

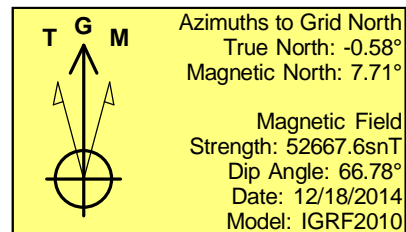
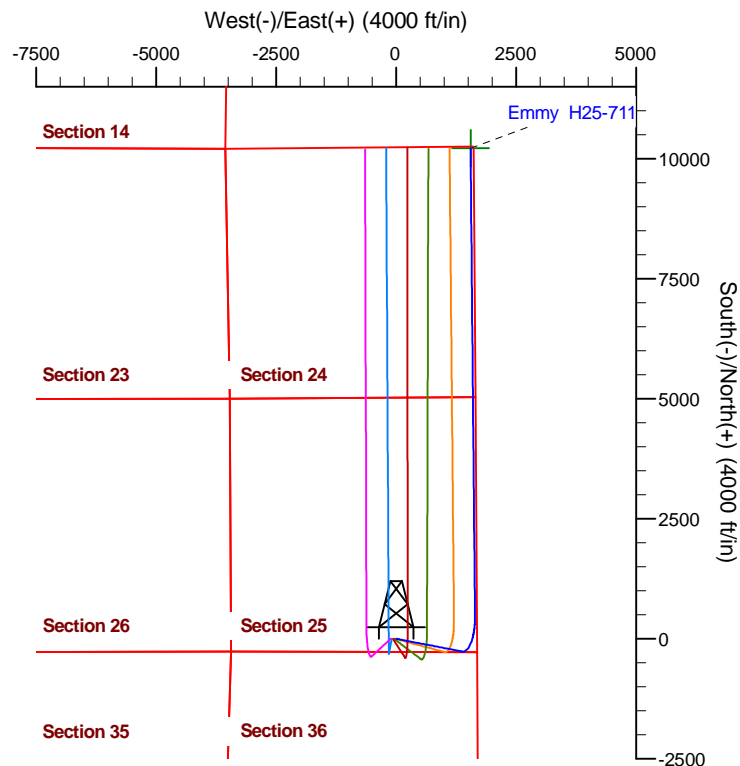
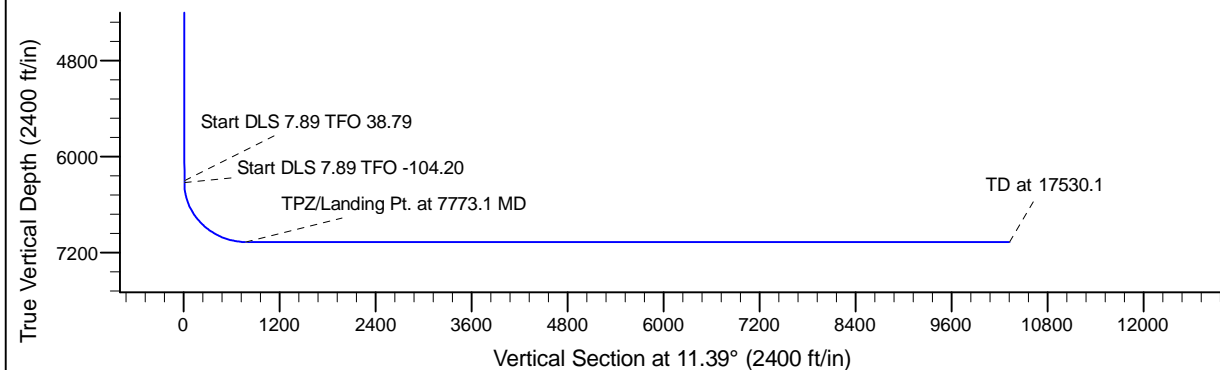
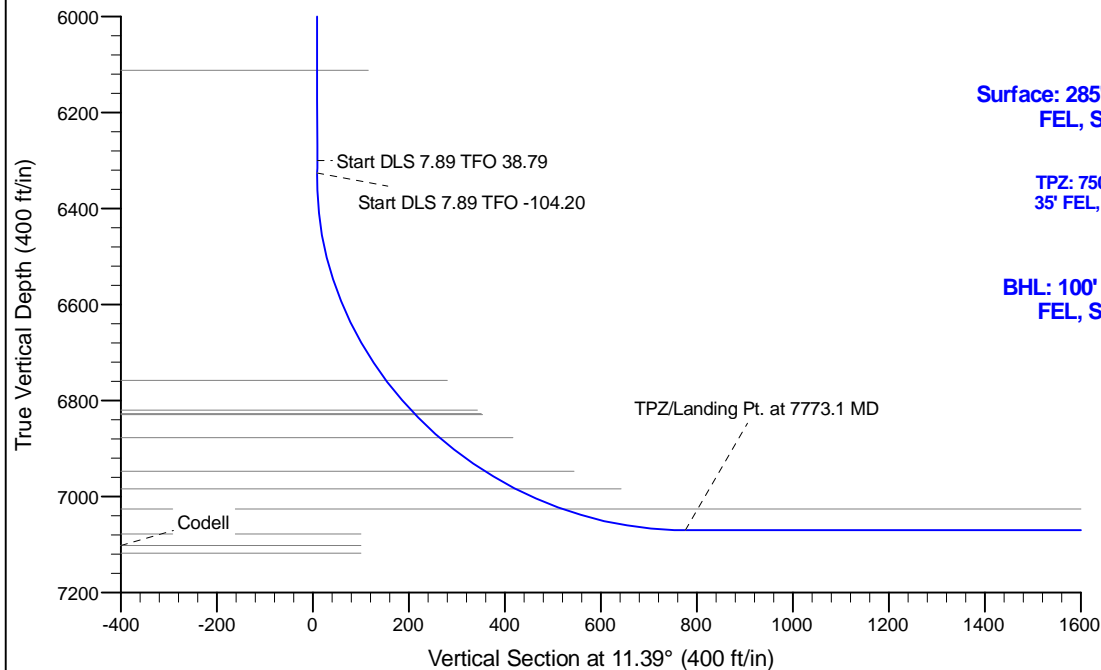
Project: Conceptual Wells  
Site: DP 408  
Well: Emmy H25-711  
Wellbore: Wellbore #1  
Design: Prelim - Rev 2

# Northern Region Drilling - DJ Basin

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

## 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	2000.0	0.00	0.00	2000.0	0.0	0.0	0.00	0.00	0.0	
3	3000.0	20.00	101.00	2979.8	-33.0	169.6	2.00	101.00	1.2	
4	6533.3	20.00	101.00	6300.0	-263.5	1355.8	0.00	0.00	9.3	
5	6561.0	21.75	104.70	6325.9	-265.8	1365.5	7.89	38.79	9.1	
6	7773.1	90.00	359.46	7070.0	460.0	1645.0	7.89	-104.20	775.7	
7	17530.1	90.00	359.47	7070.0	10216.6	1553.5	0.00	90.00	10322.2	Emmy H25-711 BHL



## WELL DETAILS: Emmy H25-711

	Ground Level: 4805.0	
Northing	Easting	Latitude
0.00.0	1313190.35	3248954.74
	40.189670	-104.608870

Plan: Prelim - Rev 2 (Emmy H25-711/Wellbore #1)

Created By: Chad Stich Date: 13:17, November 01 2017

Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_

Approved: \_\_\_\_\_ Date: \_\_\_\_\_

# **Northern Region Drilling - Sandbox**

**Conceptual Wells**

**DP 408**

**Emmy H25-711**

**Wellbore #1**

**Plan: Prelim - Rev 2**

## **Standard Planning Report**

**01 November, 2017**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

<b>Project</b>	Conceptual Wells		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site	DP 408				
Site Position:		Northing:	1,318,184.69 usft	Latitude:	40.203616
From:	Lat/Long	Easting:	3,240,225.17 usft	Longitude:	-104.639942
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.56 °

Well	Emmy H25-711					
Well Position	+N/-S	-4,994.6 ft	Northing:	1,313,190.34 usft	Latitude:	40.189670
	+E/-W	8,730.0 ft	Easting:	3,248,954.74 usft	Longitude:	-104.608870
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,805.0 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>
	IGRF2010	12/18/2014	8.29	66.78	52,667.59475554

<b>Design</b>	Prelim - Rev 2			
<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)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	11.39

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,000.0	20.00	101.00	2,979.8	-33.0	169.6	2.00	2.00	0.00	101.00	
6,533.3	20.00	101.00	6,300.0	-263.5	1,355.8	0.00	0.00	0.00	0.00	
6,561.0	21.75	104.70	6,325.9	-265.8	1,365.5	7.89	6.30	13.34	38.79	
7,773.1	90.00	359.46	7,070.0	460.0	1,645.0	7.89	5.63	-8.68	-104.20	
17,530.1	90.00	359.47	7,070.0	10,216.6	1,553.5	0.00	0.00	0.00	90.00	Emmy H25-711 BHL

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	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
300.0	0.00	0.00	300.0	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
500.0	0.00	0.00	500.0	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
700.0	0.00	0.00	700.0	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
900.0	0.00	0.00	900.0	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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	2.00	101.00	2,100.0	-0.3	1.7	0.0	2.00	2.00	0.00
2,200.0	4.00	101.00	2,199.8	-1.3	6.9	0.0	2.00	2.00	0.00
2,300.0	6.00	101.00	2,299.5	-3.0	15.4	0.1	2.00	2.00	0.00
2,400.0	8.00	101.00	2,398.7	-5.3	27.4	0.2	2.00	2.00	0.00
2,500.0	10.00	101.00	2,497.5	-8.3	42.7	0.3	2.00	2.00	0.00
2,600.0	12.00	101.00	2,595.6	-11.9	61.5	0.4	2.00	2.00	0.00
2,700.0	14.00	101.00	2,693.1	-16.2	83.5	0.6	2.00	2.00	0.00
2,800.0	16.00	101.00	2,789.6	-21.2	108.9	0.7	2.00	2.00	0.00
2,900.0	18.00	101.00	2,885.3	-26.8	137.6	0.9	2.00	2.00	0.00
3,000.0	20.00	101.00	2,979.8	-33.0	169.6	1.2	2.00	2.00	0.00
3,100.0	20.00	101.00	3,073.8	-39.5	203.2	1.4	0.00	0.00	0.00
3,200.0	20.00	101.00	3,167.8	-46.0	236.7	1.6	0.00	0.00	0.00
3,300.0	20.00	101.00	3,261.7	-52.5	270.3	1.9	0.00	0.00	0.00
3,400.0	20.00	101.00	3,355.7	-59.1	303.9	2.1	0.00	0.00	0.00
3,500.0	20.00	101.00	3,449.7	-65.6	337.5	2.3	0.00	0.00	0.00
3,600.0	20.00	101.00	3,543.6	-72.1	371.0	2.6	0.00	0.00	0.00
3,700.0	20.00	101.00	3,637.6	-78.6	404.6	2.8	0.00	0.00	0.00
3,800.0	20.00	101.00	3,731.6	-85.2	438.2	3.0	0.00	0.00	0.00
3,900.0	20.00	101.00	3,825.5	-91.7	471.8	3.2	0.00	0.00	0.00
4,000.0	20.00	101.00	3,919.5	-98.2	505.3	3.5	0.00	0.00	0.00
4,100.0	20.00	101.00	4,013.5	-104.8	538.9	3.7	0.00	0.00	0.00
4,200.0	20.00	101.00	4,107.4	-111.3	572.5	3.9	0.00	0.00	0.00
4,300.0	20.00	101.00	4,201.4	-117.8	606.1	4.2	0.00	0.00	0.00
4,400.0	20.00	101.00	4,295.4	-124.3	639.6	4.4	0.00	0.00	0.00
4,500.0	20.00	101.00	4,389.4	-130.9	673.2	4.6	0.00	0.00	0.00
4,600.0	20.00	101.00	4,483.3	-137.4	706.8	4.9	0.00	0.00	0.00
4,700.0	20.00	101.00	4,577.3	-143.9	740.3	5.1	0.00	0.00	0.00
4,800.0	20.00	101.00	4,671.3	-150.4	773.9	5.3	0.00	0.00	0.00
4,900.0	20.00	101.00	4,765.2	-157.0	807.5	5.6	0.00	0.00	0.00
5,000.0	20.00	101.00	4,859.2	-163.5	841.1	5.8	0.00	0.00	0.00
5,100.0	20.00	101.00	4,953.2	-170.0	874.6	6.0	0.00	0.00	0.00
5,200.0	20.00	101.00	5,047.1	-176.5	908.2	6.2	0.00	0.00	0.00
5,300.0	20.00	101.00	5,141.1	-183.1	941.8	6.5	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,400.0	20.00	101.00	5,235.1	-189.6	975.4	6.7	0.00	0.00	0.00
5,500.0	20.00	101.00	5,329.0	-196.1	1,008.9	6.9	0.00	0.00	0.00
5,600.0	20.00	101.00	5,423.0	-202.6	1,042.5	7.2	0.00	0.00	0.00
5,700.0	20.00	101.00	5,517.0	-209.2	1,076.1	7.4	0.00	0.00	0.00
5,800.0	20.00	101.00	5,611.0	-215.7	1,109.7	7.6	0.00	0.00	0.00
5,900.0	20.00	101.00	5,704.9	-222.2	1,143.2	7.9	0.00	0.00	0.00
6,000.0	20.00	101.00	5,798.9	-228.7	1,176.8	8.1	0.00	0.00	0.00
6,100.0	20.00	101.00	5,892.9	-235.3	1,210.4	8.3	0.00	0.00	0.00
6,200.0	20.00	101.00	5,986.8	-241.8	1,243.9	8.6	0.00	0.00	0.00
6,300.0	20.00	101.00	6,080.8	-248.3	1,277.5	8.8	0.00	0.00	0.00
6,400.0	20.00	101.00	6,174.8	-254.9	1,311.1	9.0	0.00	0.00	0.00
6,500.0	20.00	101.00	6,268.7	-261.4	1,344.7	9.2	0.00	0.00	0.00
6,533.3	20.00	101.00	6,300.0	-263.5	1,355.8	9.3	0.00	0.00	0.00
6,561.0	21.75	104.70	6,325.9	-265.8	1,365.5	9.1	7.89	6.30	13.34
6,600.0	21.19	96.42	6,362.2	-268.4	1,379.5	9.3	7.89	-1.42	-21.21
6,700.0	21.69	74.78	6,455.4	-265.5	1,415.3	19.1	7.89	0.50	-21.64
6,800.0	24.72	56.19	6,547.5	-249.0	1,450.6	42.3	7.89	3.02	-18.59
6,900.0	29.49	42.34	6,636.5	-219.2	1,484.6	78.3	7.89	4.78	-13.85
7,000.0	35.31	32.37	6,721.0	-176.5	1,516.7	126.4	7.89	5.82	-9.97
7,100.0	41.74	25.01	6,799.2	-121.8	1,546.3	185.9	7.89	6.43	-7.36
7,200.0	48.53	19.34	6,869.8	-56.2	1,572.8	255.4	7.89	6.79	-5.67
7,300.0	55.55	14.77	6,931.2	19.1	1,595.8	333.8	7.89	7.02	-4.57
7,400.0	62.71	10.91	6,982.5	102.8	1,614.7	419.5	7.89	7.16	-3.86
7,500.0	69.96	7.53	7,022.7	193.1	1,629.3	511.0	7.89	7.25	-3.38
7,600.0	77.28	4.45	7,050.8	288.5	1,639.2	606.4	7.89	7.31	-3.08
7,700.0	84.62	1.54	7,066.6	387.0	1,644.4	704.0	7.89	7.35	-2.91
7,773.1	90.00	359.46	7,070.0	460.0	1,645.0	775.7	7.89	7.36	-2.84
7,800.0	90.00	359.46	7,070.0	486.9	1,644.7	802.0	0.00	0.00	0.00
7,900.0	90.00	359.46	7,070.0	586.9	1,643.8	899.9	0.00	0.00	0.00
8,000.0	90.00	359.46	7,070.0	686.9	1,642.9	997.7	0.00	0.00	0.00
8,100.0	90.00	359.46	7,070.0	786.9	1,641.9	1,095.6	0.00	0.00	0.00
8,200.0	90.00	359.46	7,070.0	886.9	1,641.0	1,193.4	0.00	0.00	0.00
8,300.0	90.00	359.46	7,070.0	986.9	1,640.0	1,291.2	0.00	0.00	0.00
8,400.0	90.00	359.46	7,070.0	1,086.9	1,639.1	1,389.1	0.00	0.00	0.00
8,500.0	90.00	359.46	7,070.0	1,186.9	1,638.2	1,486.9	0.00	0.00	0.00
8,600.0	90.00	359.46	7,070.0	1,286.9	1,637.2	1,584.8	0.00	0.00	0.00
8,700.0	90.00	359.46	7,070.0	1,386.9	1,636.3	1,682.6	0.00	0.00	0.00
8,800.0	90.00	359.46	7,070.0	1,486.8	1,635.3	1,780.4	0.00	0.00	0.00
8,900.0	90.00	359.46	7,070.0	1,586.8	1,634.4	1,878.3	0.00	0.00	0.00
9,000.0	90.00	359.46	7,070.0	1,686.8	1,633.4	1,976.1	0.00	0.00	0.00
9,100.0	90.00	359.46	7,070.0	1,786.8	1,632.5	2,074.0	0.00	0.00	0.00
9,200.0	90.00	359.46	7,070.0	1,886.8	1,631.6	2,171.8	0.00	0.00	0.00
9,300.0	90.00	359.46	7,070.0	1,986.8	1,630.6	2,269.7	0.00	0.00	0.00
9,400.0	90.00	359.46	7,070.0	2,086.8	1,629.7	2,367.5	0.00	0.00	0.00
9,500.0	90.00	359.46	7,070.0	2,186.8	1,628.7	2,465.3	0.00	0.00	0.00
9,600.0	90.00	359.46	7,070.0	2,286.8	1,627.8	2,563.2	0.00	0.00	0.00
9,700.0	90.00	359.46	7,070.0	2,386.8	1,626.9	2,661.0	0.00	0.00	0.00
9,800.0	90.00	359.46	7,070.0	2,486.8	1,625.9	2,758.9	0.00	0.00	0.00
9,900.0	90.00	359.46	7,070.0	2,586.8	1,625.0	2,856.7	0.00	0.00	0.00
10,000.0	90.00	359.46	7,070.0	2,686.8	1,624.0	2,954.5	0.00	0.00	0.00
10,100.0	90.00	359.46	7,070.0	2,786.8	1,623.1	3,052.4	0.00	0.00	0.00
10,200.0	90.00	359.46	7,070.0	2,886.8	1,622.2	3,150.2	0.00	0.00	0.00
10,300.0	90.00	359.46	7,070.0	2,986.8	1,621.2	3,248.1	0.00	0.00	0.00
10,400.0	90.00	359.46	7,070.0	3,086.8	1,620.3	3,345.9	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,500.0	90.00	359.46	7,070.0	3,186.8	1,619.3	3,443.8	0.00	0.00	0.00
10,600.0	90.00	359.46	7,070.0	3,286.8	1,618.4	3,541.6	0.00	0.00	0.00
10,700.0	90.00	359.46	7,070.0	3,386.8	1,617.5	3,639.4	0.00	0.00	0.00
10,800.0	90.00	359.46	7,070.0	3,486.8	1,616.5	3,737.3	0.00	0.00	0.00
10,900.0	90.00	359.46	7,070.0	3,586.8	1,615.6	3,835.1	0.00	0.00	0.00
11,000.0	90.00	359.46	7,070.0	3,686.7	1,614.6	3,933.0	0.00	0.00	0.00
11,100.0	90.00	359.46	7,070.0	3,786.7	1,613.7	4,030.8	0.00	0.00	0.00
11,200.0	90.00	359.46	7,070.0	3,886.7	1,612.8	4,128.6	0.00	0.00	0.00
11,300.0	90.00	359.46	7,070.0	3,986.7	1,611.8	4,226.5	0.00	0.00	0.00
11,400.0	90.00	359.46	7,070.0	4,086.7	1,610.9	4,324.3	0.00	0.00	0.00
11,500.0	90.00	359.46	7,070.0	4,186.7	1,609.9	4,422.2	0.00	0.00	0.00
11,600.0	90.00	359.46	7,070.0	4,286.7	1,609.0	4,520.0	0.00	0.00	0.00
11,700.0	90.00	359.46	7,070.0	4,386.7	1,608.1	4,617.9	0.00	0.00	0.00
11,800.0	90.00	359.46	7,070.0	4,486.7	1,607.1	4,715.7	0.00	0.00	0.00
11,900.0	90.00	359.46	7,070.0	4,586.7	1,606.2	4,813.5	0.00	0.00	0.00
12,000.0	90.00	359.46	7,070.0	4,686.7	1,605.2	4,911.4	0.00	0.00	0.00
12,100.0	90.00	359.46	7,070.0	4,786.7	1,604.3	5,009.2	0.00	0.00	0.00
12,200.0	90.00	359.46	7,070.0	4,886.7	1,603.4	5,107.1	0.00	0.00	0.00
12,300.0	90.00	359.46	7,070.0	4,986.7	1,602.4	5,204.9	0.00	0.00	0.00
12,400.0	90.00	359.46	7,070.0	5,086.7	1,601.5	5,302.7	0.00	0.00	0.00
12,500.0	90.00	359.46	7,070.0	5,186.7	1,600.6	5,400.6	0.00	0.00	0.00
12,600.0	90.00	359.46	7,070.0	5,286.7	1,599.6	5,498.4	0.00	0.00	0.00
12,700.0	90.00	359.46	7,070.0	5,386.7	1,598.7	5,596.3	0.00	0.00	0.00
12,800.0	90.00	359.46	7,070.0	5,486.7	1,597.7	5,694.1	0.00	0.00	0.00
12,900.0	90.00	359.46	7,070.0	5,586.7	1,596.8	5,792.0	0.00	0.00	0.00
13,000.0	90.00	359.46	7,070.0	5,686.7	1,595.9	5,889.8	0.00	0.00	0.00
13,100.0	90.00	359.46	7,070.0	5,786.7	1,594.9	5,987.6	0.00	0.00	0.00
13,200.0	90.00	359.46	7,070.0	5,886.7	1,594.0	6,085.5	0.00	0.00	0.00
13,300.0	90.00	359.46	7,070.0	5,986.6	1,593.1	6,183.3	0.00	0.00	0.00
13,400.0	90.00	359.46	7,070.0	6,086.6	1,592.1	6,281.2	0.00	0.00	0.00
13,500.0	90.00	359.46	7,070.0	6,186.6	1,591.2	6,379.0	0.00	0.00	0.00
13,600.0	90.00	359.46	7,070.0	6,286.6	1,590.2	6,476.9	0.00	0.00	0.00
13,700.0	90.00	359.46	7,070.0	6,386.6	1,589.3	6,574.7	0.00	0.00	0.00
13,800.0	90.00	359.46	7,070.0	6,486.6	1,588.4	6,672.5	0.00	0.00	0.00
13,900.0	90.00	359.46	7,070.0	6,586.6	1,587.4	6,770.4	0.00	0.00	0.00
14,000.0	90.00	359.46	7,070.0	6,686.6	1,586.5	6,868.2	0.00	0.00	0.00
14,100.0	90.00	359.46	7,070.0	6,786.6	1,585.6	6,966.1	0.00	0.00	0.00
14,200.0	90.00	359.46	7,070.0	6,886.6	1,584.6	7,063.9	0.00	0.00	0.00
14,300.0	90.00	359.46	7,070.0	6,986.6	1,583.7	7,161.8	0.00	0.00	0.00
14,400.0	90.00	359.46	7,070.0	7,086.6	1,582.8	7,259.6	0.00	0.00	0.00
14,500.0	90.00	359.46	7,070.0	7,186.6	1,581.8	7,357.4	0.00	0.00	0.00
14,600.0	90.00	359.46	7,070.0	7,286.6	1,580.9	7,455.3	0.00	0.00	0.00
14,700.0	90.00	359.46	7,070.0	7,386.6	1,579.9	7,553.1	0.00	0.00	0.00
14,800.0	90.00	359.46	7,070.0	7,486.6	1,579.0	7,651.0	0.00	0.00	0.00
14,900.0	90.00	359.46	7,070.0	7,586.6	1,578.1	7,748.8	0.00	0.00	0.00
15,000.0	90.00	359.46	7,070.0	7,686.6	1,577.1	7,846.7	0.00	0.00	0.00
15,100.0	90.00	359.46	7,070.0	7,786.6	1,576.2	7,944.5	0.00	0.00	0.00
15,200.0	90.00	359.46	7,070.0	7,886.6	1,575.3	8,042.3	0.00	0.00	0.00
15,300.0	90.00	359.46	7,070.0	7,986.6	1,574.3	8,140.2	0.00	0.00	0.00
15,400.0	90.00	359.46	7,070.0	8,086.6	1,573.4	8,238.0	0.00	0.00	0.00
15,500.0	90.00	359.46	7,070.0	8,186.6	1,572.5	8,335.9	0.00	0.00	0.00
15,600.0	90.00	359.46	7,070.0	8,286.5	1,571.5	8,433.7	0.00	0.00	0.00
15,700.0	90.00	359.46	7,070.0	8,386.5	1,570.6	8,531.6	0.00	0.00	0.00
15,800.0	90.00	359.46	7,070.0	8,486.5	1,569.7	8,629.4	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,900.0	90.00	359.46	7,070.0	8,586.5	1,568.7	8,727.2	0.00	0.00	0.00	
16,000.0	90.00	359.46	7,070.0	8,686.5	1,567.8	8,825.1	0.00	0.00	0.00	
16,100.0	90.00	359.46	7,070.0	8,786.5	1,566.8	8,922.9	0.00	0.00	0.00	
16,200.0	90.00	359.46	7,070.0	8,886.5	1,565.9	9,020.8	0.00	0.00	0.00	
16,300.0	90.00	359.46	7,070.0	8,986.5	1,565.0	9,118.6	0.00	0.00	0.00	
16,400.0	90.00	359.46	7,070.0	9,086.5	1,564.0	9,216.5	0.00	0.00	0.00	
16,500.0	90.00	359.46	7,070.0	9,186.5	1,563.1	9,314.3	0.00	0.00	0.00	
16,600.0	90.00	359.46	7,070.0	9,286.5	1,562.2	9,412.1	0.00	0.00	0.00	
16,700.0	90.00	359.46	7,070.0	9,386.5	1,561.2	9,510.0	0.00	0.00	0.00	
16,800.0	90.00	359.46	7,070.0	9,486.5	1,560.3	9,607.8	0.00	0.00	0.00	
16,900.0	90.00	359.46	7,070.0	9,586.5	1,559.4	9,705.7	0.00	0.00	0.00	
17,000.0	90.00	359.46	7,070.0	9,686.5	1,558.4	9,803.5	0.00	0.00	0.00	
17,100.0	90.00	359.47	7,070.0	9,786.5	1,557.5	9,901.4	0.00	0.00	0.00	
17,200.0	90.00	359.47	7,070.0	9,886.5	1,556.6	9,999.2	0.00	0.00	0.00	
17,300.0	90.00	359.47	7,070.0	9,986.5	1,555.6	10,097.0	0.00	0.00	0.00	
17,400.0	90.00	359.47	7,070.0	10,086.5	1,554.7	10,194.9	0.00	0.00	0.00	
17,500.0	90.00	359.47	7,070.0	10,186.5	1,553.8	10,292.7	0.00	0.00	0.00	
17,530.1	90.00	359.47	7,070.0	10,216.6	1,553.5	10,322.2	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Emmy H25-711 BHL	0.00	0.00	7,070.0	10,216.6	1,553.5	1,323,406.47	3,250,508.16	40.217670	-104.602940	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
561.0	561.0	Pierre				
713.0	713.0	Upper Pierre Aquifer Top				
1,601.0	1,601.0	Upper Pierre Aquifer Base				
3,945.2	3,868.0	Parkman				
4,574.1	4,459.0	Sussex				
5,299.9	5,141.0	Shannon				
6,333.2	6,112.0	Teepee Buttes				
7,046.2	6,758.0	Sharon Springs				
7,128.3	6,820.0	Top A Chalk				
7,138.0	6,827.0	Top A Marl				
7,140.8	6,829.0	Top B Chalk				
7,211.0	6,877.0	Top B Marl				
7,328.6	6,947.0	Top C Chalk				
7,403.2	6,984.0	Top C Marl				
7,509.9	7,026.0	Top D Chalk				

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Prelim - Rev 2		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP - Start Build 2.00
6,533.3	6,300.0	-33.0	169.6	Start DLS 7.89 TFO 38.79
6,561.0	6,325.9	-263.5	1,355.8	Start DLS 7.89 TFO -104.20
7,773.1	7,070.0	-265.8	1,365.5	TPZ/Landing Pt. at 7773.1 MD
17,530.1	7,070.0	460.0	1,645.0	TD at 17530.1



# **Northern Region Drilling - Sandbox**

**Conceptual Wells**

**DP 408**

**Emmy H25-711**

**Wellbore #1**

**Prelim - Rev 2**

## **Anticollision Summary Report**

**01 November, 2017**

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Prelim - Rev 2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<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 10,000.0 ft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	11/1/2017		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	17,530.1	Prelim - Rev 2 (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction

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						
D Section 19						
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,382.1	7,013.0	776.4	680.4	8.091	CC
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,400.0	7,013.5	776.6	680.2	8.060	ES
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,500.0	7,016.1	785.3	687.3	8.020	SF
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,032.8	6,995.8	868.6	785.1	10.401	CC, ES
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,100.0	6,995.9	871.2	786.4	10.275	SF
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,325.8	6,983.6	1,929.2	1,833.8	20.232	CC, ES
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,700.0	6,984.7	1,965.1	1,865.4	19.711	SF
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,690.1	7,015.1	316.7	227.3	3.540	CC
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,700.0	7,015.1	316.9	227.0	3.526	ES, SF
Butterball D18-75HN - Original Drilling - Design #2	17,530.1	7,289.4	2,675.2	2,576.8	27.186	CC, ES, SF
Butterball D18-75HN - Original Drilling - Original Drilling -	17,530.1	6,801.0	2,669.7	2,545.7	21.529	CC, ES, SF
Butterball D18-75HN - Original Drilling - Plan A - Rev 1	17,530.1	6,827.5	2,648.5	2,548.0	26.365	CC, ES, SF
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,614.7	7,612.7	4,070.9	3,949.6	33.559	CC
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,700.0	7,613.3	4,071.8	3,949.2	33.215	ES
Butterball D19-17D - Butterball D19-17D - Butterball D19	17,530.1	7,619.3	4,172.6	4,029.2	29.089	SF
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,624.5	7,108.7	2,309.3	2,191.7	19.639	CC, ES
Butterball D19-18D - Butterball D19-18D - Butterball D19	17,000.0	7,109.3	2,339.6	2,217.5	19.162	SF
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,055.1	7,084.0	1,300.5	1,186.6	11.418	CC
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,100.0	7,084.6	1,301.3	1,186.5	11.342	ES
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,200.0	7,085.7	1,308.6	1,192.3	11.259	SF
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,082.1	7,116.2	1,427.8	1,323.5	13.693	CC
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,100.0	7,116.3	1,427.9	1,323.4	13.665	ES
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,200.0	7,116.9	1,432.6	1,327.1	13.571	SF
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	15,095.4	7,082.3	3,807.2	3,702.3	36.291	CC
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	15,100.0	7,082.3	3,807.2	3,702.3	36.270	ES
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	16,100.0	7,096.1	3,937.5	3,821.5	33.948	SF
Butterball D19-75HN - Original Drilling - Design #2	12,199.0	11,818.4	2,649.9	2,598.2	51.255	CC
Butterball D19-75HN - Original Drilling - Design #2	12,200.0	11,818.4	2,649.9	2,598.2	51.243	ES
Butterball D19-75HN - Original Drilling - Design #2	17,530.1	6,836.5	2,949.5	2,846.6	28.677	SF
Butterball D19-75HN - Original Drilling - Original Drilling -	12,200.0	11,764.3	2,639.0	2,496.2	18.486	ES
Butterball D19-75HN - Original Drilling - Original Drilling -	12,264.9	11,710.7	2,638.9	2,496.5	18.528	CC
Butterball D19-75HN - Original Drilling - Original Drilling -	16,100.0	16,100.0	2,865.1	2,650.8	13.368	SF
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,199.0	11,815.8	2,633.4	2,581.7	50.926	CC
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,200.0	11,815.8	2,633.4	2,581.7	50.913	ES
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	17,530.1	6,834.5	2,933.2	2,830.3	28.517	SF
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,084.8	6,984.1	1,919.3	1,835.5	22.903	CC
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,100.0	6,984.3	1,919.3	1,835.3	22.843	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

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>						
D Section 19						
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,500.0	6,987.8	1,963.7	1,875.1	22.158	SF
Butterball H24-69HN - Original Drilling - Design #2	17,530.1	9,952.0	233.8	182.6	4.565	CC, ES, SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,530.1	9,934.2	227.7	110.3	1.940	CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 2	17,530.1	9,925.4	234.3	182.3	4.503	CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 3	17,530.1	9,929.4	224.8	175.9	4.589	CC, ES, SF
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,983.9	7,007.5	3,792.5	3,700.3	41.146	CC
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	14,000.0	7,007.4	3,792.5	3,700.1	41.059	ES
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	15,000.0	7,003.3	3,926.2	3,824.1	38.451	SF
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,956.0	7,569.5	29.6	-116.4	0.203	Level 1, CC, ES, SF
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,643.8	7,018.0	1,064.4	938.5	8.458	CC, ES
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,800.0	7,018.0	1,075.8	947.5	8.390	SF
Higgins D19-720 - Original Drilling - Original Drilling - As	17,530.1	7,043.3	4,461.7	4,340.7	36.858	CC, ES, SF
Higgins D19-720 - Original Drilling - Pilot Hole APD - Rev	17,530.1	7,059.0	4,465.2	4,363.7	44.008	CC, ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	12,895.6	11,636.0	4,454.1	4,396.9	77.971	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,400.0	7,095.3	4,464.5	4,364.1	44.475	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,530.1	7,019.4	4,466.5	4,364.6	43.824	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,894.0	9,691.8	4,386.7	4,282.2	41.975	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,645.7	4,387.5	4,282.1	41.629	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,530.1	7,117.7	4,461.2	4,339.9	36.775	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,894.0	9,691.8	4,386.7	4,282.2	41.975	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,645.7	4,387.5	4,282.1	41.629	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,530.1	7,117.7	4,461.2	4,339.9	36.775	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,894.0	9,691.8	4,386.7	4,282.2	41.975	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,645.7	4,387.5	4,282.1	41.629	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,530.1	7,117.7	4,461.2	4,339.9	36.775	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,894.0	9,691.8	4,386.7	4,282.2	41.975	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,645.7	4,387.5	4,282.1	41.629	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,530.1	7,117.7	4,461.2	4,339.9	36.775	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,894.0	9,691.8	4,386.7	4,282.2	41.975	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,645.7	4,387.5	4,282.1	41.629	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	14,758.5	9,805.3	4,386.9	4,284.2	42.727	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	15,300.0	15,300.0	4,403.3	4,266.6	32.204	ES, SF
Independence D18-712 - Independence D18-712 - Prelim	16,922.0	6,203.8	4,908.1	4,789.2	41.268	CC
Independence D18-712 - Independence D18-712 - Prelim	17,000.0	6,202.2	4,908.8	4,788.9	40.966	ES
Independence D18-712 - Independence D18-712 - Prelim	17,530.1	6,156.9	4,945.4	4,820.3	39.522	SF
Independence D18-717 - Independence D18-717 - Prelim	16,938.9	6,480.1	4,592.3	4,472.8	38.420	CC
Independence D18-717 - Independence D18-717 - Prelim	17,000.0	6,502.4	4,592.7	4,472.4	38.182	ES
Independence D18-717 - Independence D18-717 - Prelim	17,530.1	7,049.2	4,615.5	4,489.0	36.486	SF
Independence D18-725 - Independence D18-725 - Prelim	17,371.3	7,029.8	4,063.9	3,939.6	32.710	CC
Independence D18-725 - Independence D18-725 - Prelim	17,530.1	7,150.0	4,064.8	3,938.7	32.248	ES, SF
Independence D18-732 - Independence D18-732 - Prelim	17,509.8	7,178.9	3,680.8	3,554.9	29.248	CC
Independence D18-732 - Independence D18-732 - Prelim	17,530.1	7,189.2	3,680.8	3,554.7	29.193	ES, SF
Independence D18-739 - Independence D18-739 - Prelim	17,530.1	7,372.0	3,324.8	3,198.2	26.255	CC, ES, SF
Independence D18-744 - Independence D18-744 - Prelim	17,530.1	7,300.0	2,936.0	2,809.6	23.214	CC, ES, SF
Independence D18-753 - Independence D18-753 - Prelim	17,127.1	6,591.6	2,578.0	2,455.8	21.093	CC
Independence D18-753 - Independence D18-753 - Prelim	17,200.0	6,627.8	2,578.8	2,455.5	20.925	ES
Independence D18-753 - Independence D18-753 - Prelim	17,530.1	6,931.5	2,596.9	2,469.5	20.387	SF
Independence D18-759 - Independence D18-759 - Prelim	17,353.5	6,879.7	2,274.0	2,149.3	18.236	CC
Independence D18-759 - Independence D18-759 - Prelim	17,530.1	7,058.2	2,275.1	2,148.4	17.951	ES, SF
Independence D18-767 - Independence D18-767 - Prelim	17,530.1	7,109.5	1,713.0	1,587.1	13.608	CC, ES, SF
Independence D30-711 - Independence D30-711 - Prelim	17,530.1	6,004.7	5,018.7	4,896.4	41.040	CC, ES, SF
Independence D30-718 - Independence D30-718 - Prelim	7,750.0	17,187.9	4,624.7	4,519.4	43.889	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 19						
Independence D30-718 - Independence D30-718 - Prelim	7,750.6	17,187.3	4,624.7	4,519.4	43.891	CC
Independence D30-718 - Independence D30-718 - Prelim	17,530.1	7,407.1	4,720.0	4,593.3	37.253	SF
Independence D30-724 - Independence D30-724 - Prelim	7,756.1	17,202.6	4,182.6	4,077.4	39.795	CC, ES
Independence D30-724 - Independence D30-724 - Prelim	17,530.1	7,425.7	4,260.5	4,134.1	33.685	SF
Independence D30-731 - Independence D30-731 - Prelim	7,700.0	17,231.0	3,748.1	3,642.5	35.490	ES
Independence D30-731 - Independence D30-731 - Prelim	7,716.3	17,214.7	3,748.1	3,642.5	35.517	CC
Independence D30-731 - Independence D30-731 - Prelim	17,530.1	7,374.3	3,950.3	3,823.9	31.250	SF
Independence D30-737 - Independence D30-737 - Prelim	7,750.0	17,203.0	3,379.2	3,274.3	32.228	ES
Independence D30-737 - Independence D30-737 - Prelim	7,763.8	17,189.2	3,379.1	3,274.4	32.249	CC
Independence D30-737 - Independence D30-737 - Prelim	17,530.1	7,420.9	3,416.5	3,289.9	26.975	SF
Independence D30-743 - Independence D30-743 - Prelim	7,743.0	17,241.0	2,957.9	2,852.9	28.162	CC, ES
Independence D30-743 - Independence D30-743 - Prelim	17,530.1	7,448.0	3,067.7	2,940.7	24.166	SF
Independence D30-748 - Independence D30-748 - Prelim	17,530.1	7,359.4	2,524.0	2,396.9	19.853	CC, ES, SF
Independence D30-758 - Independence D30-758 - Prelim	7,767.8	17,210.0	2,171.6	2,066.6	20.671	CC, ES
Independence D30-758 - Independence D30-758 - Prelim	17,530.1	7,430.4	2,196.5	2,069.6	17.306	SF
Independence D30-765 - Independence D30-765 - Prelim	7,735.7	17,141.4	1,722.3	1,617.1	16.376	CC, ES
Independence D30-765 - Independence D30-765 - Prelim	17,530.1	7,348.3	1,851.2	1,724.4	14.600	SF
Independence D30-770 - Independence D30-770 - Prelim	7,767.8	17,141.0	1,368.9	1,264.4	13.095	CC
Independence D30-770 - Independence D30-770 - Prelim	17,530.1	7,377.3	1,383.5	1,256.8	10.919	ES, SF
Independence D30-777 - Independence D30-777 - Prelim	7,700.0	17,185.8	941.0	836.5	9.005	ES
Independence D30-777 - Independence D30-777 - Prelim	7,713.9	17,171.9	941.0	836.6	9.011	CC
Independence D30-777 - Independence D30-777 - Prelim	17,530.1	7,344.4	1,015.3	888.9	8.029	SF
Independence State D30-784 - Independence State D30	7,736.6	17,345.0	426.3	322.8	4.118	CC
Independence State D30-784 - Independence State D30	17,530.1	7,548.6	440.6	314.3	3.488	ES, SF
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,423.8	6,997.2	2,982.1	2,885.9	30.989	CC, ES
LDS White D19-10 - LDS White D19-10 - LDS White D19	15,100.0	6,997.4	3,057.8	2,954.5	29.616	SF
LDS White D19-15 - LDS White D19-15 - LDS White D19	13,009.3	7,035.5	3,043.2	2,960.1	36.648	CC, ES
LDS White D19-15 - LDS White D19-15 - LDS White D19	13,800.0	7,026.7	3,144.2	3,053.0	34.485	SF
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	13,042.5	6,994.8	4,335.1	4,251.8	52.047	CC
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	13,100.0	7,005.4	4,335.5	4,251.5	51.615	ES
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	14,500.0	7,009.5	4,573.6	4,476.6	47.156	SF
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	16,010.1	7,020.5	3,498.4	3,386.9	31.376	CC, ES
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	16,800.0	7,015.1	3,586.5	3,467.2	30.876	SF
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,510.4	7,008.0	4,655.6	4,442.7	21.867	CC
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,600.0	7,008.0	4,656.4	4,442.5	21.765	ES
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	15,400.0	7,008.0	4,739.8	4,517.7	21.346	SF
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,689.5	7,019.6	1,504.1	1,386.3	12.768	CC
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,700.0	7,019.5	1,504.2	1,386.2	12.749	ES
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,900.0	7,018.8	1,518.8	1,398.3	12.605	SF
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,121.4	7,043.7	635.5	513.4	5.208	CC, ES
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,200.0	7,044.2	640.3	516.9	5.187	SF
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,474.9	7,011.6	661.1	554.7	6.210	CC
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,500.0	7,012.1	661.6	554.6	6.180	ES, SF
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,554.1	7,000.1	1,921.1	1,814.1	17.961	CC
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,600.0	7,000.6	1,921.6	1,814.0	17.854	ES
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,900.0	7,003.9	1,951.9	1,841.0	17.597	SF
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,029.9	7,011.7	4,634.3	4,513.2	38.287	CC
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,100.0	7,011.5	4,634.8	4,512.9	38.031	ES
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,530.1	7,010.0	4,661.2	4,534.7	36.855	SF
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,125.5	6,979.9	3,177.6	3,055.7	26.066	CC
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,200.0	6,980.0	3,178.5	3,055.6	25.872	ES
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,530.1	6,980.4	3,203.3	3,076.9	25.338	SF
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,549.3	7,005.5	4,516.2	4,409.3	42.256	CC

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
D Section 19						
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,600.0	7,005.8	4,516.4	4,409.0	42.023	ES
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	16,800.0	7,012.5	4,686.1	4,567.6	39.525	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
D Section 29						
Guttersen D29 778 - Guttersen D29- 778 - Prelim - Rev 0	9,937.7	7,284.4	5,919.9	5,863.4	104.708	CC
Guttersen D29 778 - Guttersen D29- 778 - Prelim - Rev 0	17,530.1	14,856.9	5,943.6	5,771.9	34.619	ES, SF
Guttersen D29-30D - Wellbore #1 - Design #1	12,292.2	7,202.3	5,221.9	5,169.8	100.206	CC
Guttersen D29-30D - Wellbore #1 - Design #1	12,300.0	7,202.3	5,221.9	5,169.7	100.041	ES
Guttersen D29-30D - Wellbore #1 - Design #1	14,800.0	7,202.3	5,792.8	5,719.4	78.937	SF
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,053.2	7,080.2	5,288.5	5,221.3	78.700	CC
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,100.0	7,080.1	5,288.7	5,221.0	78.164	ES
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	13,400.0	7,077.5	5,785.8	5,699.1	66.703	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,676.9	6,221.0	5,441.8	5,391.0	107.190	CC
Guttersen D29-65HN - Original Drilling - Original Drilling	9,700.0	6,221.0	5,441.8	5,390.8	106.753	ES
Guttersen D29-65HN - Original Drilling - Original Drilling	12,800.0	6,331.6	6,268.5	6,191.9	81.856	SF
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,654.8	6,200.8	5,463.5	5,432.7	177.286	CC
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,700.0	6,200.8	5,463.7	5,432.5	174.991	ES
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	13,300.0	6,200.8	6,567.8	6,508.8	111.235	SF
Guttersen D29-67HN - Original Drilling - Original Drilling	11,056.4	6,221.0	5,575.7	5,513.4	89.503	CC
Guttersen D29-67HN - Original Drilling - Original Drilling	11,100.0	6,221.0	5,575.8	5,513.1	88.864	ES
Guttersen D29-67HN - Original Drilling - Original Drilling	13,800.0	6,221.0	6,214.1	6,128.4	72.526	SF
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	11,053.9	6,250.0	5,570.5	5,528.3	131.993	CC
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	11,100.0	6,250.0	5,570.7	5,528.0	130.526	ES
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	14,200.0	6,271.6	6,397.2	6,329.4	94.372	SF
Guttersen D29-69HN - Original Drilling - Original Drilling	12,308.7	6,411.0	5,584.5	5,502.8	68.320	CC
Guttersen D29-69HN - Original Drilling - Original Drilling	12,400.0	6,411.0	5,585.3	5,502.6	67.520	ES
Guttersen D29-69HN - Original Drilling - Original Drilling	14,500.0	6,411.0	5,999.1	5,898.7	59.754	SF
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,301.1	6,446.9	5,583.2	5,529.9	104.812	CC
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,400.0	6,446.9	5,584.0	5,529.7	102.764	ES
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	15,000.0	6,446.9	6,201.2	6,125.3	81.728	SF
Guttersen D29-714 - Guttersen D29-714 - Prelim - Rev 0	9,496.0	5,017.5	9,835.4	9,787.6	205.952	CC
Guttersen D29-714 - Guttersen D29-714 - Prelim - Rev 0	9,600.0	5,002.9	9,835.9	9,787.4	202.573	ES
Guttersen D29-714 - Guttersen D29-714 - Prelim - Rev 0	11,300.0	4,763.7	9,996.2	9,933.5	159.401	SF
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 0	9,329.5	5,970.7	9,543.2	9,493.9	193.538	CC
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 0	17,530.1	14,907.0	9,600.0	9,428.5	55.969	ES, SF
Guttersen D29-730 - Guttersen D29-730 - Prelim Rev 0	9,802.1	7,172.6	8,988.2	8,933.1	163.128	CC
Guttersen D29-730 - Guttersen D29-730 - Prelim Rev 0	17,530.1	14,816.2	9,059.7	8,888.5	52.899	ES, SF
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	9,885.6	7,268.7	8,408.6	8,352.4	149.565	CC
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	10,000.0	7,300.0	8,409.2	8,351.9	146.917	ES
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	17,530.1	14,782.9	8,534.2	8,363.8	50.081	SF
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	9,883.3	7,400.0	7,938.7	7,881.8	139.405	CC
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	17,530.1	14,976.0	8,006.0	7,835.0	46.834	ES, SF
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	9,223.5	5,605.6	7,294.1	7,245.8	150.951	CC
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	9,300.0	5,581.9	7,294.5	7,245.7	149.361	ES
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	17,530.1	15,173.7	7,499.5	7,326.7	43.413	SF
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	9,261.9	6,042.9	7,063.6	7,014.1	142.753	CC
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	9,300.0	6,037.7	7,063.7	7,014.0	141.933	ES
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	17,530.1	14,946.3	7,212.9	7,041.1	41.977	SF
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	9,333.3	6,321.4	6,843.1	6,792.7	135.857	CC
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	17,530.1	14,806.5	6,962.8	6,791.4	40.639	ES, SF
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	9,737.7	7,156.1	6,376.2	6,321.6	116.732	CC
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	17,530.1	14,882.1	6,455.3	6,283.3	37.532	ES, SF
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 0	9,810.4	7,413.5	5,391.7	5,335.4	95.738	CC
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 0	17,530.1	15,114.0	5,411.5	5,239.3	31.422	ES, SF
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0	9,558.8	4,484.2	9,985.6	9,939.0	214.330	CC
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0	9,600.0	4,478.6	9,985.7	9,938.8	212.889	ES
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0	10,100.0	4,410.0	10,000.0	9,949.1	196.443	SF

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



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
D Section 29						
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	8,334.9	6,290.0	5,648.1	5,602.9	125.056	CC, ES
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	11,900.0	6,290.0	6,679.1	6,608.3	94.401	SF
Guttersen D30-68-1HN - Original Drilling - Original Drillin	11,346.9	11,278.0	607.0	534.1	8.325	CC, ES
Guttersen D30-68-1HN - Original Drilling - Original Drillin	11,800.0	11,278.0	757.5	637.1	6.292	SF
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,341.1	11,260.0	606.5	561.3	13.417	CC, ES
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,400.0	11,260.0	609.4	562.9	13.116	SF
Guttersen D30-69-1HN - Original Drilling - Original Drillin	12,085.2	11,050.0	788.6	705.3	9.464	CC, ES
Guttersen D30-69-1HN - Original Drilling - Original Drillin	12,600.0	11,050.0	941.8	828.3	8.301	SF
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	12,054.7	11,000.0	828.4	777.2	16.178	CC, ES
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	12,200.0	11,000.0	841.0	787.4	15.698	SF
Guttersen Y05-711 - Guttersen Y05-711 - Prelim - Rev 0	10,131.4	4,501.1	9,982.4	9,931.3	195.295	CC
Guttersen Y05-711 - Guttersen Y05-711 - Prelim - Rev 0	10,200.0	4,510.7	9,982.6	9,930.9	192.878	ES
Guttersen Y05-711 - Guttersen Y05-711 - Prelim - Rev 0	10,700.0	4,580.8	9,998.2	9,941.7	176.866	SF
Guttersen Y05-719 - Guttersen Y05-719 - Prelim - Rev 0	10,421.6	5,747.3	9,641.0	9,583.6	167.934	CC
Guttersen Y05-719 - Guttersen Y05-719 - Prelim - Rev 0	10,500.0	5,761.5	9,641.3	9,583.2	165.733	ES
Guttersen Y05-719 - Guttersen Y05-719 - Prelim - Rev 0	13,100.0	6,230.8	9,994.4	9,910.8	119.536	SF
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 0	10,355.5	6,184.9	9,450.4	9,392.5	163.105	CC
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 0	10,400.0	6,191.7	9,450.5	9,392.2	161.914	ES
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 0	13,600.0	6,300.0	9,987.7	9,900.1	114.024	SF
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0	9,801.5	7,225.2	8,686.9	8,631.7	157.270	CC
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0	9,900.0	7,200.0	8,687.3	8,631.2	154.982	ES
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0	15,100.0	6,500.0	9,965.6	9,867.4	101.535	SF
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	9,970.7	7,350.0	8,189.1	8,132.0	143.262	CC
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	10,100.0	7,300.0	8,190.0	8,131.7	140.592	ES
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	15,600.0	6,700.0	9,725.4	9,623.7	95.708	SF
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,753.9	7,481.0	7,687.5	7,631.2	136.709	CC
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,800.0	7,481.0	7,687.6	7,631.0	135.734	ES
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	15,000.0	6,900.0	9,120.3	9,022.3	93.059	SF
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	10,162.8	5,418.9	7,360.6	7,305.8	134.356	CC
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	10,200.0	5,424.1	7,360.7	7,305.5	133.486	ES
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	14,900.0	6,070.9	8,728.9	8,634.4	92.392	SF
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,413.1	6,282.7	6,913.4	6,854.2	116.908	CC
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,500.0	6,282.7	6,913.9	6,854.0	115.299	ES
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	14,400.0	6,376.6	7,976.3	7,884.3	86.741	SF
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,241.5	6,469.7	6,753.9	6,696.0	116.609	CC
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,300.0	6,458.7	6,754.2	6,695.7	115.563	ES
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	14,100.0	6,350.0	7,773.1	7,683.8	87.077	SF
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	7,750.0	9,208.8	6,519.9	6,470.1	130.941	ES
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	7,756.1	9,202.6	6,519.9	6,470.1	130.977	CC
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	14,000.0	6,400.0	7,561.3	7,472.9	85.505	SF
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,927.2	7,250.0	5,796.4	5,739.8	102.480	CC
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	10,000.0	7,226.5	5,796.7	5,739.5	101.352	ES
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	13,500.0	6,650.0	6,630.7	6,545.0	77.346	SF
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	7,764.6	9,318.4	5,482.3	5,432.1	109.306	CC, ES
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	13,100.0	6,750.0	6,278.4	6,195.4	75.645	SF
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,316.7	7,000.0	4,117.7	4,074.2	94.753	CC
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,400.0	7,000.0	4,118.5	4,074.1	92.797	ES
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	13,300.0	7,000.0	4,570.4	4,509.7	75.284	SF
Jessie D29-1J - Wellbore #1 - Gyro Surveys	11,432.4	6,952.5	8,753.6	8,685.2	128.013	CC
Jessie D29-1J - Wellbore #1 - Gyro Surveys	11,500.0	6,952.0	8,753.9	8,684.8	126.767	ES
Jessie D29-1J - Wellbore #1 - Gyro Surveys	16,200.0	6,917.8	9,967.6	9,859.6	92.277	SF
Jessie D29-4J - Wellbore #1 - Gyro Surveys	8,763.6	6,762.8	8,810.5	8,763.2	186.541	CC
Jessie D29-4J - Wellbore #1 - Gyro Surveys	8,800.0	6,761.4	8,810.5	8,763.1	185.628	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 29						
Jessie D29-4J - Wellbore #1 - Gyro Surveys	13,400.0	6,639.8	9,954.6	9,870.3	118.150	SF
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,745.8	6,996.0	6,045.6	5,997.9	126.605	CC
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,800.0	6,996.1	6,045.9	5,997.7	125.645	ES
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	12,600.0	7,021.0	7,169.6	7,092.1	92.526	SF
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,113.3	7,089.6	7,016.5	6,966.4	140.003	CC
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,200.0	7,090.5	7,017.0	6,966.2	138.169	ES
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	13,700.0	7,136.6	8,382.4	8,296.4	97.445	SF
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	7,745.5	6,994.2	5,695.5	5,652.2	131.315	CC
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	7,750.0	6,994.4	5,695.5	5,652.2	131.277	ES
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	11,700.0	6,974.4	6,976.9	6,907.3	100.288	SF
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	7,777.2	7,011.7	7,060.2	7,016.8	162.562	CC
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	7,800.0	7,011.4	7,060.3	7,016.8	162.332	ES
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	13,100.0	6,948.4	8,841.6	8,762.1	111.310	SF
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,349.4	6,962.1	6,279.8	6,212.1	92.765	CC
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,400.0	6,961.8	6,280.0	6,211.8	92.056	ES
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	14,500.0	6,939.6	7,025.7	6,931.2	74.319	SF
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,753.3	6,962.9	7,165.5	7,094.3	100.643	CC
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,800.0	6,962.7	7,165.7	7,094.0	99.968	ES
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	15,400.0	6,949.7	8,040.0	7,938.1	78.855	SF
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,438.2	6,945.9	5,797.0	5,737.0	96.597	CC
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,500.0	6,946.1	5,797.3	5,736.7	95.630	ES
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	13,500.0	6,957.4	6,555.9	6,470.0	76.292	SF
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,400.0	6,998.7	7,152.3	7,092.9	120.340	CC
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,500.0	6,998.4	7,153.0	7,092.6	118.446	ES
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	14,600.0	6,986.6	8,294.4	8,200.6	88.437	SF
Kate White D29-1 - Wellbore #1 - Gyro Surveys	11,812.4	7,036.5	9,835.0	9,762.8	136.299	CC
Kate White D29-1 - Wellbore #1 - Gyro Surveys	11,900.0	7,036.1	9,835.4	9,762.4	134.672	ES
Kate White D29-1 - Wellbore #1 - Gyro Surveys	13,600.0	7,028.6	9,996.1	9,906.6	111.640	SF
Kate White D29-15 - Wellbore #1 - Gyro Surveys	7,885.1	6,699.6	8,309.4	8,266.2	192.427	CC
Kate White D29-15 - Wellbore #1 - Gyro Surveys	7,900.0	6,699.7	8,309.4	8,266.1	192.265	ES
Kate White D29-15 - Wellbore #1 - Gyro Surveys	13,400.0	6,700.0	9,972.8	9,890.3	120.836	SF
Kate White D29-16 - Wellbore #1 - Gyro Surveys	7,804.1	6,941.2	9,718.1	9,674.6	223.100	CC, ES
Kate White D29-16 - Wellbore #1 - Gyro Surveys	10,100.0	6,940.5	9,985.6	9,927.1	170.590	SF
Kate White D29-7 - Wellbore #1 - Gyro Surveys	10,401.7	6,906.8	8,638.8	8,579.1	144.913	CC
Kate White D29-7 - Wellbore #1 - Gyro Surveys	10,500.0	6,907.4	8,639.3	8,578.8	142.719	ES
Kate White D29-7 - Wellbore #1 - Gyro Surveys	15,400.0	6,877.3	9,980.4	9,879.8	99.188	SF
Kate White D29-8 - Wellbore #1 - Gyro Surveys	10,424.7	7,115.2	9,768.4	9,708.7	163.585	CC
Kate White D29-8 - Wellbore #1 - Gyro Surveys	10,500.0	7,113.6	9,768.7	9,708.3	161.706	ES
Kate White D29-8 - Wellbore #1 - Gyro Surveys	12,500.0	7,070.2	9,986.3	9,907.2	126.150	SF
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys	9,031.5	6,856.3	9,740.2	9,691.0	198.247	CC
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys	9,100.0	6,854.7	9,740.4	9,690.8	196.293	ES
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys	11,200.0	11,200.0	9,978.4	9,895.6	120.473	SF



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,521.3	7,074.1	3,676.7	3,595.4	45.205	CC
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,600.0	7,074.5	3,677.6	3,595.2	44.664	ES
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	13,700.0	7,080.1	3,861.0	3,767.4	41.239	SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,273.9	7,118.3	1,329.9	1,252.7	17.242	CC
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,300.0	7,118.1	1,330.1	1,252.6	17.152	ES
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,500.0	7,117.3	1,348.9	1,268.6	16.798	SF
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	12,400.0	7,512.2	42.3	-92.5	0.314	Level 1, ES
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	12,440.9	7,512.1	10.8	-71.4	0.132	Level 1, CC, SF
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,147.9	7,479.4	270.7	176.5	2.874	CC
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,200.0	7,479.2	275.7	167.0	2.538	ES
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,300.0	7,478.8	310.5	183.7	2.448	SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	407.8	373.8	3,770.4	3,768.5	1,966.451	CC, ES
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	10,700.0	7,337.1	4,696.0	4,589.5	44.089	SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,682.0	6,935.0	3,536.7	3,489.4	74.690	CC
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,700.0	6,934.0	3,536.8	3,489.3	74.492	ES
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	10,400.0	6,815.9	3,929.6	3,868.6	64.359	SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	9,060.2	6,872.4	4,526.9	4,477.4	91.445	CC
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	9,100.0	6,871.8	4,527.1	4,477.3	90.866	ES
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	11,500.0	6,833.7	5,142.3	5,072.9	74.123	SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	7,746.2	7,070.5	3,178.0	3,134.1	72.391	CC
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	7,750.0	7,070.4	3,178.0	3,134.1	72.373	ES
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	9,300.0	6,987.1	3,555.5	3,502.1	66.624	SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	7,727.4	7,022.9	4,415.4	4,371.6	100.880	CC, ES
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	10,400.0	7,045.7	5,211.8	5,150.7	85.351	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,500.0	7,441.5	3,751.5	3,652.5	37.887	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,725.0	7,441.7	3,744.7	3,646.2	37.994	CC, ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	9,775.1	7,130.0	1,283.6	1,225.9	22.240	CC
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	9,800.0	7,130.0	1,283.8	1,225.7	22.068	ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	10,200.0	7,129.9	1,352.1	1,287.5	20.930	SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	8,341.2	7,062.6	2,448.4	2,398.2	48.855	CC, ES
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	9,300.0	7,022.1	2,629.1	2,571.2	45.395	SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,300.0	7,201.5	1,269.4	1,213.0	22.540	SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,379.6	7,199.3	1,266.9	1,210.7	22.576	CC, ES
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	434.0	400.0	3,771.9	3,769.8	1,832.888	CC
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	500.0	434.4	3,772.1	3,769.8	1,621.140	ES
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	10,700.0	7,335.8	5,198.4	5,112.3	60.345	SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	7,523.3	7,001.4	2,444.7	2,401.4	56.459	CC, ES
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	7,800.0	7,039.7	2,478.7	2,434.3	55.794	SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	7,376.9	7,044.0	1,298.5	1,252.5	28.260	CC, ES
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	7,700.0	7,125.6	1,362.0	1,311.7	27.081	SF
Dechant D31-77HN - Original Drilling - Original Drilling - A	7,227.1	6,746.2	1,956.5	1,916.0	48.261	CC, ES
Dechant D31-77HN - Original Drilling - Original Drilling - A	7,450.0	6,730.0	1,980.4	1,939.1	47.981	SF
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	7,231.8	6,717.0	1,957.3	1,938.7	105.042	CC, ES
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	8,300.0	6,527.0	2,347.2	2,322.9	96.755	SF
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	7,235.5	6,722.3	1,956.0	1,937.4	104.950	CC, ES
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	8,200.0	6,545.3	2,288.4	2,264.7	96.673	SF
Dechant D32-69HN - Original Drilling - APD Rev 0	7,523.2	6,348.4	5,100.0	5,080.5	261.955	CC, ES
Dechant D32-69HN - Original Drilling - APD Rev 0	11,900.0	6,348.4	6,967.7	6,922.3	153.453	SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	9,173.1	6,965.9	1,830.9	1,780.4	36.205	CC
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	9,200.0	6,965.9	1,831.1	1,780.3	36.008	ES
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	9,800.0	6,967.5	1,935.3	1,878.5	34.051	SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,280.3	7,026.4	663.5	612.3	12.943	CC
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,300.0	7,026.6	663.8	612.2	12.863	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
D Section 30						
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,400.0	7,027.5	674.2	621.0	12.668	SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,716.6	7,027.6	541.0	497.2	12.347	CC, ES
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,750.0	7,029.1	542.3	498.3	12.328	SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	7,775.3	6,867.5	2,016.0	1,972.3	46.109	CC, ES
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	8,500.0	6,850.5	2,142.2	2,094.4	44.774	SF
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,549.6	6,866.1	4,077.6	4,008.0	58.555	CC
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,600.0	6,866.4	4,077.9	4,007.7	58.087	ES
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	13,100.0	6,873.8	4,362.4	4,278.4	51.909	SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,865.9	7,014.0	3,164.4	3,055.0	28.909	CC
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,900.0	7,014.0	3,164.6	3,054.7	28.803	ES
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	12,600.0	7,014.0	3,248.4	3,131.2	27.704	SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,901.6	7,002.8	1,813.0	1,740.1	24.861	CC, ES
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	12,300.0	7,001.9	1,856.3	1,778.6	23.885	SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,939.5	7,010.2	648.3	574.9	8.836	CC, ES
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	12,000.0	7,009.7	651.1	576.4	8.719	SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,157.3	7,026.7	660.1	602.3	11.409	CC, ES
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,300.0	7,025.9	675.4	615.0	11.182	SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,200.1	7,013.9	1,853.2	1,794.9	31.819	CC, ES
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,700.0	7,016.8	1,919.4	1,855.5	30.048	SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,292.8	7,019.5	4,342.5	4,283.6	73.640	CC
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,300.0	7,019.5	4,342.6	4,283.5	73.548	ES
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	12,300.0	7,006.1	4,784.0	4,707.2	62.329	SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,315.1	7,032.0	1,019.8	937.2	12.348	CC, ES
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,400.0	7,032.0	1,023.4	940.0	12.279	SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,804.9	6,935.1	5,027.0	4,972.1	91.448	CC, ES
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	12,400.0	6,915.8	5,657.3	5,580.3	73.505	SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,534.4	7,022.0	3,161.9	3,064.0	32.295	CC
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,600.0	7,022.0	3,162.6	3,064.0	32.061	ES
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	11,400.0	7,022.0	3,278.3	3,171.5	30.713	SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	11,024.6	6,964.1	2,502.9	2,437.8	38.415	CC, ES
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	11,800.0	6,972.0	2,620.3	2,547.1	35.784	SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,070.3	7,004.1	1,317.5	1,249.9	19.503	CC
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,100.0	7,004.2	1,317.8	1,249.8	19.374	ES
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,300.0	7,005.2	1,337.3	1,266.6	18.907	SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,426.1	6,980.5	2,832.8	2,780.6	54.196	CC, ES
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	10,600.0	6,964.2	3,066.4	3,003.3	48.646	SF
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,795.7	7,009.2	3,676.0	3,621.0	66.814	CC
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,800.0	7,009.1	3,676.0	3,621.0	66.762	ES
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	11,400.0	6,983.8	4,010.8	3,941.3	57.762	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

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>						
DP 408						
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	22.4	13.7	2.570	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	17,530.1	17,377.9	448.6	250.6	2.266	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	44.7	36.0	5.139	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	17,529.4	17,460.5	882.1	682.3	4.415	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,001.0	67.1	58.4	7.707	CC, ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	17,530.1	17,366.2	1,321.8	1,121.2	6.591	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	89.4	80.7	10.278	CC, ES
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	17,530.1	17,282.6	1,760.7	1,558.1	8.690	SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	111.8	103.1	12.848	CC, ES
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	17,530.1	17,327.4	2,199.9	1,997.0	10.841	SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,704.5	3,242.4	2,169.4	2,156.9	172.910	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	17,530.1	17,580.8	2,489.2	2,286.2	12.264	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,000.0	2,011.0	2,201.6	2,192.8	252.382	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	17,530.1	17,493.7	2,928.3	2,725.0	14.407	SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,000.0	2,015.0	2,223.9	2,219.6	511.314	CC, ES
Emmy State H25-764 - Wellbore #1 - Design #1	17,530.1	17,466.3	3,365.9	3,264.5	33.207	SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,000.0	2,011.0	2,246.3	2,237.5	257.506	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	17,530.1	17,392.8	3,807.7	3,604.0	18.692	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,000.0	2,012.0	2,268.6	2,259.9	260.002	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,530.1	17,402.0	4,245.3	4,041.8	20.858	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	1,912.1	1,924.1	2,293.8	2,285.4	275.350	CC
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,293.8	2,285.1	263.704	ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,530.1	17,481.1	4,687.1	4,483.8	23.053	SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,000.0	2,011.0	2,184.6	2,175.9	250.434	CC, ES
Emmy State H36-753 - Wellbore #1 - Design #1	6,650.0	7,836.8	2,451.8	2,416.2	68.794	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,000.0	1,982.0	2,206.9	2,198.2	253.906	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	6,700.0	7,664.8	2,930.5	2,896.2	85.545	SF
Emmy State H36-766 - Wellbore #1 - Design #1	2,000.0	2,012.0	2,229.2	2,220.4	255.480	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	6,700.0	7,627.8	3,318.9	3,285.6	99.570	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,000.0	2,012.0	2,251.5	2,242.7	258.036	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	9,600.0	6,650.0	4,279.7	4,240.2	108.203	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,000.0	2,013.0	2,273.8	2,265.0	260.524	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	10,100.0	6,500.0	4,855.4	4,813.8	116.565	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	1,911.2	1,925.2	2,298.9	2,290.5	275.943	CC
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,298.9	2,290.2	264.291	ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	10,700.0	6,550.0	5,401.2	5,354.6	115.860	SF
Hurley H26-712 - Wellbore #1 - Design #1	2,663.7	3,834.7	5,059.7	5,045.8	363.777	CC
Hurley H26-712 - Wellbore #1 - Design #1	17,530.1	14,870.7	5,127.6	4,950.3	28.910	ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	2,506.5	3,422.7	5,156.8	5,144.2	411.904	CC, ES
Hurley H26-717 - Wellbore #1 - Design #1	17,530.1	14,748.5	5,536.6	5,362.4	31.784	SF
Hurley H26-724 - Wellbore #1 - Design #1	2,000.0	2,050.0	5,257.1	5,248.2	596.658	CC
Hurley H26-724 - Wellbore #1 - Design #1	2,246.5	2,722.5	5,258.1	5,247.5	498.175	ES
Hurley H26-724 - Wellbore #1 - Design #1	17,530.1	14,824.6	5,972.6	5,796.9	34.001	SF
Hurley H26-730 - Wellbore #1 - Design #1	2,000.0	2,049.0	5,275.9	5,267.1	598.954	CC, ES
Hurley H26-730 - Wellbore #1 - Design #1	17,530.1	14,557.8	6,389.9	6,213.4	36.201	SF
Hurley H26-736 - Wellbore #1 - Design #1	2,000.0	2,050.0	5,294.9	5,286.0	600.948	CC, ES
Hurley H26-736 - Wellbore #1 - Design #1	17,530.1	14,665.5	6,802.4	6,627.9	38.990	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,049.0	5,313.8	5,305.0	603.252	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,972.9	7,231.8	7,054.4	40.763	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	2,935.6	5,473.7	7,563.8	7,544.9	400.653	CC
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,530.1	15,118.9	7,654.1	7,475.1	42.771	ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	2,761.3	4,851.9	7,753.1	7,736.7	472.246	CC, ES
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,859.1	8,125.0	7,950.0	46.431	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
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<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

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>						
DP 408						
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	2,501.5	3,907.2	7,880.2	7,866.6	582.064	CC, ES
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,818.6	8,546.5	8,371.4	48.794	SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,016.0	7,914.1	7,905.4	906.087	CC, ES
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,809.4	8,966.2	8,790.6	51.051	SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,016.0	7,935.1	7,926.4	908.492	CC, ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,883.9	9,395.9	9,217.2	52.596	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	1,910.3	1,926.3	7,956.2	7,947.8	954.976	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,956.2	7,947.5	914.666	ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,530.1	14,739.8	9,801.0	9,624.2	55.465	SF
Hurley H35-720 - Wellbore #1 - Design #1	2,000.0	2,050.0	5,320.0	5,311.2	603.799	CC, ES
Hurley H35-720 - Wellbore #1 - Design #1	13,300.0	6,700.0	6,287.5	6,219.6	92.579	SF
Hurley H35-727 - Wellbore #1 - Design #1	2,000.0	2,050.0	5,338.5	5,329.7	605.906	CC, ES
Hurley H35-727 - Wellbore #1 - Design #1	13,500.0	6,572.4	6,752.7	6,684.8	99.480	SF
Hurley H35-733 - Wellbore #1 - Design #1	2,000.0	2,049.0	5,357.1	5,348.3	608.172	CC, ES
Hurley H35-733 - Wellbore #1 - Design #1	13,800.0	6,450.0	7,192.9	7,122.6	102.420	SF
Hurley H35-740 - Wellbore #1 - Design #1	2,000.0	2,050.0	5,375.8	5,367.0	610.131	CC, ES
Hurley H35-740 - Wellbore #1 - Design #1	14,700.0	6,102.1	7,971.2	7,897.7	108.441	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,904.6	1,953.6	5,394.4	5,386.0	643.732	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	5,394.6	5,385.9	620.196	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	14,800.0	5,644.4	8,359.3	8,286.2	114.417	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	4,580.8	10,344.0	7,476.9	7,430.5	161.105	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	4,600.0	10,345.3	7,476.9	7,430.4	160.861	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	15,100.0	6,850.0	9,297.1	9,217.5	116.879	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	4,465.8	10,127.4	7,882.6	7,838.3	178.161	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	4,500.0	10,129.8	7,882.6	7,838.3	177.621	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	15,400.0	6,700.0	9,829.9	9,749.5	122.375	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,017.0	7,943.0	7,934.2	909.154	CC, ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	15,100.0	6,600.0	9,979.4	9,899.5	124.902	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,017.0	7,963.8	7,955.1	911.541	CC, ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	14,400.0	6,500.0	9,998.6	9,921.5	129.769	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,016.0	7,986.0	7,977.3	914.314	CC, ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	13,500.0	6,400.0	9,976.5	9,904.6	138.760	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	1,910.3	1,926.3	8,006.9	7,998.5	961.063	CC
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	8,006.9	7,998.2	920.496	ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	11,800.0	5,259.6	9,997.1	9,940.6	177.163	SF
Hurley State H35-713 - Wellbore #1 - Design #1	5,462.5	10,282.9	4,986.7	4,938.3	102.832	CC
Hurley State H35-713 - Wellbore #1 - Design #1	5,500.0	10,285.1	4,986.9	4,938.2	102.519	ES
Hurley State H35-713 - Wellbore #1 - Design #1	12,700.0	6,800.0	5,748.5	5,685.0	90.516	SF
<b>H Section 13</b>						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,530.1	7,253.3	3,888.6	3,762.4	30.801	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,530.1	7,129.0	5,189.6	5,064.4	41.444	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,530.1	6,358.0	5,213.6	5,093.9	43.556	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Plan A - Rev 2	17,530.1	6,397.6	5,207.8	5,108.7	52.578	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Plan C - Rev 0	17,530.1	6,397.6	5,208.6	5,109.6	52.602	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,530.1	6,853.0	2,324.0	2,202.4	19.124	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Plan A - Rev 0	17,530.1	6,853.0	2,324.0	2,202.4	19.124	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,530.1	7,026.5	4,352.0	4,226.1	34.565	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,530.1	7,142.7	3,377.8	3,250.3	26.491	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,530.1	7,074.2	2,017.4	1,894.1	16.366	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled	17,530.1	7,073.9	1,207.0	1,102.2	11.517	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,530.1	7,082.0	4,616.0	4,372.3	18.936	CC, ES, SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,530.1	6,900.0	6,052.9	5,930.5	49.432	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,530.1	6,823.4	7,005.9	6,880.5	55.877	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,530.1	7,044.8	6,220.9	6,094.5	49.223	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,000.0	17,000.0	8,420.0	8,270.2	56.207	SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,530.1	7,185.8	8,319.0	8,182.0	60.750	CC, ES
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,530.1	7,517.8	7,250.6	7,110.1	51.600	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,530.1	7,373.6	8,312.5	8,151.1	51.475	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,530.1	7,710.6	9,126.3	8,997.3	70.713	CC, ES, SF



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

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>						
H Section 23						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,656.0	7,091.1	6,944.2	6,836.0	64.165	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,700.0	7,090.6	6,944.4	6,835.8	63.962	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	17,530.1	7,066.9	7,192.7	7,072.8	60.000	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,869.5	7,074.0	5,751.2	5,514.6	24.300	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,900.0	7,074.0	5,751.3	5,514.4	24.276	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,530.1	7,074.0	5,789.1	5,547.9	24.007	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,989.1	7,152.4	6,997.9	6,812.9	37.831	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,000.0	7,152.4	6,997.9	6,812.8	37.813	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,530.1	7,153.7	7,018.7	6,829.7	37.121	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,550.8	7,084.0	5,725.4	5,501.1	25.527	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,600.0	7,084.0	5,725.6	5,500.9	25.486	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	16,400.0	7,084.0	5,788.0	5,558.2	25.180	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,236.1	6,783.7	5,867.2	5,783.5	70.031	CC
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,300.0	6,786.3	5,867.6	5,783.3	69.628	ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	15,000.0	6,871.5	6,126.1	6,031.3	64.625	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,313.4	6,737.6	7,197.5	7,113.1	85.240	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,400.0	6,740.2	7,198.1	7,112.9	84.557	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	16,000.0	6,862.7	7,681.8	7,580.2	75.593	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,309.5	6,923.1	6,887.8	6,793.1	72.733	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,400.0	6,929.7	6,888.4	6,792.9	72.175	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	16,500.0	7,082.2	7,226.1	7,117.1	66.280	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,011.1	7,421.3	8,310.0	8,179.4	63.660	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,100.0	7,421.5	8,310.5	8,179.1	63.269	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,530.1	7,422.6	8,326.2	8,191.1	61.619	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,034.3	7,318.1	9,730.5	9,579.4	64.376	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,200.0	7,320.2	9,732.0	9,578.0	63.217	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,530.1	7,324.3	9,743.2	9,583.8	61.116	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,699.6	7,238.7	9,754.5	9,611.2	68.086	CC
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,700.0	7,238.7	9,754.5	9,611.2	68.085	ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	17,000.0	7,263.6	9,840.7	9,692.1	66.206	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,073.6	7,025.1	8,695.5	8,583.4	77.613	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,100.0	7,025.2	8,695.5	8,583.3	77.459	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,530.1	7,032.1	8,816.6	8,693.3	71.518	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,050.3	7,242.6	5,971.4	5,877.6	63.666	CC
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,100.0	7,242.1	5,971.6	5,877.4	63.416	ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	15,700.0	7,224.9	6,195.0	6,091.4	59.770	SF
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	15,551.5	6,875.8	8,295.2	8,187.8	77.255	CC
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	15,600.0	6,875.2	8,295.4	8,187.6	76.980	ES
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	17,530.1	6,849.8	8,527.9	8,407.2	70.656	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,395.4	7,178.8	7,542.2	7,426.4	65.160	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,500.0	7,177.3	7,542.9	7,426.3	64.700	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,530.1	7,163.5	7,627.0	7,503.2	61.581	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,956.7	7,150.6	6,515.9	6,411.6	62.471	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,000.0	7,150.7	6,516.1	6,411.5	62.281	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	16,600.0	7,154.4	6,720.0	6,606.0	58.956	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,304.2	7,201.9	5,124.3	5,008.0	44.066	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	17,200.0	7,210.1	5,202.0	5,081.4	43.137	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,315.3	6,927.3	8,617.5	8,522.7	90.878	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,400.0	6,927.0	8,617.9	8,522.4	90.229	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	17,530.1	6,912.3	9,197.7	9,082.1	79.599	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,316.1	6,973.8	9,917.7	9,822.6	104.318	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,400.0	6,974.5	9,918.0	9,822.3	103.559	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	15,500.0	6,983.7	9,988.1	9,883.6	95.571	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 23						
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,167.8	7,038.6	9,915.4	9,830.7	117.126	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,300.0	7,043.4	9,916.3	9,830.5	115.629	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	14,400.0	7,083.3	9,991.6	9,897.0	105.651	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	13,039.7	7,190.8	8,204.0	8,119.8	97.455	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	13,100.0	7,195.1	8,204.2	8,119.5	96.882	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	16,400.0	7,304.0	8,863.2	8,757.2	83.596	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,933.4	6,928.2	7,967.8	7,876.6	87.325	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	14,000.0	6,929.6	7,968.1	7,876.3	86.814	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	16,900.0	7,000.0	8,501.9	8,391.5	77.034	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,378.1	7,041.0	9,355.7	9,152.7	46.100	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,500.0	7,041.0	9,356.5	9,152.5	45.879	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	15,900.0	7,041.0	9,689.7	9,468.5	43.807	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,074.8	6,957.7	6,241.1	6,129.6	55.979	CC
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,100.0	6,957.9	6,241.1	6,129.4	55.881	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	17,530.1	6,967.0	6,408.5	6,288.0	53.194	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

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>						
H Section 24						
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,300.0	7,052.7	547.8	451.7	5.698	SF
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,331.6	7,052.7	546.9	451.0	5.701	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,355.0	7,042.1	1,745.7	1,650.1	18.251	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,400.0	7,042.2	1,746.3	1,650.5	18.233	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,299.7	7,239.9	3,194.3	3,098.0	33.160	CC
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,300.0	7,239.9	3,194.3	3,098.0	33.159	ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,700.0	7,248.1	3,219.3	3,121.0	32.756	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,305.1	6,500.0	4,454.9	4,363.2	48.552	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	15,200.0	6,500.0	4,543.9	4,447.2	46.994	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,105.2	7,340.0	4,262.3	4,167.6	45.002	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,900.0	7,340.0	4,335.8	4,236.4	43.651	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,641.2	7,380.0	4,333.8	4,248.8	50.958	CC
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,700.0	7,380.0	4,334.2	4,248.8	50.713	ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	13,000.0	7,299.2	4,347.9	4,261.4	50.242	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,003.2	7,023.9	1,832.5	1,749.6	22.105	CC, ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,100.0	7,023.5	1,835.1	1,751.9	22.064	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,000.0	7,024.0	845.9	762.6	10.159	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,026.4	7,024.0	845.5	762.3	10.161	CC, ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,888.3	7,112.4	2,991.5	2,909.1	36.303	CC
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,900.0	7,112.5	2,991.5	2,909.0	36.274	ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	13,300.0	7,115.3	3,019.7	2,935.3	35.818	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,834.8	7,025.9	2,453.2	2,353.1	24.514	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	15,000.0	7,037.3	2,458.7	2,357.9	24.381	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,679.5	7,047.5	1,192.8	1,103.4	13.334	CC, ES, SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,662.6	7,239.0	2,264.7	2,174.1	25.005	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,800.0	7,239.0	2,268.9	2,177.8	24.903	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	14,170.5	6,728.0	532.9	458.1	7.122	CC, ES, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,454.0	7,032.1	1,247.9	1,168.0	15.620	CC, ES, SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,411.9	7,050.7	3,617.5	3,520.5	37.290	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	14,000.0	7,054.6	3,665.0	3,564.8	36.599	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,805.4	6,922.7	4,325.8	4,207.6	36.588	CC, ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	17,400.0	6,938.1	4,366.5	4,244.8	35.892	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,993.9	7,057.5	3,802.5	3,690.9	34.087	CC
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	16,000.0	7,057.7	3,802.5	3,690.9	34.075	ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	16,500.0	7,067.5	3,836.0	3,721.7	33.560	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,863.7	7,049.6	3,016.8	2,890.7	23.922	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	17,100.0	7,045.6	3,026.1	2,898.9	23.793	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,862.3	7,076.3	1,663.2	1,543.4	13.887	CC, ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,900.0	7,076.3	1,663.6	1,543.8	13.880	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,508.7	7,101.6	2,879.3	2,772.4	26.918	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,800.0	7,108.3	2,894.0	2,785.7	26.725	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,100.0	7,048.9	784.8	662.9	6.439	ES, SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,105.8	7,048.9	784.8	662.9	6.440	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,260.1	7,043.0	70.7	-43.2	0.620	Level 1, CC, ES, SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,670.0	7,050.5	564.6	456.2	5.209	CC, ES, SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,346.3	7,047.5	1,404.0	1,298.8	13.347	CC, ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,400.0	7,052.0	1,405.0	1,299.7	13.345	SF
Weld County Lumber 01 - Original Drilling - Original Drilling	16,084.8	7,057.7	1,585.2	1,473.0	14.122	CC, ES
Weld County Lumber 01 - Original Drilling - Original Drilling	16,100.0	7,057.8	1,585.3	1,473.0	14.118	SF

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



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,930.4	7,180.6	2,415.9	2,346.9	35.042	CC, ES, SF
Dechant D30-33D - Original Drilling - Original Drilling - As	8,346.0	7,150.3	51.0	3.8	1.080	Level 2, CC, ES, SF
Dechant D31-30D - Original Drilling - Original Drilling - As	7,270.6	7,028.2	110.7	64.9	2.416	CC, ES
Dechant D31-30D - Original Drilling - Original Drilling - As	7,300.0	7,045.0	113.1	65.9	2.398	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,688.8	11,317.0	493.0	444.1	10.076	CC
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,700.0	11,317.0	493.2	444.0	10.019	ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	9,100.0	11,317.0	642.0	546.5	6.719	SF
Dechant H25-64-1HN - Original Drilling - Plan A - Rev 3	8,600.0	11,328.5	510.8	489.3	23.766	SF
Dechant H25-64-1HN - Original Drilling - Plan A - Rev 3	8,691.9	11,328.5	502.5	481.5	23.968	CC, ES
Dechant H25-65HN - Original Drilling - Original Drilling	9,300.0	11,344.0	589.1	493.3	6.151	SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,600.0	11,344.0	496.1	439.9	8.830	ES
Dechant H25-65HN - Original Drilling - Original Drilling	9,618.1	11,344.0	495.8	440.7	9.004	CC
Dechant H25-65HN - Original Drilling - Plan A - Rev 3	9,500.0	11,335.6	506.6	478.9	18.299	SF
Dechant H25-65HN - Original Drilling - Plan A - Rev 3	9,600.0	11,335.6	495.4	468.3	18.300	ES
Dechant H25-65HN - Original Drilling - Plan A - Rev 3	9,606.2	11,335.6	495.3	468.3	18.336	CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,666.4	7,117.6	3,321.7	3,250.5	46.608	CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,700.0	7,118.3	3,321.9	3,250.4	46.478	ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	12,300.0	7,131.0	3,381.6	3,307.2	45.452	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,310.6	7,059.4	3,271.2	3,212.0	55.228	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	11,000.0	7,043.2	3,343.0	3,280.6	53.595	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	1,593.7	1,600.0	3,773.2	3,764.3	425.480	CC
HSR Dechant 04-25 - Original Drilling - Original Drilling -	1,600.0	1,600.0	3,773.2	3,764.3	424.800	ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	12,700.0	7,606.0	4,493.8	4,393.2	44.654	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	946.4	953.4	3,881.6	3,876.5	754.878	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	2,005.4	2,020.7	3,885.6	3,874.4	345.682	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	11,500.0	7,020.7	4,465.4	4,400.4	68.745	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,591.7	7,031.5	109.3	55.7	2.039	CC, ES, SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	4,082.9	3,962.4	884.7	867.4	51.197	CC
KY Blue H25-04J - Original Drilling - Original Drilling - As	4,100.0	3,978.5	884.7	867.4	50.932	ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,100.0	7,035.0	940.2	907.6	28.853	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,076.6	7,042.2	630.5	580.5	12.613	CC, ES, SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	100.0	63.6	1,897.3	1,897.1	9,881.472	CC
KY Blue H25-10 - Original Drilling - Original Drilling - As D	1,300.0	1,257.2	1,902.3	1,895.3	271.791	ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,500.0	7,019.9	2,084.4	2,032.6	40.298	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	2,016.1	2,009.8	2,292.0	2,280.7	203.702	CC, ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,600.0	7,015.7	3,285.9	3,203.3	39.753	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	696.3	700.0	3,475.7	3,471.9	899.423	CC
KY Blue H25-12 - Original Drilling - Original Drilling - As D	800.0	774.4	3,476.2	3,471.8	780.769	ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	10,900.0	7,217.9	5,018.9	4,959.0	83.838	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	1,290.4	1,268.4	1,525.7	1,518.7	217.540	CC
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,011.6	1,995.9	1,526.3	1,515.1	136.668	ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,900.0	7,050.3	3,190.9	3,146.9	72.429	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	1,993.2	1,963.3	597.7	586.6	54.227	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,000.0	1,969.9	597.7	586.6	54.039	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,700.0	2,657.9	675.0	660.1	45.295	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	1,934.4	1,907.2	1,317.9	1,307.2	123.152	CC
KY H25-24 - Original Drilling - Original Drilling - As Drilled	2,000.0	1,966.9	1,318.1	1,307.0	119.217	ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,800.0	7,024.4	2,544.7	2,497.2	53.614	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,768.0	7,021.5	465.0	393.3	6.481	CC, ES, SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,657.4	7,058.7	1,849.1	1,778.1	26.075	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,800.0	7,059.8	1,854.6	1,783.2	26.004	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,220.0	7,039.2	2,156.6	2,098.2	36.922	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,400.0	7,037.3	2,164.1	2,105.1	36.651	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 25						
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	7,030.1	484.5	423.8	7.982	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,447.3	7,030.1	482.2	421.9	7.993	CC, ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,976.0	7,200.0	3,552.2	3,486.5	54.106	CC
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	11,000.0	7,200.0	3,552.2	3,486.4	53.990	ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	11,700.0	7,200.0	3,625.2	3,555.9	52.310	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,804.3	7,028.0	1,173.8	994.3	6.540	CC, ES, SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	0.0	0.0	2,558.2			
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	1,500.0	1,471.2	2,559.7	2,551.5	312.599	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	9,500.0	7,037.0	4,389.8	4,340.2	88.513	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
H Section 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	0.0	0.0	7,154.0			
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	12,000.0	6,941.1	7,182.8	7,109.5	97.968	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	15,200.0	15,200.0	7,876.9	7,762.7	68.990	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	724.2	741.2	6,137.9	6,134.0	1,571.524	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	800.0	800.0	6,138.0	6,133.7	1,433.555	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	13,700.0	7,114.8	7,822.4	7,742.9	98.410	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	0.0	14.4	6,052.9			
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	300.0	283.8	6,054.1	6,052.8	4,493.177	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	13,800.0	6,959.5	6,658.9	6,576.4	80.662	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,435.3	7,600.7	3,581.7	3,496.2	41.872	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,700.0	7,605.1	3,591.5	3,505.4	41.729	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	3,821.0	5,957.8	4,715.8	4,668.0	98.713	CC
Dechant H25-33D - Original Drilling - Original Drilling - As	3,900.0	5,989.0	4,716.2	4,667.8	97.455	ES
Dechant H25-33D - Original Drilling - Original Drilling - As	10,300.0	10,300.0	5,350.0	5,244.1	50.506	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	338.5	358.5	4,446.8	4,445.1	2,619.336	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	1,600.0	1,594.5	4,451.6	4,442.8	502.701	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	15,500.0	15,500.0	8,515.1	8,411.6	82.276	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	519.7	541.7	5,630.0	5,627.3	2,055.357	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	1,500.0	1,494.5	5,634.5	5,626.2	681.187	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	13,000.0	7,117.4	7,883.9	7,811.2	108.479	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,121.9	1,148.0	5,446.2	5,439.9	875.521	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,300.0	1,319.7	5,446.7	5,439.5	754.313	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	11,900.0	7,200.2	8,111.9	8,045.5	122.078	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	12.5	4,367.1			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,183.9	4,369.5	4,363.0	670.836	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	11,000.0	7,136.1	6,786.3	6,728.3	117.034	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	2,543.0	3,638.0	5,331.6	5,313.4	292.693	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	2,600.0	3,738.1	5,331.9	5,313.1	284.012	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	11,900.0	7,296.8	7,208.6	7,139.9	104.954	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	1,869.5	1,849.5	9,398.1	9,387.7	908.964	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	2,000.0	1,932.3	9,398.4	9,387.4	860.543	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	13,900.0	6,656.3	9,996.1	9,909.3	115.229	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	0.0	0.0	7,223.6			
HSR Moser 06-26 - Original Drilling - Original Drilling - As	2,010.9	2,036.7	7,230.2	7,218.9	639.104	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	14,700.0	7,174.7	9,262.9	9,176.2	106.883	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	2,004.9	2,002.3	8,476.9	8,465.7	757.570	CC, ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	14,600.0	7,504.6	9,970.7	9,878.1	107.734	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	570.1	553.1	7,977.8	7,974.9	2,758.785	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	2,002.6	1,992.4	7,980.0	7,968.8	716.539	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	15,700.0	6,841.8	8,972.7	8,876.8	93.538	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	2,010.9	2,027.2	7,932.2	7,920.9	702.326	CC, ES
John 03-26 - Original Drilling - Original Drilling - As Drille	15,600.0	6,800.0	9,167.6	9,073.2	97.051	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	0.0	21.8	5,191.4			
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,100.0	6,975.7	5,233.6	5,168.3	80.135	ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	12,800.0	6,957.7	5,522.7	5,447.8	73.803	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	1,404.8	1,428.0	5,186.6	5,178.8	661.777	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	13,600.0	7,218.9	5,871.8	5,782.8	65.980	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	1,489.8	1,508.4	5,183.1	5,174.8	623.979	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	1,700.0	1,694.4	5,183.6	5,174.1	549.752	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	12,500.0	7,182.0	6,038.4	5,962.1	79.191	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	2,001.1	2,022.3	5,195.5	5,184.2	458.375	CC, ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	12,300.0	6,980.3	6,934.1	6,862.3	96.622	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	783.3	768.3	8,759.9	8,755.8	2,124.250	CC

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 26						
Moser 05-26 - Original Drilling - Original Drilling - As Drill	2,016.2	2,050.3	8,760.4	8,749.1	770.742	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	12,200.0	7,203.5	9,993.3	9,918.9	134.338	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	893.6	878.7	8,764.1	8,759.3	1,838.661	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	900.0	882.3	8,764.1	8,759.3	1,828.218	ES
Moser 41-27 - Original Drilling - Original Drilling - As Drill	4,700.0	2,700.0	9,980.8	9,959.8	476.385	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	405.0	400.0	7,226.6	7,224.6	3,630.778	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	957.0	7,228.1	7,222.8	1,371.553	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	14,400.0	7,259.7	9,989.5	9,906.8	120.698	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,295.5			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,000.0	1,963.3	8,299.9	8,288.9	752.224	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.0	7,071.4	9,986.3	9,921.5	154.109	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,102.8			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,151.9	8,107.8	8,101.4	1,264.952	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	9,800.0	6,897.6	9,995.9	9,943.4	190.308	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	560.8	565.8	6,597.6	6,594.7	2,259.711	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,006.1	2,024.9	6,603.3	6,592.0	586.447	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	13,200.0	6,900.0	9,989.6	9,920.1	143.731	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	5,833.1			
Moser H26-18D - Original Drilling - Original Drilling - As D	16,300.0	16,300.0	9,178.2	9,029.6	61.760	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	212.6	229.6	6,383.5	6,382.5	6,641.518	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	1,400.0	1,397.7	6,386.7	6,379.0	827.260	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	13,500.0	7,158.5	9,334.4	9,259.9	125.253	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	4.4	7,156.8			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,766.9	7,161.3	7,151.4	723.078	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	13,200.0	7,203.3	9,974.9	9,900.8	134.496	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	0.0	20.1	5,833.0			
Moser H26-27D - Original Drilling - Original Drilling - As D	14,600.0	7,180.3	6,754.3	6,659.1	70.893	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	20.5	5,833.8			
Moser H26-28D - Original Drilling - Original Drilling - As D	12,300.0	12,300.0	7,702.7	7,588.3	67.379	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	31.7	5,834.7			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	5,835.3	5,834.5	7,415.085	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	15,400.0	15,400.0	8,689.8	8,493.4	44.247	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,000.0	1,997.0	7,777.3	7,733.0	175.603	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,100.0	2,097.0	7,779.1	7,732.6	167.304	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	11,500.0	7,067.0	9,986.2	9,805.2	55.189	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	0.0	0.0	6,481.8			
Cannon Farms 01-35C - Original Drilling - Original Drilling	2,007.9	2,020.9	6,485.7	6,474.5	576.651	ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	7,050.0	7,050.0	7,543.9	7,499.4	169.741	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	0.0	11.0	8,098.8			
Cannon H35-03D - Original Drilling - Original Drilling - As	2,000.0	1,999.1	8,100.7	8,089.5	726.132	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	7,150.0	6,681.3	9,456.4	9,413.9	222.703	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	1,966.4	1,958.5	5,564.7	5,553.7	508.536	CC
Cannon H35-09 - Original Drilling - Original Drilling - As D	2,000.0	1,986.7	5,564.7	5,553.6	500.584	ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,600.0	7,036.5	7,044.3	6,994.7	142.153	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	0.0	0.0	6,636.0			
Cannon H35-10 - Original Drilling - Original Drilling - As D	2,053.9	2,150.8	6,640.9	6,629.1	562.724	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	7,250.0	7,013.3	7,974.5	7,930.5	181.306	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	511.9	526.9	7,477.6	7,474.9	2,781.436	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	700.0	668.8	7,478.1	7,474.5	2,068.266	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	7,150.0	6,700.0	8,835.7	8,793.3	208.003	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	0.0	0.0	8,815.7			
Cannon H35-12 - Original Drilling - Original Drilling - As D	6,533.3	6,259.3	9,995.3	9,955.9	253.753	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	9,454.4			
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,000.0	967.0	9,459.0	9,453.7	1,781.161	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	4,400.0	4,277.2	9,975.1	9,949.5	389.523	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	0.0	0.0	8,339.8			
Cannon H35-14 - Original Drilling - Original Drilling - As D	1,800.0	1,769.2	8,346.4	8,336.4	841.792	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,700.0	7,122.2	9,872.7	9,818.9	183.512	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	2,000.0	2,009.0	7,367.5	7,323.0	165.452	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	2,100.0	2,109.0	7,368.5	7,321.8	157.659	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	7,300.0	6,940.2	8,631.3	8,472.3	54.301	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,005.1	2,028.1	8,055.5	8,044.1	708.341	CC, ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	7,300.0	6,800.0	9,544.3	9,501.6	223.434	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	1,093.4	1,108.5	6,826.8	6,820.8	1,133.855	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	1,300.0	1,284.2	6,827.2	6,820.1	961.689	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	7,450.0	7,110.3	8,321.2	8,277.0	188.337	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	100.0	0.0	5,816.8	5,816.8	10,000.000	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	600.0	468.4	5,818.9	5,816.2	2,172.067	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	7,200.0	7,100.0	7,306.9	7,262.6	164.939	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	2,004.5	2,025.9	7,569.2	7,558.0	671.833	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	7,100.0	6,600.0	8,818.5	8,776.1	208.057	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	540.5	542.5	7,402.0	7,399.2	2,649.235	CC
Cannon X02-27 - Original Drilling - Original Drilling - As D	600.0	573.7	7,402.1	7,399.0	2,437.305	ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	7,150.0	6,894.9	8,486.5	8,442.3	191.872	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	0.0	13.8	8,185.2			
Cannon X02-28 - Original Drilling - Original Drilling - As D	2,100.0	2,194.6	8,194.2	8,182.1	678.438	ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	7,050.0	6,700.0	9,253.9	9,210.9	215.151	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	717.8	729.8	9,162.0	9,158.2	2,382.045	CC
Cannon X02-29 - Original Drilling - Original Drilling - As D	2,021.9	2,084.3	9,166.2	9,154.6	787.311	ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	5,700.0	5,549.1	9,997.1	9,962.1	285.472	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	651.1	652.1	7,655.6	7,652.2	2,237.825	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,151.3	7,658.1	7,651.7	1,196.989	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	9,800.0	6,900.0	9,994.8	9,944.5	198.630	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,000.0	2,021.0	5,513.2	5,468.5	123.329	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,100.0	2,121.0	5,514.8	5,467.9	117.569	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,650.0	7,081.3	7,188.1	7,027.5	44.762	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	1,147.1	1,164.2	6,027.0	6,020.7	952.635	CC
Foster UPRR 32-35 - Original Drilling - Original Drilling -	1,600.0	1,611.2	6,028.4	6,019.5	676.887	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 35						
Foster UPRR 32-35 - Original Drilling - Original Drilling -	11,300.0	7,083.9	9,454.9	9,400.2	172.892	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	558.7	565.8	4,279.4	4,276.5	1,466.516	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	2,000.0	1,996.9	4,283.0	4,271.8	383.966	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,750.0	7,079.9	5,952.1	5,897.2	108.371	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	0.0	0.0	4,772.3			
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	2,000.0	1,989.1	4,781.7	4,770.5	429.216	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	7,150.0	7,000.0	6,075.3	6,031.8	139.858	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	6,800.8			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	1,900.0	1,864.9	6,811.1	6,800.7	650.605	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	11,800.0	7,267.0	9,968.4	9,906.6	161.423	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	149.4	140.4	8,335.4	8,334.9	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,150.1	8,338.0	8,331.6	1,303.770	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	7,350.0	6,646.1	9,992.6	9,951.0	240.341	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	339.6	339.6	8,404.7	8,403.1	5,157.848	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	1,900.0	1,867.8	8,409.8	8,399.3	802.226	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	7,250.0	6,508.2	9,988.3	9,947.1	241.997	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	512.8	525.8	7,123.1	7,120.4	2,665.191	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	700.0	686.2	7,123.4	7,119.8	1,951.306	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	10,500.0	6,978.1	9,988.2	9,935.9	190.933	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	0.0	8.1	5,023.5			
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	2,000.0	1,998.6	5,028.5	5,017.3	450.400	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	7,450.0	7,013.0	6,541.2	6,497.7	150.510	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	5.0	7,258.1			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,662.0	7,259.4	7,250.1	780.324	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	10,800.0	6,796.9	9,977.0	9,922.2	181.911	SF



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	0.0	0.0	2,511.9			
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,800.0	6,519.7	2,968.8	2,925.9	69.279	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	900.0	892.0	5,809.3	5,804.4	1,186.757	CC
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	1,000.0	951.0	5,809.7	5,804.3	1,090.554	ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	7,050.0	6,148.3	6,911.7	6,867.5	156.177	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	2,587.7	2,787.9	5,728.9	5,713.3	366.335	CC
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	2,700.0	2,900.8	5,729.3	5,713.0	350.668	ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,750.0	6,450.0	5,944.0	5,899.3	133.135	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	5,104.5	5,093.0	4,982.5	4,950.6	156.199	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	5,200.0	5,169.9	4,982.7	4,950.2	153.104	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,450.0	6,984.6	5,516.1	5,452.1	86.206	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	2,131.2	2,123.4	676.6	664.7	56.476	CC, ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	4,800.0	4,709.4	1,214.7	1,186.4	42.791	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	0.0	0.0	2,541.6			
Dechant 24-36 - Original Drilling - Original Drilling - As D	400.0	364.4	2,543.0	2,541.1	1,368.936	ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,700.0	6,542.3	2,833.2	2,779.7	52.992	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	2,306.1	2,414.0	5,764.7	5,751.3	430.066	CC
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	2,400.0	2,507.7	5,765.0	5,751.0	413.595	ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,750.0	6,250.0	6,105.2	6,062.5	142.888	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	1,000.0	992.0	5,798.5	5,793.0	1,058.431	CC
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	1,100.0	1,052.3	5,798.8	5,792.9	980.340	ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,750.0	6,250.0	6,426.7	6,384.1	151.054	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	2,859.3	3,136.7	5,688.6	5,670.5	313.772	CC
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	3,000.0	3,274.9	5,689.2	5,670.1	297.914	ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,800.0	6,400.0	5,847.1	5,801.2	127.279	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,572.0	6,400.0	5,150.1	5,097.3	97.544	CC, ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,750.0	6,450.0	5,173.9	5,120.2	96.421	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,384.5	6,339.9	5,270.9	5,225.9	116.961	CC
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,400.0	6,350.0	5,271.0	5,225.8	116.688	ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,750.0	6,400.0	5,301.4	5,254.8	113.709	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	5,238.8	5,081.6	160.7	126.9	4.746	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	5,300.0	5,138.8	162.2	127.8	4.719	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	900.0	873.0	736.6	731.8	152.601	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	2,000.0	1,970.4	740.4	729.2	66.492	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	4,800.0	4,638.5	1,393.2	1,365.2	49.776	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	5,097.9	4,945.1	215.8	182.7	6.532	CC
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	5,100.0	4,947.0	215.8	182.7	6.529	ES, SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	2,402.8	2,425.8	582.5	568.8	42.464	CC, ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	4,700.0	4,655.7	949.0	920.9	33.827	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,589.4	6,322.6	310.0	267.4	7.288	CC, ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,600.0	6,332.5	310.1	267.4	7.276	SF
Dechant State H36-11D - Original Drilling - Original Drilling	2,029.3	2,023.5	3,983.6	3,972.3	351.730	CC
Dechant State H36-11D - Original Drilling - Original Drilling	2,100.0	2,090.0	3,983.8	3,972.1	340.351	ES
Dechant State H36-11D - Original Drilling - Original Drilling	7,100.0	7,100.0	4,791.9	4,746.4	105.444	SF
Dechant State H36-18D - Original Drilling - Original Drilling	2,879.5	3,455.2	2,458.9	2,438.5	120.289	CC
Dechant State H36-18D - Original Drilling - Original Drilling	3,500.0	4,130.0	2,462.3	2,436.2	94.518	ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,600.0	6,553.6	2,820.9	2,775.0	61.413	SF
Dechant State H36-19 - Original Drilling - Original Drilling	1,151.0	1,132.0	2,812.9	2,806.7	452.273	CC
Dechant State H36-19 - Original Drilling - Original Drilling	1,400.0	1,361.3	2,813.7	2,806.2	371.253	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,900.0	6,431.0	4,086.5	4,046.0	100.743	SF
Dechant State H36-20D - Original Drilling - Original Drilling	3,936.4	4,750.5	4,171.1	4,144.0	153.980	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	7,000.0	6,747.5	4,763.7	4,720.6	110.696	SF
Dechant State H36-21D - Original Drilling - Original Drilling	4,832.1	5,245.3	3,509.0	3,477.6	111.827	CC, ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

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						
H Section 36						
Dechant State H36-21D - Original Drilling - Original Drilling	6,900.0	6,661.4	3,816.0	3,772.9	88.602	SF
Dechant State H36-24 - Original Drilling - Original Drilling	4,887.1	5,272.1	4,535.4	4,495.7	114.122	CC
Dechant State H36-24 - Original Drilling - Original Drilling	4,900.0	5,277.0	4,535.5	4,495.6	113.919	ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,850.0	6,818.9	4,727.2	4,676.2	92.617	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,012.2	1,006.2	2,797.4	2,793.1	650.117	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,065.0	2,797.6	2,792.9	593.994	ES
Dechant State H36-31D - Original Drilling - Original Drilling	7,150.0	7,021.9	5,293.8	5,251.0	123.459	SF
Dechant State H36-32D - Original Drilling - Original Drilling	2,230.9	2,453.6	4,650.3	4,637.4	360.883	CC, ES
Dechant State H36-32D - Original Drilling - Original Drilling	7,000.0	7,000.0	5,715.4	5,670.1	126.390	SF
Dechant State H36-33 - Original Drilling - Original Drilling	0.0	3.0	4,746.3			
Dechant State H36-33 - Original Drilling - Original Drilling	500.0	477.0	4,747.3	4,744.9	1,950.202	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,900.0	6,803.0	6,290.0	6,241.5	129.781	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	100.0	71.9	897.4	897.2	4,373.107	CC
HSR Dechant State 02-36 - Original Drilling - Original Dri	600.0	569.7	898.9	895.8	297.380	ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,600.0	6,373.8	1,985.3	1,945.6	50.012	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	3,732.1	3,641.8	1,890.5	1,808.6	23.084	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	4,100.0	3,987.5	1,894.7	1,804.5	21.017	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,700.0	6,429.4	2,154.9	2,006.3	14.500	SF
Spike State GWS H36-03 - Original Drilling - Original Dri	0.0	0.0	1,668.3			
Spike State GWS H36-03 - Original Drilling - Original Dri	2,002.9	1,978.2	1,676.9	1,665.8	151.143	ES
Spike State GWS H36-03 - Original Drilling - Original Dri	6,750.0	6,422.6	2,949.5	2,909.4	73.563	SF
Spike State GWS H36-04 - Original Drilling - Original Dri	0.0	0.0	3,033.6			
Spike State GWS H36-04 - Original Drilling - Original Dri	7,650.0	6,959.8	4,731.5	4,680.2	92.117	SF
Spike State GWS H36-13 - Original Drilling - Original Dri	1,945.4	1,934.5	5,964.2	5,953.4	551.541	CC
Spike State GWS H36-13 - Original Drilling - Original Dri	2,000.0	1,968.2	5,964.3	5,953.3	539.572	ES
Spike State GWS H36-13 - Original Drilling - Original Dri	6,900.0	7,444.0	6,438.7	6,392.7	139.855	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	2,566.1	2,648.9	5,297.0	5,282.4	362.037	CC
Spike State GWS H36-14 - Original Drilling - Original Dri	2,800.0	2,883.4	5,297.4	5,281.4	330.752	ES
Spike State GWS H36-14 - Original Drilling - Original Dri	7,050.0	7,058.9	5,701.2	5,655.4	124.520	SF
Spike State H36-02J - Original Drilling - Original Drilling -	126.5	106.6	2,842.8	2,842.5	8,759.290	CC
Spike State H36-02J - Original Drilling - Original Drilling -	2,100.0	2,131.0	2,846.8	2,835.0	240.678	ES
Spike State H36-02J - Original Drilling - Original Drilling -	7,500.0	7,005.6	4,229.5	4,151.0	53.920	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	1,249.0	1,240.0	3,809.9	3,803.1	559.037	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	1,700.0	1,672.6	3,810.5	3,801.2	408.023	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	7,000.0	6,661.0	4,934.3	4,892.2	116.979	SF
Spike State H36-11J - Original Drilling - Original Drilling -	0.0	0.0	4,863.3			
Spike State H36-11J - Original Drilling - Original Drilling -	2,100.0	2,109.2	4,868.8	4,857.0	414.158	ES
Spike State H36-11J - Original Drilling - Original Drilling -	7,000.0	6,828.9	5,577.4	5,533.0	125.834	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	1,242.0	1,237.0	4,630.0	4,623.3	681.370	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	2,000.0	1,982.7	4,631.6	4,620.5	417.420	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	7,200.0	7,200.0	5,770.4	5,725.3	127.916	SF

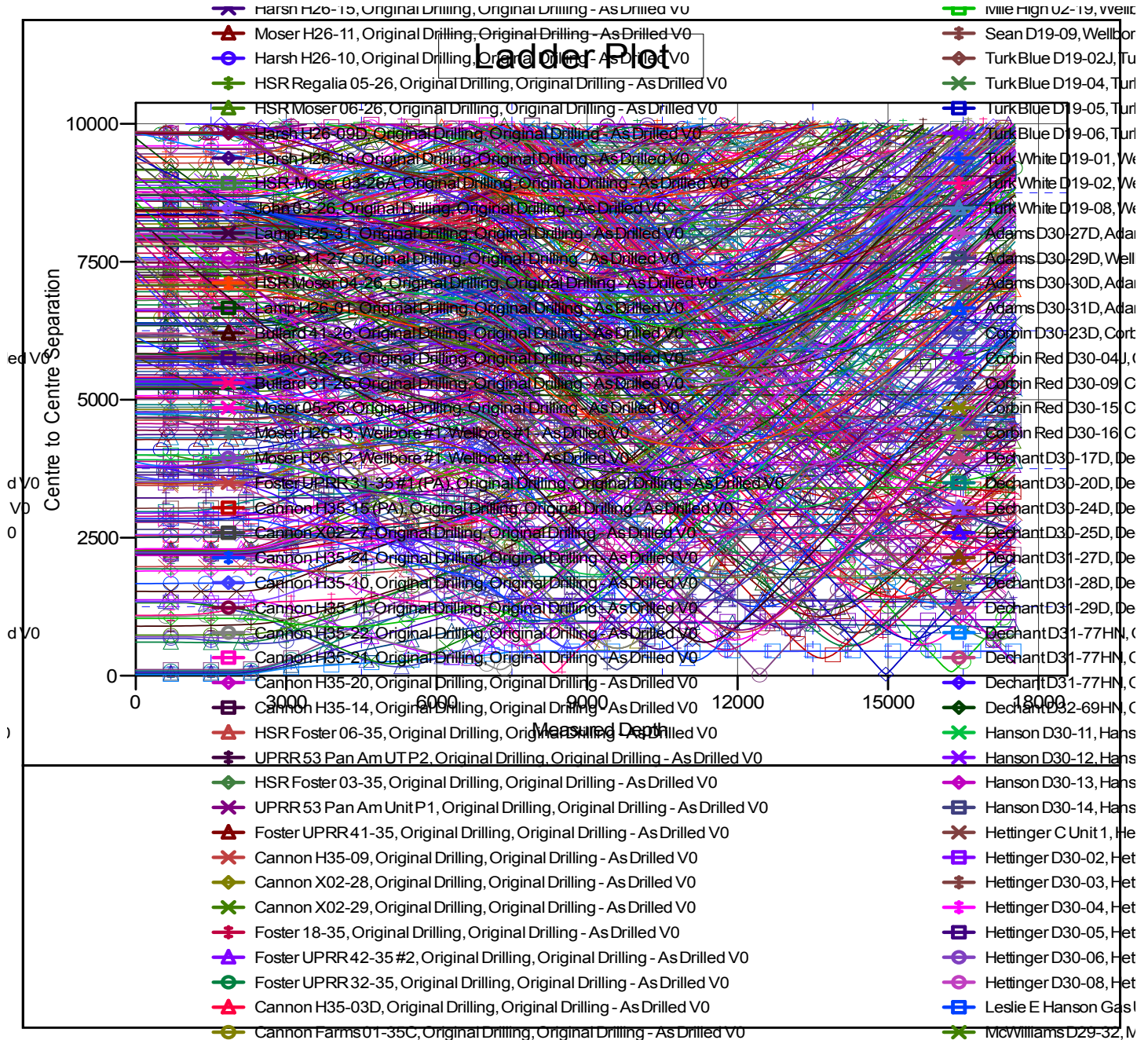


**Noble Energy, Inc.**  
**Anticollision Summary Report**

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4835.0ft (Original Well Elev)
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy H25-711	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Prelim - Rev 2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4835.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Emmy H25-711  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.58°



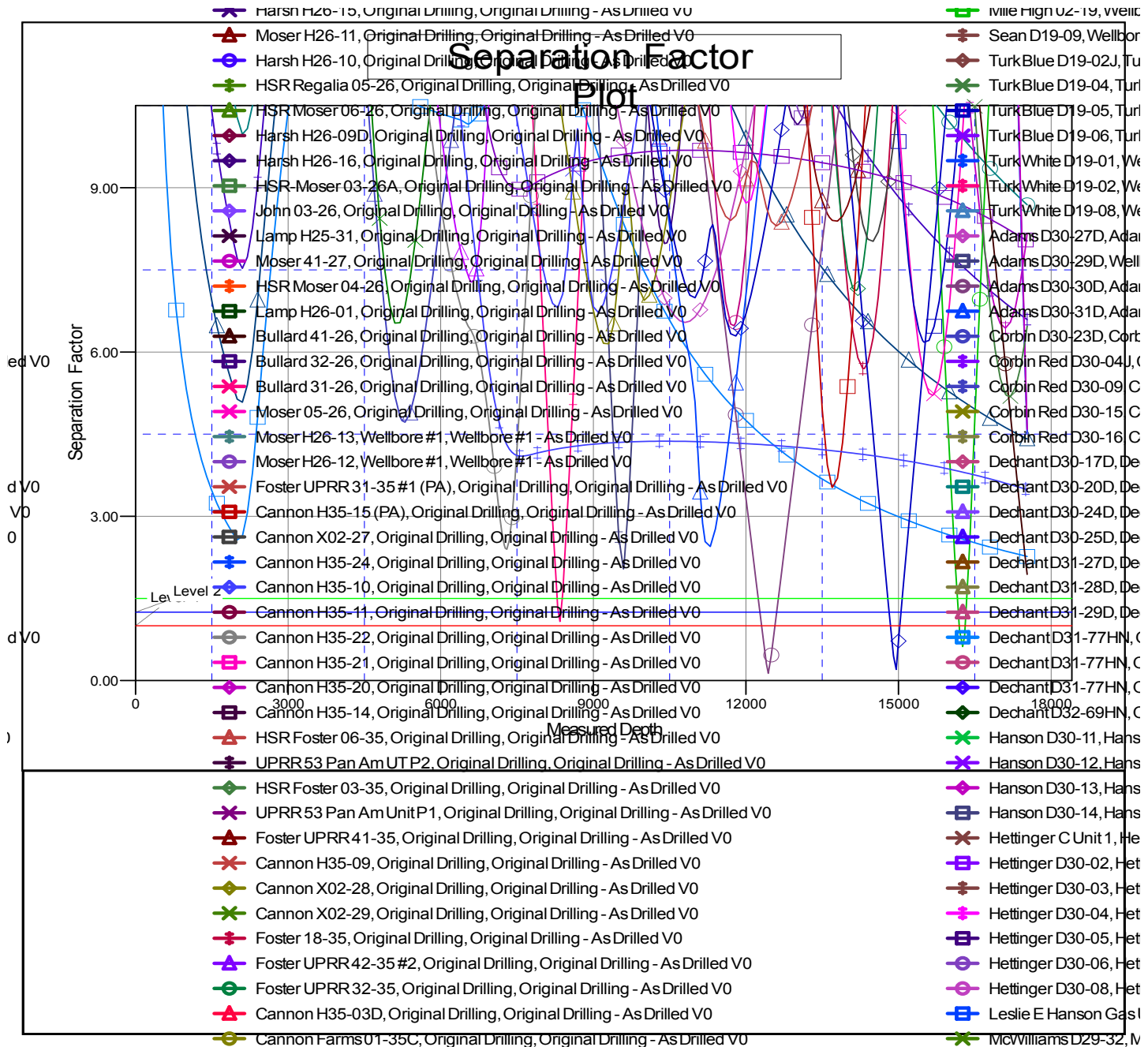
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

**Noble Energy, Inc.**  
**Anticollision Summary Report**

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy H25-711
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