - Design #1	800.0	800.0	47.4	44.1	14.195 CC	
Hanscome 6 (Exist.) - Wellbore #1 - Design #1	900.0	900.0	47.6	43.8	12.589 ES	
Hanscome 6 (Exist.) - Wellbore #1 - Design #1	1,300.0	1,297.9	55.8	50.2	10.087 SF	

Offset Design		HBR PC G11-21D Pad Sec.11-T4N-R65W - Hanscome 6 (Exist.) - Wellbore #1 - Design #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 (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	176.63	-47.4	2.8	47.4					
100.0	100.0	100.0	100.0	0.1	0.1	176.63	-47.4	2.8	47.4	47.2	0.20	242.612		
200.0	200.0	200.0	200.0	0.3	0.3	176.63	-47.4	2.8	47.4	46.8	0.65	73.544		
300.0	300.0	300.0	300.0	0.5	0.5	176.63	-47.4	2.8	47.4	46.3	1.09	43.341		
400.0	400.0	400.0	400.0	0.8	0.8	176.63	-47.4	2.8	47.4	45.9	1.54	30.724		
500.0	500.0	500.0	500.0	1.0	1.0	176.63	-47.4	2.8	47.4	45.4	1.99	23.796		
600.0	600.0	600.0	600.0	1.2	1.2	176.63	-47.4	2.8	47.4	45.0	2.44	19.418		
700.0	700.0	700.0	700.0	1.4	1.4	176.63	-47.4	2.8	47.4	44.5	2.89	16.400		
800.0	800.0	800.0	800.0	1.7	1.7	176.63	-47.4	2.8	47.4	44.1	3.34	14.195 CC		
900.0	900.0	900.0	900.0	1.9	1.9	-95.46	-47.4	2.8	47.6	43.8	3.78	12.589 ES		
1,000.0	999.8	999.8	999.8	2.1	2.1	-101.62	-47.4	2.8	48.4	44.1	4.21	11.483		
1,050.0	1,049.7	1,049.7	1,049.7	2.2	2.2	-106.06	-47.4	2.8	49.3	44.9	4.43	11.124		
1,100.0	1,099.5	1,099.5	1,099.5	2.3	2.3	-102.23	-47.4	2.8	50.4	45.8	4.65	10.841		
1,200.0	1,198.9	1,198.9	1,198.9	2.5	2.6	-101.25	-47.4	2.8	52.5	47.4	5.08	10.331		
1,300.0	1,297.9	1,297.9	1,297.9	2.8	2.8	-106.91	-47.4	2.8	55.8	50.2	5.53	10.087 SF		
1,400.0	1,396.6	1,396.6	1,396.6	3.1	3.0	-116.22	-47.4	2.8	61.9	55.9	5.98	10.359		
1,500.0	1,494.6	1,494.6	1,494.6	3.4	3.2	-126.39	-47.4	2.8	72.3	65.9	6.42	11.274		
1,600.0	1,591.9	1,591.9	1,591.9	3.8	3.5	-135.52	-47.4	2.8	87.6	80.8	6.84	12.810		
1,617.0	1,608.4	1,608.4	1,608.4	3.8	3.5	-136.90	-47.4	2.8	90.7	83.8	6.91	13.125		
1,700.0	1,688.8	1,688.8	1,688.8	4.2	3.7	-144.45	-47.4	2.8	107.0	99.7	7.27	14.727		
1,800.0	1,785.6	1,785.6	1,785.6	4.6	3.9	-150.91	-47.4	2.8	128.4	120.7	7.70	16.663		
1,900.0	1,882.4	1,882.4	1,882.4	5.1	4.1	-155.51	-47.4	2.8	150.9	142.7	8.15	18.510		
2,000.0	1,979.2	1,979.2	1,979.2	5.6	4.3	-158.91	-47.4	2.8	174.1	165.5	8.61	20.228		
2,100.0	2,076.0	2,076.0	2,076.0	6.1	4.5	-161.51	-47.4	2.8	197.7	188.7	9.07	21.808		

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

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well HBR PC G11-21D
Project:	SEC.11-T4N-R65W	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Reference Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)	Offset TVD Reference:	Offset Datum

Offset Design HBR PC G11-21D Pad Sec.11-T4N-R65W - Hanscome 6 (Exist.) - Wellbore #1 - Design #1												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 Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
2,200.0	2,172.8	2,172.8	2,172.8	6.6	4.8	-163.56	-47.4	2.8	221.7	212.2	9.53	23.256	
2,300.0	2,269.7	2,269.7	2,269.7	7.1	5.0	-165.21	-47.4	2.8	245.9	235.9	10.00	24.581	
2,400.0	2,366.5	2,366.5	2,366.5	7.6	5.2	-166.56	-47.4	2.8	270.2	259.7	10.47	25.793	
2,500.0	2,463.3	2,463.3	2,463.3	8.1	5.4	-167.69	-47.4	2.8	294.6	283.7	10.95	26.905	
2,600.0	2,560.1	2,560.1	2,560.1	8.6	5.6	-168.65	-47.4	2.8	319.2	307.7	11.43	27.927	
2,700.0	2,656.9	2,656.9	2,656.9	9.1	5.8	-169.47	-47.4	2.8	343.8	331.8	11.91	28.868	
2,800.0	2,753.7	2,753.7	2,753.7	9.6	6.1	-170.18	-47.4	2.8	368.4	356.0	12.39	29.736	
2,900.0	2,850.6	2,850.6	2,850.6	10.2	6.3	-170.80	-47.4	2.8	393.1	380.3	12.87	30.539	
3,000.0	2,947.4	2,947.4	2,947.4	10.7	6.5	-171.35	-47.4	2.8	417.9	404.5	13.36	31.284	
3,100.0	3,044.2	3,044.2	3,044.2	11.2	6.7	-171.84	-47.4	2.8	442.7	428.8	13.84	31.977	
3,200.0	3,141.0	3,141.0	3,141.0	11.7	6.9	-172.27	-47.4	2.8	467.5	453.1	14.33	32.622	
3,300.0	3,237.8	3,237.8	3,237.8	12.3	7.2	-172.66	-47.4	2.8	492.3	477.5	14.82	33.224	
3,400.0	3,334.6	3,334.6	3,334.6	12.8	7.4	-173.02	-47.4	2.8	517.1	501.8	15.31	33.787	
3,500.0	3,431.5	3,431.5	3,431.5	13.3	7.6	-173.34	-47.4	2.8	542.0	526.2	15.80	34.315	
3,600.0	3,528.3	3,528.3	3,528.3	13.9	7.8	-173.63	-47.4	2.8	566.9	550.6	16.29	34.810	
3,700.0	3,625.1	3,625.1	3,625.1	14.4	8.0	-173.90	-47.4	2.8	591.8	575.0	16.78	35.276	
3,800.0	3,721.9	3,721.9	3,721.9	14.9	8.2	-174.15	-47.4	2.8	616.7	599.4	17.27	35.715	
3,900.0	3,818.7	3,818.7	3,818.7	15.5	8.5	-174.38	-47.4	2.8	641.6	623.8	17.76	36.129	
4,000.0	3,915.5	3,915.5	3,915.5	16.0	8.7	-174.59	-47.4	2.8	666.5	648.3	18.25	36.521	
4,100.0	4,012.4	4,012.4	4,012.4	16.5	8.9	-174.78	-47.4	2.8	691.5	672.7	18.74	36.891	
4,200.0	4,109.2	4,109.2	4,109.2	17.1	9.1	-174.96	-47.4	2.8	716.4	697.2	19.24	37.242	
4,300.0	4,206.0	4,206.0	4,206.0	17.6	9.3	-175.13	-47.4	2.8	741.3	721.6	19.73	37.575	
4,400.0	4,302.8	4,302.8	4,302.8	18.1	9.5	-175.29	-47.4	2.8	766.3	746.1	20.22	37.892	
4,500.0	4,399.6	4,399.6	4,399.6	18.7	9.8	-175.44	-47.4	2.8	791.2	770.5	20.72	38.193	
4,586.0	4,482.9	4,482.9	4,482.9	19.1	9.9	-175.56	-47.4	2.8	812.7	791.6	21.14	38.440	
4,600.0	4,496.4	4,496.4	4,496.4	19.2	10.0	-175.59	-47.4	2.8	816.2	795.0	21.22	38.461	
4,700.0	4,593.8	4,593.8	4,593.8	19.6	10.2	-175.74	-47.4	2.8	839.0	817.2	21.75	38.577	
4,800.0	4,691.9	4,691.9	4,691.9	19.9	10.4	-175.87	-47.4	2.8	858.4	836.1	22.25	38.586	
4,900.0	4,790.6	4,790.6	4,790.6	20.2	10.6	-175.97	-47.4	2.8	874.4	851.6	22.71	38.495	
5,000.0	4,889.8	4,889.8	4,889.8	20.4	10.9	-176.04	-47.4	2.8	886.9	863.7	23.15	38.313	
5,100.0	4,989.4	4,989.4	4,989.4	20.6	11.1	-176.09	-47.4	2.8	896.0	872.4	23.55	38.045	
5,200.0	5,089.2	5,089.2	5,089.2	20.8	11.3	-176.12	-47.4	2.8	901.6	877.6	23.92	37.696	
5,300.0	5,189.2	5,189.2	5,189.2	20.9	11.5	-176.14	-47.4	2.8	903.7	879.4	24.25	37.268	
5,310.8	5,200.0	5,200.0	5,200.0	20.9	11.6	51.03	-47.4	2.8	903.7	879.4	24.28	37.216	
5,400.0	5,289.2	5,289.2	5,289.2	21.0	11.8	51.03	-47.4	2.8	903.7	879.1	24.64	36.679	
5,500.0	5,389.2	5,389.2	5,389.2	21.1	12.0	51.03	-47.4	2.8	903.7	878.7	25.03	36.101	
5,600.0	5,489.2	5,489.2	5,489.2	21.2	12.2	51.03	-47.4	2.8	903.7	878.3	25.43	35.539	
5,700.0	5,589.2	5,589.2	5,589.2	21.3	12.4	51.03	-47.4	2.8	903.7	877.9	25.83	34.992	
5,800.0	5,689.2	5,689.2	5,689.2	21.4	12.7	51.03	-47.4	2.8	903.7	877.5	26.22	34.460	
5,900.0	5,789.2	5,789.2	5,789.2	21.6	12.9	51.03	-47.4	2.8	903.7	877.1	26.62	33.942	
6,000.0	5,889.2	5,889.2	5,889.2	21.7	13.1	51.03	-47.4	2.8	903.7	876.7	27.03	33.437	
6,100.0	5,989.2	5,989.2	5,989.2	21.8	13.3	51.03	-47.4	2.8	903.7	876.3	27.43	32.945	
6,200.0	6,089.2	6,089.2	6,089.2	21.9	13.6	51.03	-47.4	2.8	903.7	875.9	27.83	32.467	
6,300.0	6,189.2	6,189.2	6,189.2	22.0	13.8	51.03	-47.4	2.8	903.7	875.5	28.24	32.000	
6,400.0	6,289.2	6,289.2	6,289.2	22.1	14.0	51.03	-47.4	2.8	903.7	875.0	28.65	31.546	
6,500.0	6,389.2	6,389.2	6,389.2	22.3	14.2	51.03	-47.4	2.8	903.7	874.6	29.06	31.103	
6,600.0	6,489.2	6,489.2	6,489.2	22.4	14.5	51.03	-47.4	2.8	903.7	874.2	29.46	30.670	
6,700.0	6,589.2	6,589.2	6,589.2	22.5	14.7	51.03	-47.4	2.8	903.7	873.8	29.87	30.249	
6,800.0	6,689.2	6,689.2	6,689.2	22.7	14.9	51.03	-47.4	2.8	903.7	873.4	30.29	29.838	
6,900.0	6,789.2	6,789.2	6,789.2	22.8	15.1	51.03	-47.4	2.8	903.7	873.0	30.70	29.437	
7,000.0	6,889.2	6,889.2	6,889.2	22.9	15.4	51.03	-47.4	2.8	903.7	872.6	31.11	29.046	
7,100.0	6,989.2	6,989.2	6,989.2	23.0	15.6	51.03	-47.4	2.8	903.7	872.2	31.53	28.665	

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

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well HBR PC G11-21D
Project:	SEC.11-T4N-R65W	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Reference Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:		0.0 ft	
Survey Program: 0-MWD												Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance								
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
7,200.0	7,089.2	7,089.2	7,089.2	23.2	15.8	51.03	-47.4	2.8	903.7	871.7	31.94	28.292			
7,300.0	7,189.2	7,189.2	7,189.2	23.3	16.0	51.03	-47.4	2.8	903.7	871.3	32.36	27.928			
7,324.8	7,214.0	7,214.0	7,214.0	23.3	16.1	51.03	-47.4	2.8	903.7	871.2	32.46	27.839			

Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well HBR PC G11-21D
Project:	SEC.11-T4N-R65W	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Reference Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4704.0ft (Original Well Elev) Coordinates are relative to: HBR PC G11-21D
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.56°



Company:	NOBLE ENERGY INC WELD COUNTY CO	Local Co-ordinate Reference:	Well HBR PC G11-21D
Project:	SEC.11-T4N-R65W	TVD Reference:	WELL @ 4704.0ft (Original Well Elev)
Reference Site:	HBR PC G11-21D Pad Sec.11-T4N-R65W	MD Reference:	WELL @ 4704.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HBR PC G11-21D	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	Landmark
Reference Design:	Noble HBR PC G11-21D Plan #1 (1-17-11)	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4704.0ft (Original Well Elev) Coordinates are relative to: HBR PC G11-21D
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
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