

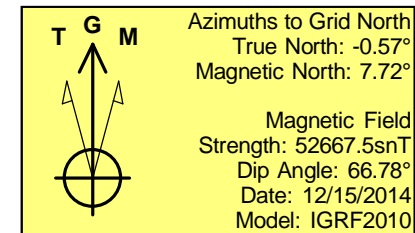
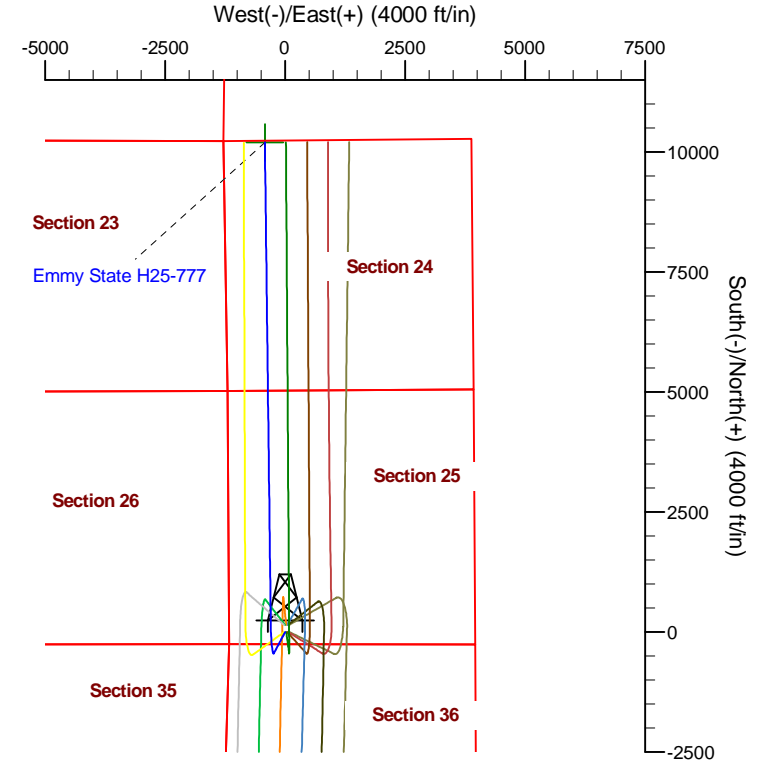
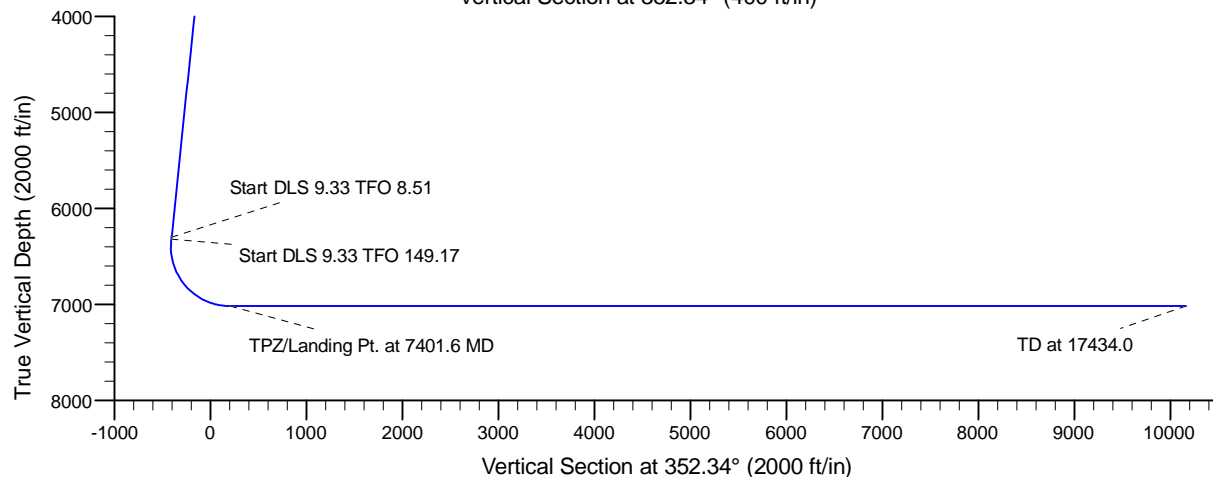
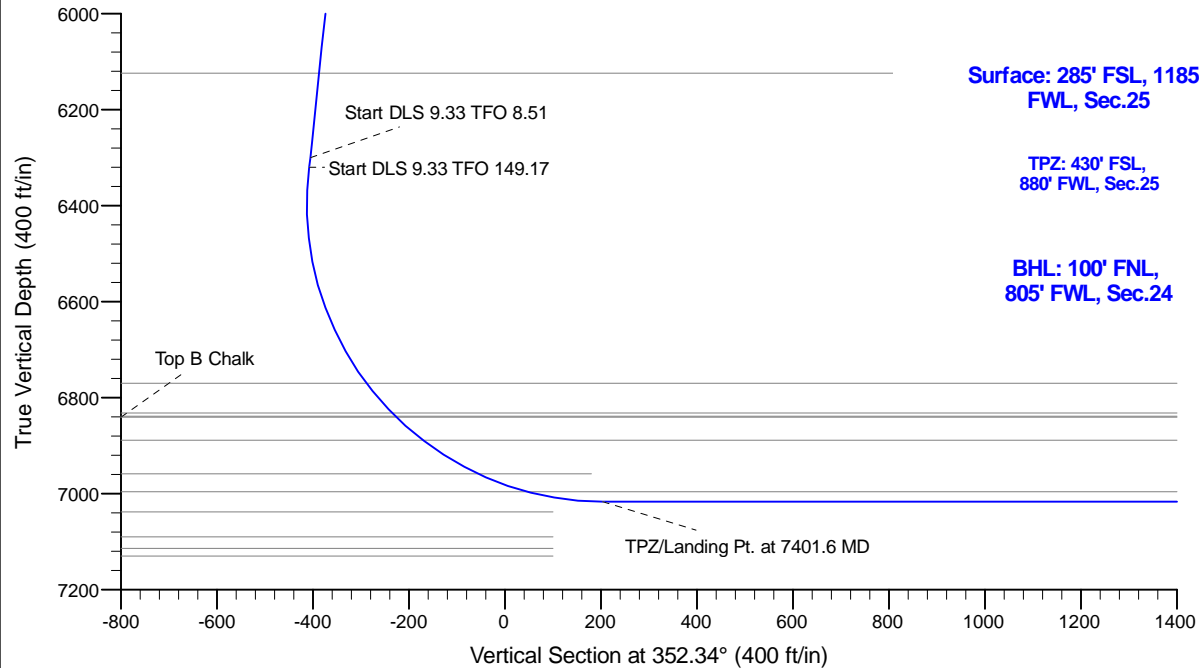
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H25-777
Wellbore: Wellbore #1
Design: Design #1

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	2200.0	0.00	0.00	2200.0	0.0	0.0	0.00	0.00	0.0	
3	2562.5	7.25	208.00	2561.5	-20.2	-10.8	2.00	208.00	-18.6	
4	6331.1	7.25	208.00	6300.0	-440.1	-234.0	0.00	0.00	-405.0	
5	6351.9	9.18	209.80	6320.6	-442.7	-235.5	9.33	8.51	-407.4	
6	7401.6	90.00	359.30	7017.0	165.0	-300.0	9.33	149.17	203.5	
7	17434.0	90.00	359.30	7017.0	10196.7	-422.7	0.00	0.00	10162.1	Emmy State H25-777 BHL



WELL DETAILS: Emmy State H25-777

0.00.0	Ground Level: 4817.0	Latitude 40.189680	Longitude -104.616990
Northing 1313171.29	Easting 3246686.30		

Plan: Design #1 (Emmy State H25-777/Wellbore #1)

Created By: Colby Baxter	Date: 16:59, November 02 2017
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-777

Wellbore #1

Plan: Design #1

Standard Planning Report

02 November, 2017

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-777
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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

Site	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 H25-777					
Well Position	+N/-S	-5,013.6 ft	Northing:	1,313,171.29 usft	Latitude:	40.189680
	+E/-W	6,461.4 ft	Easting:	3,246,686.30 usft	Longitude:	-104.616990
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,817.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/15/2014	8.30	66.78	52,667.52699945

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	352.34

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,562.5	7.25	208.00	2,561.5	-20.2	-10.8	2.00	2.00	0.00	208.00	
6,331.1	7.25	208.00	6,300.0	-440.1	-234.0	0.00	0.00	0.00	0.00	
6,351.9	9.18	209.80	6,320.6	-442.7	-235.5	9.33	9.25	8.66	8.51	
7,401.6	90.00	359.30	7,017.0	165.0	-300.0	9.33	7.70	14.24	149.17	
17,434.0	90.00	359.30	7,017.0	10,196.7	-422.7	0.00	0.00	0.00	0.00	Emmy State H25-777

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-777
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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	2.00	208.00	2,300.0	-1.5	-0.8	-1.4	2.00	2.00	0.00
2,400.0	4.00	208.00	2,399.8	-6.2	-3.3	-5.7	2.00	2.00	0.00
2,500.0	6.00	208.00	2,499.5	-13.9	-7.4	-12.8	2.00	2.00	0.00
2,562.5	7.25	208.00	2,561.5	-20.2	-10.8	-18.6	2.00	2.00	0.00
2,600.0	7.25	208.00	2,598.7	-24.4	-13.0	-22.5	0.00	0.00	0.00
2,700.0	7.25	208.00	2,697.9	-35.5	-18.9	-32.7	0.00	0.00	0.00
2,800.0	7.25	208.00	2,797.1	-46.7	-24.8	-43.0	0.00	0.00	0.00
2,900.0	7.25	208.00	2,896.3	-57.8	-30.7	-53.2	0.00	0.00	0.00
3,000.0	7.25	208.00	2,995.5	-69.0	-36.7	-63.5	0.00	0.00	0.00
3,100.0	7.25	208.00	3,094.7	-80.1	-42.6	-73.7	0.00	0.00	0.00
3,200.0	7.25	208.00	3,193.9	-91.3	-48.5	-84.0	0.00	0.00	0.00
3,300.0	7.25	208.00	3,293.1	-102.4	-54.4	-94.2	0.00	0.00	0.00
3,400.0	7.25	208.00	3,392.3	-113.5	-60.4	-104.5	0.00	0.00	0.00
3,500.0	7.25	208.00	3,491.5	-124.7	-66.3	-114.7	0.00	0.00	0.00
3,600.0	7.25	208.00	3,590.7	-135.8	-72.2	-125.0	0.00	0.00	0.00
3,700.0	7.25	208.00	3,689.9	-147.0	-78.1	-135.2	0.00	0.00	0.00
3,800.0	7.25	208.00	3,789.1	-158.1	-84.1	-145.5	0.00	0.00	0.00
3,900.0	7.25	208.00	3,888.3	-169.3	-90.0	-155.8	0.00	0.00	0.00
4,000.0	7.25	208.00	3,987.5	-180.4	-95.9	-166.0	0.00	0.00	0.00
4,100.0	7.25	208.00	4,086.7	-191.5	-101.8	-176.3	0.00	0.00	0.00
4,200.0	7.25	208.00	4,185.9	-202.7	-107.8	-186.5	0.00	0.00	0.00
4,300.0	7.25	208.00	4,285.1	-213.8	-113.7	-196.8	0.00	0.00	0.00
4,400.0	7.25	208.00	4,384.3	-225.0	-119.6	-207.0	0.00	0.00	0.00
4,500.0	7.25	208.00	4,483.5	-236.1	-125.5	-217.3	0.00	0.00	0.00
4,600.0	7.25	208.00	4,582.7	-247.3	-131.5	-227.5	0.00	0.00	0.00
4,700.0	7.25	208.00	4,681.9	-258.4	-137.4	-237.8	0.00	0.00	0.00
4,800.0	7.25	208.00	4,781.1	-269.5	-143.3	-248.0	0.00	0.00	0.00
4,900.0	7.25	208.00	4,880.3	-280.7	-149.2	-258.3	0.00	0.00	0.00
5,000.0	7.25	208.00	4,979.5	-291.8	-155.2	-268.5	0.00	0.00	0.00
5,100.0	7.25	208.00	5,078.7	-303.0	-161.1	-278.8	0.00	0.00	0.00
5,200.0	7.25	208.00	5,177.9	-314.1	-167.0	-289.1	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-777
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
5,300.0	7.25	208.00	5,277.1	-325.3	-172.9	-299.3	0.00	0.00	0.00
5,400.0	7.25	208.00	5,376.3	-336.4	-178.9	-309.6	0.00	0.00	0.00
5,500.0	7.25	208.00	5,475.5	-347.5	-184.8	-319.8	0.00	0.00	0.00
5,600.0	7.25	208.00	5,574.7	-358.7	-190.7	-330.1	0.00	0.00	0.00
5,700.0	7.25	208.00	5,673.9	-369.8	-196.6	-340.3	0.00	0.00	0.00
5,800.0	7.25	208.00	5,773.1	-381.0	-202.6	-350.6	0.00	0.00	0.00
5,900.0	7.25	208.00	5,872.3	-392.1	-208.5	-360.8	0.00	0.00	0.00
6,000.0	7.25	208.00	5,971.6	-403.3	-214.4	-371.1	0.00	0.00	0.00
6,100.0	7.25	208.00	6,070.8	-414.4	-220.3	-381.3	0.00	0.00	0.00
6,200.0	7.25	208.00	6,170.0	-425.5	-226.3	-391.6	0.00	0.00	0.00
6,300.0	7.25	208.00	6,269.2	-436.7	-232.2	-401.8	0.00	0.00	0.00
6,331.1	7.25	208.00	6,300.0	-440.1	-234.0	-405.0	0.00	0.00	0.00
6,351.9	9.18	209.80	6,320.6	-442.7	-235.5	-407.4	9.33	9.25	8.66
6,400.0	5.80	233.17	6,368.3	-447.5	-239.3	-411.6	9.33	-7.03	48.61
6,500.0	7.54	321.03	6,467.8	-445.5	-247.5	-408.5	9.33	1.74	87.85
6,600.0	15.93	342.60	6,565.7	-427.2	-255.8	-389.3	9.33	8.39	21.58
6,700.0	24.98	349.16	6,659.3	-393.3	-263.8	-354.6	9.33	9.05	6.56
6,800.0	34.18	352.36	6,746.2	-344.6	-271.6	-305.4	9.33	9.20	3.20
6,900.0	43.42	354.33	6,824.0	-282.4	-278.7	-242.8	9.33	9.25	1.97
7,000.0	52.69	355.72	6,890.8	-208.4	-285.1	-168.6	9.33	9.27	1.39
7,100.0	61.98	356.80	6,944.7	-124.5	-290.5	-84.7	9.33	9.28	1.08
7,200.0	71.27	357.71	6,984.3	-32.9	-294.9	6.7	9.33	9.29	0.91
7,300.0	80.56	358.52	7,008.7	63.9	-298.1	103.1	9.33	9.29	0.81
7,400.0	89.85	359.29	7,017.0	163.4	-300.0	202.0	9.33	9.30	0.77
7,401.6	90.00	359.30	7,017.0	165.0	-300.0	203.5	9.33	9.30	0.76
7,500.0	90.00	359.30	7,017.0	263.4	-301.2	301.2	0.00	0.00	0.00
7,600.0	90.00	359.30	7,017.0	363.4	-302.4	400.5	0.00	0.00	0.00
7,700.0	90.00	359.30	7,017.0	463.4	-303.6	499.7	0.00	0.00	0.00
7,800.0	90.00	359.30	7,017.0	563.4	-304.9	599.0	0.00	0.00	0.00
7,900.0	90.00	359.30	7,017.0	663.4	-306.1	698.3	0.00	0.00	0.00
8,000.0	90.00	359.30	7,017.0	763.4	-307.3	797.5	0.00	0.00	0.00
8,100.0	90.00	359.30	7,017.0	863.4	-308.5	896.8	0.00	0.00	0.00
8,200.0	90.00	359.30	7,017.0	963.4	-309.8	996.1	0.00	0.00	0.00
8,300.0	90.00	359.30	7,017.0	1,063.4	-311.0	1,095.3	0.00	0.00	0.00
8,400.0	90.00	359.30	7,017.0	1,163.4	-312.2	1,194.6	0.00	0.00	0.00
8,500.0	90.00	359.30	7,017.0	1,263.4	-313.4	1,293.9	0.00	0.00	0.00
8,600.0	90.00	359.30	7,017.0	1,363.3	-314.6	1,393.1	0.00	0.00	0.00
8,700.0	90.00	359.30	7,017.0	1,463.3	-315.9	1,492.4	0.00	0.00	0.00
8,800.0	90.00	359.30	7,017.0	1,563.3	-317.1	1,591.6	0.00	0.00	0.00
8,900.0	90.00	359.30	7,017.0	1,663.3	-318.3	1,690.9	0.00	0.00	0.00
9,000.0	90.00	359.30	7,017.0	1,763.3	-319.5	1,790.2	0.00	0.00	0.00
9,100.0	90.00	359.30	7,017.0	1,863.3	-320.7	1,889.4	0.00	0.00	0.00
9,200.0	90.00	359.30	7,017.0	1,963.3	-322.0	1,988.7	0.00	0.00	0.00
9,300.0	90.00	359.30	7,017.0	2,063.3	-323.2	2,088.0	0.00	0.00	0.00
9,400.0	90.00	359.30	7,017.0	2,163.3	-324.4	2,187.2	0.00	0.00	0.00
9,500.0	90.00	359.30	7,017.0	2,263.3	-325.6	2,286.5	0.00	0.00	0.00
9,600.0	90.00	359.30	7,017.0	2,363.3	-326.9	2,385.7	0.00	0.00	0.00
9,700.0	90.00	359.30	7,017.0	2,463.3	-328.1	2,485.0	0.00	0.00	0.00
9,800.0	90.00	359.30	7,017.0	2,563.3	-329.3	2,584.3	0.00	0.00	0.00
9,900.0	90.00	359.30	7,017.0	2,663.2	-330.5	2,683.5	0.00	0.00	0.00
10,000.0	90.00	359.30	7,017.0	2,763.2	-331.7	2,782.8	0.00	0.00	0.00
10,100.0	90.00	359.30	7,017.0	2,863.2	-333.0	2,882.1	0.00	0.00	0.00
10,200.0	90.00	359.30	7,017.0	2,963.2	-334.2	2,981.3	0.00	0.00	0.00
10,300.0	90.00	359.30	7,017.0	3,063.2	-335.4	3,080.6	0.00	0.00	0.00

Noble Energy, Inc.

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Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
10,400.0	90.00	359.30	7,017.0	3,163.2	-336.6	3,179.9	0.00	0.00	0.00
10,500.0	90.00	359.30	7,017.0	3,263.2	-337.9	3,279.1	0.00	0.00	0.00
10,600.0	90.00	359.30	7,017.0	3,363.2	-339.1	3,378.4	0.00	0.00	0.00
10,700.0	90.00	359.30	7,017.0	3,463.2	-340.3	3,477.6	0.00	0.00	0.00
10,800.0	90.00	359.30	7,017.0	3,563.2	-341.5	3,576.9	0.00	0.00	0.00
10,900.0	90.00	359.30	7,017.0	3,663.2	-342.7	3,676.2	0.00	0.00	0.00
11,000.0	90.00	359.30	7,017.0	3,763.2	-344.0	3,775.4	0.00	0.00	0.00
11,100.0	90.00	359.30	7,017.0	3,863.2	-345.2	3,874.7	0.00	0.00	0.00
11,200.0	90.00	359.30	7,017.0	3,963.2	-346.4	3,974.0	0.00	0.00	0.00
11,300.0	90.00	359.30	7,017.0	4,063.1	-347.6	4,073.2	0.00	0.00	0.00
11,400.0	90.00	359.30	7,017.0	4,163.1	-348.8	4,172.5	0.00	0.00	0.00
11,500.0	90.00	359.30	7,017.0	4,263.1	-350.1	4,271.8	0.00	0.00	0.00
11,600.0	90.00	359.30	7,017.0	4,363.1	-351.3	4,371.0	0.00	0.00	0.00
11,700.0	90.00	359.30	7,017.0	4,463.1	-352.5	4,470.3	0.00	0.00	0.00
11,800.0	90.00	359.30	7,017.0	4,563.1	-353.7	4,569.5	0.00	0.00	0.00
11,900.0	90.00	359.30	7,017.0	4,663.1	-355.0	4,668.8	0.00	0.00	0.00
12,000.0	90.00	359.30	7,017.0	4,763.1	-356.2	4,768.1	0.00	0.00	0.00
12,100.0	90.00	359.30	7,017.0	4,863.1	-357.4	4,867.3	0.00	0.00	0.00
12,200.0	90.00	359.30	7,017.0	4,963.1	-358.6	4,966.6	0.00	0.00	0.00
12,300.0	90.00	359.30	7,017.0	5,063.1	-359.8	5,065.9	0.00	0.00	0.00
12,400.0	90.00	359.30	7,017.0	5,163.1	-361.1	5,165.1	0.00	0.00	0.00
12,500.0	90.00	359.30	7,017.0	5,263.1	-362.3	5,264.4	0.00	0.00	0.00
12,600.0	90.00	359.30	7,017.0	5,363.0	-363.5	5,363.6	0.00	0.00	0.00
12,700.0	90.00	359.30	7,017.0	5,463.0	-364.7	5,462.9	0.00	0.00	0.00
12,800.0	90.00	359.30	7,017.0	5,563.0	-366.0	5,562.2	0.00	0.00	0.00
12,900.0	90.00	359.30	7,017.0	5,663.0	-367.2	5,661.4	0.00	0.00	0.00
13,000.0	90.00	359.30	7,017.0	5,763.0	-368.4	5,760.7	0.00	0.00	0.00
13,100.0	90.00	359.30	7,017.0	5,863.0	-369.6	5,860.0	0.00	0.00	0.00
13,200.0	90.00	359.30	7,017.0	5,963.0	-370.8	5,959.2	0.00	0.00	0.00
13,300.0	90.00	359.30	7,017.0	6,063.0	-372.1	6,058.5	0.00	0.00	0.00
13,400.0	90.00	359.30	7,017.0	6,163.0	-373.3	6,157.8	0.00	0.00	0.00
13,500.0	90.00	359.30	7,017.0	6,263.0	-374.5	6,257.0	0.00	0.00	0.00
13,600.0	90.00	359.30	7,017.0	6,363.0	-375.7	6,356.3	0.00	0.00	0.00
13,700.0	90.00	359.30	7,017.0	6,463.0	-376.9	6,455.5	0.00	0.00	0.00
13,800.0	90.00	359.30	7,017.0	6,563.0	-378.2	6,554.8	0.00	0.00	0.00
13,900.0	90.00	359.30	7,017.0	6,662.9	-379.4	6,654.1	0.00	0.00	0.00
14,000.0	90.00	359.30	7,017.0	6,762.9	-380.6	6,753.3	0.00	0.00	0.00
14,100.0	90.00	359.30	7,017.0	6,862.9	-381.8	6,852.6	0.00	0.00	0.00
14,200.0	90.00	359.30	7,017.0	6,962.9	-383.1	6,951.9	0.00	0.00	0.00
14,300.0	90.00	359.30	7,017.0	7,062.9	-384.3	7,051.1	0.00	0.00	0.00
14,400.0	90.00	359.30	7,017.0	7,162.9	-385.5	7,150.4	0.00	0.00	0.00
14,500.0	90.00	359.30	7,017.0	7,262.9	-386.7	7,249.7	0.00	0.00	0.00
14,600.0	90.00	359.30	7,017.0	7,362.9	-387.9	7,348.9	0.00	0.00	0.00
14,700.0	90.00	359.30	7,017.0	7,462.9	-389.2	7,448.2	0.00	0.00	0.00
14,800.0	90.00	359.30	7,017.0	7,562.9	-390.4	7,547.4	0.00	0.00	0.00
14,900.0	90.00	359.30	7,017.0	7,662.9	-391.6	7,646.7	0.00	0.00	0.00
15,000.0	90.00	359.30	7,017.0	7,762.9	-392.8	7,746.0	0.00	0.00	0.00
15,100.0	90.00	359.30	7,017.0	7,862.9	-394.1	7,845.2	0.00	0.00	0.00
15,200.0	90.00	359.30	7,017.0	7,962.9	-395.3	7,944.5	0.00	0.00	0.00
15,300.0	90.00	359.30	7,017.0	8,062.8	-396.5	8,043.8	0.00	0.00	0.00
15,400.0	90.00	359.30	7,017.0	8,162.8	-397.7	8,143.0	0.00	0.00	0.00
15,500.0	90.00	359.30	7,017.0	8,262.8	-398.9	8,242.3	0.00	0.00	0.00
15,600.0	90.00	359.30	7,017.0	8,362.8	-400.2	8,341.5	0.00	0.00	0.00
15,700.0	90.00	359.30	7,017.0	8,462.8	-401.4	8,440.8	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-777
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)	
15,800.0	90.00	359.30	7,017.0	8,562.8	-402.6	8,540.1	0.00	0.00	0.00	
15,900.0	90.00	359.30	7,017.0	8,662.8	-403.8	8,639.3	0.00	0.00	0.00	
16,000.0	90.00	359.30	7,017.0	8,762.8	-405.0	8,738.6	0.00	0.00	0.00	
16,100.0	90.00	359.30	7,017.0	8,862.8	-406.3	8,837.9	0.00	0.00	0.00	
16,200.0	90.00	359.30	7,017.0	8,962.8	-407.5	8,937.1	0.00	0.00	0.00	
16,300.0	90.00	359.30	7,017.0	9,062.8	-408.7	9,036.4	0.00	0.00	0.00	
16,400.0	90.00	359.30	7,017.0	9,162.8	-409.9	9,135.7	0.00	0.00	0.00	
16,500.0	90.00	359.30	7,017.0	9,262.8	-411.2	9,234.9	0.00	0.00	0.00	
16,600.0	90.00	359.30	7,017.0	9,362.7	-412.4	9,334.2	0.00	0.00	0.00	
16,700.0	90.00	359.30	7,017.0	9,462.7	-413.6	9,433.4	0.00	0.00	0.00	
16,800.0	90.00	359.30	7,017.0	9,562.7	-414.8	9,532.7	0.00	0.00	0.00	
16,900.0	90.00	359.30	7,017.0	9,662.7	-416.0	9,632.0	0.00	0.00	0.00	
17,000.0	90.00	359.30	7,017.0	9,762.7	-417.3	9,731.2	0.00	0.00	0.00	
17,100.0	90.00	359.30	7,017.0	9,862.7	-418.5	9,830.5	0.00	0.00	0.00	
17,200.0	90.00	359.30	7,017.0	9,962.7	-419.7	9,929.8	0.00	0.00	0.00	
17,300.0	90.00	359.30	7,017.0	10,062.7	-420.9	10,029.0	0.00	0.00	0.00	
17,400.0	90.00	359.30	7,017.0	10,162.7	-422.2	10,128.3	0.00	0.00	0.00	
17,434.0	90.00	359.30	7,017.0	10,196.7	-422.7	10,162.1	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Emmy State H25-777 Bl	0.00	0.00	7,017.0	10,196.7	-422.7	1,323,367.54	3,246,263.60	40.217680	-104.618140	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
573.0	573.0	Pierre				
725.0	725.0	Upper Pierre Aquifer Top				
1,613.0	1,613.0	Upper Pierre Aquifer Base				
3,891.6	3,880.0	Parkman				
4,487.4	4,471.0	Sussex				
5,174.9	5,153.0	Shannon				
6,153.7	6,124.0	Teepee Buttes				
6,829.3	6,770.0	Sharon Springs				
6,911.1	6,832.0	Top A Chalk				
6,921.0	6,839.0	Top A Marl				
6,923.8	6,841.0	Top B Chalk				
6,997.1	6,889.0	Top B Marl				
7,132.0	6,959.0	Top C Chalk				
7,240.2	6,996.0	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-777
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,200.0	2,200.0	0.0	0.0	KOP - Start Build 2.00
6,331.1	6,300.0	-20.2	-10.8	Start DLS 9.33 TFO 8.51
6,351.9	6,320.6	-440.1	-234.0	Start DLS 9.33 TFO 149.17
7,401.6	7,017.0	-442.7	-235.5	TPZ/Landing Pt. at 7401.6 MD
17,434.0	7,017.0	165.0	-300.0	TD at 17434.0

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-777

Wellbore #1

Design #1

Anticollision Summary Report

02 November, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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	17,434.0	Design #1 (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 19						
Butterball H24-69HN - Original Drilling - Original Drilling -	16,800.0	11,992.0	2,331.8	2,185.5	15.935	SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,434.0	11,992.0	2,196.3	2,063.2	16.499	CC, ES
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,988.0	2,268.6	2,260.0	261.619	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,530.8	4,245.4	4,041.5	20.819	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,188.0	2,246.3	2,236.7	234.707	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,364.2	3,806.6	3,602.6	18.666	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,188.0	2,223.9	2,214.4	232.372	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,420.7	3,365.0	3,163.4	16.689	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,187.0	2,201.6	2,192.0	230.090	CC, ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,330.2	2,926.6	2,724.6	14.486	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,188.0	2,179.2	2,169.6	227.701	CC, ES
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,266.5	2,485.4	2,281.6	12.198	SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,448.8	7,350.0	1,953.0	1,921.8	62.561	CC
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,914.8	2,047.1	1,837.3	9.759	ES, SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,199.0	89.5	79.9	9.325	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	17,434.0	17,546.2	1,756.3	1,552.1	8.603	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,200.0	2,201.0	67.2	57.6	6.995	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	17,434.0	17,488.6	1,318.4	1,116.2	6.521	SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,200.0	2,201.0	44.9	35.3	4.672	CC, ES
Emmy State H25-764 - Wellbore #1 - Design #1	17,434.0	17,458.3	879.7	579.0	2.925	SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,200.0	2,201.0	22.6	13.0	2.359	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	17,434.0	17,390.6	439.5	234.8	2.147	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	25.4	16.7	2.921	CC, ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,434.0	17,480.4	442.3	237.7	2.162	SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,200.0	2,201.0	174.1	164.5	18.133	CC, ES
Emmy State H36-753 - Wellbore #1 - Design #1	2,400.0	2,401.2	181.0	170.6	17.371	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,200.0	2,200.0	163.7	154.1	17.059	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	2,400.0	2,400.2	170.7	160.3	16.380	SF
Emmy State H36-766 - Wellbore #1 - Design #1	2,200.0	2,200.0	155.9	146.3	16.244	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	2,400.0	2,399.8	162.7	152.3	15.618	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,200.0	2,200.0	151.0	141.4	15.735	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	7,200.0	7,579.4	234.3	203.6	7.625	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,201.0	149.4	139.8	15.559	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	7,456.5	7,249.2	196.7	165.5	6.311	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,002.0	151.5	142.8	17.404	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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	2,200.0	2,193.7	156.8	147.3	16.398	SF
Hurley H26-712 - Wellbore #1 - Design #1	17,434.0	14,840.7	882.4	704.3	4.954	CC, ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	17,434.0	14,758.4	1,291.2	1,115.8	7.360	CC, ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	17,434.0	14,780.5	1,727.5	1,551.3	9.806	CC, ES, SF
Hurley H26-730 - Wellbore #1 - Design #1	17,434.0	14,519.6	2,144.7	1,967.5	12.107	CC, ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	9,667.8	6,656.3	2,556.1	2,511.3	57.051	CC
Hurley H26-736 - Wellbore #1 - Design #1	17,434.0	14,654.5	2,557.1	2,381.8	14.583	ES, SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	9,555.9	6,333.0	2,917.2	2,873.4	66.592	CC
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,930.3	2,986.6	2,808.6	16.783	ES, SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,434.0	15,068.2	3,409.2	3,229.7	19.001	CC, ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	10,016.5	7,466.5	3,868.5	3,819.2	78.393	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,878.3	3,879.7	3,703.3	22.002	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	10,013.4	7,422.9	4,290.7	4,242.3	88.531	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,837.3	4,301.4	4,124.9	24.377	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,954.4	7,350.9	4,713.8	4,666.4	99.359	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,826.2	4,720.9	4,544.0	26.684	ES, SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,865.7	5,150.8	4,971.4	28.708	CC, ES, SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	9,440.8	6,361.2	5,458.8	5,416.1	127.902	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,434.0	14,774.4	5,555.8	5,377.6	31.179	ES, SF
Hurley H35-720 - Wellbore #1 - Design #1	10,331.4	7,357.1	1,542.4	1,491.6	30.318	CC
Hurley H35-720 - Wellbore #1 - Design #1	10,400.0	7,302.1	1,542.8	1,491.3	29.964	ES
Hurley H35-720 - Wellbore #1 - Design #1	11,000.0	6,950.0	1,597.4	1,541.0	28.319	SF
Hurley H35-727 - Wellbore #1 - Design #1	10,328.5	7,144.1	1,926.6	1,876.3	38.333	CC
Hurley H35-727 - Wellbore #1 - Design #1	10,400.0	7,092.0	1,927.1	1,876.2	37.866	ES
Hurley H35-727 - Wellbore #1 - Design #1	11,000.0	6,813.6	1,990.0	1,934.4	35.774	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,584.9	6,821.2	2,322.1	2,269.1	43.867	CC
Hurley H35-733 - Wellbore #1 - Design #1	10,600.0	6,814.2	2,322.1	2,269.0	43.754	ES
Hurley H35-733 - Wellbore #1 - Design #1	11,300.0	6,650.0	2,415.8	2,357.5	41.402	SF
Hurley H35-740 - Wellbore #1 - Design #1	10,664.1	6,443.3	2,762.7	2,709.3	51.739	CC
Hurley H35-740 - Wellbore #1 - Design #1	10,700.0	6,443.3	2,762.9	2,709.1	51.405	ES
Hurley H35-740 - Wellbore #1 - Design #1	11,500.0	6,500.0	2,885.2	2,824.8	47.786	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	10,564.0	6,357.4	3,128.9	3,075.8	58.933	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	10,600.0	6,360.8	3,129.1	3,075.6	58.541	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	11,600.0	6,500.0	3,294.5	3,232.5	53.130	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	7,350.0	10,070.1	3,778.5	3,731.0	79.528	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	7,392.9	10,027.3	3,778.4	3,731.1	79.991	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	11,900.0	6,950.0	4,135.5	4,072.2	65.326	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	9,800.0	7,439.8	4,189.9	4,143.2	89.737	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	9,900.0	7,400.0	4,190.6	4,143.1	88.234	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,100.0	6,800.0	4,609.4	4,545.7	72.286	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	9,949.8	7,330.8	4,625.6	4,578.3	97.777	CC
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	10,000.0	7,300.0	4,625.8	4,578.0	96.960	ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	12,500.0	6,650.0	5,088.8	5,022.2	76.420	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,409.1	6,848.9	5,030.6	4,979.5	98.473	CC
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,500.0	6,801.4	5,031.1	4,979.2	96.945	ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	12,800.0	6,524.2	5,525.4	5,456.4	80.100	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,522.9	6,517.6	5,334.5	5,282.5	102.556	CC
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,600.0	6,511.1	5,335.1	5,282.4	101.199	ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	13,100.0	6,450.0	5,923.3	5,852.2	83.241	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	10,504.1	5,929.2	5,765.0	5,714.0	112.905	CC
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	10,600.0	5,939.9	5,765.8	5,713.8	110.924	ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	14,600.0	14,600.0	7,057.0	6,952.5	67.527	SF
Hurley State H35-713 - Wellbore #1 - Design #1	10,015.0	7,400.0	1,063.8	1,015.2	21.857	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						
Hurley State H35-713 - Wellbore #1 - Design #1	10,400.0	7,144.1	1,086.7	1,035.0	21.043	SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,434.0	7,119.2	1,559.7	1,467.4	16.907	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,434.0	7,084.1	1,733.5	1,664.6	25.131	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,434.0	6,643.0	1,751.3	1,679.3	24.320	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,434.0	6,888.1	1,988.0	1,865.1	16.178	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,434.0	7,028.1	907.2	860.8	19.587	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,434.0	6,984.4	1,510.5	1,410.4	15.080	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,434.0	6,997.1	2,539.7	2,416.8	20.663	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled	17,434.0	7,010.4	3,522.2	3,397.9	28.348	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,434.0	7,017.0	746.5	559.5	3.992	CC, ES, SF
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,434.0	6,982.9	2,642.6	2,563.7	33.471	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,434.0	6,888.3	2,786.0	2,661.4	22.360	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,434.0	6,980.5	2,175.0	2,062.6	19.349	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,434.0	7,256.0	4,184.0	4,059.6	33.639	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,434.0	7,427.1	3,478.3	3,364.5	30.552	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,434.0	7,483.3	4,385.3	4,254.5	33.522	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,434.0	7,662.1	4,919.4	4,790.6	38.195	CC, ES, SF
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,268.2	6,896.8	5,011.1	4,915.1	52.228	CC
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,300.0	6,897.9	5,011.2	4,914.9	52.068	ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	15,600.0	6,926.9	5,184.9	5,079.2	49.040	SF
H Section 21						
Moser 24-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser 41-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
H Section 22						
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,187.9	6,928.0	6,724.5	6,629.2	70.536	CC
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,300.0	6,927.4	6,725.4	6,629.0	69.750	ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	16,600.0	6,900.0	7,144.0	7,030.3	62.820	SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,330.1	6,983.9	7,261.5	7,174.1	83.139	CC
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,400.0	6,986.1	7,261.8	7,173.8	82.497	ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	16,300.0	7,061.4	7,844.9	7,734.6	71.175	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,771.3	7,000.0	6,861.0	6,778.8	83.537	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,800.0	7,000.0	6,861.0	6,778.6	83.257	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	15,600.0	7,000.0	7,421.2	7,317.5	71.569	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,567.8	7,013.9	2,705.0	2,596.2	24.857	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,600.0	7,013.5	2,705.2	2,596.1	24.785	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,000.0	7,008.3	2,739.3	2,627.2	24.420	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,777.0	7,009.0	1,508.4	1,272.0	6.382	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,800.0	7,009.0	1,508.5	1,272.0	6.376	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,900.0	7,009.0	1,513.4	1,276.0	6.376	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,899.9	7,027.6	2,756.0	2,574.4	15.183	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,900.0	7,027.6	2,756.0	2,574.4	15.183	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,200.0	7,028.3	2,772.2	2,588.2	15.062	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,458.2	7,019.0	1,486.3	1,262.5	6.640	CC, ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,500.0	7,019.0	1,486.9	1,262.6	6.630	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,151.7	6,940.4	1,637.2	1,551.7	19.149	CC, ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,400.0	6,954.0	1,655.9	1,568.4	18.922	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,230.8	6,870.7	2,966.5	2,880.4	34.478	CC, ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,800.0	6,900.0	3,020.5	2,929.7	33.281	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,222.1	6,955.0	2,651.8	2,556.0	27.681	CC, ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,700.0	6,988.9	2,694.3	2,594.7	27.040	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,925.6	7,265.8	4,069.0	3,938.0	31.065	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,000.0	7,266.0	4,069.7	3,937.8	30.863	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,434.0	7,267.1	4,100.5	3,964.3	30.096	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,953.8	7,359.2	5,486.9	5,333.8	35.835	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,100.0	7,361.0	5,488.8	5,332.1	35.026	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,434.0	7,365.3	5,507.7	5,343.1	33.458	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,619.8	7,301.3	5,514.9	5,369.0	37.813	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	16,200.0	7,312.4	5,545.3	5,398.3	37.721	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,989.4	7,016.3	4,454.4	4,341.3	39.380	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,000.0	7,016.4	4,454.4	4,341.2	39.343	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,000.0	7,022.9	4,567.6	4,446.0	37.575	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,963.0	7,103.0	1,741.4	1,647.7	18.585	CC, ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,200.0	7,092.1	1,757.4	1,661.9	18.392	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,309.7	7,073.1	3,302.7	3,186.5	28.427	CC, ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,800.0	7,068.5	3,338.9	3,218.7	27.790	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,866.2	7,089.8	2,278.6	2,173.6	21.719	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,900.0	7,089.9	2,278.8	2,173.6	21.659	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,100.0	7,090.3	2,290.5	2,183.9	21.476	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,209.5	7,159.0	882.8	765.7	7.541	CC, ES, SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,230.9	6,919.3	4,381.4	4,285.7	45.773	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,300.0	6,919.0	4,382.0	4,285.6	45.457	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	15,300.0	6,914.3	4,510.0	4,405.8	43.306	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,235.1	6,939.0	5,681.8	5,585.9	59.284	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,300.0	6,939.5	5,682.1	5,585.6	58.896	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	16,000.0	6,954.3	5,949.5	5,840.0	54.309	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,084.8	6,977.9	5,683.0	5,597.9	66.802	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.0	6,978.5	5,683.0	5,597.8	66.685	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	15,100.0	7,053.4	6,029.3	5,928.5	59.839	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,944.3	7,052.9	3,973.9	3,889.9	47.327	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	13,000.0	7,056.8	3,974.2	3,889.7	47.021	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	14,000.0	7,127.2	4,111.0	4,018.6	44.463	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,847.1	6,929.3	3,732.9	3,640.7	40.520	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,900.0	6,930.6	3,733.2	3,640.6	40.295	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	14,700.0	6,951.4	3,829.0	3,730.0	38.707	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,295.7	6,976.0	5,122.8	4,920.5	25.323	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,300.0	6,976.0	5,122.8	4,920.4	25.317	ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	14,200.0	6,976.0	5,202.0	4,991.8	24.750	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,983.8	6,976.9	2,000.0	1,887.4	17.752	CC
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,000.0	6,977.0	2,000.1	1,887.3	17.727	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,200.0	6,978.5	2,011.7	1,897.2	17.579	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 24						
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,224.5	6,865.5	3,683.5	3,588.1	38.603	CC, ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	15,000.0	6,864.5	3,764.3	3,663.3	37.301	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,250.7	6,992.9	2,490.2	2,394.0	25.903	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,600.0	6,995.1	2,514.5	2,416.0	25.509	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,193.8	6,949.1	1,031.8	936.5	10.826	CC
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,200.0	6,949.3	1,031.8	936.5	10.820	ES, SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,208.7	6,500.0	549.4	479.8	7.900	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,300.0	6,500.0	556.9	486.4	7.899	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,095.7	7,066.3	94.6	2.5	1.027	Level 2, CC
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,100.0	7,064.9	94.7	2.4	1.026	Level 2, ES, SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,663.7	7,089.4	115.1	32.2	1.388	Level 3, CC, ES, SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,899.5	7,002.4	2,399.7	2,316.4	28.800	CC
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,900.0	7,002.4	2,399.7	2,316.4	28.798	ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,300.0	7,000.4	2,432.9	2,346.8	28.273	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,919.9	6,960.1	3,386.4	3,303.0	40.625	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,600.0	6,960.0	3,454.0	3,365.7	39.117	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,786.8	6,980.8	1,238.5	1,156.3	15.074	CC
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,800.0	6,980.9	1,238.6	1,156.3	15.056	ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,900.0	6,981.7	1,243.6	1,160.8	15.008	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,732.2	7,018.1	1,784.4	1,683.5	17.691	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,900.0	7,029.7	1,792.2	1,690.1	17.564	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,574.2	6,959.1	3,040.0	2,950.5	33.952	CC
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,600.0	6,959.2	3,040.1	2,950.4	33.866	ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	14,100.0	6,960.8	3,085.2	2,991.9	33.061	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,573.5	6,824.5	1,942.0	1,853.2	21.855	CC
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,600.0	6,824.0	1,942.2	1,853.1	21.802	ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,800.0	6,820.3	1,955.2	1,864.8	21.625	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,596.9	10,671.7	100.4	16.8	1.202	Level 2, CC
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,600.0	10,671.3	100.4	16.7	1.199	Level 2, ES
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,700.0	10,656.8	143.1	22.1	1.182	Level 2, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,348.8	6,976.7	2,982.4	2,902.6	37.337	CC
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,400.0	6,976.4	2,982.9	2,902.5	37.112	ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	13,000.0	6,973.2	3,052.7	2,967.7	35.913	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,313.0	7,021.7	615.9	519.1	6.360	CC, ES, SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,712.3	7,016.0	84.0	-35.9	0.700	Level 1, CC, ES, SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,894.9	7,012.0	438.1	326.1	3.912	CC, ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,900.0	7,012.1	438.2	326.1	3.912	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,764.0	7,011.5	1,226.3	1,099.7	9.681	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,800.0	7,010.9	1,226.9	1,099.9	9.666	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,758.0	6,974.0	2,578.8	2,458.7	21.463	CC
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,800.0	6,974.1	2,579.2	2,458.6	21.400	ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	17,000.0	6,974.5	2,590.1	2,468.2	21.243	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,405.3	6,986.0	1,358.5	1,251.4	12.676	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,500.0	6,988.0	1,361.8	1,254.1	12.634	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	16,998.8	7,013.4	3,459.1	3,336.4	28.204	CC
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,000.0	7,013.4	3,459.1	3,336.4	28.202	ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,434.0	7,016.7	3,486.5	3,360.6	27.696	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,149.2	6,963.9	4,170.1	4,055.8	36.484	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,200.0	6,965.0	4,170.4	4,055.6	36.338	ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,900.0	6,980.2	4,237.1	4,117.2	35.354	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,558.7	6,920.7	3,673.3	3,564.8	33.874	CC
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,600.0	6,921.7	3,673.5	3,564.7	33.759	ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	16,200.0	6,938.3	3,728.8	3,615.7	32.962	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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	15,235.3	6,977.7	2,834.4	2,728.8	26.849	CC
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,300.0	7,022.4	2,835.1	2,728.8	26.673	ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,600.0	7,003.2	2,857.6	2,749.3	26.383	SF
Weld County Lumber 01 - Original Drilling - Original Drilling	15,979.1	6,973.1	2,654.9	2,542.2	23.565	CC
Weld County Lumber 01 - Original Drilling - Original Drilling	16,000.0	6,973.3	2,655.0	2,542.1	23.527	ES
Weld County Lumber 01 - Original Drilling - Original Drilling	16,300.0	6,976.7	2,674.2	2,559.3	23.267	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,828.6	7,144.1	1,810.4	1,741.9	26.405	CC, ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	11,300.0	7,139.1	1,870.8	1,796.6	25.232	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	51.7	3,095.4	3,095.3	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	10,700.0	10,700.0	4,838.4	4,765.9	66.704	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.0	57.5	3,086.0	3,085.8	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	300.0	244.3	3,086.9	3,085.7	2,489.713	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	8,900.0	7,041.9	4,380.6	4,331.7	89.581	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,560.6	7,580.4	42.7	14.3	1.504	CC, ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,600.0	7,578.7	58.1	18.8	1.480	Level 3, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,465.4	7,601.9	52.7	18.9	1.560	CC, ES, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,564.1	6,989.9	904.9	834.1	12.792	CC, ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,600.0	6,990.6	905.6	834.6	12.758	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,212.1	7,003.0	953.1	894.5	16.266	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,300.0	7,001.0	957.2	898.1	16.194	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,647.0	7,481.8	164.0	69.5	1.736	CC, ES, SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,125.5	7,012.1	54.3	-3.6	0.937	Level 1, CC, ES, SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,482.5	6,946.0	4,112.4	4,060.2	78.786	CC
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,500.0	6,946.1	4,112.5	4,060.1	78.579	ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	11,100.0	6,953.6	4,419.1	4,355.7	69.755	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	2,200.0	2,153.0	3,072.2	3,063.6	358.999	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	9,600.0	6,970.0	3,656.1	3,617.6	94.845	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	8,969.4	6,947.4	3,589.6	3,541.5	74.606	CC
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,000.0	6,947.4	3,589.8	3,541.4	74.269	ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	10,400.0	6,947.3	3,864.2	3,806.7	67.235	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,146.7	6,998.1	2,152.4	2,102.7	43.304	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,600.0	6,998.3	2,199.6	2,146.9	41.782	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,978.5	7,002.2	976.9	898.1	12.386	CC, ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,000.0	7,002.5	977.2	898.2	12.367	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,011.2	7,026.6	470.6	421.8	9.657	CC, ES, SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	100.0	61.8	805.6	805.4	4,282.788	CC
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,200.0	2,162.7	807.2	795.1	66.304	ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,600.0	6,976.7	1,046.0	1,005.7	25.999	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	1,803.0	1,761.1	1,837.1	1,827.2	185.774	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,000.0	1,949.4	1,837.6	1,826.6	167.242	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	8,100.0	6,953.8	2,147.7	2,105.6	51.005	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,311.4	6,987.4	1,704.1	1,660.4	39.027	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,600.0	6,982.4	1,728.4	1,683.2	38.232	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,660.2	6,946.6	3,763.1	3,691.6	52.618	CC
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,700.0	6,946.7	3,763.3	3,691.5	52.364	ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	12,700.0	6,948.7	3,904.2	3,825.2	49.446	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,552.9	6,965.5	2,378.4	2,307.8	33.705	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	12,000.0	6,969.0	2,420.1	2,346.4	32.851	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,117.6	6,987.1	2,067.5	2,009.8	35.822	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,500.0	6,983.1	2,102.6	2,042.3	34.865	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,339.7	6,954.3	3,742.2	3,682.6	62.817	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	6,954.2	3,742.7	3,682.6	62.297	ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	11,600.0	6,952.9	3,948.7	3,880.4	57.763	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,874.4	6,981.7	667.6	603.2	10.379	CC, ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,900.0	6,982.2	668.1	603.6	10.361	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,698.6	6,963.0	3,051.8	2,873.9	17.155	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,700.0	6,963.0	3,051.8	2,873.9	17.154	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	11,100.0	6,963.0	3,078.1	2,897.0	17.003	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	7,931.9	6,996.7	82.1	40.4	1.969	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,873.5	6,955.8	2,953.3	2,879.8	40.141	CC
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,900.0	6,957.0	2,953.5	2,879.6	40.000	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	12,600.0	6,989.7	3,041.2	2,961.8	38.306	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,187.2	7,020.7	2,809.5	2,751.0	48.062	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,200.0	7,020.8	2,809.5	2,750.9	47.966	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	11,000.0	7,026.1	2,924.7	2,859.9	45.167	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,349.2	6,977.5	1,999.1	1,930.2	29.036	CC, ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,700.0	6,978.3	2,029.6	1,957.9	28.296	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,335.2	7,483.7	647.4	562.1	7.588	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,400.0	7,484.1	650.7	563.5	7.464	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,512.4	7,812.0	863.4	783.6	10.819	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	8,600.0	7,781.0	867.5	786.7	10.735	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,058.2	7,037.6	1,453.3	1,404.1	29.564	CC, ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,300.0	7,032.9	1,473.2	1,422.2	28.885	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,210.0	7,022.9	2,740.1	2,689.8	54.501	CC, ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	10,100.0	7,025.3	2,881.0	2,824.1	50.669	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,765.5	7,105.1	2,815.5	2,773.3	66.604	CC, ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	8,800.0	7,084.9	2,999.5	2,952.0	63.175	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,682.2	7,047.7	1,754.3	1,713.5	43.003	CC, ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	8,000.0	7,042.8	1,782.8	1,740.7	42.279	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,379.3	7,162.9	2,122.4	2,075.2	44.939	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,400.0	7,163.1	2,122.5	2,075.1	44.769	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	9,000.0	7,168.1	2,211.3	2,158.9	42.179	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,979.0	6,700.0	5,597.4	5,523.7	75.941	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,000.0	6,700.0	5,597.4	5,523.5	75.735	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	14,900.0	7,105.5	6,311.9	6,216.5	66.169	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,259.1	7,021.7	3,952.2	3,893.1	66.886	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,300.0	7,022.4	3,952.4	3,892.9	66.469	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	11,700.0	7,046.1	4,206.6	4,136.4	59.927	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,814.0	7,042.1	5,036.5	4,972.4	78.570	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,900.0	7,041.8	5,037.2	4,972.3	77.618	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	12,900.0	7,036.2	5,451.4	5,371.5	68.215	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,847.8	6,800.0	3,916.0	3,843.2	53.797	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,900.0	6,809.0	3,916.3	3,843.0	53.407	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	13,000.0	6,849.4	4,081.5	3,999.5	49.749	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,597.2	6,800.0	4,061.0	3,990.6	57.644	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,600.0	6,800.0	4,061.0	3,990.5	57.621	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	12,900.0	6,837.7	4,264.6	4,183.9	52.843	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,940.9	7,010.0	1,006.5	941.3	15.448	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,000.0	7,009.6	1,008.2	942.5	15.342	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,736.1	7,128.7	1,370.4	1,294.0	17.939	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,900.0	7,129.8	1,380.1	1,302.1	17.674	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,403.5	7,061.3	1,473.2	1,411.7	23.976	CC, ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,600.0	7,056.8	1,486.2	1,423.2	23.584	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,629.9	7,086.0	2,214.6	2,155.1	37.278	CC, ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	10,000.0	7,079.4	2,245.3	2,184.1	36.743	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,186.2	7,063.8	5,582.0	5,523.2	94.889	CC
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,200.0	7,063.9	5,582.0	5,523.1	94.689	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	12,800.0	7,091.0	6,163.6	6,084.9	78.331	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	9,221.6	7,066.7	4,374.9	4,324.5	86.667	CC, ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	11,200.0	7,084.1	4,801.2	4,736.2	73.825	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	9,005.8	7,036.2	5,517.4	5,468.7	113.283	CC, ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	12,000.0	6,960.2	6,277.0	6,207.0	89.611	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 26						
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,698.3	7,698.3	5,572.1	5,528.9	129.072	CC
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,700.0	7,700.0	5,572.1	5,528.9	129.035	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.0	6,842.5	6,633.2	6,570.6	105.851	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	7,488.2	6,900.0	4,037.7	3,998.0	101.707	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	7,500.0	6,900.0	4,037.7	3,998.0	101.634	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	9,800.0	6,907.7	4,652.7	4,600.3	88.808	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	10,969.2	7,437.3	3,418.0	3,347.5	48.501	CC
Moser H26-18D - Original Drilling - Original Drilling - As D	11,000.0	7,437.7	3,418.1	3,347.4	48.372	ES
Moser H26-18D - Original Drilling - Original Drilling - As D	12,000.0	7,450.4	3,570.0	3,493.0	46.359	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	8,499.3	7,089.2	3,717.7	3,672.4	82.157	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	8,500.0	7,089.2	3,717.7	3,672.4	82.149	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	10,200.0	7,065.2	4,088.1	4,031.3	71.920	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	8,303.6	7,070.3	4,520.0	4,476.1	102.852	CC, ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	10,700.0	7,076.9	5,116.0	5,055.9	85.098	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,202.3	7,149.1	2,118.0	2,037.7	26.388	CC, ES
Moser H26-27D - Original Drilling - Original Drilling - As D	12,600.0	7,147.8	2,155.0	2,070.7	25.570	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	12,435.5	7,551.1	3,622.4	3,534.2	41.073	CC
Moser H26-28D - Original Drilling - Original Drilling - As D	12,500.0	7,552.7	3,623.0	3,533.8	40.614	ES
Moser H26-28D - Original Drilling - Original Drilling - As D	13,800.0	7,586.7	3,870.7	3,764.4	36.412	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	12,153.0	5,132.0	4,475.9	4,400.9	59.721	CC
Moser H26-29D - Original Drilling - Original Drilling - As D	12,200.0	5,132.0	4,476.1	4,400.6	59.239	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	15,900.0	15,900.0	5,812.4	5,598.6	27.191	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	8,014.5	7,002.0	5,170.5	5,012.7	32.755	CC, ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	9,200.0	7,002.0	5,304.7	5,139.0	32.015	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,888.0	6,934.4	6,681.5	6,607.9	90.727	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	12,000.0	6,934.8	6,682.5	6,607.8	89.448	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	14,800.0	6,942.5	7,288.5	7,192.6	76.014	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	7,544.9	7,024.2	6,669.9	6,629.6	165.678	CC, ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	12,300.0	7,005.6	8,191.3	8,121.6	117.470	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	8,959.6	7,002.9	6,706.9	6,656.3	132.561	CC
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	9,000.0	7,003.6	6,707.0	6,656.1	131.710	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	13,100.0	7,075.1	7,881.6	7,800.0	96.542	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	827.0	800.0	7,255.2	7,250.9	1,675.201	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	14,100.0	6,922.4	8,670.8	8,579.9	95.449	SF
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,549.5	6,517.5	7,476.2	7,439.3	202.729	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,550.0	6,517.9	7,476.2	7,439.3	202.717	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	11,000.0	7,034.6	9,935.8	9,879.9	177.727	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	6,515.3	6,469.1	8,071.0	8,034.4	220.550	CC, ES
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	9,800.0	6,853.8	9,980.0	9,931.5	206.042	SF
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,469.3	6,466.0	4,557.6	4,521.2	125.248	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,900.0	6,912.9	4,685.2	4,646.7	121.606	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	6,494.4	6,415.4	5,740.5	5,704.1	158.008	CC
Cannon H35-03D - Original Drilling - Original Drilling - As	6,500.0	6,419.4	5,740.5	5,704.1	157.903	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	6,900.0	6,691.2	5,823.2	5,785.4	153.993	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	6,475.7	6,476.5	3,560.7	3,524.3	97.738	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,150.0	6,996.2	3,857.3	3,813.8	88.559	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,464.4	6,325.6	4,380.1	4,344.2	121.994	CC, ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,850.0	6,752.7	4,463.7	4,425.7	117.698	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,511.7	6,527.4	5,097.4	5,060.6	138.614	CC, ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,900.0	6,726.9	5,176.4	5,138.5	136.336	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	6,525.9	6,490.5	6,389.5	6,352.8	174.041	CC, ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	7,150.0	6,971.0	6,542.3	6,503.2	167.299	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,519.2	6,610.5	7,114.1	7,077.0	192.044	CC, ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,100.0	7,106.0	7,276.8	7,237.3	184.514	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,490.5	6,503.6	6,095.7	6,059.1	166.672	CC, ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,300.0	7,047.4	6,440.3	6,393.3	137.153	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,470.8	6,435.8	5,355.1	5,212.4	37.530	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,500.0	6,464.8	5,355.6	5,212.3	37.368	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,900.0	6,821.0	5,475.4	5,324.5	36.267	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,537.3	6,522.5	5,563.5	5,526.6	150.921	CC, ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	7,000.0	6,800.0	5,649.2	5,610.9	147.277	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,477.9	6,339.7	4,415.2	4,379.2	122.530	CC, ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,900.0	6,886.2	4,491.2	4,452.7	116.755	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,488.5	6,365.3	3,660.8	3,624.4	100.488	CC, ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	7,050.0	7,007.6	3,832.3	3,793.1	97.654	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,472.7	6,362.6	5,336.3	5,300.3	147.952	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,850.0	6,635.9	5,420.2	5,382.6	144.384	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,462.7	6,419.4	5,556.3	5,520.1	153.302	CC, ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,950.0	6,886.4	5,718.8	5,680.3	148.483	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,474.7	6,430.1	6,006.2	5,969.9	165.492	CC, ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,900.0	6,774.6	6,118.1	6,080.1	160.730	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	6,453.0	6,141.4	6,948.4	6,912.7	194.323	CC, ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	7,250.0	6,800.0	7,261.3	7,222.2	185.876	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	6,719.9	6,724.8	5,141.0	5,103.0	135.399	CC, ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	9,800.0	6,900.0	6,359.8	6,309.0	125.158	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	6,764.0	6,724.8	2,947.0	2,798.1	19.782	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	6,800.0	6,755.2	2,947.3	2,797.7	19.699	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,150.0	6,975.4	2,979.4	2,825.0	19.304	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,520.9	6,472.5	3,497.5	3,460.8	95.439	CC, ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,900.0	6,861.2	3,551.8	3,513.3	92.391	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,577.5	6,539.5	1,702.7	1,665.0	45.151	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,600.0	6,561.2	1,702.8	1,664.6	44.539	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,100.0	6,938.5	1,799.4	1,752.2	38.100	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,506.8	6,524.6	2,350.5	2,313.8	64.039	CC, ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,750.0	6,757.9	2,384.6	2,346.8	62.989	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	6,800.4	6,834.5	4,210.6	4,172.2	109.618	CC, ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	8,900.0	7,146.9	4,905.5	4,858.8	105.097	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	6,866.5	6,608.6	5,821.3	5,783.6	154.157	CC, ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	12,200.0	7,264.1	8,082.0	8,016.2	122.895	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	6,496.3	6,168.5	5,904.2	5,868.5	165.635	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	6,500.0	6,169.8	5,904.2	5,868.5	165.584	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,200.0	6,713.5	7,654.8	7,603.4	148.748	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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						
HSR Foster 06-35 - Original Drilling - Original Drilling - A	6,556.0	6,515.7	4,604.2	4,567.3	124.820	CC, ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	7,050.0	6,894.9	4,684.3	4,645.6	120.897	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,525.9	6,481.5	2,447.8	2,411.1	66.705	CC, ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,850.0	6,774.9	2,489.8	2,451.7	65.342	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	6,675.2	6,575.4	4,691.0	4,653.6	125.489	CC, ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	9,400.0	6,859.1	5,696.9	5,648.5	117.644	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	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 07-36 - Original Drilling - Original Drilling - As D	6,380.5	6,292.1	2,863.3	2,827.2	79.380	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,700.0	6,585.6	2,922.7	2,885.0	77.678	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,426.1	6,300.0	4,932.5	4,892.9	124.673	CC, ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,650.0	6,326.2	4,976.9	4,936.9	124.263	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,416.8	6,303.1	4,981.0	4,943.1	131.481	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,550.0	6,405.5	4,995.3	4,956.8	129.621	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,410.5	6,327.0	4,922.8	4,883.8	126.282	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,200.0	6,930.5	5,328.6	5,273.0	95.750	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	904.5	865.5	1,783.1	1,778.2	370.663	CC
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	1,000.0	938.0	1,783.4	1,778.2	337.674	ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,850.0	6,635.4	2,223.5	2,185.2	58.012	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	932.0	906.9	3,054.4	3,049.5	616.788	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,800.0	6,859.3	3,697.7	3,658.3	93.690	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,410.2	6,200.0	4,933.8	4,897.5	135.862	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,550.0	6,200.0	4,951.5	4,914.9	135.421	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,421.0	6,250.0	4,901.3	4,864.7	134.104	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,550.0	6,300.0	4,916.1	4,879.1	132.979	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,406.5	6,253.6	5,023.9	4,984.8	128.445	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,550.0	6,300.0	5,041.2	5,001.6	127.385	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	900.0	880.0	5,500.9	5,496.1	1,133.722	CC
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	1,000.0	952.4	5,501.1	5,495.8	1,031.710	ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,850.0	6,100.7	5,891.4	5,847.7	134.795	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,366.4	6,004.5	5,455.2	5,417.4	144.122	CC, ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,700.0	6,311.8	5,535.5	5,495.8	139.332	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	3,437.8	3,584.8	3,255.6	3,235.2	160.064	CC
Dechant State 16C-1HZ - Original Drilling - Original Drilling	3,500.0	3,623.0	3,255.8	3,235.2	157.950	ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	8,600.0	8,600.0	3,887.2	3,838.4	79.676	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	2,249.3	2,217.2	1,756.9	1,744.3	139.912	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	2,300.0	2,267.8	1,757.0	1,744.1	136.873	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,750.0	6,609.3	1,953.4	1,915.3	51.302	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,495.3	6,775.3	3,174.3	3,135.8	82.487	CC
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,500.0	6,777.8	3,174.3	3,135.8	82.454	ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,750.0	6,843.9	3,184.8	3,145.8	81.651	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	906.7	866.7	1,804.5	1,799.7	374.429	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	1,000.0	938.2	1,804.9	1,799.6	341.657	ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,900.0	6,553.3	2,562.1	2,523.8	66.966	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	902.5	859.5	3,561.7	3,556.9	744.486	CC
Dechant State 38N-1HZ - Original Drilling - Original Drilling	1,000.0	925.5	3,562.0	3,556.7	680.061	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,900.0	6,591.5	3,896.3	3,858.2	102.123	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,426.8	6,386.0	3,351.2	3,315.0	92.425	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,800.0	6,776.6	3,457.6	3,419.4	90.564	SF
Dechant State H36-18D - Original Drilling - Original Drilling	100.0	81.7	1,381.4	1,381.2	6,203.440	CC
Dechant State H36-18D - Original Drilling - Original Drilling	1,200.0	1,176.2	1,383.4	1,378.1	258.427	ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,550.0	6,680.0	1,849.8	1,809.4	45.765	SF
Dechant State H36-19 - Original Drilling - Original Drilling	6,445.9	6,401.7	833.7	797.4	22.975	CC
Dechant State H36-19 - Original Drilling - Original Drilling	6,450.0	6,405.4	833.7	797.4	22.962	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,500.0	6,450.4	836.3	799.7	22.869	SF
Dechant State H36-20D - Original Drilling - Original Drilling	6,432.1	6,496.8	2,627.3	2,586.8	64.960	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,600.0	6,670.0	2,649.8	2,608.6	64.317	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,409.0	6,436.5	2,963.4	2,924.0	75.240	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,650.0	6,666.1	3,005.0	2,964.6	74.332	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,428.2	6,601.1	4,096.1	4,052.3	93.484	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,700.0	6,813.0	4,153.8	4,108.9	92.488	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

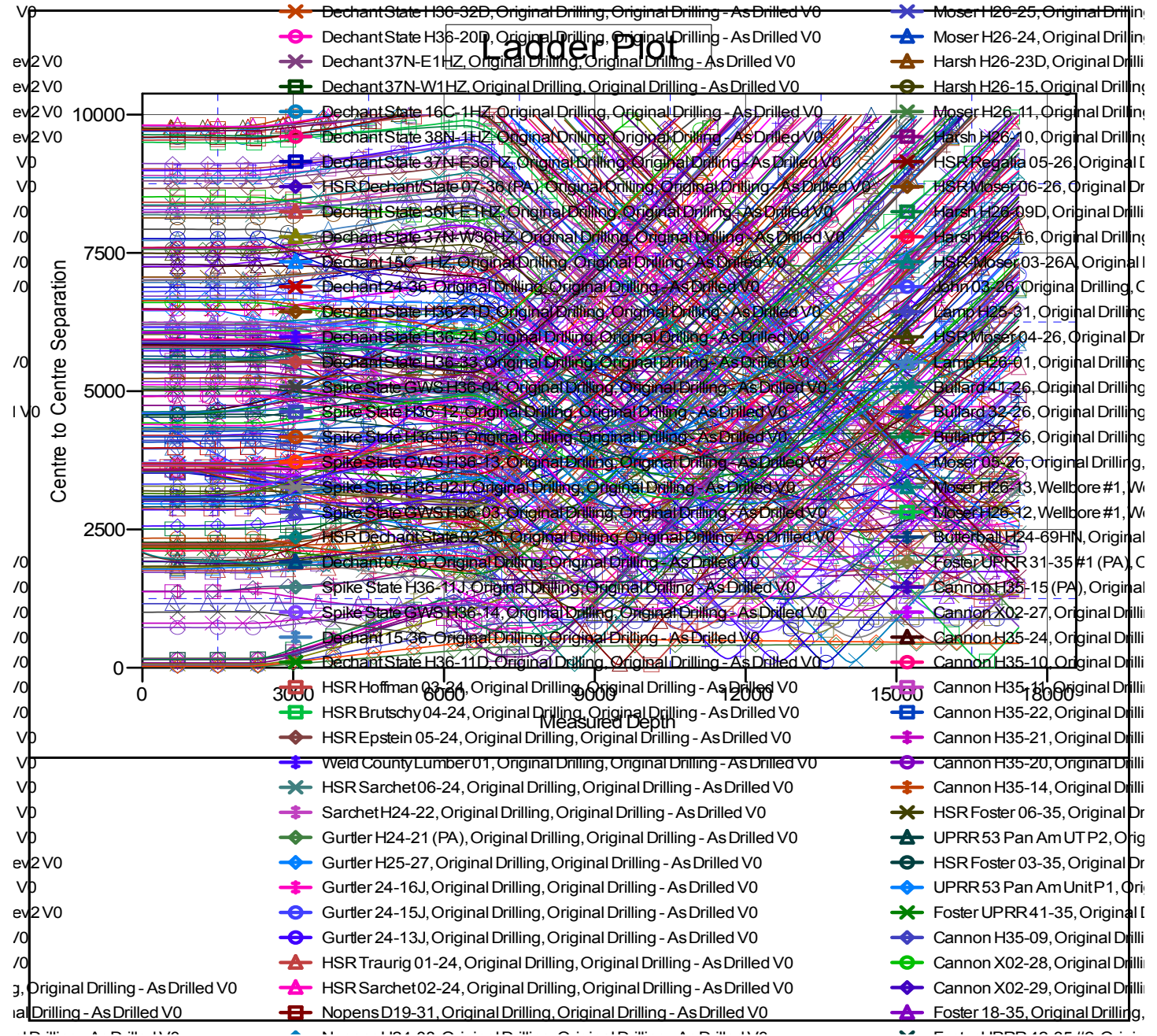
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Dechant State H36-31D - Original Drilling - Original Drilling	1,087.3	1,072.3	1,378.3	1,373.5	292.756	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,079.4	1,378.3	1,373.5	289.521	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,650.0	6,751.9	1,565.1	1,525.2	39.221	SF
Dechant State H36-32D - Original Drilling - Original Drilling	6,450.4	6,442.0	2,634.4	2,597.1	70.690	CC, ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,600.0	6,621.7	2,649.8	2,611.7	69.550	SF
Dechant State H36-33 - Original Drilling - Original Drilling	6,456.0	6,632.3	3,782.0	3,735.7	81.768	CC, ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,650.0	6,796.8	3,812.3	3,765.3	81.068	SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	3,213.7	3,206.1	1,860.3	1,842.5	104.516	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,800.0	6,679.5	2,031.6	1,993.5	53.441	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,352.4	6,283.1	2,953.3	2,813.3	21.108	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,400.0	6,330.3	2,954.2	2,813.2	20.957	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,800.0	6,708.2	3,034.3	2,885.2	20.351	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,045.1	5,992.6	1,124.9	1,090.7	32.877	CC
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,200.0	6,141.9	1,125.5	1,090.4	32.043	ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,550.0	6,467.6	1,144.6	1,107.6	30.912	SF
Spike State GWS H36-04 - Original Drilling - Original Drilling	6,498.9	6,433.5	522.8	482.3	12.911	CC
Spike State GWS H36-04 - Original Drilling - Original Drilling	6,500.0	6,434.6	522.8	482.3	12.906	ES
Spike State GWS H36-04 - Original Drilling - Original Drilling	6,650.0	6,580.4	533.9	491.6	12.610	SF
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,562.5	7,444.0	4,532.1	4,491.4	111.513	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,700.0	7,444.0	4,549.4	4,508.4	110.944	SF
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,454.6	6,630.7	4,746.4	4,709.2	127.824	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,750.0	6,915.5	4,813.6	4,775.0	124.751	SF
Spike State H36-02J - Original Drilling - Original Drilling	6,407.9	6,314.2	1,571.1	1,520.4	30.980	CC
Spike State H36-02J - Original Drilling - Original Drilling	6,450.0	6,356.1	1,572.5	1,520.4	30.168	ES
Spike State H36-02J - Original Drilling - Original Drilling	6,850.0	6,721.6	1,716.4	1,652.1	26.706	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	6,442.4	6,366.0	1,748.3	1,712.2	48.516	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,600.0	6,513.7	1,767.9	1,731.0	47.997	SF
Spike State H36-11J - Original Drilling - Original Drilling	6,446.1	6,472.6	3,859.1	3,822.6	105.762	CC
Spike State H36-11J - Original Drilling - Original Drilling	6,450.0	6,476.6	3,859.1	3,822.6	105.700	ES
Spike State H36-11J - Original Drilling - Original Drilling	6,750.0	6,756.2	3,933.3	3,895.4	103.613	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,445.7	6,389.2	3,018.0	2,981.9	83.595	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	6,450.0	6,392.8	3,018.0	2,981.9	83.546	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,650.0	6,613.2	3,050.5	3,013.3	81.931	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4847.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4847.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-777
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



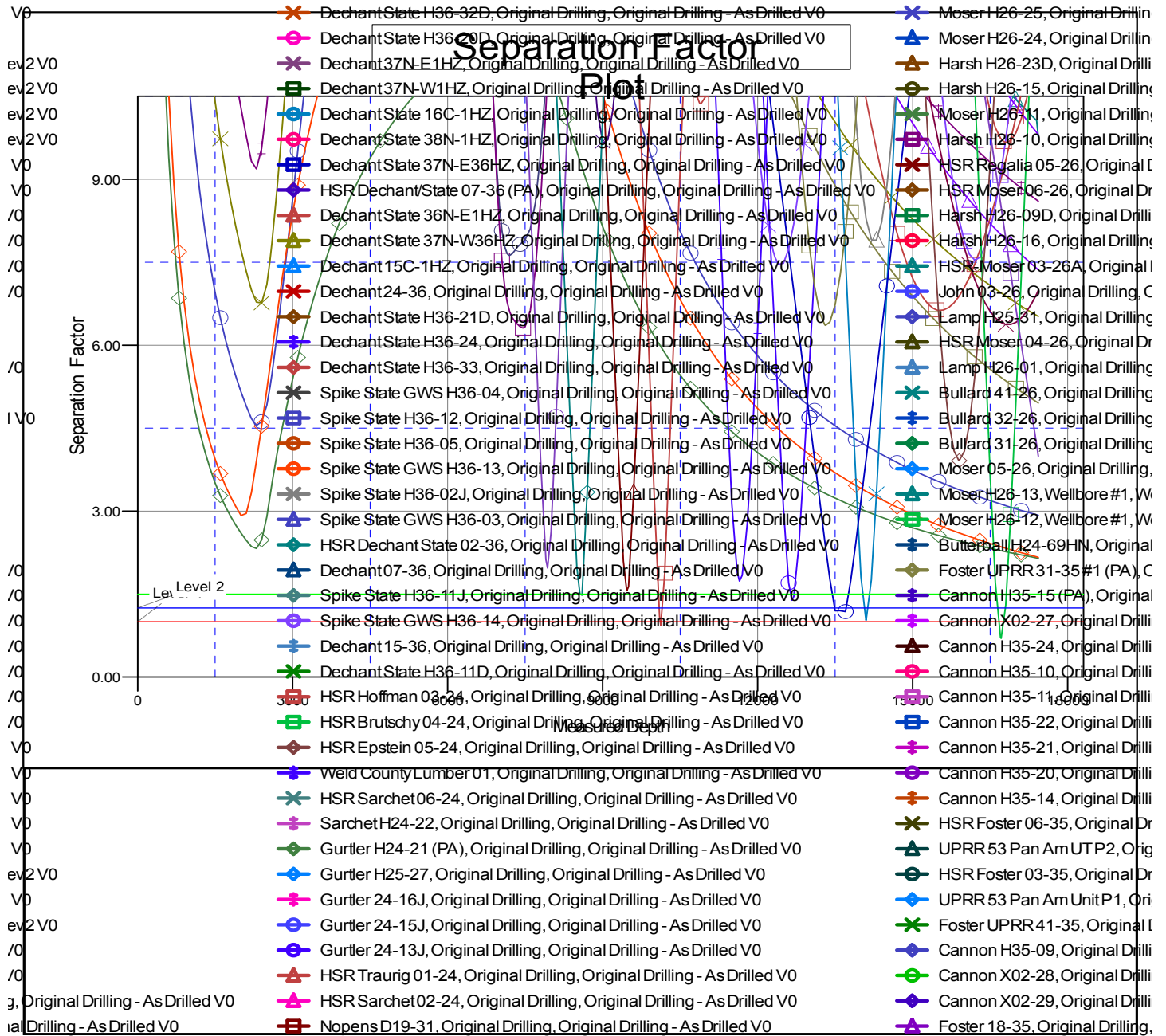
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-777
Project:	Conceptual Wells	TVD Reference:	WELL @ 4847.0ft (Original Well Elev)
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Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-777	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Emmy State H25-777

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