

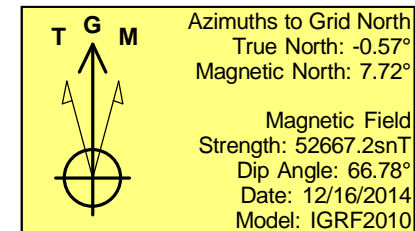
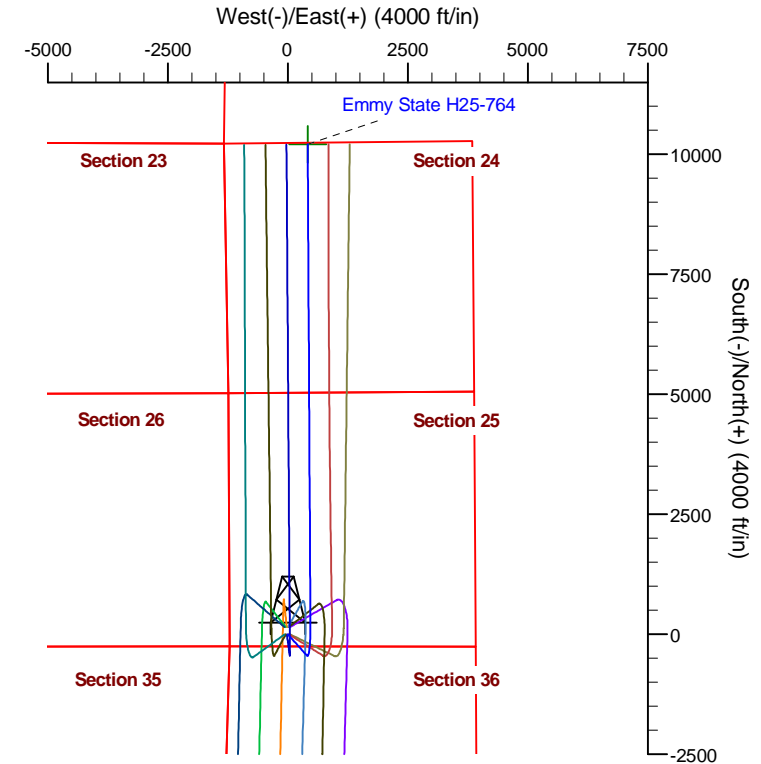
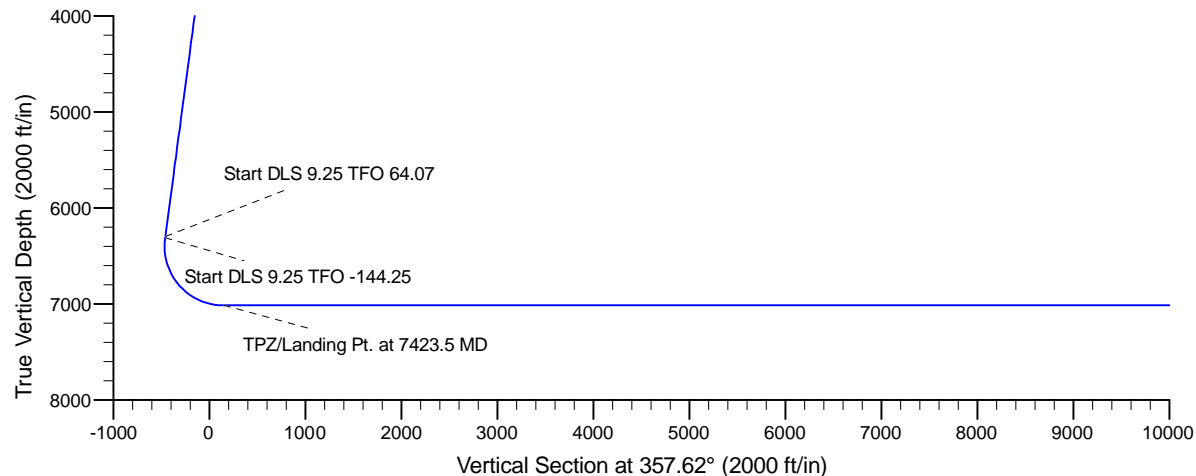
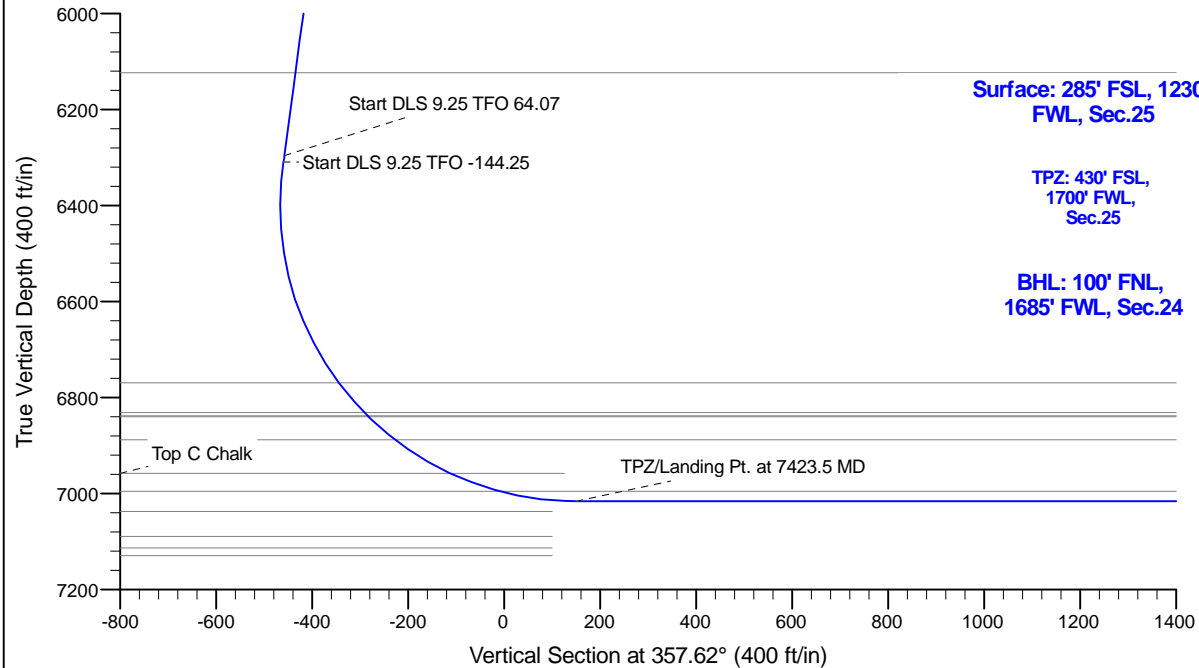
Project: Conceptual Wells  
Site: DP 408  
Well: Emmy State H25-764  
Wellbore: Wellbore #1  
Design: Design #1

# 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	2596.0	0.00	0.00	2596.0	0.0	0.0	0.00	0.00	0.0	
3	3083.5	9.75	138.00	3081.1	-30.8	27.7	2.00	138.00	-31.9	
4	6345.5	9.75	138.00	6296.0	-441.3	397.3	0.00	0.00	-457.4	
5	6359.2	10.37	144.36	6309.5	-443.1	398.8	9.25	64.07	-459.3	
6	7423.5	90.00	359.67	7016.0	170.0	470.0	9.25	-144.25	150.3	
7	17462.3	90.00	359.67	7016.0	10208.7	412.2	0.00	0.00	10182.7	Emmy State H25-764 BHL



## WELL DETAILS: Emmy State H25-764

	Ground Level:	4816.0	
0.00.0	Northing	Easting	Latitude
	1313168.09	3246731.03	40.189670
			Longitude
			-104.616830

## Plan: Design #1 (Emmy State H25-764/Wellbore #1)

Created By: Colby Baxter Date: 11:56, November 06 2017

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

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

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

# **Northern Region Drilling - Sandbox**

**Conceptual Wells**

**DP 408**

**Emmy State H25-764**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**02 November, 2017**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<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 State H25-764					
Well Position	+N/-S	-5,016.8 ft	Northing:	1,313,168.10 usft	Latitude:	40.189670
	+E/-W	6,506.2 ft	Easting:	3,246,731.03 usft	Longitude:	-104.616830
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,816.0 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	12/16/2014	8.30	66.78	52,667.22533148

<b>Design</b>	Design #1			
<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</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	-4.0	0.0	0.0	357.62

<b>Plan Sections</b>										
<b>Measured Depth</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical Depth</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg Rate</b>	<b>Build Rate</b>	<b>Turn Rate</b>	<b>TFO</b>	<b>Target</b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,596.0	0.00	0.00	2,596.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,083.5	9.75	138.00	3,081.1	-30.8	27.7	2.00	2.00	0.00	138.00	
6,345.5	9.75	138.00	6,296.0	-441.3	397.3	0.00	0.00	0.00	0.00	
6,359.2	10.37	144.36	6,309.5	-443.1	398.8	9.25	4.50	46.31	64.07	
7,423.5	90.00	359.67	7,016.0	170.0	470.0	9.25	7.48	-13.59	-144.25	
17,462.3	90.00	359.67	7,016.0	10,208.7	412.2	0.00	0.00	0.00	0.00	Emmy State H25-764

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,596.0	0.00	0.00	2,596.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.08	138.00	2,600.0	0.0	0.0	0.0	2.00	2.00	0.00
2,700.0	2.08	138.00	2,700.0	-1.4	1.3	-1.5	2.00	2.00	0.00
2,800.0	4.08	138.00	2,799.8	-5.4	4.9	-5.6	2.00	2.00	0.00
2,900.0	6.08	138.00	2,899.4	-12.0	10.8	-12.4	2.00	2.00	0.00
3,000.0	8.08	138.00	2,998.7	-21.1	19.0	-21.9	2.00	2.00	0.00
3,083.5	9.75	138.00	3,081.1	-30.8	27.7	-31.9	2.00	2.00	0.00
3,100.0	9.75	138.00	3,097.4	-32.8	29.6	-34.0	0.00	0.00	0.00
3,200.0	9.75	138.00	3,196.0	-45.4	40.9	-47.1	0.00	0.00	0.00
3,300.0	9.75	138.00	3,294.5	-58.0	52.2	-60.1	0.00	0.00	0.00
3,400.0	9.75	138.00	3,393.1	-70.6	63.6	-73.2	0.00	0.00	0.00
3,500.0	9.75	138.00	3,491.6	-83.2	74.9	-86.2	0.00	0.00	0.00
3,600.0	9.75	138.00	3,590.2	-95.8	86.2	-99.3	0.00	0.00	0.00
3,700.0	9.75	138.00	3,688.7	-108.3	97.5	-112.3	0.00	0.00	0.00
3,800.0	9.75	138.00	3,787.3	-120.9	108.9	-125.3	0.00	0.00	0.00
3,900.0	9.75	138.00	3,885.9	-133.5	120.2	-138.4	0.00	0.00	0.00
4,000.0	9.75	138.00	3,984.4	-146.1	131.5	-151.4	0.00	0.00	0.00
4,100.0	9.75	138.00	4,083.0	-158.7	142.9	-164.5	0.00	0.00	0.00
4,200.0	9.75	138.00	4,181.5	-171.3	154.2	-177.5	0.00	0.00	0.00
4,300.0	9.75	138.00	4,280.1	-183.8	165.5	-190.6	0.00	0.00	0.00
4,400.0	9.75	138.00	4,378.6	-196.4	176.9	-203.6	0.00	0.00	0.00
4,500.0	9.75	138.00	4,477.2	-209.0	188.2	-216.7	0.00	0.00	0.00
4,600.0	9.75	138.00	4,575.7	-221.6	199.5	-229.7	0.00	0.00	0.00
4,700.0	9.75	138.00	4,674.3	-234.2	210.9	-242.7	0.00	0.00	0.00
4,800.0	9.75	138.00	4,772.9	-246.8	222.2	-255.8	0.00	0.00	0.00
4,900.0	9.75	138.00	4,871.4	-259.4	233.5	-268.8	0.00	0.00	0.00
5,000.0	9.75	138.00	4,970.0	-271.9	244.9	-281.9	0.00	0.00	0.00
5,100.0	9.75	138.00	5,068.5	-284.5	256.2	-294.9	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
5,200.0	9.75	138.00	5,167.1	-297.1	267.5	-308.0	0.00	0.00	0.00
5,300.0	9.75	138.00	5,265.6	-309.7	278.9	-321.0	0.00	0.00	0.00
5,400.0	9.75	138.00	5,364.2	-322.3	290.2	-334.1	0.00	0.00	0.00
5,500.0	9.75	138.00	5,462.7	-334.9	301.5	-347.1	0.00	0.00	0.00
5,600.0	9.75	138.00	5,561.3	-347.5	312.9	-360.1	0.00	0.00	0.00
5,700.0	9.75	138.00	5,659.9	-360.0	324.2	-373.2	0.00	0.00	0.00
5,800.0	9.75	138.00	5,758.4	-372.6	335.5	-386.2	0.00	0.00	0.00
5,900.0	9.75	138.00	5,857.0	-385.2	346.8	-399.3	0.00	0.00	0.00
6,000.0	9.75	138.00	5,955.5	-397.8	358.2	-412.3	0.00	0.00	0.00
6,100.0	9.75	138.00	6,054.1	-410.4	369.5	-425.4	0.00	0.00	0.00
6,200.0	9.75	138.00	6,152.6	-423.0	380.8	-438.4	0.00	0.00	0.00
6,300.0	9.75	138.00	6,251.2	-435.6	392.2	-451.5	0.00	0.00	0.00
6,345.5	9.75	138.00	6,296.0	-441.3	397.3	-457.4	0.00	0.00	0.00
6,359.2	10.37	144.36	6,309.5	-443.1	398.8	-459.3	9.25	4.50	46.31
6,400.0	7.63	127.51	6,349.8	-447.8	403.1	-464.1	9.25	-6.72	-41.28
6,500.0	7.57	52.38	6,449.2	-447.8	413.6	-464.6	9.25	-0.06	-75.14
6,600.0	15.07	22.80	6,547.2	-431.8	423.9	-449.0	9.25	7.49	-29.58
6,700.0	23.81	13.53	6,641.5	-400.1	433.7	-417.7	9.25	8.75	-9.27
6,800.0	32.83	9.10	6,729.4	-353.6	442.7	-371.7	9.25	9.01	-4.43
6,900.0	41.93	6.43	6,808.8	-293.5	450.8	-312.0	9.25	9.11	-2.67
7,000.0	51.09	4.57	6,877.5	-221.4	457.6	-240.2	9.25	9.15	-1.86
7,100.0	60.26	3.13	6,933.9	-139.0	463.1	-158.2	9.25	9.17	-1.43
7,200.0	69.45	1.94	6,976.3	-48.7	467.1	-68.1	9.25	9.19	-1.19
7,300.0	78.64	0.89	7,003.8	47.3	469.4	27.8	9.25	9.19	-1.06
7,400.0	87.84	359.90	7,015.5	146.5	470.1	126.9	9.25	9.20	-0.99
7,423.5	90.00	359.67	7,016.0	170.0	470.0	150.3	9.25	9.20	-0.97
7,500.0	90.00	359.67	7,016.0	246.5	469.6	226.8	0.00	0.00	0.00
7,600.0	90.00	359.67	7,016.0	346.5	469.0	326.7	0.00	0.00	0.00
7,700.0	90.00	359.67	7,016.0	446.5	468.4	426.7	0.00	0.00	0.00
7,800.0	90.00	359.67	7,016.0	546.5	467.8	526.6	0.00	0.00	0.00
7,900.0	90.00	359.67	7,016.0	646.5	467.3	626.5	0.00	0.00	0.00
8,000.0	90.00	359.67	7,016.0	746.5	466.7	726.5	0.00	0.00	0.00
8,100.0	90.00	359.67	7,016.0	846.5	466.1	826.4	0.00	0.00	0.00
8,200.0	90.00	359.67	7,016.0	946.5	465.5	926.3	0.00	0.00	0.00
8,300.0	90.00	359.67	7,016.0	1,046.5	465.0	1,026.3	0.00	0.00	0.00
8,400.0	90.00	359.67	7,016.0	1,146.5	464.4	1,126.2	0.00	0.00	0.00
8,500.0	90.00	359.67	7,016.0	1,246.5	463.8	1,226.1	0.00	0.00	0.00
8,600.0	90.00	359.67	7,016.0	1,346.5	463.2	1,326.1	0.00	0.00	0.00
8,700.0	90.00	359.67	7,016.0	1,446.5	462.6	1,426.0	0.00	0.00	0.00
8,800.0	90.00	359.67	7,016.0	1,546.5	462.1	1,525.9	0.00	0.00	0.00
8,900.0	90.00	359.67	7,016.0	1,646.5	461.5	1,625.9	0.00	0.00	0.00
9,000.0	90.00	359.67	7,016.0	1,746.5	460.9	1,725.8	0.00	0.00	0.00
9,100.0	90.00	359.67	7,016.0	1,846.5	460.3	1,825.8	0.00	0.00	0.00
9,200.0	90.00	359.67	7,016.0	1,946.5	459.8	1,925.7	0.00	0.00	0.00
9,300.0	90.00	359.67	7,016.0	2,046.5	459.2	2,025.6	0.00	0.00	0.00
9,400.0	90.00	359.67	7,016.0	2,146.5	458.6	2,125.6	0.00	0.00	0.00
9,500.0	90.00	359.67	7,016.0	2,246.5	458.0	2,225.5	0.00	0.00	0.00
9,600.0	90.00	359.67	7,016.0	2,346.5	457.5	2,325.4	0.00	0.00	0.00
9,700.0	90.00	359.67	7,016.0	2,446.5	456.9	2,425.4	0.00	0.00	0.00
9,800.0	90.00	359.67	7,016.0	2,546.5	456.3	2,525.3	0.00	0.00	0.00
9,900.0	90.00	359.67	7,016.0	2,646.5	455.7	2,625.2	0.00	0.00	0.00
10,000.0	90.00	359.67	7,016.0	2,746.4	455.2	2,725.2	0.00	0.00	0.00
10,100.0	90.00	359.67	7,016.0	2,846.4	454.6	2,825.1	0.00	0.00	0.00
10,200.0	90.00	359.67	7,016.0	2,946.4	454.0	2,925.1	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)
10,300.0	90.00	359.67	7,016.0	3,046.4	453.4	3,025.0	0.00	0.00	0.00
10,400.0	90.00	359.67	7,016.0	3,146.4	452.9	3,124.9	0.00	0.00	0.00
10,500.0	90.00	359.67	7,016.0	3,246.4	452.3	3,224.9	0.00	0.00	0.00
10,600.0	90.00	359.67	7,016.0	3,346.4	451.7	3,324.8	0.00	0.00	0.00
10,700.0	90.00	359.67	7,016.0	3,446.4	451.1	3,424.7	0.00	0.00	0.00
10,800.0	90.00	359.67	7,016.0	3,546.4	450.6	3,524.7	0.00	0.00	0.00
10,900.0	90.00	359.67	7,016.0	3,646.4	450.0	3,624.6	0.00	0.00	0.00
11,000.0	90.00	359.67	7,016.0	3,746.4	449.4	3,724.5	0.00	0.00	0.00
11,100.0	90.00	359.67	7,016.0	3,846.4	448.8	3,824.5	0.00	0.00	0.00
11,200.0	90.00	359.67	7,016.0	3,946.4	448.2	3,924.4	0.00	0.00	0.00
11,300.0	90.00	359.67	7,016.0	4,046.4	447.7	4,024.3	0.00	0.00	0.00
11,400.0	90.00	359.67	7,016.0	4,146.4	447.1	4,124.3	0.00	0.00	0.00
11,500.0	90.00	359.67	7,016.0	4,246.4	446.5	4,224.2	0.00	0.00	0.00
11,600.0	90.00	359.67	7,016.0	4,346.4	445.9	4,324.2	0.00	0.00	0.00
11,700.0	90.00	359.67	7,016.0	4,446.4	445.4	4,424.1	0.00	0.00	0.00
11,800.0	90.00	359.67	7,016.0	4,546.4	444.8	4,524.0	0.00	0.00	0.00
11,900.0	90.00	359.67	7,016.0	4,646.4	444.2	4,624.0	0.00	0.00	0.00
12,000.0	90.00	359.67	7,016.0	4,746.4	443.6	4,723.9	0.00	0.00	0.00
12,100.0	90.00	359.67	7,016.0	4,846.4	443.1	4,823.8	0.00	0.00	0.00
12,200.0	90.00	359.67	7,016.0	4,946.4	442.5	4,923.8	0.00	0.00	0.00
12,300.0	90.00	359.67	7,016.0	5,046.4	441.9	5,023.7	0.00	0.00	0.00
12,400.0	90.00	359.67	7,016.0	5,146.4	441.3	5,123.6	0.00	0.00	0.00
12,500.0	90.00	359.67	7,016.0	5,246.4	440.8	5,223.6	0.00	0.00	0.00
12,600.0	90.00	359.67	7,016.0	5,346.4	440.2	5,323.5	0.00	0.00	0.00
12,700.0	90.00	359.67	7,016.0	5,446.4	439.6	5,423.5	0.00	0.00	0.00
12,800.0	90.00	359.67	7,016.0	5,546.4	439.0	5,523.4	0.00	0.00	0.00
12,900.0	90.00	359.67	7,016.0	5,646.4	438.5	5,623.3	0.00	0.00	0.00
13,000.0	90.00	359.67	7,016.0	5,746.4	437.9	5,723.3	0.00	0.00	0.00
13,100.0	90.00	359.67	7,016.0	5,846.4	437.3	5,823.2	0.00	0.00	0.00
13,200.0	90.00	359.67	7,016.0	5,946.4	436.7	5,923.1	0.00	0.00	0.00
13,300.0	90.00	359.67	7,016.0	6,046.4	436.2	6,023.1	0.00	0.00	0.00
13,400.0	90.00	359.67	7,016.0	6,146.4	435.6	6,123.0	0.00	0.00	0.00
13,500.0	90.00	359.67	7,016.0	6,246.4	435.0	6,222.9	0.00	0.00	0.00
13,600.0	90.00	359.67	7,016.0	6,346.4	434.4	6,322.9	0.00	0.00	0.00
13,700.0	90.00	359.67	7,016.0	6,446.4	433.9	6,422.8	0.00	0.00	0.00
13,800.0	90.00	359.67	7,016.0	6,546.4	433.3	6,522.7	0.00	0.00	0.00
13,900.0	90.00	359.67	7,016.0	6,646.4	432.7	6,622.7	0.00	0.00	0.00
14,000.0	90.00	359.67	7,016.0	6,746.4	432.1	6,722.6	0.00	0.00	0.00
14,100.0	90.00	359.67	7,016.0	6,846.4	431.5	6,822.6	0.00	0.00	0.00
14,200.0	90.00	359.67	7,016.0	6,946.4	431.0	6,922.5	0.00	0.00	0.00
14,300.0	90.00	359.67	7,016.0	7,046.4	430.4	7,022.4	0.00	0.00	0.00
14,400.0	90.00	359.67	7,016.0	7,146.4	429.8	7,122.4	0.00	0.00	0.00
14,500.0	90.00	359.67	7,016.0	7,246.4	429.2	7,222.3	0.00	0.00	0.00
14,600.0	90.00	359.67	7,016.0	7,346.4	428.7	7,322.2	0.00	0.00	0.00
14,700.0	90.00	359.67	7,016.0	7,446.4	428.1	7,422.2	0.00	0.00	0.00
14,800.0	90.00	359.67	7,016.0	7,546.4	427.5	7,522.1	0.00	0.00	0.00
14,900.0	90.00	359.67	7,016.0	7,646.4	426.9	7,622.0	0.00	0.00	0.00
15,000.0	90.00	359.67	7,016.0	7,746.4	426.4	7,722.0	0.00	0.00	0.00
15,100.0	90.00	359.67	7,016.0	7,846.4	425.8	7,821.9	0.00	0.00	0.00
15,200.0	90.00	359.67	7,016.0	7,946.4	425.2	7,921.9	0.00	0.00	0.00
15,300.0	90.00	359.67	7,016.0	8,046.4	424.6	8,021.8	0.00	0.00	0.00
15,400.0	90.00	359.67	7,016.0	8,146.4	424.1	8,121.7	0.00	0.00	0.00
15,500.0	90.00	359.67	7,016.0	8,246.4	423.5	8,221.7	0.00	0.00	0.00
15,600.0	90.00	359.67	7,016.0	8,346.4	422.9	8,321.6	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

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)	
15,700.0	90.00	359.67	7,016.0	8,446.4	422.3	8,421.5	0.00	0.00	0.00	
15,800.0	90.00	359.67	7,016.0	8,546.4	421.8	8,521.5	0.00	0.00	0.00	
15,900.0	90.00	359.67	7,016.0	8,646.4	421.2	8,621.4	0.00	0.00	0.00	
16,000.0	90.00	359.67	7,016.0	8,746.3	420.6	8,721.3	0.00	0.00	0.00	
16,100.0	90.00	359.67	7,016.0	8,846.3	420.0	8,821.3	0.00	0.00	0.00	
16,200.0	90.00	359.67	7,016.0	8,946.3	419.5	8,921.2	0.00	0.00	0.00	
16,300.0	90.00	359.67	7,016.0	9,046.3	418.9	9,021.1	0.00	0.00	0.00	
16,400.0	90.00	359.67	7,016.0	9,146.3	418.3	9,121.1	0.00	0.00	0.00	
16,500.0	90.00	359.67	7,016.0	9,246.3	417.7	9,221.0	0.00	0.00	0.00	
16,600.0	90.00	359.67	7,016.0	9,346.3	417.1	9,321.0	0.00	0.00	0.00	
16,700.0	90.00	359.67	7,016.0	9,446.3	416.6	9,420.9	0.00	0.00	0.00	
16,800.0	90.00	359.67	7,016.0	9,546.3	416.0	9,520.8	0.00	0.00	0.00	
16,900.0	90.00	359.67	7,016.0	9,646.3	415.4	9,620.8	0.00	0.00	0.00	
17,000.0	90.00	359.67	7,016.0	9,746.3	414.8	9,720.7	0.00	0.00	0.00	
17,100.0	90.00	359.67	7,016.0	9,846.3	414.3	9,820.6	0.00	0.00	0.00	
17,200.0	90.00	359.67	7,016.0	9,946.3	413.7	9,920.6	0.00	0.00	0.00	
17,300.0	90.00	359.67	7,016.0	10,046.3	413.1	10,020.5	0.00	0.00	0.00	
17,400.0	90.00	359.67	7,016.0	10,146.3	412.5	10,120.4	0.00	0.00	0.00	
17,462.3	90.00	359.67	7,016.0	10,208.7	412.2	10,182.7	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	
Emmy State H25-764 Bl - hit/miss target - Shape - Point	0.00	0.00	7,016.0	10,208.7	412.2	1,323,376.30	3,247,143.22	40.217680	-104.614990	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
572.0	572.0	Pierre				
724.0	724.0	Upper Pierre Aquifer Top				
1,612.0	1,612.0	Upper Pierre Aquifer Base				
3,893.0	3,879.0	Parkman				
4,492.7	4,470.0	Sussex				
5,184.7	5,152.0	Shannon				
6,169.9	6,123.0	Teepee Buttes				
6,848.4	6,769.0	Sharon Springs				
6,930.5	6,831.0	Top A Chalk				
6,940.5	6,838.0	Top A Marl				
6,943.3	6,840.0	Top B Chalk				
7,016.9	6,888.0	Top B Marl				
7,152.6	6,958.0	Top C Chalk				
7,261.3	6,995.0	Top C Marl				

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Company:</b>	Northern Region Drilling - Sandbox	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Project:</b>	Conceptual Wells	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site:</b>	DP 408	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H25-764	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,596.0	2,596.0	0.0	0.0	KOP - Start Build 2.00
6,345.5	6,296.0	-30.8	27.7	Start DLS 9.25 TFO 64.07
6,359.2	6,309.5	-441.3	397.3	Start DLS 9.25 TFO -144.25
7,423.5	7,016.0	-443.1	398.8	TPZ/Landing Pt. at 7423.5 MD
17,462.3	7,016.0	170.0	470.0	TD at 17462.3



# **Northern Region Drilling - Sandbox**

**Conceptual Wells**

**DP 408**

**Emmy State H25-764**

**Wellbore #1**

**Design #1**

## **Anticollision Summary Report**

**02 November, 2017**

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	11/2/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	17,462.3	Design #1 (Wellbore #1)	MWD	MWD - Standard	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 19						
Butterball H24-69HN - Original Drilling - Original Drilling -	17,462.3	11,992.0	1,321.8	1,092.1	5.755	CC, ES, SF
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,989.0	2,223.9	2,215.2	256.397	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,531.4	3,365.9	3,066.3	11.234	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,389.0	2,201.6	2,191.1	210.237	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,367.7	2,926.9	2,627.1	9.762	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,389.0	2,179.2	2,168.7	208.102	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,432.0	2,485.4	2,187.7	8.351	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	7,136.6	6,946.0	1,995.0	1,964.1	64.497	CC
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,338.4	2,047.0	1,749.0	6.869	ES, SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	7,503.2	7,311.8	1,601.9	1,569.3	49.062	CC
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,270.5	1,605.7	1,306.1	5.359	ES, SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,512.5	7,376.2	1,138.0	1,104.6	34.091	CC
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,312.3	1,167.6	867.8	3.894	ES, SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,200.0	44.7	35.1	4.658	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	17,462.3	17,565.3	876.8	576.5	2.920	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,400.0	2,400.0	22.4	11.9	2.129	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	17,462.3	17,500.2	439.5	141.4	1.474	Level 3, SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,528.6	2,528.7	22.2	11.1	2.010	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	17,462.3	17,391.8	442.3	142.2	1.474	Level 3, SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,201.0	44.9	35.3	4.672	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,462.3	17,428.1	879.7	579.0	2.926	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,001.0	69.8	61.1	8.028	CC, ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,462.3	17,486.3	1,321.3	1,021.0	4.401	SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,596.0	2,596.0	159.4	148.0	14.010	CC
Emmy State H36-753 - Wellbore #1 - Design #1	2,600.0	2,600.0	159.4	148.0	13.989	ES
Emmy State H36-753 - Wellbore #1 - Design #1	2,700.0	2,696.1	161.6	149.8	13.721	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,596.0	2,597.0	154.6	143.2	13.588	CC
Emmy State H36-760 - Wellbore #1 - Design #1	2,600.0	2,601.0	154.6	143.2	13.568	ES
Emmy State H36-760 - Wellbore #1 - Design #1	7,600.0	7,159.7	296.3	261.9	8.608	SF
Emmy State H36-766 - Wellbore #1 - Design #1	7,227.9	7,507.1	102.0	70.2	3.208	CC, ES, SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,596.0	2,597.0	154.6	143.2	13.588	CC
Emmy State H36-773 - Wellbore #1 - Design #1	2,600.0	2,601.0	154.6	143.2	13.568	ES
Emmy State H36-773 - Wellbore #1 - Design #1	2,700.0	2,698.3	157.1	145.3	13.323	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,202.0	159.4	149.8	16.601	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	2,400.0	2,391.7	165.7	155.3	15.848	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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						
DP 408						
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,003.0	168.2	159.5	19.322	CC, ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,192.4	174.5	164.9	18.255	SF
Hurley H26-712 - Wellbore #1 - Design #1	17,462.3	14,847.6	1,762.1	1,488.0	6.430	CC, ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	10,112.5	7,419.5	2,125.4	2,050.2	28.286	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,462.3	14,757.0	2,170.8	1,899.6	8.005	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	17,462.3	14,790.3	2,607.2	2,335.0	9.580	CC, ES, SF
Hurley H26-730 - Wellbore #1 - Design #1	17,462.3	14,528.2	3,024.3	2,751.2	11.076	CC, ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	9,650.1	6,495.0	3,370.9	3,306.5	52.346	CC
Hurley H26-736 - Wellbore #1 - Design #1	17,462.3	14,657.5	3,436.8	3,165.6	12.673	ES, SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	2,596.0	2,634.0	3,624.9	3,613.4	316.223	CC
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,939.8	3,866.2	3,592.3	14.116	ES, SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,462.3	15,079.4	4,288.8	4,013.4	15.572	CC, ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	9,999.8	7,450.0	4,700.0	4,626.3	63.762	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,875.0	4,759.4	4,487.3	17.495	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	9,988.2	7,400.0	5,122.1	5,049.5	70.502	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,834.1	5,181.1	4,908.9	19.036	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,848.7	7,250.0	5,544.6	5,475.1	79.812	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,823.4	5,600.6	5,328.0	20.543	ES, SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,599.8	2,613.5	5,893.4	5,882.2	524.238	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,870.1	6,030.5	5,755.2	21.906	ES, SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,005.0	5,913.6	5,904.9	678.968	CC, ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,462.3	14,767.9	6,435.5	6,161.6	23.503	SF
Hurley H35-720 - Wellbore #1 - Design #1	10,301.8	7,401.8	2,375.9	2,297.8	30.420	CC
Hurley H35-720 - Wellbore #1 - Design #1	10,500.0	7,255.9	2,378.1	2,296.5	29.162	ES
Hurley H35-720 - Wellbore #1 - Design #1	11,300.0	6,886.6	2,469.6	2,377.0	26.670	SF
Hurley H35-727 - Wellbore #1 - Design #1	10,348.4	7,135.6	2,759.4	2,681.2	35.281	CC
Hurley H35-727 - Wellbore #1 - Design #1	10,500.0	7,032.4	2,761.1	2,680.3	34.197	ES
Hurley H35-727 - Wellbore #1 - Design #1	11,400.0	6,724.6	2,885.0	2,792.7	31.250	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,638.8	6,726.0	3,150.7	3,067.3	37.780	CC
Hurley H35-733 - Wellbore #1 - Design #1	10,700.0	6,705.8	3,151.3	3,066.9	37.358	ES
Hurley H35-733 - Wellbore #1 - Design #1	11,700.0	6,568.5	3,314.6	3,218.1	34.324	SF
Hurley H35-740 - Wellbore #1 - Design #1	10,645.3	6,270.9	3,570.8	3,489.3	43.840	CC
Hurley H35-740 - Wellbore #1 - Design #1	10,700.0	6,279.3	3,571.2	3,488.8	43.328	ES
Hurley H35-740 - Wellbore #1 - Design #1	12,000.0	6,443.3	3,813.8	3,713.5	38.001	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,906.2	1,944.2	3,742.1	3,733.7	447.491	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	3,742.3	3,733.6	430.235	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	12,200.0	6,275.0	4,262.0	4,159.9	41.725	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,550.0	10,638.6	4,559.8	4,505.8	84.435	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,552.4	10,638.2	4,559.8	4,505.8	84.442	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	12,600.0	6,900.0	5,176.9	5,067.6	47.344	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,540.9	10,441.4	4,981.8	4,928.9	94.148	CC, ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,800.0	6,750.0	5,656.1	5,545.1	50.944	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	6,466.9	10,488.6	5,413.0	5,361.0	104.100	CC, ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	13,300.0	6,600.0	6,185.0	6,067.4	52.593	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	6,452.7	10,515.5	5,837.5	5,786.0	113.497	CC
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,500.0	6,788.6	5,864.3	5,783.3	72.393	ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	13,600.0	6,500.0	6,625.9	6,503.8	54.271	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,205.0	5,963.1	5,953.5	620.589	CC, ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	13,800.0	6,450.0	6,984.7	6,859.6	55.824	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,005.0	5,982.7	5,974.0	686.903	CC, ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	16,000.0	16,000.0	8,572.9	8,400.3	49.667	SF
Hurley State H35-713 - Wellbore #1 - Design #1	10,016.8	7,416.1	1,895.1	1,821.8	25.826	CC
Hurley State H35-713 - Wellbore #1 - Design #1	10,100.0	7,364.2	1,895.8	1,821.1	25.371	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 State H35-713 - Wellbore #1 - Design #1	10,800.0	7,013.9	1,970.0	1,885.8	23.411	SF
<b>H Section 13</b>						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,462.3	7,133.0	1,449.4	1,359.2	16.065	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,462.3	7,079.9	2,236.6	2,066.5	13.145	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,462.3	6,526.1	2,270.6	2,102.9	13.540	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,462.3	6,862.1	1,132.9	923.4	5.409	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,462.3	7,003.3	1,270.9	1,101.9	7.520	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,462.3	7,003.7	1,102.0	1,046.1	19.695	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,462.3	6,999.6	1,730.7	1,534.3	8.812	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled	17,462.3	7,006.4	2,678.7	2,469.2	12.786	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,462.3	7,017.0	1,377.0	1,059.9	4.343	CC, ES, SF
<b>H Section 14</b>						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,462.3	6,958.4	3,188.2	3,018.4	18.778	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,462.3	6,862.3	3,655.2	3,434.0	16.526	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,462.3	6,980.7	2,967.8	2,756.5	14.048	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,462.3	7,232.7	5,025.3	4,802.4	22.549	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,462.3	7,432.4	4,186.2	3,977.4	20.043	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,462.3	7,447.5	5,157.4	4,926.8	22.368	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,462.3	7,658.6	5,786.5	5,562.4	25.817	CC, ES, SF
<b>H Section 19</b>						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,325.6	6,913.2	4,151.9	3,989.4	25.553	CC
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,400.0	6,915.7	4,152.6	3,988.6	25.320	ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	15,400.0	6,932.1	4,288.6	4,109.0	23.874	SF
<b>H Section 21</b>						
Moser 24-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser 41-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
<b>H Section 22</b>						
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,169.2	6,925.1	7,582.9	7,423.3	47.528	CC
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,300.0	6,924.5	7,584.0	7,422.1	46.844	ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	17,200.0	6,900.0	8,166.1	7,965.0	40.597	SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,307.9	6,982.8	8,114.3	7,971.0	56.592	CC
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,500.0	6,989.1	8,116.6	7,969.7	55.264	ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	17,000.0	7,077.5	8,914.2	8,719.6	45.819	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,751.7	7,000.0	7,710.2	7,577.3	58.005	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,900.0	7,000.0	7,711.7	7,576.1	56.875	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	16,300.0	7,000.0	8,487.5	8,305.8	46.695	SF

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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	15,575.0	7,016.6	3,572.4	3,385.8	19.142	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,600.0	7,016.3	3,572.5	3,385.5	19.099	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,200.0	7,008.6	3,626.7	3,431.9	18.615	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,791.9	7,009.0	2,383.6	2,057.9	7.319	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,800.0	7,009.0	2,383.6	2,057.8	7.316	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,000.0	7,009.0	2,392.7	2,064.3	7.286	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,906.8	7,039.9	3,631.9	3,359.6	13.336	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,000.0	7,040.1	3,633.1	3,359.2	13.265	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,400.0	7,041.1	3,665.2	3,386.1	13.131	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,473.2	7,019.0	2,353.0	2,052.3	7.824	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,500.0	7,019.0	2,353.2	2,052.0	7.814	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,700.0	7,019.0	2,363.9	2,060.2	7.784	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,163.3	6,905.8	2,487.8	2,347.7	17.757	CC
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,200.0	6,896.2	2,488.1	2,347.4	17.688	ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,600.0	6,918.0	2,525.8	2,380.2	17.349	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,234.2	6,823.5	3,817.9	3,676.6	27.032	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,300.0	6,827.1	3,818.4	3,676.0	26.820	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	14,200.0	6,875.4	3,937.8	3,783.6	25.534	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,228.3	6,933.5	3,510.3	3,349.7	21.847	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,300.0	6,938.4	3,511.1	3,349.2	21.685	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,900.0	6,981.5	3,573.7	3,403.9	21.038	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,924.0	7,284.4	4,945.0	4,723.5	22.330	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,000.0	7,284.6	4,945.6	4,722.7	22.187	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,462.3	7,285.9	4,974.2	4,743.5	21.563	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,942.7	7,336.8	6,362.9	6,120.1	26.206	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,100.0	7,338.8	6,364.8	6,117.2	25.705	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,462.3	7,343.3	6,384.1	6,125.9	24.726	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,608.3	7,274.5	6,382.2	6,158.8	28.574	CC
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,700.0	7,276.2	6,382.8	6,158.5	28.455	ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	17,462.3	7,309.8	6,645.9	6,403.5	27.409	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,985.2	7,000.0	5,324.4	5,129.9	27.366	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,100.0	7,000.0	5,325.7	5,129.1	27.089	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,400.0	7,018.3	5,509.2	5,295.0	25.722	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,975.3	7,133.6	2,597.7	2,441.2	16.592	CC
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,000.0	7,132.8	2,597.8	2,440.9	16.550	ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,400.0	7,119.4	2,632.2	2,470.4	16.270	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,312.9	7,087.8	4,174.7	3,973.7	20.770	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,400.0	7,087.0	4,175.6	3,973.1	20.622	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,100.0	7,080.8	4,248.2	4,036.7	20.085	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,876.2	7,090.5	3,141.4	2,965.3	17.835	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,900.0	7,090.5	3,141.5	2,965.0	17.797	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,400.0	7,091.4	3,184.8	3,002.4	17.454	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,228.4	7,157.2	1,754.4	1,553.2	8.720	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,300.0	7,157.9	1,755.9	1,554.1	8.701	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,227.4	6,907.9	5,240.1	5,079.5	32.633	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,300.0	6,907.5	5,240.6	5,078.8	32.379	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	15,700.0	6,900.4	5,443.1	5,262.3	30.110	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,223.0	6,932.5	6,540.5	6,379.9	40.722	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,300.0	6,933.1	6,540.9	6,378.9	40.378	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	16,500.0	6,951.8	6,925.5	6,733.4	36.059	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,072.7	6,974.6	6,534.3	6,395.3	47.022	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,200.0	6,979.4	6,535.5	6,394.3	46.270	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	15,700.0	7,072.9	7,042.1	6,866.9	40.201	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 H23-14J - Original Drilling - Original Drilling - As D	12,944.3	7,065.6	4,824.2	4,687.3	35.251	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	13,000.0	7,069.5	4,824.5	4,686.6	35.000	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	14,500.0	7,175.3	5,067.6	4,909.5	32.052	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,847.3	6,919.2	4,589.0	4,435.6	29.914	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,900.0	6,920.5	4,589.3	4,435.0	29.736	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	15,100.0	6,949.8	4,756.8	4,586.4	27.923	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,287.3	6,976.0	5,975.5	5,717.2	23.136	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,400.0	6,976.0	5,976.5	5,716.2	22.962	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	14,900.0	6,976.0	6,189.3	5,907.1	21.933	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,995.4	6,960.8	2,870.0	2,675.6	14.767	CC
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,000.0	6,960.9	2,870.0	2,675.5	14.762	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,400.0	6,963.9	2,898.3	2,698.9	14.532	SF



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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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	14,273.0	6,883.9	2,825.0	2,663.6	17.503	CC
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,300.0	6,883.9	2,825.1	2,663.1	17.442	ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,800.0	6,883.3	2,873.7	2,703.6	16.890	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,291.5	6,990.9	1,631.1	1,469.1	10.063	CC
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,300.0	6,990.9	1,631.2	1,468.9	10.051	ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,500.0	6,992.2	1,644.4	1,478.7	9.921	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,226.2	6,997.0	174.5	13.7	1.085	Level 2, CC, ES, SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,232.2	6,500.0	1,161.9	1,017.2	8.029	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,300.0	6,500.0	1,163.9	1,018.5	8.008	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,046.9	7,295.4	920.8	766.3	5.961	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,100.0	7,280.3	922.2	766.8	5.935	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,662.3	7,151.2	961.9	828.2	7.195	CC, ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	13,000.0	13,000.0	1,010.0	843.2	6.053	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,939.7	6,993.6	1,549.5	1,413.1	11.360	CC
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,000.0	6,993.3	1,550.6	1,412.9	11.261	ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,200.0	6,992.3	1,571.2	1,430.4	11.159	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,966.5	6,959.9	2,535.9	2,399.1	18.536	CC
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,000.0	6,959.9	2,536.2	2,398.6	18.442	ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,500.0	6,959.8	2,591.5	2,445.8	17.790	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,819.7	6,994.5	389.1	254.9	2.900	CC, ES, SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,767.7	7,007.0	922.3	751.1	5.387	CC
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,800.0	7,009.2	922.9	750.9	5.367	ES, SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,618.5	6,949.3	2,185.4	2,036.3	14.652	CC
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,700.0	6,949.0	2,186.9	2,036.1	14.497	ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	14,000.0	6,951.9	2,218.5	2,062.9	14.259	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,609.1	6,893.0	1,091.2	942.8	7.352	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,700.0	6,890.9	1,095.0	944.7	7.288	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,700.0	9,813.9	100.4	15.0	1.176	Level 2, ES
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,731.3	9,809.2	95.5	17.7	1.228	Level 2, CC
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,800.0	9,801.2	117.2	15.2	1.149	Level 2, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,392.8	6,974.7	2,135.7	2,007.9	16.705	CC
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,400.0	6,974.7	2,135.7	2,007.7	16.683	ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,800.0	6,972.5	2,174.2	2,038.8	16.059	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,341.6	7,014.4	237.0	83.5	1.544	CC, ES, SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,734.8	7,021.9	958.0	749.5	4.593	CC, ES, SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,922.3	7,007.6	431.4	238.2	2.232	CC, ES, SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,796.6	7,005.9	351.1	135.0	1.624	CC
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,800.0	7,005.8	351.2	134.9	1.624	ES, SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,799.3	6,980.0	1,703.6	1,493.8	8.118	CC
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,800.0	6,980.0	1,703.6	1,493.7	8.117	ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	17,000.0	6,980.4	1,715.4	1,502.2	8.047	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,439.0	6,996.5	492.2	308.2	2.675	CC, ES, SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,045.7	7,006.3	2,582.3	2,367.6	12.030	CC
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,100.0	7,006.6	2,582.9	2,367.1	11.970	ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,400.0	7,008.6	2,606.5	2,386.0	11.821	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,200.8	6,966.8	3,298.8	3,100.3	16.623	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,300.0	6,969.0	3,300.2	3,099.8	16.463	ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,800.0	6,980.4	3,352.7	3,144.6	16.108	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,607.5	6,933.7	2,805.9	2,618.9	15.004	CC
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,700.0	6,936.2	2,807.4	2,618.5	14.861	ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	16,100.0	6,947.8	2,848.8	2,653.7	14.608	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,278.1	7,024.8	1,969.0	1,787.9	10.874	CC
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,300.0	7,022.9	1,969.1	1,787.5	10.847	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 24						
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,500.0	7,005.8	1,981.3	1,796.4	10.713	SF
Weld County Lumber 01 - Original Drilling - Original Drilling	16,021.0	6,975.7	1,784.7	1,589.7	9.152	CC, ES
Weld County Lumber 01 - Original Drilling - Original Drilling	16,200.0	6,977.9	1,793.7	1,595.5	9.049	SF



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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,865.1	7,138.3	973.5	871.7	9.560	CC
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,900.0	7,138.0	974.2	871.1	9.452	ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	11,100.0	7,135.8	1,001.5	893.2	9.245	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	52.7	3,053.4	3,053.2	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	10,500.0	10,500.0	4,009.2	3,911.4	40.965	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.0	58.5	3,043.8	3,043.6	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	300.0	245.5	3,044.7	3,043.4	2,446.915	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	9,500.0	7,042.4	3,923.6	3,853.9	56.283	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,600.0	8,400.7	40.0	9.0	1.288	Level 3, ES, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,611.1	8,401.4	38.4	9.5	1.330	Level 3, CC
Dechant H25-65HN - Original Drilling - Original Drilling	9,500.0	8,432.7	45.4	9.7	1.271	Level 3, ES, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,504.6	8,432.7	45.2	10.0	1.282	Level 3, CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,595.0	7,002.6	63.3	-47.7	0.570	Level 1, CC, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,600.0	7,002.7	63.5	-47.8	0.570	Level 1, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,243.1	7,001.3	120.2	34.5	1.402	Level 3, CC, ES, SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,670.9	7,490.0	1,006.1	870.7	7.434	CC
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,700.0	7,490.5	1,006.5	870.6	7.409	ES, SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,149.9	6,999.6	886.5	802.5	10.552	CC, ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,200.0	7,000.0	887.9	803.4	10.506	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,533.9	6,949.8	3,284.2	3,211.5	45.202	CC
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,600.0	6,950.1	3,284.9	3,210.9	44.416	ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	11,000.0	6,956.9	3,596.6	3,500.6	37.475	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,026.4	6,970.0	2,459.3	2,423.7	69.088	CC
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,100.0	6,970.0	2,460.4	2,423.7	66.993	ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	9,500.0	6,970.0	2,867.0	2,810.0	50.317	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,017.4	6,952.9	2,764.7	2,701.3	43.561	CC
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,100.0	6,952.8	2,766.0	2,700.9	42.516	ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	10,300.0	6,952.6	3,047.7	2,964.0	36.381	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,185.4	6,989.3	1,326.4	1,259.8	19.934	CC
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,200.0	6,989.3	1,326.4	1,259.6	19.841	ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,500.0	6,989.5	1,363.2	1,290.9	18.853	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,009.5	6,990.5	152.1	58.3	1.622	CC, ES, SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,033.3	7,043.7	1,295.5	1,231.4	20.204	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,300.0	7,049.4	1,322.7	1,255.7	19.766	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,524.0	6,982.2	225.1	183.0	5.353	CC, ES, SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,699.9	6,962.2	1,286.1	1,242.5	29.505	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,700.0	6,962.2	1,286.1	1,242.5	29.504	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	8,200.0	6,961.1	1,379.9	1,329.4	27.347	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,347.3	6,983.3	883.5	831.1	16.883	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,600.0	6,979.1	918.9	862.1	16.185	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,709.2	6,948.7	2,920.8	2,807.8	25.845	CC
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,800.0	6,948.9	2,922.2	2,807.4	25.438	ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	12,500.0	6,950.3	3,026.0	2,899.9	23.997	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,593.0	6,971.2	1,536.8	1,425.9	13.859	CC
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,600.0	6,971.2	1,536.8	1,425.8	13.840	ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,900.0	6,973.6	1,567.2	1,451.0	13.490	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,155.7	6,984.5	1,235.2	1,151.1	14.688	CC
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,200.0	6,984.0	1,236.0	1,150.9	14.526	ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,400.0	6,981.9	1,259.1	1,170.5	14.207	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,388.6	6,956.4	2,908.4	2,820.1	32.922	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	6,956.4	2,908.4	2,819.9	32.835	ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	11,400.0	6,955.3	3,079.2	2,974.4	29.371	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,900.0	7,019.9	168.8	70.6	1.720	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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						
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,904.1	7,020.0	168.8	70.6	1.720	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,743.1	6,963.0	2,215.7	2,005.7	10.549	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,800.0	6,963.0	2,216.4	2,005.2	10.493	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	11,100.0	6,963.0	2,244.3	2,027.5	10.354	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	7,957.5	7,012.2	736.0	689.2	15.713	CC, ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	8,000.0	7,013.7	737.2	690.0	15.622	SF

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,878.4	6,939.7	3,796.7	3,680.6	32.692	CC
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,900.0	6,940.7	3,796.8	3,680.3	32.588	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	13,000.0	6,990.6	3,958.6	3,827.3	30.159	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,193.9	7,019.4	3,642.1	3,557.2	42.879	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,300.0	7,020.1	3,643.7	3,557.0	42.024	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	11,500.0	7,028.3	3,869.2	3,766.8	37.767	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,361.0	6,960.2	2,839.0	2,732.5	26.658	CC
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,400.0	6,960.3	2,839.3	2,732.2	26.501	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	12,000.0	6,962.7	2,910.1	2,795.1	25.318	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,364.2	7,492.3	199.1	66.1	1.497	Level 3, CC, ES, SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,512.5	7,891.1	1,683.6	1,593.3	18.643	CC
Dechant H25-33D - Original Drilling - Original Drilling - As	8,600.0	8,600.0	1,685.6	1,590.1	17.644	ES, SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,073.5	7,042.2	2,278.6	2,213.8	35.161	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,100.0	7,041.7	2,278.8	2,213.6	34.949	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,800.0	7,028.9	2,391.6	2,317.9	32.426	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,217.1	7,020.8	3,566.4	3,499.2	53.053	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,300.0	7,021.1	3,567.4	3,498.8	52.035	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	10,800.0	7,025.3	3,901.9	3,814.0	44.385	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,141.5	1,156.5	3,236.2	3,229.9	514.129	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	2,625.4	2,666.0	3,242.6	3,227.7	217.858	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	9,900.0	7,085.4	4,209.7	4,139.1	59.615	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	3.6	2,158.0			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,188.0	2,160.9	2,154.4	330.984	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	9,000.0	7,042.0	2,882.7	2,825.0	49.961	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,390.4	7,166.7	2,943.4	2,887.2	52.407	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,400.0	7,166.8	2,943.4	2,887.1	52.267	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	9,800.0	7,178.6	3,263.5	3,188.4	43.481	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,967.0	6,681.1	6,440.5	6,323.7	55.138	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,100.0	6,683.9	6,441.9	6,322.7	54.053	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	15,600.0	7,143.9	7,392.2	7,228.1	45.031	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,258.4	7,024.0	4,785.3	4,699.1	55.538	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,300.0	7,024.7	4,785.5	4,698.6	55.082	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	12,400.0	7,060.3	5,242.5	5,127.3	45.495	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,806.2	7,049.7	5,873.1	5,776.6	60.897	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,900.0	7,049.4	5,873.8	5,775.7	59.885	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	13,600.0	7,042.3	6,503.7	6,369.2	48.348	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,847.2	6,800.0	4,758.5	4,643.6	41.390	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,900.0	6,800.0	4,758.8	4,642.9	41.064	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	13,600.0	6,841.2	5,070.8	4,932.1	36.574	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,595.3	6,785.7	4,901.9	4,791.8	44.507	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,700.0	6,788.2	4,903.0	4,791.1	43.789	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	13,500.0	6,824.6	5,258.7	5,122.9	38.702	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,959.3	6,990.4	1,843.9	1,744.9	18.624	CC
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,000.0	6,990.1	1,844.3	1,744.7	18.515	ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,300.0	6,988.0	1,875.1	1,772.1	18.211	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,752.0	7,131.2	2,213.1	2,095.1	18.752	CC
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,800.0	7,131.5	2,213.6	2,094.8	18.629	ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	12,100.0	7,133.6	2,240.3	2,117.4	18.232	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,418.3	7,081.6	2,307.0	2,216.3	25.442	CC, ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,900.0	7,070.7	2,356.8	2,260.1	24.375	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,640.8	7,059.4	3,043.3	2,962.8	37.844	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,700.0	7,058.3	3,043.8	2,962.6	37.479	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	10,500.0	7,044.4	3,162.2	3,072.2	35.142	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 26						
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,175.1	7,074.2	6,414.5	6,329.4	75.383	CC
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,300.0	7,075.5	6,415.8	6,328.5	73.506	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	13,700.0	7,111.2	7,319.1	7,185.9	54.915	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	397.5	381.5	5,119.6	5,117.7	2,682.249	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	955.1	5,121.4	5,116.1	973.109	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	12,200.0	7,115.2	5,994.9	5,887.7	55.950	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	6,140.1			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,500.0	2,434.8	6,147.5	6,133.7	445.231	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.0	6,937.8	7,554.2	7,436.5	64.134	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	5,883.4			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,152.6	5,888.4	5,882.0	918.322	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,700.0	6,814.3	8,118.3	8,013.2	77.281	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	571.7	565.8	4,375.9	4,373.0	1,486.324	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,377.1	4,381.2	4,367.8	327.558	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	11,100.0	6,900.0	6,050.0	5,966.8	72.754	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	10,971.8	7,433.4	4,255.7	4,151.2	40.726	CC
Moser H26-18D - Original Drilling - Original Drilling - As D	11,000.0	7,433.7	4,255.8	4,150.8	40.568	ES
Moser H26-18D - Original Drilling - Original Drilling - As D	12,600.0	7,453.9	4,556.4	4,431.7	36.513	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	249.0	255.0	4,217.2	4,216.1	3,727.316	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,604.1	2,620.6	4,225.5	4,210.8	287.562	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	11,200.0	7,066.0	5,281.5	5,191.4	58.610	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	0.0	4,963.9			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,764.0	4,969.2	4,959.3	502.232	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	11,900.0	7,091.0	6,440.9	6,342.6	65.467	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,213.4	7,142.6	2,963.7	2,837.5	23.497	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,300.0	7,142.3	2,964.9	2,837.3	23.221	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	12,900.0	7,139.7	3,042.2	2,906.2	22.380	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	12,436.5	7,537.6	4,469.4	4,333.5	32.881	CC
Moser H26-28D - Original Drilling - Original Drilling - As D	12,500.0	7,539.1	4,469.9	4,332.5	32.547	ES
Moser H26-28D - Original Drilling - Original Drilling - As D	14,100.0	7,578.8	4,768.8	4,603.2	28.803	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	20.3	4,598.6			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	4,599.2	4,598.4	5,844.628	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	12,900.0	12,900.0	5,223.3	5,049.9	30.127	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,596.0	2,582.0	5,568.8	5,511.5	97.138	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,700.0	2,686.0	5,570.3	5,510.7	93.475	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	10,700.0	7,002.0	6,567.1	6,365.4	32.553	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,869.6	6,929.5	7,525.1	7,409.1	64.877	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	12,000.0	6,929.9	7,526.2	7,407.9	63.604	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	15,600.0	6,939.7	8,399.0	8,231.7	50.213	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	0.0	0.0	7,011.0			
HSR Moser 16-27 - Original Drilling - Original Drilling - As	2,606.3	2,600.0	7,013.6	6,998.9	479.232	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	13,800.0	7,001.7	9,766.5	9,647.2	81.862	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	0.0	0.0	7,290.9			
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	100.0	46.7	7,291.0	7,290.8	10,000.000	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	14,200.0	7,092.3	9,185.4	9,048.5	67.073	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	826.0	800.0	7,299.3	7,294.9	1,686.250	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	15,100.0	6,909.1	9,918.5	9,765.1	64.665	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	1,799.9	1,786.9	7,963.0	7,953.0	799.101	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	2,800.0	2,918.9	7,965.8	7,949.7	495.863	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	10,200.0	7,050.0	9,964.6	9,896.7	146.629	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	2,798.5	2,861.9	8,537.9	8,522.0	537.821	CC
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	3,300.0	3,459.0	8,539.5	8,520.4	448.309	ES
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	8,900.0	6,871.2	9,935.1	9,884.1	194.714	SF
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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	6,406.4	6,362.0	4,916.0	4,876.3	123.796	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,700.0	6,674.4	4,970.4	4,929.2	120.583	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	0.0	1.7	6,237.5			
Cannon H35-03D - Original Drilling - Original Drilling - As	2,200.0	2,173.3	6,239.1	6,226.9	510.856	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	11,500.0	6,721.6	9,764.5	9,697.8	146.340	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	6,411.4	6,406.6	3,944.7	3,904.7	98.755	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,100.0	6,951.1	4,220.4	4,174.8	92.691	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,562.9	5,514.9	4,864.2	4,830.4	144.005	CC
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,700.0	5,600.0	4,864.8	4,830.2	140.674	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,800.0	6,717.2	4,974.0	4,932.6	120.355	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	462.5	466.6	5,591.4	5,589.0	2,362.425	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	600.0	571.5	5,591.9	5,588.8	1,835.898	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	10,900.0	6,852.7	8,643.6	8,581.2	138.457	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	0.0	0.0	6,837.0			
Cannon H35-12 - Original Drilling - Original Drilling - As D	600.0	549.7	6,839.8	6,836.9	2,315.872	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,300.0	6,985.6	9,927.7	9,855.0	136.497	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	7,631.5			
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,376.1	6,457.6	7,670.1	7,630.0	191.365	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	10,100.0	7,255.8	9,957.0	9,896.5	164.448	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,387.8	6,412.3	6,589.0	6,549.1	164.759	CC, ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,250.0	7,031.9	6,940.0	6,891.2	142.314	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,396.5	6,344.4	5,765.1	5,620.5	39.867	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,400.0	6,347.8	5,765.1	5,620.4	39.845	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,850.0	6,768.3	5,887.8	5,734.4	38.384	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,100.0	2,100.0	6,043.9	6,032.1	511.367	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,200.0	2,164.6	6,044.2	6,031.9	492.799	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	11,900.0	6,800.0	9,553.5	9,478.1	126.638	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,148.9	5,227.9	4,943.2	4,912.0	158.335	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,200.0	5,261.9	4,943.3	4,911.8	156.809	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,750.0	6,741.2	5,049.8	5,008.4	122.215	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	107.0	0.0	4,105.9	4,105.8	10,000.000	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	200.0	70.4	4,106.2	4,105.7	9,597.162	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,700.0	6,572.4	4,229.5	4,188.4	102.700	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	5,720.0	5,673.7	5,829.6	5,794.6	166.867	CC
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,200.0	6,119.0	5,830.7	5,792.4	152.270	ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,650.0	6,476.6	5,875.8	5,835.2	144.724	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,383.3	6,383.3	5,902.0	5,862.3	148.754	CC, ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,750.0	6,705.2	5,979.8	5,938.4	144.757	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,387.6	6,332.9	6,455.4	6,415.7	162.575	CC, ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,700.0	6,625.4	6,511.9	6,470.8	158.310	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	3,770.8	3,756.2	7,429.6	7,407.7	338.699	CC
Cannon X02-29 - Original Drilling - Original Drilling - As D	4,100.0	4,066.8	7,431.4	7,407.3	308.498	ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	8,000.0	8,000.0	8,346.3	8,299.7	179.284	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	662.4	652.4	5,481.8	5,478.3	1,590.053	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,154.2	5,484.2	5,477.8	855.909	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,900.0	6,879.0	8,369.7	8,284.7	98.504	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,596.0	2,606.0	3,325.4	3,267.7	57.610	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,700.0	2,710.0	3,326.3	3,266.3	55.455	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,150.0	6,966.9	3,759.7	3,604.2	24.168	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	0.0	0.0	4,010.1			
Foster UPRR 32-35 - Original Drilling - Original Drilling -	2,500.0	2,494.7	4,017.4	4,003.4	286.663	ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,700.0	6,682.9	4,165.6	4,124.7	101.811	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	595.8	591.8	2,190.9	2,187.8	708.490	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 41-35 - Original Drilling - Original Drilling -	2,700.0	2,702.9	2,194.8	2,179.6	144.965	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,200.0	6,972.2	2,554.4	2,504.4	51.186	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,099.8	6,100.4	2,877.8	2,840.0	76.068	CC
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,200.0	6,174.4	2,878.3	2,839.8	74.828	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,650.0	6,657.9	2,915.8	2,874.6	70.802	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	4,616.2			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	1,900.0	1,867.1	4,626.5	4,616.1	441.614	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	11,000.0	7,218.1	6,847.3	6,770.7	89.339	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	162.7	142.7	6,121.9	6,121.4	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,150.4	6,124.3	6,117.9	957.467	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	13,000.0	7,297.5	9,228.2	9,124.8	89.231	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	347.7	336.7	6,285.8	6,284.1	3,838.265	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	2,000.0	1,946.3	6,291.2	6,280.2	572.828	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	12,600.0	6,679.6	9,957.5	9,870.0	113.822	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	523.1	525.1	5,054.1	5,051.4	1,876.918	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	700.0	684.0	5,054.5	5,050.8	1,387.602	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	11,000.0	6,947.5	7,772.5	7,702.4	110.887	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	281.9	279.9	3,000.7	2,999.4	2,317.315	CC
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	2,800.0	2,825.4	3,002.3	2,986.5	190.723	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,650.0	6,587.5	3,111.8	3,071.2	76.783	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	0.0	5,079.9			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,663.5	5,081.4	5,072.1	545.889	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	11,500.0	6,832.2	7,686.4	7,606.2	95.792	SF

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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	6,483.8	6,373.9	2,420.0	2,383.6	66.585	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,750.0	6,622.8	2,468.5	2,430.7	65.265	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,413.3	6,222.0	5,038.7	4,996.9	120.618	CC, ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,550.0	6,300.0	5,053.8	5,011.4	119.100	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,450.1	6,387.6	4,899.5	4,859.5	122.617	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,700.0	6,450.0	4,953.8	4,913.0	121.479	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,465.9	6,368.4	4,674.9	4,634.1	114.650	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,500.0	6,402.3	4,675.8	4,634.0	111.991	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,250.0	6,943.6	5,094.4	5,036.6	88.165	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,800.0	6,620.9	1,457.9	1,418.3	36.877	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,811.5	6,627.7	1,457.8	1,418.3	36.883	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	931.5	906.9	3,025.9	3,021.0	611.172	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,950.0	6,951.6	3,230.0	3,188.7	78.198	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,427.9	6,200.0	4,893.3	4,855.0	127.998	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,700.0	6,250.0	4,958.6	4,919.6	127.207	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,427.2	6,250.0	4,938.4	4,899.5	126.997	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,600.0	6,300.0	4,964.8	4,925.3	125.811	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,440.3	6,300.0	4,910.6	4,869.7	120.007	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,650.0	6,350.0	4,949.6	4,908.0	118.925	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,401.6	5,871.7	5,383.5	5,340.7	125.987	CC, ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,950.0	6,360.2	5,590.4	5,543.6	119.635	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,439.3	6,155.7	5,182.6	5,143.3	131.793	CC, ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,700.0	6,338.8	5,234.1	5,193.4	128.497	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,993.4	6,910.0	2,644.9	2,604.8	66.042	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	8,900.0	6,626.1	3,334.2	3,276.7	58.016	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,700.0	6,572.8	1,205.4	1,166.1	30.665	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,744.9	6,596.4	1,204.6	1,165.4	30.681	CC, ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,890.0	6,816.2	2,429.2	2,389.2	60.760	CC, ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	8,600.0	6,525.1	3,003.7	2,950.0	56.019	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	904.5	865.5	1,760.3	1,755.5	365.925	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,800.0	6,554.9	1,789.5	1,749.8	45.007	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,827.4	6,571.6	1,789.4	1,749.6	45.027	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,821.8	6,568.3	3,123.1	3,083.8	79.648	CC, ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	9,300.0	6,450.0	4,079.6	4,018.1	66.365	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,455.3	6,387.9	3,235.1	3,197.2	85.503	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,750.0	6,667.1	3,304.5	3,265.0	83.663	SF
Dechant State H36-18D - Original Drilling - Original Drilling	6,484.9	6,604.7	1,365.3	1,322.5	31.868	CC, ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,600.0	6,709.7	1,374.8	1,331.3	31.583	SF
Dechant State H36-19 - Original Drilling - Original Drilling	6,397.3	6,313.9	1,040.3	1,000.7	26.283	CC
Dechant State H36-19 - Original Drilling - Original Drilling	6,400.0	6,316.2	1,040.3	1,000.7	26.271	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,500.0	6,402.0	1,047.8	1,007.7	26.103	SF
Dechant State H36-20D - Original Drilling - Original Drilling	6,436.3	6,471.3	2,645.9	2,604.1	63.182	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,600.0	6,631.1	2,667.4	2,624.7	62.526	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,468.4	6,477.5	2,689.6	2,649.9	67.715	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,700.0	6,691.7	2,732.1	2,691.2	66.862	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,475.7	6,635.0	3,888.7	3,843.1	85.287	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,750.0	6,849.7	3,949.8	3,902.9	84.145	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,086.4	1,072.3	1,381.0	1,376.3	293.475	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,079.9	1,381.0	1,376.3	290.009	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,550.0	6,656.7	2,074.2	2,032.5	49.759	SF
Dechant State H36-32D - Original Drilling - Original Drilling	6,395.9	6,362.2	2,961.0	2,919.9	71.970	CC
Dechant State H36-32D - Original Drilling - Original Drilling	6,400.0	6,366.2	2,961.0	2,919.8	71.927	ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,600.0	6,606.7	2,987.7	2,945.4	70.594	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 State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<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 H36-33 - Original Drilling - Original Drilling	6,429.3	6,599.9	4,005.8	3,957.0	82.094	CC, ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,650.0	6,774.7	4,042.6	3,992.9	81.418	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,650.4	6,531.9	1,284.5	1,246.3	33.608	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,750.0	6,632.3	1,286.7	1,248.2	33.472	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,531.6	6,443.4	2,371.9	2,228.7	16.563	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,550.0	6,461.5	2,372.1	2,228.5	16.519	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,800.0	6,692.4	2,409.5	2,261.0	16.223	SF
Spike State GWS H36-03 - Original Drilling - Original Dri	6,485.8	6,383.9	534.4	498.2	14.734	CC, ES
Spike State GWS H36-03 - Original Drilling - Original Dri	6,550.0	6,443.8	537.3	500.6	14.673	SF
Spike State GWS H36-04 - Original Drilling - Original Dri	100.0	65.2	1,031.1	1,030.9	5,273.261	CC
Spike State GWS H36-04 - Original Drilling - Original Dri	4,100.0	4,071.3	1,032.4	1,008.8	43.855	ES
Spike State GWS H36-04 - Original Drilling - Original Dri	6,750.0	6,639.6	1,221.5	1,175.6	26.576	SF
Spike State GWS H36-13 - Original Drilling - Original Dri	6,559.8	7,444.0	4,642.0	4,599.2	108.308	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	6,700.0	7,444.0	4,659.4	4,616.1	107.685	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,487.0	6,651.7	4,624.9	4,586.3	119.685	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	6,850.0	6,993.2	4,727.3	4,686.6	116.356	SF
Spike State H36-02J - Original Drilling - Original Drilling -	6,431.8	6,327.9	1,499.0	1,445.6	28.077	CC
Spike State H36-02J - Original Drilling - Original Drilling -	6,450.0	6,346.0	1,499.3	1,445.3	27.758	ES
Spike State H36-02J - Original Drilling - Original Drilling -	6,850.0	6,715.0	1,633.8	1,567.3	24.593	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	6,393.2	6,296.6	2,050.3	2,010.8	51.967	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	6,400.0	6,304.7	2,050.3	2,010.8	51.902	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,550.0	6,449.8	2,066.3	2,026.0	51.237	SF
Spike State H36-11J - Original Drilling - Original Drilling -	6,458.1	6,482.2	3,867.3	3,828.5	99.715	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling -	6,750.0	6,745.2	3,935.4	3,895.1	97.667	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,422.0	6,358.2	3,224.3	3,185.0	82.063	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,650.0	6,587.6	3,262.5	3,222.0	80.513	SF

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft

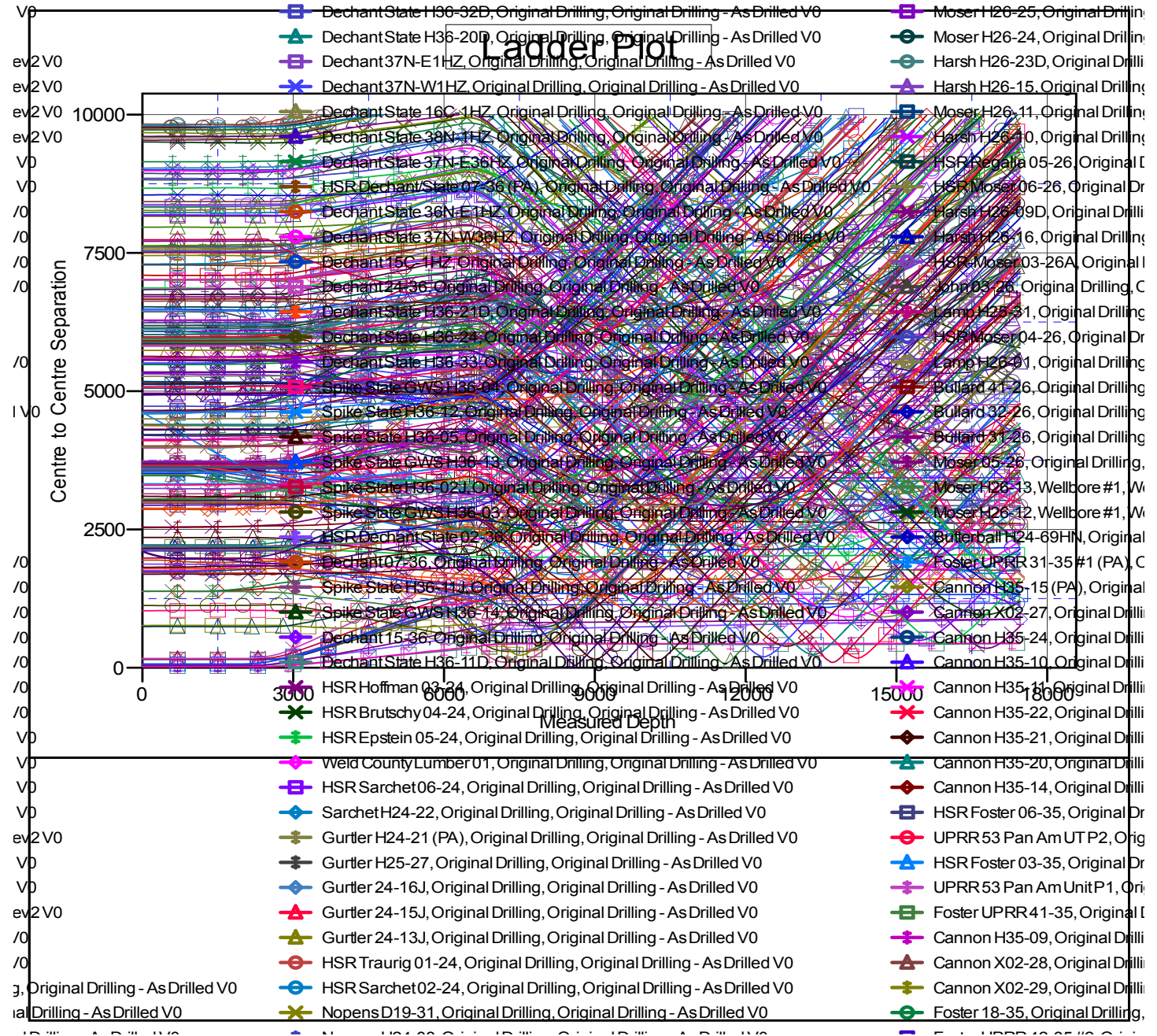
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-764

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.57°



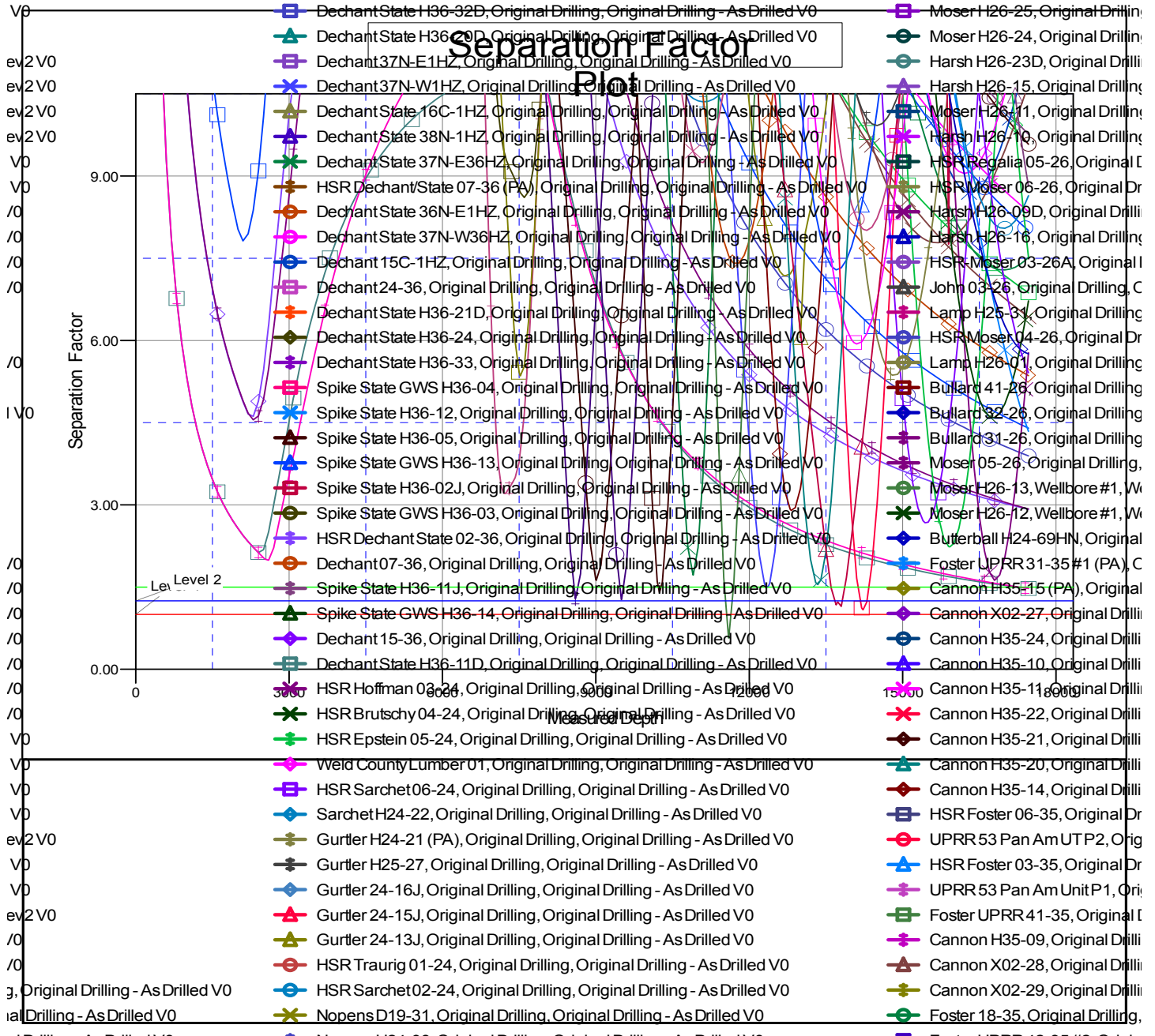
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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

<b>Company:</b>	Northern Region Drilling - Sandbox	<b>Local Co-ordinate Reference:</b>	Well Emmy State H25-764
<b>Project:</b>	Conceptual Wells	<b>TVD Reference:</b>	WELL @ 4846.0ft
<b>Reference Site:</b>	DP 408	<b>MD Reference:</b>	WELL @ 4846.0ft
<b>Site Error:</b>	0.0 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H25-764	<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>	Design #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-764  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.57°



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