

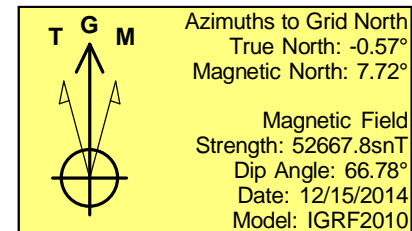
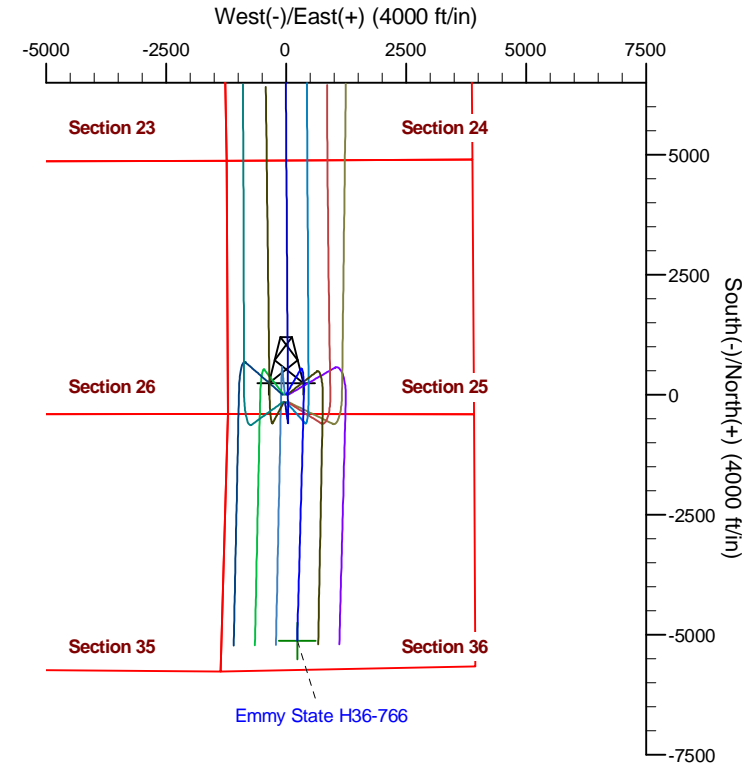
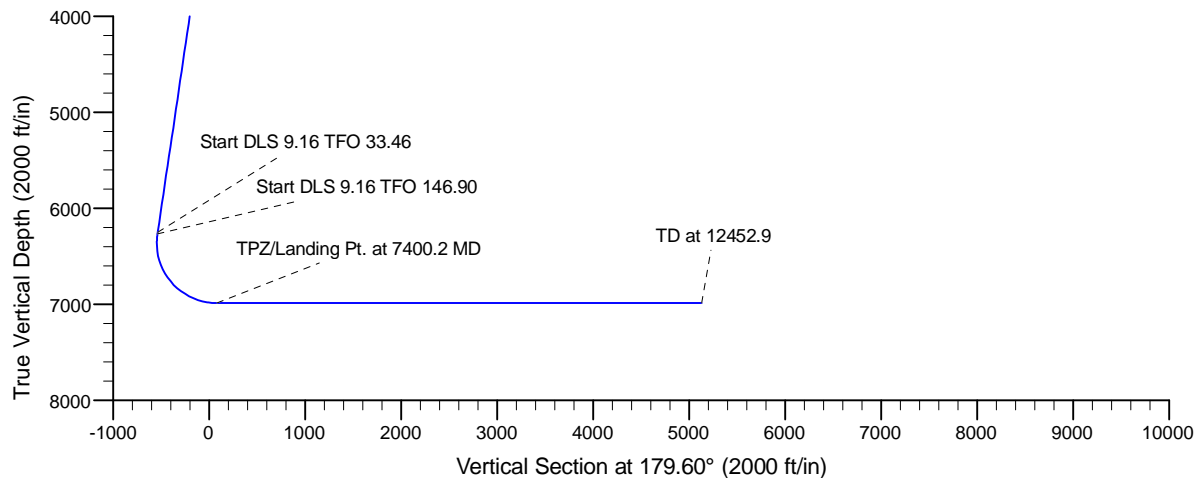
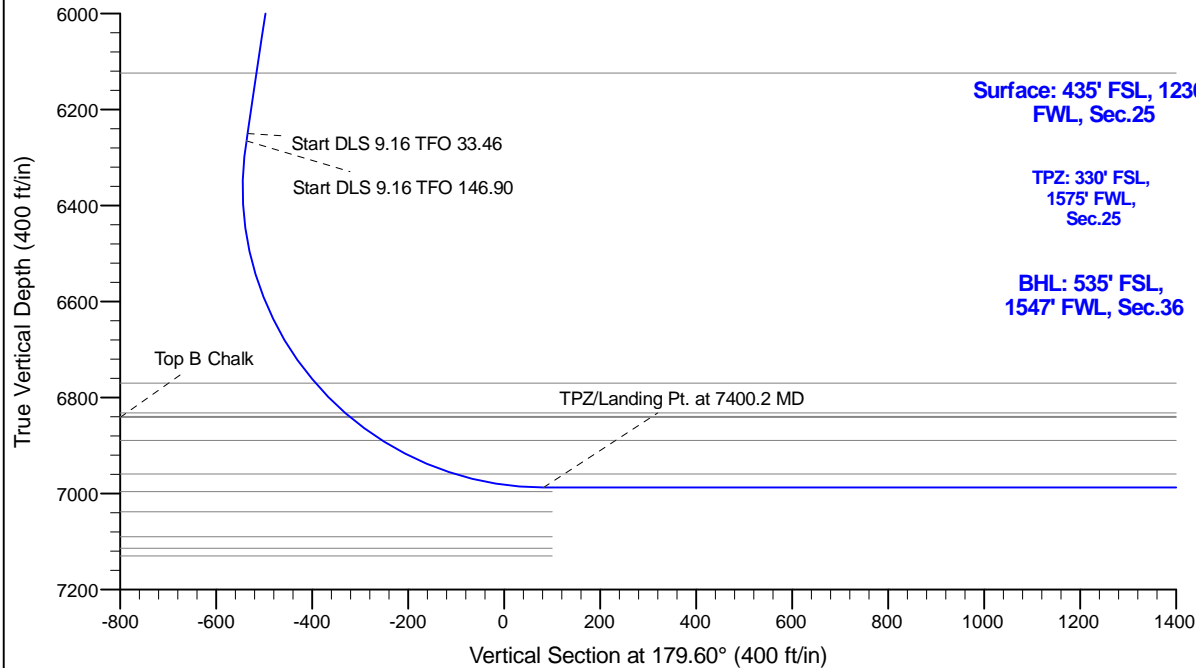
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H36-766
Wellbore: Wellbore #1
Design: Design #1

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	2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	0.00	0.0	
3	2887.5	9.75	30.00	2885.2	35.8	20.7	2.00	30.00	-35.7	
4	6301.7	9.75	30.00	6250.0	536.6	309.8	0.00	0.00	-534.4	
5	6317.3	10.98	34.16	6265.4	538.9	311.3	9.16	33.46	-536.8	
6	7400.2	90.00	181.55	6987.0	-80.0	370.0	9.16	146.90	82.6	
7	12452.9	90.00	181.56	6987.0	-5130.9	232.8	0.00	89.04	5132.4	Emmy State H36-766 BHL



WELL DETAILS: Emmy State H36-766

	Ground Level: 4817.0	
Northing	Easting	Latitude
0.00.0	1313321.08 3246729.51	40.190090
		Longitude
		-104.616830

Plan: Design #1 (Emmy State H36-766/Wellbore #1)

Created By: Chad Stich Date: 11:33, November 02 2017

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H36-766

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 H36-766
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 H36-766	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 H36-766			
Well Position	+N/-S	-4,863.8 ft	Northing:	1,313,321.08 usft
	+E/-W	6,504.6 ft	Easting:	3,246,729.51 usft
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	52,667.75888814

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	179.60

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	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,887.5	9.75	30.00	2,885.2	35.8	20.7	2.00	2.00	0.00	30.00	
6,301.7	9.75	30.00	6,250.0	536.6	309.8	0.00	0.00	0.00	0.00	
6,317.3	10.98	34.16	6,265.4	538.9	311.3	9.16	7.83	26.55	33.46	
7,400.2	90.00	181.55	6,987.0	-80.0	370.0	9.16	7.30	13.61	146.90	
12,452.9	90.00	181.56	6,987.0	-5,130.9	232.8	0.00	0.00	0.00	89.04	Emmy State H36-766

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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	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	2.00	30.00	2,500.0	1.5	0.9	-1.5	2.00	2.00	0.00
2,600.0	4.00	30.00	2,599.8	6.0	3.5	-6.0	2.00	2.00	0.00
2,700.0	6.00	30.00	2,699.5	13.6	7.8	-13.5	2.00	2.00	0.00
2,800.0	8.00	30.00	2,798.7	24.1	13.9	-24.0	2.00	2.00	0.00
2,887.5	9.75	30.00	2,885.2	35.8	20.7	-35.7	2.00	2.00	0.00
2,900.0	9.75	30.00	2,897.5	37.7	21.7	-37.5	0.00	0.00	0.00
3,000.0	9.75	30.00	2,996.0	52.3	30.2	-52.1	0.00	0.00	0.00
3,100.0	9.75	30.00	3,094.6	67.0	38.7	-66.7	0.00	0.00	0.00
3,200.0	9.75	30.00	3,193.1	81.7	47.2	-81.3	0.00	0.00	0.00
3,300.0	9.75	30.00	3,291.7	96.3	55.6	-95.9	0.00	0.00	0.00
3,400.0	9.75	30.00	3,390.2	111.0	64.1	-110.6	0.00	0.00	0.00
3,500.0	9.75	30.00	3,488.8	125.7	72.6	-125.2	0.00	0.00	0.00
3,600.0	9.75	30.00	3,587.4	140.3	81.0	-139.8	0.00	0.00	0.00
3,700.0	9.75	30.00	3,685.9	155.0	89.5	-154.4	0.00	0.00	0.00
3,800.0	9.75	30.00	3,784.5	169.7	98.0	-169.0	0.00	0.00	0.00
3,900.0	9.75	30.00	3,883.0	184.3	106.4	-183.6	0.00	0.00	0.00
4,000.0	9.75	30.00	3,981.6	199.0	114.9	-198.2	0.00	0.00	0.00
4,100.0	9.75	30.00	4,080.1	213.7	123.4	-212.8	0.00	0.00	0.00
4,200.0	9.75	30.00	4,178.7	228.3	131.8	-227.4	0.00	0.00	0.00
4,300.0	9.75	30.00	4,277.2	243.0	140.3	-242.0	0.00	0.00	0.00
4,400.0	9.75	30.00	4,375.8	257.7	148.8	-256.6	0.00	0.00	0.00
4,500.0	9.75	30.00	4,474.4	272.3	157.2	-271.2	0.00	0.00	0.00
4,600.0	9.75	30.00	4,572.9	287.0	165.7	-285.8	0.00	0.00	0.00
4,700.0	9.75	30.00	4,671.5	301.7	174.2	-300.4	0.00	0.00	0.00
4,800.0	9.75	30.00	4,770.0	316.3	182.6	-315.0	0.00	0.00	0.00
4,900.0	9.75	30.00	4,868.6	331.0	191.1	-329.7	0.00	0.00	0.00
5,000.0	9.75	30.00	4,967.1	345.7	199.6	-344.3	0.00	0.00	0.00
5,100.0	9.75	30.00	5,065.7	360.3	208.0	-358.9	0.00	0.00	0.00
5,200.0	9.75	30.00	5,164.2	375.0	216.5	-373.5	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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	9.75	30.00	5,262.8	389.7	225.0	-388.1	0.00	0.00	0.00
5,400.0	9.75	30.00	5,361.4	404.3	233.4	-402.7	0.00	0.00	0.00
5,500.0	9.75	30.00	5,459.9	419.0	241.9	-417.3	0.00	0.00	0.00
5,600.0	9.75	30.00	5,558.5	433.7	250.4	-431.9	0.00	0.00	0.00
5,700.0	9.75	30.00	5,657.0	448.3	258.8	-446.5	0.00	0.00	0.00
5,800.0	9.75	30.00	5,755.6	463.0	267.3	-461.1	0.00	0.00	0.00
5,900.0	9.75	30.00	5,854.1	477.7	275.8	-475.7	0.00	0.00	0.00
6,000.0	9.75	30.00	5,952.7	492.3	284.2	-490.3	0.00	0.00	0.00
6,100.0	9.75	30.00	6,051.2	507.0	292.7	-504.9	0.00	0.00	0.00
6,200.0	9.75	30.00	6,149.8	521.6	301.2	-519.5	0.00	0.00	0.00
6,300.0	9.75	30.00	6,248.4	536.3	309.6	-534.2	0.00	0.00	0.00
6,301.7	9.75	30.00	6,250.0	536.6	309.8	-534.4	0.00	0.00	0.00
6,317.3	10.98	34.16	6,265.4	538.9	311.3	-536.8	9.16	7.83	26.55
6,400.0	6.19	76.02	6,347.2	546.5	320.0	-544.3	9.16	-5.79	50.64
6,500.0	9.58	143.28	6,446.4	541.2	330.3	-538.9	9.16	3.39	67.26
6,600.0	17.68	162.40	6,543.6	520.0	339.9	-517.6	9.16	8.10	19.12
6,700.0	26.47	169.43	6,636.2	483.5	348.6	-481.1	9.16	8.79	7.03
6,800.0	35.44	173.10	6,721.8	432.7	356.1	-430.2	9.16	8.97	3.67
6,900.0	44.48	175.44	6,798.4	368.9	362.4	-366.3	9.16	9.04	2.34
7,000.0	53.56	177.12	6,863.9	293.6	367.2	-291.0	9.16	9.08	1.68
7,100.0	62.65	178.45	6,916.7	208.9	370.5	-206.3	9.16	9.09	1.33
7,200.0	71.76	179.58	6,955.4	116.8	372.0	-114.2	9.16	9.11	1.12
7,300.0	80.87	180.59	6,979.0	19.7	371.9	-17.1	9.16	9.11	1.01
7,400.0	89.99	181.55	6,987.0	-79.8	370.0	82.4	9.16	9.11	0.96
7,400.2	90.00	181.55	6,987.0	-80.0	370.0	82.6	9.16	9.11	0.95
7,500.0	90.00	181.55	6,987.0	-179.8	367.3	182.3	0.00	0.00	0.00
7,600.0	90.00	181.55	6,987.0	-279.8	364.6	282.3	0.00	0.00	0.00
7,700.0	90.00	181.55	6,987.0	-379.7	361.9	382.2	0.00	0.00	0.00
7,800.0	90.00	181.55	6,987.0	-479.7	359.2	482.2	0.00	0.00	0.00
7,900.0	90.00	181.55	6,987.0	-579.7	356.5	582.1	0.00	0.00	0.00
8,000.0	90.00	181.55	6,987.0	-679.6	353.8	682.1	0.00	0.00	0.00
8,100.0	90.00	181.55	6,987.0	-779.6	351.1	782.0	0.00	0.00	0.00
8,200.0	90.00	181.55	6,987.0	-879.5	348.4	881.9	0.00	0.00	0.00
8,300.0	90.00	181.55	6,987.0	-979.5	345.6	981.9	0.00	0.00	0.00
8,400.0	90.00	181.55	6,987.0	-1,079.5	342.9	1,081.8	0.00	0.00	0.00
8,500.0	90.00	181.55	6,987.0	-1,179.4	340.2	1,181.8	0.00	0.00	0.00
8,600.0	90.00	181.55	6,987.0	-1,279.4	337.5	1,281.7	0.00	0.00	0.00
8,700.0	90.00	181.55	6,987.0	-1,379.4	334.8	1,381.7	0.00	0.00	0.00
8,800.0	90.00	181.55	6,987.0	-1,479.3	332.1	1,481.6	0.00	0.00	0.00
8,900.0	90.00	181.55	6,987.0	-1,579.3	329.4	1,581.5	0.00	0.00	0.00
9,000.0	90.00	181.55	6,987.0	-1,679.3	326.7	1,681.5	0.00	0.00	0.00
9,100.0	90.00	181.55	6,987.0	-1,779.2	324.0	1,781.4	0.00	0.00	0.00
9,200.0	90.00	181.55	6,987.0	-1,879.2	321.2	1,881.4	0.00	0.00	0.00
9,300.0	90.00	181.55	6,987.0	-1,979.1	318.5	1,981.3	0.00	0.00	0.00
9,400.0	90.00	181.56	6,987.0	-2,079.1	315.8	2,081.2	0.00	0.00	0.00
9,500.0	90.00	181.56	6,987.0	-2,179.1	313.1	2,181.2	0.00	0.00	0.00
9,600.0	90.00	181.56	6,987.0	-2,279.0	310.4	2,281.1	0.00	0.00	0.00
9,700.0	90.00	181.56	6,987.0	-2,379.0	307.7	2,381.1	0.00	0.00	0.00
9,800.0	90.00	181.56	6,987.0	-2,479.0	305.0	2,481.0	0.00	0.00	0.00
9,900.0	90.00	181.56	6,987.0	-2,578.9	302.2	2,581.0	0.00	0.00	0.00
10,000.0	90.00	181.56	6,987.0	-2,678.9	299.5	2,680.9	0.00	0.00	0.00
10,100.0	90.00	181.56	6,987.0	-2,778.8	296.8	2,780.8	0.00	0.00	0.00
10,200.0	90.00	181.56	6,987.0	-2,878.8	294.1	2,880.8	0.00	0.00	0.00
10,300.0	90.00	181.56	6,987.0	-2,978.8	291.4	2,980.7	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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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	181.56	6,987.0	-3,078.7	288.7	3,080.7	0.00	0.00	0.00	
10,500.0	90.00	181.56	6,987.0	-3,178.7	285.9	3,180.6	0.00	0.00	0.00	
10,600.0	90.00	181.56	6,987.0	-3,278.7	283.2	3,280.5	0.00	0.00	0.00	
10,700.0	90.00	181.56	6,987.0	-3,378.6	280.5	3,380.5	0.00	0.00	0.00	
10,800.0	90.00	181.56	6,987.0	-3,478.6	277.8	3,480.4	0.00	0.00	0.00	
10,900.0	90.00	181.56	6,987.0	-3,578.5	275.1	3,580.4	0.00	0.00	0.00	
11,000.0	90.00	181.56	6,987.0	-3,678.5	272.3	3,680.3	0.00	0.00	0.00	
11,100.0	90.00	181.56	6,987.0	-3,778.5	269.6	3,780.3	0.00	0.00	0.00	
11,200.0	90.00	181.56	6,987.0	-3,878.4	266.9	3,880.2	0.00	0.00	0.00	
11,300.0	90.00	181.56	6,987.0	-3,978.4	264.2	3,980.1	0.00	0.00	0.00	
11,400.0	90.00	181.56	6,987.0	-4,078.4	261.4	4,080.1	0.00	0.00	0.00	
11,500.0	90.00	181.56	6,987.0	-4,178.3	258.7	4,180.0	0.00	0.00	0.00	
11,600.0	90.00	181.56	6,987.0	-4,278.3	256.0	4,280.0	0.00	0.00	0.00	
11,700.0	90.00	181.56	6,987.0	-4,378.3	253.3	4,379.9	0.00	0.00	0.00	
11,800.0	90.00	181.56	6,987.0	-4,478.2	250.6	4,479.8	0.00	0.00	0.00	
11,900.0	90.00	181.56	6,987.0	-4,578.2	247.8	4,579.8	0.00	0.00	0.00	
12,000.0	90.00	181.56	6,987.0	-4,678.1	245.1	4,679.7	0.00	0.00	0.00	
12,100.0	90.00	181.56	6,987.0	-4,778.1	242.4	4,779.7	0.00	0.00	0.00	
12,200.0	90.00	181.56	6,987.0	-4,878.1	239.6	4,879.6	0.00	0.00	0.00	
12,300.0	90.00	181.56	6,987.0	-4,978.0	236.9	4,979.6	0.00	0.00	0.00	
12,400.0	90.00	181.56	6,987.0	-5,078.0	234.2	5,079.5	0.00	0.00	0.00	
12,452.9	90.00	181.56	6,987.0	-5,130.9	232.8	5,132.4	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 H36-766 Bt	0.00	0.00	6,987.0	-5,130.9	232.8	1,308,190.42	3,246,962.25	40.176000	-104.616180	
- hit/miss target										
- Shape										
- 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				
3,896.9	3,880.0	Parkman				
4,496.6	4,471.0	Sussex				
5,188.6	5,153.0	Shannon				
6,173.8	6,124.0	Teepee Buttes				
6,861.3	6,770.0	Sharon Springs				
6,949.0	6,832.0	Top A Chalk				
6,959.7	6,839.0	Top A Marl				
6,962.9	6,841.0	Top B Chalk				
7,044.4	6,889.0	Top B Marl				
7,211.8	6,959.0	Top C Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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)	
2,400.0	2,400.0	0.0	0.0	KOP - Start Build 2.00
6,301.7	6,250.0	35.8	20.7	Start DLS 9.16 TFO 33.46
6,317.3	6,265.4	536.6	309.8	Start DLS 9.16 TFO 146.90
7,400.2	6,987.0	538.9	311.3	TPZ/Landing Pt. at 7400.2 MD
12,452.9	6,987.0	-80.0	370.0	TD at 12452.9

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H36-766

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 H36-766
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 H36-766	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	12,452.9	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
D Section 19						
Butterball H24-69HN - Original Drilling - Original Drilling -	6,460.3	11,992.0	9,810.7	9,663.7	66.714	CC, ES
Butterball H24-69HN - Original Drilling - Original Drilling -	6,550.0	11,992.0	9,817.5	9,670.2	66.658	SF
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,988.0	2,229.2	2,220.5	257.069	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	9,600.0	6,207.6	3,819.6	3,776.4	88.266	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,460.5	2,427.6	2,206.8	2,196.1	206.483	CC
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,450.1	2,206.8	2,196.0	203.941	ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	9,300.0	6,395.2	3,375.6	3,335.0	83.113	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,496.9	2,451.9	2,184.5	2,173.7	201.983	CC
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,600.0	2,514.8	2,184.6	2,173.4	195.745	ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	8,900.0	6,521.3	2,695.7	2,658.5	72.288	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	7,244.6	7,360.2	2,096.2	2,065.4	68.173	CC, ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	8,600.0	6,600.0	2,275.6	2,240.9	65.603	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	6,950.0	7,547.8	1,716.6	1,685.9	55.868	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	7,258.7	7,268.1	1,701.4	1,671.2	56.352	CC, ES
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,000.0	7,560.8	1,247.0	1,215.5	39.706	SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,227.5	7,363.6	1,236.8	1,205.9	39.997	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,199.0	159.4	149.8	16.613	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	2,400.0	2,391.5	164.0	153.6	15.743	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,400.0	2,399.0	154.6	144.1	14.735	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	2,500.0	2,495.6	157.1	146.2	14.393	SF
Emmy State H25-764 - Wellbore #1 - Design #1	7,492.9	7,231.9	102.0	86.4	6.565	CC
Emmy State H25-764 - Wellbore #1 - Design #1	7,500.0	7,225.0	102.0	86.4	6.552	ES, SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,400.0	2,399.0	154.6	144.1	14.734	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	7,400.2	7,258.9	330.3	299.8	10.840	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,200.0	155.9	146.3	16.244	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	2,400.0	2,389.6	162.4	152.0	15.632	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	168.2	159.5	19.336	CC, ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,190.0	174.0	164.5	18.299	SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,697.7	2,695.3	40.2	28.4	3.408	CC
Emmy State H36-753 - Wellbore #1 - Design #1	2,700.0	2,697.6	40.2	28.4	3.406	ES, SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,649.3	2,648.9	19.3	7.7	1.661	CC, ES, SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,400.0	2,400.0	22.4	11.9	2.129	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	2,500.0	2,500.0	23.3	12.3	2.128	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,201.0	44.7	35.1	4.657	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	2,300.0	2,300.0	45.8	35.8	4.560	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 H36-766
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 H36-766	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)	Distance Between Ellipses (ft)	Separation Factor	Warning
DP 408						
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,002.0	69.8	61.1	8.026	CC, ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,100.0	2,100.1	71.2	62.0	7.788	SF
Hurley H26-712 - Wellbore #1 - Design #1	6,391.7	6,600.0	2,341.9	2,311.6	77.194	CC, ES
Hurley H26-712 - Wellbore #1 - Design #1	6,500.0	6,633.0	2,349.6	2,319.1	76.865	SF
Hurley H26-717 - Wellbore #1 - Design #1	6,370.2	6,520.4	2,572.1	2,542.5	86.860	CC, ES
Hurley H26-717 - Wellbore #1 - Design #1	6,450.0	6,550.0	2,576.0	2,546.2	86.421	SF
Hurley H26-724 - Wellbore #1 - Design #1	6,334.0	6,424.9	2,954.8	2,925.6	101.311	CC, ES
Hurley H26-724 - Wellbore #1 - Design #1	6,550.0	6,500.0	2,978.9	2,949.3	100.454	SF
Hurley H26-730 - Wellbore #1 - Design #1	4,969.8	4,921.8	3,403.9	3,381.7	153.314	CC
Hurley H26-730 - Wellbore #1 - Design #1	5,100.0	5,045.8	3,404.2	3,381.3	149.047	ES
Hurley H26-730 - Wellbore #1 - Design #1	6,500.0	6,450.0	3,431.9	3,402.4	116.618	SF
Hurley H26-736 - Wellbore #1 - Design #1	3,969.6	3,880.0	3,458.9	3,441.6	200.276	CC
Hurley H26-736 - Wellbore #1 - Design #1	4,100.0	4,002.1	3,459.2	3,441.3	193.393	ES
Hurley H26-736 - Wellbore #1 - Design #1	6,600.0	6,348.5	3,612.7	3,582.6	119.818	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	3,671.0	3,540.5	3,470.3	3,454.5	219.808	CC
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	3,700.0	3,561.6	3,470.4	3,454.5	218.263	ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	6,850.0	6,208.1	3,961.0	3,930.1	128.193	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	6,393.9	6,973.1	4,583.7	4,551.9	144.052	CC
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	6,400.0	6,974.4	4,583.7	4,551.9	143.992	ES
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	6,550.0	7,000.0	4,591.8	4,559.8	143.214	SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	6,364.5	6,828.6	4,889.3	4,858.5	159.233	CC, ES
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	6,600.0	6,873.8	4,906.5	4,875.4	157.850	SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	6,317.3	6,650.0	5,246.5	5,216.8	176.709	CC, ES
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	6,600.0	6,700.0	5,269.0	5,238.8	174.492	SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	6,173.3	6,416.6	5,588.1	5,559.4	194.306	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	6,200.0	6,423.9	5,588.2	5,559.4	193.745	ES
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	12,453.6	6,500.0	8,874.7	8,824.9	178.474	SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,204.0	5,825.0	5,815.4	606.364	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,496.8	5,825.4	5,814.6	539.118	ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	12,453.6	6,450.0	9,159.5	9,108.3	178.701	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,004.0	5,845.1	5,836.4	671.281	CC, ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	12,453.6	6,450.0	9,340.2	9,287.4	177.131	SF
Hurley H35-720 - Wellbore #1 - Design #1	12,453.6	15,393.7	2,204.9	2,073.7	16.809	CC, ES, SF
Hurley H35-727 - Wellbore #1 - Design #1	12,453.6	15,169.7	2,644.3	2,513.0	20.136	CC, ES, SF
Hurley H35-733 - Wellbore #1 - Design #1	12,453.6	15,183.3	3,081.8	2,950.5	23.480	CC, ES, SF
Hurley H35-740 - Wellbore #1 - Design #1	12,453.6	15,275.8	3,529.2	3,397.6	26.808	CC, ES, SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,907.1	1,944.1	3,622.0	3,613.7	433.053	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	3,622.2	3,613.5	416.431	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	12,453.6	15,204.2	3,964.5	3,833.0	30.158	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	12,453.6	15,172.5	4,285.9	4,154.4	32.585	CC, ES, SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,453.6	14,974.8	4,725.4	4,594.5	36.106	CC, ES, SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	12,453.6	15,015.0	5,163.6	5,033.4	39.654	CC, ES, SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	12,453.6	15,042.9	5,603.5	5,473.7	43.153	CC, ES, SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,204.0	5,891.2	5,881.6	613.254	CC, ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	12,453.6	14,947.1	6,035.1	5,905.2	46.470	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,004.0	5,911.1	5,902.4	678.855	CC, ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	12,453.6	15,151.1	6,483.5	6,352.6	49.518	SF
Hurley State H35-713 - Wellbore #1 - Design #1	12,453.6	15,126.1	1,764.8	1,633.4	13.425	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 H36-766
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 H36-766	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 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A						Out of range
Karakakes H13-33 - Original Drilling - Original Drilling - A						Out of range
Karakakes H14-63HN - Original Drilling - Original Drilling						Out of range
Sarchet H13-75HN - Original Drilling - Original Drilling	6,412.4	6,188.0	9,484.7	9,451.1	282.077	CC, ES
Sarchet H13-75HN - Original Drilling - Original Drilling	6,750.0	6,220.0	9,578.6	9,544.4	280.231	SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-14J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-15J - Original Drilling - Original Drilling - As Dri						Out of range
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr						Out of range
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A						Out of range
Bohlender H14-15 - Original Drilling - Original Drilling - A						Out of range
Bohlender H14-16 - Original Drilling - Original Drilling - A						Out of range
Wilcox H14-03J - Original Drilling - Original Drilling - As D						Out of range
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr						Out of range
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr						Out of range
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr						Out of range
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	6,432.9	6,049.4	7,658.2	7,622.4	214.182	CC, ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	8,400.0	8,400.0	9,071.4	9,025.2	196.279	SF
H Section 21						
Moser 24-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
H Section 22						
HSR Demeules 09-22 - Original Drilling - Original Drilling	6,331.1	6,200.0	9,684.1	9,647.7	266.158	CC, ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	7,100.0	7,100.0	9,946.8	9,906.8	248.414	SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	3,763.2	3,527.4	9,537.3	9,516.8	464.402	CC
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	4,200.0	3,920.8	9,538.7	9,515.7	414.875	ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	7,400.2	7,400.2	9,996.7	9,955.8	243.962	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	1,069.5	1,027.6	8,840.0	8,834.3	1,556.119	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	1,300.0	1,206.0	8,840.6	8,833.8	1,295.695	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	6,800.0	6,707.6	9,045.6	9,006.8	233.100	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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	6,389.4	6,364.3	8,361.3	8,324.2	225.474	CC, ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	6,900.0	6,868.1	8,536.3	8,496.9	217.015	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	6,399.3	6,338.5	9,116.2	8,974.5	64.319	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	6,400.0	6,339.2	9,116.2	8,974.5	64.312	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	7,000.0	6,855.9	9,372.9	9,220.3	61.413	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	6,392.1	6,337.9	9,608.5	9,533.1	127.476	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	6,400.0	6,345.8	9,608.6	9,532.9	126.994	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	7,150.0	6,936.1	9,982.3	9,885.8	103.375	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	6,396.7	6,345.9	7,835.8	7,694.0	55.225	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	6,400.0	6,349.2	7,835.9	7,693.9	55.197	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	6,950.0	6,834.7	8,053.8	7,901.6	52.918	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	6,364.5	6,138.7	5,677.4	5,641.2	156.782	CC, ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	6,700.0	6,400.0	5,758.1	5,720.5	153.179	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	6,356.8	6,184.8	6,407.0	6,370.6	175.834	CC, ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	6,700.0	6,479.4	6,482.1	6,444.1	170.843	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	6,362.8	6,130.1	7,078.1	7,041.9	195.364	CC, ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	6,700.0	6,334.2	7,158.2	7,120.8	191.358	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	3,346.8	2,400.0	9,636.7	9,621.1	618.872	CC, ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	6,100.0	2,700.0	9,990.0	9,967.1	437.750	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	100.0	66.0	9,613.3	9,613.1	10,000.000	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	1,000.0	900.0	9,617.1	9,612.0	1,895.041	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	4,400.0	1,300.0	9,997.7	9,982.7	665.124	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	153.5	121.5	9,582.5	9,582.0	10,000.000	CC
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	1,200.0	1,100.0	9,584.3	9,578.1	1,540.125	ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	6,850.0	6,874.0	9,998.6	9,874.1	80.324	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	4,148.8	3,234.7	9,400.1	9,379.6	459.116	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	4,200.0	3,247.3	9,400.2	9,379.6	455.287	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	6,800.0	6,614.2	9,664.4	9,621.0	222.444	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	6,427.1	6,748.7	6,533.2	6,494.8	170.123	CC, ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	6,750.0	7,070.7	6,606.6	6,566.7	165.602	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	6,395.0	6,463.8	9,290.7	9,253.3	248.302	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	6,400.0	6,469.4	9,290.7	9,253.3	248.110	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	6,900.0	7,007.3	9,460.6	9,420.9	237.759	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	1,743.1	1,734.2	7,447.2	7,437.5	770.924	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	1,800.0	1,769.6	7,447.3	7,437.4	751.338	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	6,800.0	6,798.3	7,660.4	7,619.1	185.349	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	6,394.1	6,365.1	8,428.8	8,375.0	156.815	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	6,700.0	6,850.2	8,495.4	8,440.2	154.111	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	6,365.9	6,314.1	8,076.2	8,039.3	218.966	CC, ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	6,750.0	6,618.1	8,165.5	8,127.0	212.513	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	6,351.8	6,302.6	8,952.8	8,916.0	243.186	CC, ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	6,750.0	6,700.0	9,035.4	8,996.7	233.551	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	241.3	210.0	8,164.1	8,163.2	8,541.212	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,326.2	6,200.0	8,171.7	8,135.2	223.954	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,000.0	6,689.9	8,376.4	8,337.7	216.149	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	6,345.3	6,200.0	6,819.1	6,782.6	186.812	CC, ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	6,750.0	6,551.7	6,909.6	6,871.4	180.684	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	6,337.1	5,989.2	7,348.6	7,312.9	205.847	CC, ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	6,950.0	6,540.4	7,568.2	7,529.9	198.029	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	6,342.7	6,249.4	7,897.6	7,757.7	56.450	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	6,350.0	6,256.6	7,897.6	7,757.6	56.385	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	7,000.0	6,822.9	8,105.5	7,953.6	53.360	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	6,399.8	6,427.1	8,483.1	8,445.8	227.643	CC

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 H36-766
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 H36-766	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 UT V#1 - Original Drilling - Original Dr	6,400.0	6,427.1	8,483.1	8,445.8	227.640	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	6,750.0	6,578.8	8,576.2	8,538.0	224.216	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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						
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,442.4	6,299.0	6,979.0	6,942.4	190.396	CC
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,450.0	6,309.2	6,979.1	6,942.4	190.148	ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	6,850.0	6,689.9	7,096.9	7,058.4	184.440	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	6,427.4	6,276.7	6,579.4	6,542.8	179.637	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	6,800.0	6,730.7	6,682.8	6,644.1	172.910	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	6,425.2	6,421.6	6,271.7	6,234.5	168.732	CC, ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	7,100.0	7,100.0	6,612.5	6,572.3	164.736	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	6,419.7	6,500.0	6,342.7	6,305.2	169.251	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	6,550.0	6,500.0	6,357.4	6,319.7	168.631	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	6,495.0	7,340.0	6,187.5	6,148.0	156.464	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	6,650.0	7,340.0	6,208.3	6,168.4	155.867	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	6,515.6	7,380.0	4,765.1	4,724.8	118.393	CC, ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	6,650.0	7,380.0	4,781.0	4,740.4	117.959	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	6,437.8	6,345.5	5,271.8	5,235.0	143.183	CC, ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	6,750.0	6,729.7	5,342.7	5,304.2	138.658	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	6,445.9	6,300.0	5,679.1	5,642.4	155.032	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	7,350.0	7,350.0	6,179.9	6,138.8	150.381	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	6,420.7	6,333.4	4,890.3	4,853.5	132.726	CC, ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	6,700.0	6,598.0	4,951.6	4,913.4	129.800	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	6,407.2	6,121.9	6,862.5	6,826.4	190.147	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	6,800.0	6,409.0	6,983.7	6,946.1	185.798	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	6,444.1	6,361.8	6,127.2	6,090.3	166.230	CC, ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	6,850.0	6,769.5	6,246.5	6,207.7	161.269	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	6,429.9	6,362.3	5,788.8	5,751.8	156.246	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	6,800.0	6,729.0	5,893.2	5,854.4	151.844	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	6,462.9	10,726.0	5,735.6	5,610.6	45.901	CC, ES
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	6,550.0	10,726.0	5,742.2	5,616.9	45.852	SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	6,454.7	6,397.7	4,994.9	4,957.4	133.021	CC, ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	6,800.0	6,717.2	5,079.8	5,040.7	130.055	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	6,420.6	6,416.5	5,386.5	5,349.3	144.927	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	7,200.0	6,914.9	5,818.8	5,772.2	124.894	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	6,395.4	6,139.7	8,793.9	8,757.7	242.966	CC
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	6,400.0	6,144.5	8,793.9	8,757.7	242.798	ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	7,250.0	7,250.0	9,293.9	9,253.3	228.610	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	6,396.9	6,123.9	7,965.2	7,929.1	220.574	CC
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	6,400.0	6,126.9	7,965.2	7,929.1	220.474	ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	6,750.0	6,733.3	8,060.3	8,021.7	208.378	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	6,430.4	6,518.0	8,866.4	8,825.9	218.866	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	7,150.0	7,084.6	9,237.0	9,190.2	197.230	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	6,436.2	6,457.4	9,034.7	8,997.5	242.468	CC, ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	6,800.0	6,649.0	9,139.2	9,100.8	238.116	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	6,395.4	6,015.4	7,485.0	7,449.3	209.570	CC
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	6,400.0	6,019.3	7,485.0	7,449.3	209.442	ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	7,100.0	6,832.3	7,843.4	7,804.2	200.070	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	6,429.9	6,270.0	9,492.7	9,456.1	259.689	CC, ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	6,950.0	6,950.0	9,686.4	9,646.9	245.394	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	6,412.9	5,920.1	8,912.5	8,877.2	252.579	CC, ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	7,000.0	6,616.5	9,149.8	9,111.4	238.676	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	6,414.8	5,999.5	8,177.8	8,142.2	229.740	CC, ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	6,950.0	6,511.5	8,380.7	8,342.7	220.711	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	6,415.9	6,101.1	7,583.6	7,547.6	210.773	CC, ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	6,850.0	6,420.6	7,727.5	7,689.9	205.395	SF
Weld County Lumber 01 - Original Drilling - Original Drilling	6,427.1	6,282.6	8,288.7	8,252.1	226.209	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 H36-766
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 H36-766	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						
Weld County Lumber 01 - Original Drilling - Original Drilli	7,050.0	6,817.6	8,570.1	8,531.0	219.110	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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	573.7	556.7	2,993.8	2,990.9	1,026.804	CC
Dechant 21-25 - Original Drilling - Original Drilling - As D	1,400.0	1,372.2	2,995.8	2,988.2	393.353	ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	6,650.0	6,738.2	3,157.0	3,112.8	71.471	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	51.8	3,015.5	3,015.4	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	9,800.0	9,800.0	4,873.0	4,813.5	81.872	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.0	57.1	3,007.1	3,007.0	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	200.0	150.9	3,007.5	3,006.8	4,421.485	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	8,900.0	7,073.6	3,686.3	3,633.8	70.150	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,694.9	8,237.4	788.3	740.3	16.426	CC
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,700.0	8,237.8	788.4	740.2	16.388	ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,800.0	8,243.7	803.9	753.8	16.067	SF
Dechant H25-65HN - Original Drilling - Original Drilling	6,585.2	8,302.6	1,633.2	1,582.7	32.384	CC, ES
Dechant H25-65HN - Original Drilling - Original Drilling	6,700.0	8,313.6	1,647.6	1,596.0	31.960	SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,414.9	6,321.4	3,641.2	3,604.4	98.926	CC, ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,700.0	6,613.7	3,705.6	3,667.4	96.976	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	6,421.6	6,345.2	2,308.7	2,271.8	62.575	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	6,550.0	6,462.0	2,321.8	2,284.3	61.904	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	1,544.4	1,538.5	2,703.6	2,695.1	316.601	CC, ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	6,650.0	7,029.4	3,859.4	3,820.0	98.040	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,394.2	6,337.8	2,311.0	2,274.1	62.566	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,400.0	6,343.8	2,311.1	2,274.1	62.513	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,550.0	6,479.1	2,329.4	2,291.7	61.810	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	6,528.0	6,373.9	3,766.4	3,729.4	101.742	CC, ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	6,900.0	6,717.5	3,818.2	3,779.8	99.202	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	6,862.4	6,723.9	2,578.3	2,551.3	95.707	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,100.0	6,869.7	2,592.0	2,564.7	95.159	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	6,578.2	6,488.9	3,089.0	3,051.5	82.414	CC, ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	6,900.0	6,721.4	3,126.9	3,088.4	81.216	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,478.4	6,359.4	1,916.0	1,879.1	51.890	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,700.0	6,589.1	1,942.1	1,904.1	51.140	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	6,427.7	6,333.8	1,089.3	1,030.1	18.420	CC, ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	6,600.0	6,501.9	1,112.4	1,050.4	17.933	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	6,365.5	6,349.3	1,585.2	1,548.1	42.703	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	6,550.0	6,539.6	1,602.4	1,564.3	42.084	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,198.5	6,916.8	323.5	284.2	8.236	CC, ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,200.0	6,917.3	323.5	284.2	8.236	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,046.4	6,835.5	1,386.6	1,347.7	35.600	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,050.0	6,837.5	1,386.6	1,347.7	35.594	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,150.0	6,885.3	1,390.6	1,351.4	35.518	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,548.0	6,445.3	1,098.7	1,061.4	29.442	CC
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,550.0	6,447.5	1,098.7	1,061.4	29.434	ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,700.0	6,613.3	1,105.9	1,067.9	29.090	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	6,473.0	6,393.2	4,847.9	4,810.9	131.185	CC, ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	6,800.0	6,663.0	4,916.3	4,878.1	128.496	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,440.7	6,322.8	4,004.1	3,967.4	108.998	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,700.0	6,593.0	4,052.9	4,014.9	106.611	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	6,456.5	6,370.4	2,602.0	2,565.1	70.515	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	6,650.0	6,561.6	2,627.5	2,589.6	69.470	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	6,495.7	6,398.1	3,903.4	3,866.4	105.359	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	6,500.0	6,402.3	3,903.4	3,866.4	105.300	ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	6,850.0	6,715.5	3,970.0	3,931.5	103.157	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,398.4	6,262.0	2,926.1	2,889.5	79.976	CC
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,400.0	6,263.5	2,926.1	2,889.5	79.959	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 H36-766
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 H36-766	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)		Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,600.0	6,446.1	2,958.7	2,921.1	78.813	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	6,469.3	6,362.1	3,653.3	3,511.2	25.720	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	6,500.0	6,392.4	3,653.9	3,511.2	25.607	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	6,800.0	6,667.8	3,721.8	3,573.2	25.060	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	4,824.4	4,774.8	519.2	491.7	18.880	CC
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	4,900.0	4,845.9	519.6	491.6	18.599	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	6,500.0	6,439.5	604.4	567.1	16.194	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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)	Distance Between Ellipses (ft)	Separation Factor	Warning
H Section 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	6,328.1	6,115.0	5,327.9	5,291.7	147.504	CC, ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	6,850.0	6,593.1	5,479.5	5,441.1	142.784	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,304.6	6,238.5	4,143.7	4,107.3	113.685	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,317.3	6,252.0	4,143.8	4,107.3	113.438	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,800.0	6,715.6	4,241.1	4,202.4	109.530	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	6,306.7	6,000.0	4,297.4	4,261.8	120.648	CC, ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	6,750.0	6,750.0	4,419.2	4,380.3	113.681	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	6,413.9	6,826.0	4,410.1	4,350.7	74.273	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	6,550.0	6,974.0	4,424.7	4,364.8	73.862	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	6,539.5	7,518.4	1,720.6	1,654.1	25.886	CC
Dechant H25-33D - Original Drilling - Original Drilling - As	6,550.0	7,526.8	1,720.7	1,654.1	25.856	ES
Dechant H25-33D - Original Drilling - Original Drilling - As	6,650.0	7,598.8	1,725.1	1,658.0	25.723	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,314.8	6,319.2	2,419.1	2,382.4	65.828	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,317.3	6,321.8	2,419.1	2,382.4	65.801	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,650.0	6,676.3	2,456.9	2,418.4	63.828	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	511.8	521.8	3,536.2	3,533.6	1,333.442	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	2,700.0	2,709.2	3,546.0	3,530.8	233.352	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	6,800.0	6,727.5	3,716.9	3,678.2	96.037	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,135.7	1,149.7	3,217.6	3,211.3	514.186	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,400.0	1,390.5	3,218.5	3,210.8	418.368	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	8,600.0	7,124.8	3,859.4	3,814.6	86.206	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	2.7	2,138.3			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,187.3	2,140.7	2,134.2	328.045	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,300.0	7,014.8	2,486.2	2,446.5	62.669	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	5,439.9	5,688.2	2,780.6	2,746.2	80.708	CC, ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	6,550.0	6,634.9	2,841.6	2,801.4	70.650	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	5,576.4	5,439.5	7,428.9	7,397.0	232.896	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	5,800.0	5,600.0	7,429.6	7,396.6	224.921	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	6,800.0	6,449.5	7,542.2	7,504.4	199.078	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	6,315.6	6,386.4	5,175.5	5,138.5	139.969	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	6,317.3	6,388.7	5,175.5	5,138.5	139.922	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	6,750.0	6,660.5	5,242.3	5,203.8	136.169	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	5,924.7	5,913.1	6,397.7	6,363.3	186.222	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	6,100.0	6,063.2	6,398.3	6,362.9	181.107	ES
A HSR Regalia 05-26 - Original Drilling - Original Drilling - A	6,850.0	6,884.1	6,499.8	6,460.5	165.315	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	6,342.1	6,300.0	6,013.3	5,976.5	163.576	CC, ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	6,700.0	6,500.0	6,079.9	6,042.0	160.218	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	6,327.7	6,251.6	5,969.6	5,933.1	163.247	CC, ES
John 03-26 - Original Drilling - Original Drilling - As Drille	6,750.0	6,535.8	6,054.1	6,016.0	158.906	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	6,387.0	6,386.9	3,446.4	3,409.3	92.838	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	6,600.0	6,542.6	3,478.9	3,440.9	91.554	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	1,432.3	1,444.5	3,830.0	3,822.1	481.531	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	6,700.0	6,786.6	4,392.2	4,353.0	112.053	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	6,403.1	6,537.2	3,307.8	3,270.1	87.816	CC, ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	6,650.0	6,808.6	3,342.1	3,303.1	85.851	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	4,949.3	4,971.4	3,334.2	3,296.1	87.491	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	6,305.4	6,396.5	3,337.7	3,291.6	72.460	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	6,600.0	6,646.4	3,373.7	3,326.6	71.521	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	3,330.9	3,428.1	6,631.7	6,612.6	346.796	CC
Moser 05-26 - Original Drilling - Original Drilling - As Drill	4,600.0	4,671.9	6,635.6	6,609.1	249.829	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	11,100.0	6,981.1	9,009.4	8,955.8	168.005	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	885.4	858.4	6,646.5	6,641.8	1,421.137	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	900.0	867.0	6,646.5	6,641.8	1,402.217	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 H36-766
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 H36-766	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 41-27 - Original Drilling - Original Drilling - As Drill	11,000.0	7,032.5	9,970.4	9,916.7	185.592	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	398.4	381.5	5,063.5	5,061.6	2,649.740	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	955.0	5,065.2	5,060.0	962.478	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	7,000.0	6,819.8	5,319.1	5,280.2	136.575	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	6,098.1			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,400.0	2,344.0	6,104.8	6,091.5	460.231	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	12,453.6	7,198.2	9,055.9	8,992.3	142.480	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	5,874.0			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,151.8	5,878.9	5,872.5	917.277	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,453.6	7,229.1	8,165.3	8,098.5	122.264	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	572.8	565.9	4,370.2	4,367.3	1,482.985	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,376.3	4,375.4	4,362.0	327.199	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	10,300.0	6,860.3	5,569.2	5,517.1	106.858	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	4,448.1			
Moser H26-18D - Original Drilling - Original Drilling - As D	6,700.0	7,043.6	5,154.1	5,099.5	94.309	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	241.4	246.4	4,177.3	4,176.2	3,852.523	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,500.0	2,510.9	4,185.6	4,171.5	297.334	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	7,100.0	7,017.1	4,528.5	4,488.9	114.282	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	0.0	4,935.7			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,764.9	4,940.5	4,930.6	499.178	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	10,400.0	7,036.9	6,494.9	6,442.6	124.142	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	0.0	14.7	4,471.5			
Moser H26-27D - Original Drilling - Original Drilling - As D	6,750.0	6,856.5	5,197.3	5,157.1	129.135	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	15.9	4,464.7			
Moser H26-28D - Original Drilling - Original Drilling - As D	9,800.0	9,800.0	8,509.9	8,424.0	99.060	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	19.5	4,458.0			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	4,458.6	4,457.8	5,666.022	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	7,050.0	4,190.7	6,657.9	6,619.0	171.244	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,400.0	2,385.0	5,549.7	5,496.7	104.813	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,600.0	2,584.8	5,552.5	5,495.1	96.758	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,350.0	6,970.0	5,921.9	5,767.2	38.265	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	100.0	51.1	8,241.6	8,241.5	10,000.000	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	600.0	535.6	8,242.7	8,239.8	2,841.462	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	7,000.0	7,000.0	8,511.2	8,471.5	214.260	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	0.0	0.0	7,007.5			
HSR Moser 16-27 - Original Drilling - Original Drilling - As	2,500.0	2,529.2	7,011.1	6,997.0	495.600	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	12,453.6	7,019.2	8,924.8	8,856.5	130.609	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	0.0	0.0	7,252.4			
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	100.0	46.7	7,252.5	7,252.3	10,000.000	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	12,453.6	6,862.9	9,856.4	9,791.5	151.786	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	827.0	800.0	7,260.1	7,255.8	1,676.336	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	11,000.0	7,044.5	9,958.4	9,901.0	173.488	SF
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	11,264.6	7,039.4	7,333.3	7,267.6	111.467	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.0	7,039.5	7,333.4	7,267.3	110.945	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	12,453.6	7,042.7	7,429.1	7,353.3	97.982	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	12,453.6	6,950.1	7,298.7	7,222.3	95.553	CC, ES, SF
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

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 H36-766
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 H36-766	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 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	12,019.3	7,030.4	2,653.4	2,580.7	36.473	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	12,453.6	7,041.0	2,688.7	2,612.8	35.410	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	11,580.1	6,851.4	5,093.9	5,026.0	75.013	CC
Cannon H35-03D - Original Drilling - Original Drilling - As	11,600.0	6,851.8	5,093.9	5,025.8	74.820	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	12,453.6	6,867.4	5,168.2	5,093.1	68.868	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	11,077.9	6,931.9	2,304.8	2,237.6	34.292	CC
Cannon H35-09 - Original Drilling - Original Drilling - As D	11,100.0	6,931.5	2,304.9	2,237.5	34.207	ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	11,500.0	6,923.1	2,343.1	2,273.2	33.516	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	11,227.7	7,038.4	3,542.0	3,476.6	54.107	CC, ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	12,200.0	7,041.5	3,673.0	3,600.7	50.817	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	11,145.6	6,871.2	4,612.3	4,548.2	72.002	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	11,200.0	6,871.7	4,612.6	4,548.1	71.486	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	12,453.6	6,882.6	4,794.1	4,720.2	64.870	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,300.4	7,029.8	6,075.8	6,009.7	91.946	CC
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,400.0	7,030.6	6,076.6	6,009.6	90.766	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	12,453.6	7,038.5	6,184.2	6,108.6	81.848	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,453.6	7,038.1	6,097.1	6,020.4	79.468	CC, ES, SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	12,453.6	6,994.4	4,703.3	4,620.4	56.735	CC, ES, SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	12,453.6	6,984.0	3,486.3	3,294.4	18.161	CC, ES, SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,676.6	6,851.4	5,492.6	5,432.8	91.776	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,700.0	6,851.6	5,492.7	5,432.6	91.474	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	12,453.6	6,865.0	5,772.8	5,699.5	78.693	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	10,712.9	7,025.5	4,074.2	4,013.4	67.000	CC, ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	12,100.0	7,030.6	4,303.8	4,233.3	61.060	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	10,597.4	7,029.1	3,146.4	3,086.5	52.547	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	10,600.0	7,029.1	3,146.4	3,086.5	52.529	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	11,700.0	11,700.0	3,334.0	3,251.0	40.177	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	11,903.8	6,829.8	4,232.9	4,162.2	59.815	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	12,452.9	6,836.4	4,268.4	4,193.1	56.723	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	12,453.6	6,986.3	3,088.2	3,011.9	40.474	CC, ES, SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	12,453.6	6,908.7	4,249.4	4,173.2	55.737	CC, ES, SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	12,453.6	7,148.1	5,577.5	5,500.1	71.976	CC, ES, SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	663.5	652.5	5,521.9	5,518.5	1,600.347	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,153.5	5,524.3	5,517.9	862.514	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	12,453.6	6,922.5	6,635.6	6,566.4	95.865	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,400.0	2,409.0	3,364.1	3,310.7	63.058	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,500.0	2,509.0	3,365.3	3,309.8	60.563	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	8,800.0	6,996.0	3,596.8	3,436.2	22.403	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	9,708.4	7,003.5	3,658.1	3,605.9	70.092	CC, ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	11,000.0	7,008.3	3,879.4	3,818.5	63.744	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	8,547.1	6,987.3	2,236.6	2,183.6	42.233	CC, ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	9,000.0	6,989.7	2,282.0	2,226.5	41.165	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	9,642.7	7,059.5	2,245.1	2,193.2	43.247	CC, ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	10,200.0	7,072.8	2,313.2	2,257.8	41.739	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	4,653.4			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	2,400.0	2,371.4	4,666.4	4,653.0	348.926	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	11,700.0	11,700.0	5,702.0	5,623.1	72.214	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	165.5	144.5	6,141.0	6,140.5	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,149.9	6,143.3	6,136.9	960.735	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	12,453.6	6,721.9	7,649.7	7,581.7	112.423	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	9,962.9	6,678.4	6,213.9	6,160.8	117.160	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,000.0	6,678.5	6,214.0	6,160.7	116.505	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	12,453.6	6,685.1	6,694.3	6,622.8	93.588	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 H36-766
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 H36-766	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	9,810.8	6,960.3	4,854.7	4,801.9	91.876	CC, ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	12,453.6	6,983.1	5,527.2	5,456.8	78.483	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	9,151.5	6,977.6	2,772.3	2,724.5	58.045	CC, ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	10,000.0	6,975.5	2,899.2	2,846.2	54.699	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	0.0	5,119.0			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,662.3	5,120.5	5,111.2	550.318	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	11,700.0	6,825.0	5,976.2	5,912.8	94.222	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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	9,913.6	6,927.9	1,443.2	1,389.6	26.913	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	10,200.0	6,929.1	1,471.3	1,415.4	26.297	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	12,453.6	6,650.0	1,184.0	1,112.4	16.539	CC, ES, SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	12,453.6	6,738.2	667.1	603.1	10.437	CC, ES, SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	12,365.8	6,957.1	1,515.7	1,422.8	16.326	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	12,453.6	6,957.4	1,518.2	1,424.5	16.200	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	8,002.3	6,894.0	1,555.1	1,513.9	37.690	CC, ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	12,453.6	11,367.0	1,672.3	1,536.1	12.272	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	10,225.4	7,073.4	2,143.6	2,084.9	36.520	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	10,900.0	7,073.7	2,247.3	2,180.7	33.750	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	12,453.6	6,629.1	635.8	582.6	11.942	CC, ES, SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	12,453.6	6,663.5	760.9	698.0	12.100	CC, ES, SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	12,453.6	6,669.4	887.8	819.1	12.932	CC, ES, SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	12,453.6	6,426.8	2,644.2	2,567.9	34.670	CC, ES, SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	12,453.6	6,580.7	2,068.7	1,993.5	27.527	CC, ES, SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,900.0	6,974.5	2,736.8	2,696.0	67.054	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	12,453.6	11,445.0	2,933.0	2,797.7	21.678	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	8,256.9	7,025.7	1,289.8	1,246.7	29.954	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	8,300.0	7,061.2	1,289.9	1,246.5	29.669	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	12,452.9	11,206.4	1,390.5	1,254.0	10.187	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	8,193.3	7,100.0	2,512.4	2,469.7	58.829	CC
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	8,200.0	7,100.0	2,512.4	2,469.7	58.788	ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	12,453.6	11,302.8	2,607.6	2,471.4	19.153	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	906.7	866.7	1,804.2	1,799.3	374.361	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	1,000.0	938.8	1,804.5	1,799.2	341.453	ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	12,453.6	11,367.7	2,011.0	1,873.6	14.636	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	8,157.7	6,866.7	3,213.6	3,171.7	76.854	CC
Dechant State 38N-1HZ - Original Drilling - Original Drilling	8,200.0	6,894.9	3,213.7	3,171.6	76.275	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	12,453.6	11,110.7	3,316.0	3,181.3	24.631	SF
Dechant State H36-11D - Original Drilling - Original Drilling	11,141.4	6,956.4	317.3	252.8	4.925	CC, ES, SF
Dechant State H36-18D - Original Drilling - Original Drilling	9,072.9	7,153.7	816.2	767.7	16.834	CC, ES
Dechant State H36-18D - Original Drilling - Original Drilling	9,300.0	7,164.2	847.1	795.5	16.402	SF
Dechant State H36-19 - Original Drilling - Original Drilling	8,771.7	6,920.8	589.0	544.3	13.164	CC, ES
Dechant State H36-19 - Original Drilling - Original Drilling	8,800.0	6,921.4	589.7	544.9	13.145	SF
Dechant State H36-20D - Original Drilling - Original Drilling	10,547.2	7,071.7	327.2	267.6	5.493	CC, ES, SF
Dechant State H36-21D - Original Drilling - Original Drilling	10,486.7	7,046.8	871.3	811.3	14.526	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	10,500.0	7,046.8	871.4	811.3	14.505	SF
Dechant State H36-24 - Original Drilling - Original Drilling	11,692.9	7,131.6	980.0	909.0	13.794	CC
Dechant State H36-24 - Original Drilling - Original Drilling	11,700.0	7,131.6	980.1	908.9	13.779	ES
Dechant State H36-24 - Original Drilling - Original Drilling	11,800.0	7,130.7	985.9	913.7	13.661	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,086.8	1,072.0	1,532.3	1,527.6	325.622	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,079.1	1,532.3	1,527.5	321.955	ES
Dechant State H36-31D - Original Drilling - Original Drilling	9,600.0	7,137.4	1,652.2	1,599.9	31.634	SF
Dechant State H36-32D - Original Drilling - Original Drilling	10,408.6	7,029.1	1,567.3	1,508.4	26.614	CC, ES
Dechant State H36-32D - Original Drilling - Original Drilling	10,600.0	7,032.7	1,578.9	1,519.1	26.379	SF
Dechant State H36-33 - Original Drilling - Original Drilling	11,624.0	7,092.1	1,479.4	1,409.0	21.016	CC, ES
Dechant State H36-33 - Original Drilling - Original Drilling	11,800.0	7,091.4	1,489.8	1,418.2	20.804	SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	8,164.1	6,926.9	1,336.2	1,294.6	32.176	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	8,400.0	6,931.8	1,356.8	1,314.0	31.642	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	9,334.9	6,949.0	1,963.1	1,799.2	11.975	CC, ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	9,500.0	6,949.0	1,970.1	1,804.8	11.918	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	8,340.7	6,952.3	422.0	379.5	9.935	CC, ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	8,400.0	6,955.4	426.1	383.2	9.931	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 H36-766
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 H36-766	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

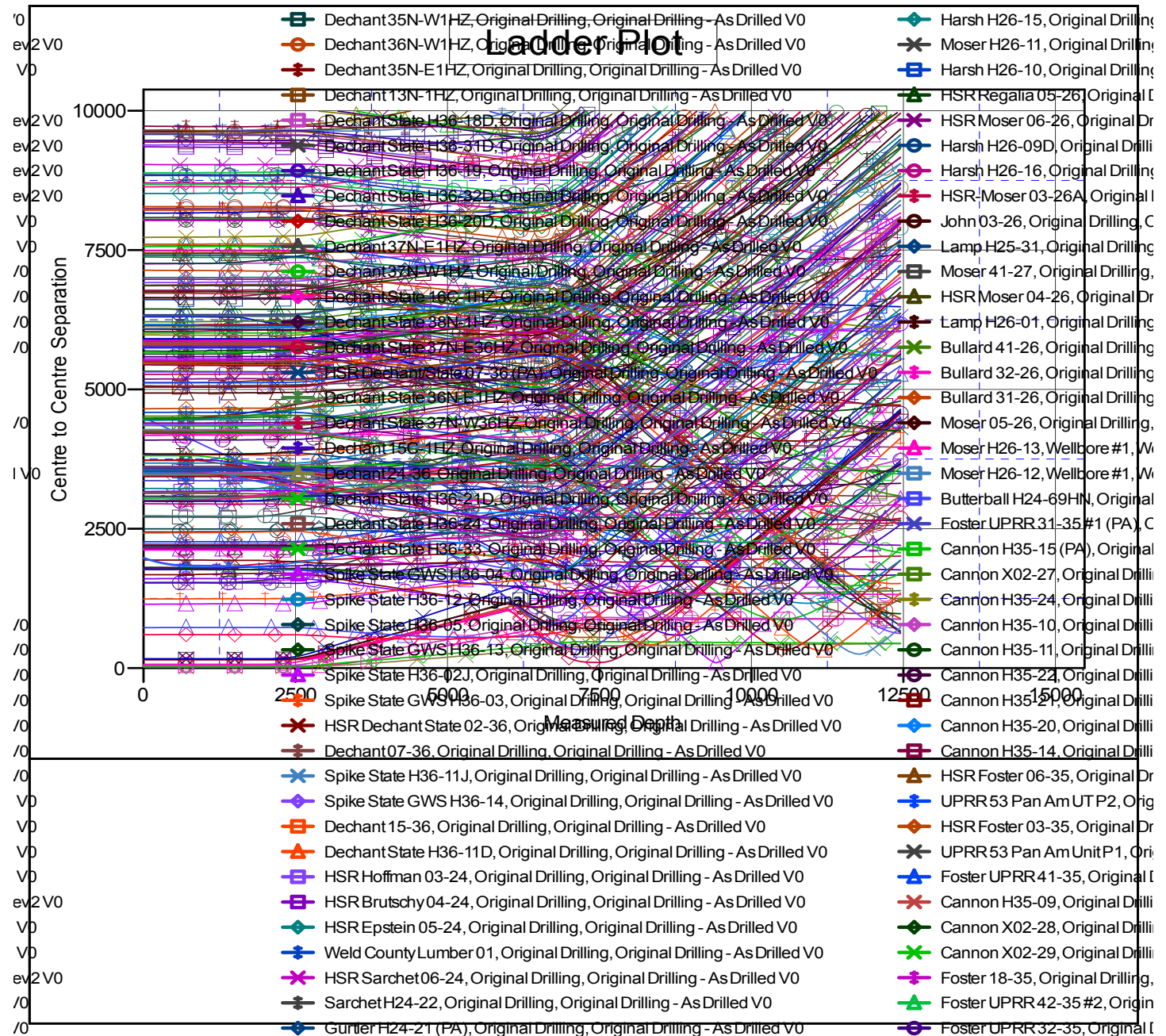
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Spike State GWS H36-04 - Original Drilling - Original Dri	8,232.1	6,938.4	1,083.7	1,033.9	21.791	CC, ES
Spike State GWS H36-04 - Original Drilling - Original Dri	8,300.0	6,937.9	1,085.8	1,035.8	21.728	SF
Spike State GWS H36-13 - Original Drilling - Original Dri	12,419.0	7,251.0	977.5	900.1	12.638	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	12,453.6	7,240.7	978.0	900.4	12.601	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	12,453.6	6,964.2	621.9	545.6	8.152	CC, ES, SF
Spike State H36-02J - Original Drilling - Original Drilling -	9,422.9	6,957.2	95.9	13.3	1.160	Level 2, CC, ES, SF
Spike State H36-05 - Original Drilling - Original Drilling - A	9,634.2	6,935.7	1,094.7	1,043.4	21.348	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - A	9,700.0	6,935.7	1,096.6	1,045.0	21.222	SF
Spike State H36-11J - Original Drilling - Original Drilling -	11,765.8	6,968.1	252.3	182.2	3.600	CC, ES, SF
Spike State H36-12 - Original Drilling - Original Drilling - A	10,906.0	6,969.4	1,163.5	1,101.2	18.673	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - A	11,000.0	6,968.3	1,167.3	1,104.4	18.562	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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 H36-766
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



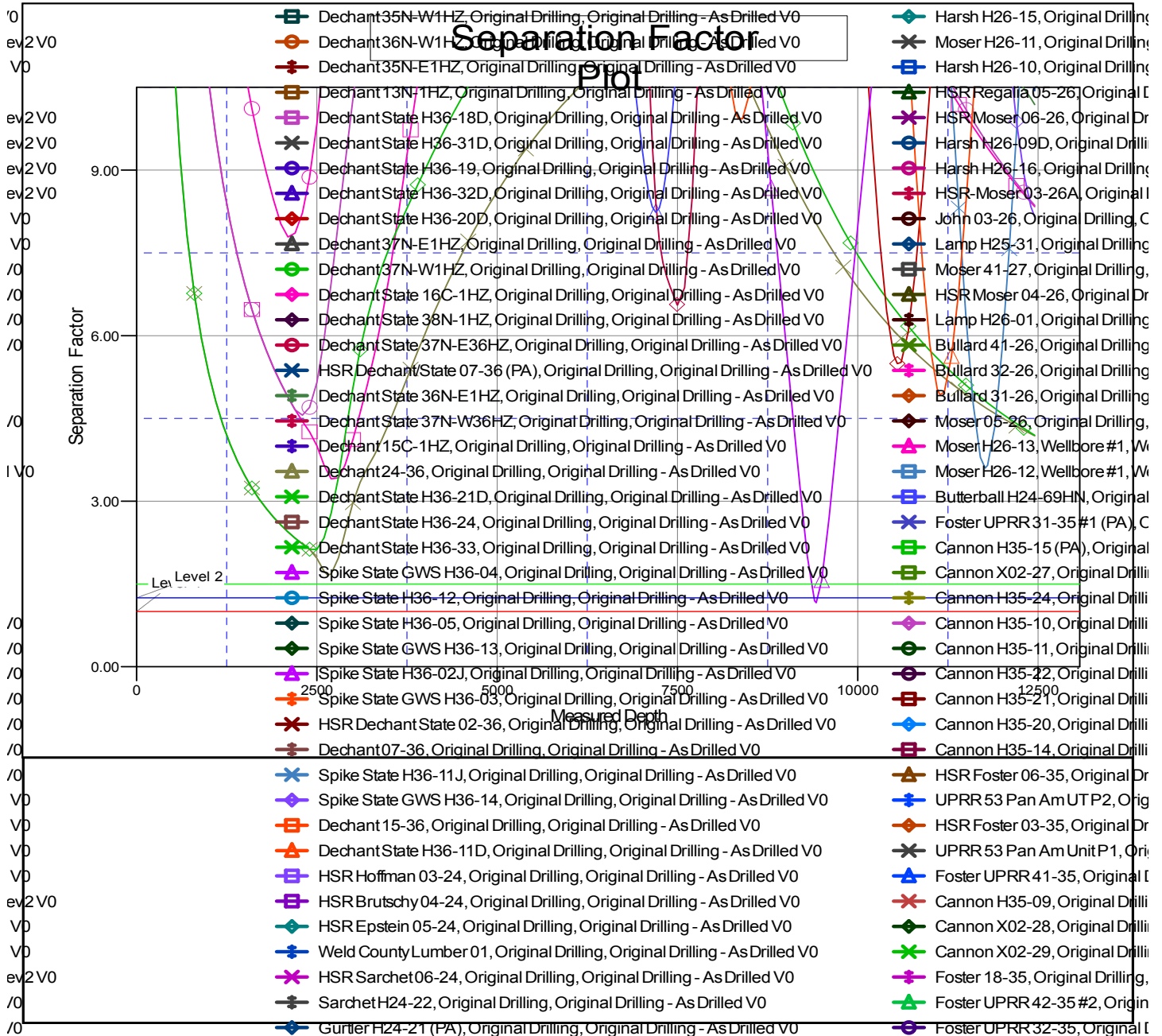
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H36-766
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 H36-766	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 H36-766
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