

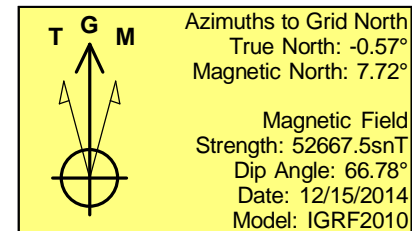
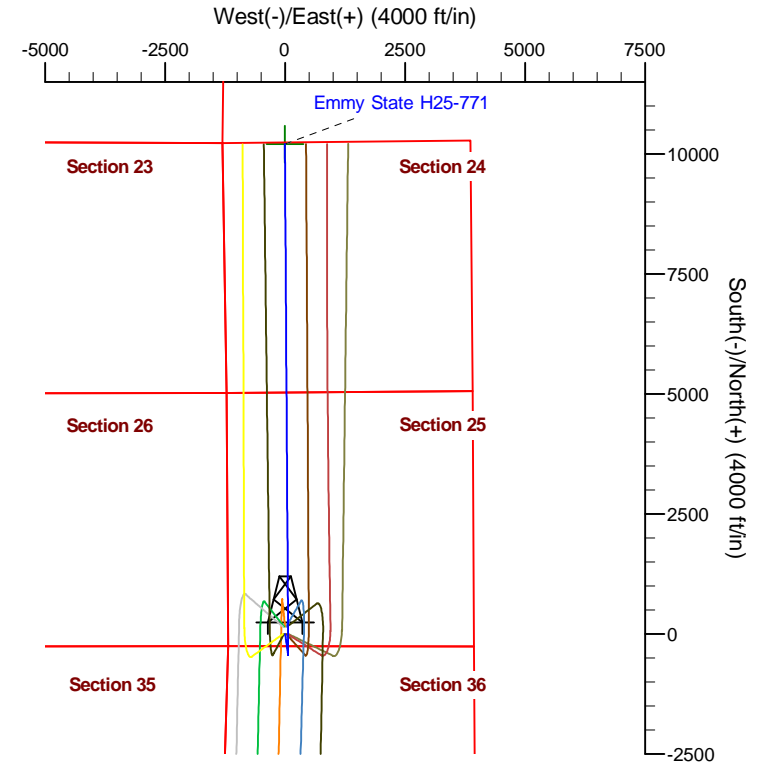
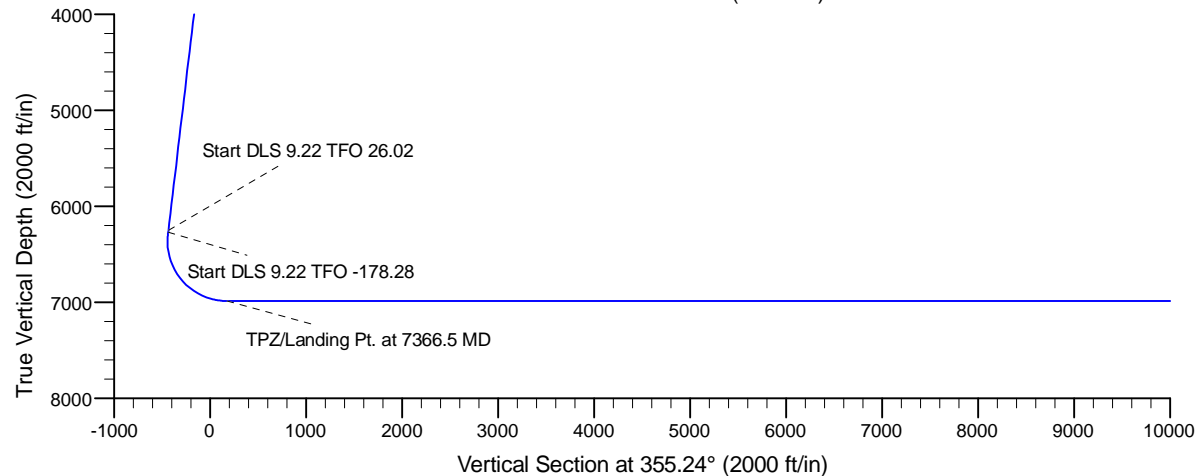
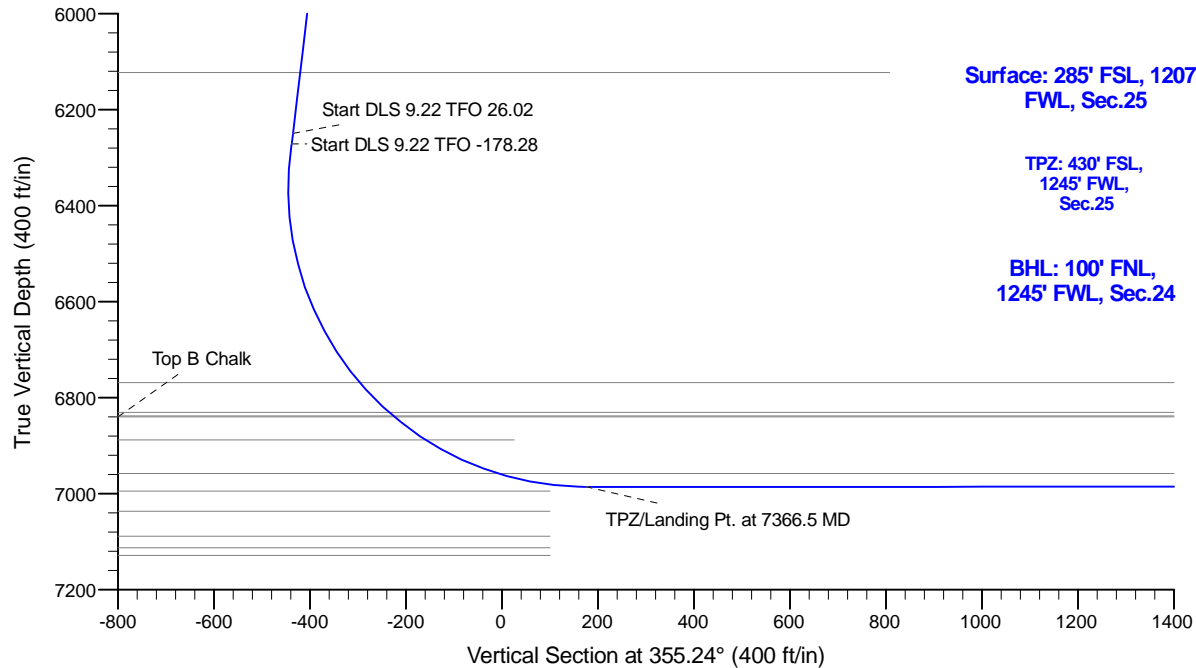
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H25-771
Wellbore: Wellbore #1
Design: Design #1

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	VSect	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	2737.5	6.75	172.00	2736.7	-19.7	2.8	2.00	172.00	-19.8	
4	6275.3	6.75	172.00	6250.0	-431.4	60.6	0.00	0.00	-435.0	
5	6297.2	8.61	177.92	6271.7	-434.4	60.9	9.22	26.02	-437.9	
6	7366.5	90.00	359.62	6986.0	180.0	60.0	9.22	-178.28	174.4	
7	17391.2	90.00	359.62	6986.0	10204.5	-6.7	0.00	0.00	10169.8	Emmy State H25-771 BHL



WELL DETAILS: Emmy State H25-771

Ground Level: 4816.0			
0.00.0	Northings	Easting	Latitude
	1313167.87	3246708.68	40.189670
			Longitude
			-104.616910

Plan: Design #1 (Emmy State H25-771/Wellbore #1)

Created By: Colby Baxter Date: 12:01, November 06 2017

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-771

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 H25-771
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-771	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 H25-771			
Well Position	+N/-S	-5,017.0 ft	Northing:	1,313,167.87 usft
	+E/-W	6,483.8 ft	Easting:	3,246,708.68 usft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	4,816.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/15/2014	8.30	66.78	52,667.53818051

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	355.24

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	
2,737.5	6.75	172.00	2,736.7	-19.7	2.8	2.00	2.00	0.00	172.00	
6,275.3	6.75	172.00	6,250.0	-431.4	60.6	0.00	0.00	0.00	0.00	
6,297.2	8.61	177.92	6,271.7	-434.4	60.9	9.22	8.49	27.06	26.02	
7,366.5	90.00	359.62	6,986.0	180.0	60.0	9.22	7.61	-16.67	-178.28	
17,391.2	90.00	359.62	6,986.0	10,204.5	-6.7	0.00	0.00	0.00	0.00	Emmy State H25-771

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-771
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-771	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	172.00	2,500.0	-1.7	0.2	-1.7	2.00	2.00	0.00
2,600.0	4.00	172.00	2,599.8	-6.9	1.0	-7.0	2.00	2.00	0.00
2,700.0	6.00	172.00	2,699.5	-15.5	2.2	-15.7	2.00	2.00	0.00
2,737.5	6.75	172.00	2,736.7	-19.7	2.8	-19.8	2.00	2.00	0.00
2,800.0	6.75	172.00	2,798.8	-26.9	3.8	-27.2	0.00	0.00	0.00
2,900.0	6.75	172.00	2,898.1	-38.6	5.4	-38.9	0.00	0.00	0.00
3,000.0	6.75	172.00	2,997.4	-50.2	7.1	-50.6	0.00	0.00	0.00
3,100.0	6.75	172.00	3,096.7	-61.9	8.7	-62.4	0.00	0.00	0.00
3,200.0	6.75	172.00	3,196.0	-73.5	10.3	-74.1	0.00	0.00	0.00
3,300.0	6.75	172.00	3,295.3	-85.1	12.0	-85.8	0.00	0.00	0.00
3,400.0	6.75	172.00	3,394.6	-96.8	13.6	-97.6	0.00	0.00	0.00
3,500.0	6.75	172.00	3,493.9	-108.4	15.2	-109.3	0.00	0.00	0.00
3,600.0	6.75	172.00	3,593.2	-120.1	16.9	-121.0	0.00	0.00	0.00
3,700.0	6.75	172.00	3,692.5	-131.7	18.5	-132.8	0.00	0.00	0.00
3,800.0	6.75	172.00	3,791.9	-143.3	20.1	-144.5	0.00	0.00	0.00
3,900.0	6.75	172.00	3,891.2	-155.0	21.8	-156.2	0.00	0.00	0.00
4,000.0	6.75	172.00	3,990.5	-166.6	23.4	-168.0	0.00	0.00	0.00
4,100.0	6.75	172.00	4,089.8	-178.3	25.1	-179.7	0.00	0.00	0.00
4,200.0	6.75	172.00	4,189.1	-189.9	26.7	-191.4	0.00	0.00	0.00
4,300.0	6.75	172.00	4,288.4	-201.5	28.3	-203.2	0.00	0.00	0.00
4,400.0	6.75	172.00	4,387.7	-213.2	30.0	-214.9	0.00	0.00	0.00
4,500.0	6.75	172.00	4,487.0	-224.8	31.6	-226.7	0.00	0.00	0.00
4,600.0	6.75	172.00	4,586.3	-236.4	33.2	-238.4	0.00	0.00	0.00
4,700.0	6.75	172.00	4,685.6	-248.1	34.9	-250.1	0.00	0.00	0.00
4,800.0	6.75	172.00	4,784.9	-259.7	36.5	-261.9	0.00	0.00	0.00
4,900.0	6.75	172.00	4,884.2	-271.4	38.1	-273.6	0.00	0.00	0.00
5,000.0	6.75	172.00	4,983.5	-283.0	39.8	-285.3	0.00	0.00	0.00
5,100.0	6.75	172.00	5,082.8	-294.6	41.4	-297.1	0.00	0.00	0.00
5,200.0	6.75	172.00	5,182.2	-306.3	43.0	-308.8	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-771
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-771	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	6.75	172.00	5,281.5	-317.9	44.7	-320.5	0.00	0.00	0.00
5,400.0	6.75	172.00	5,380.8	-329.6	46.3	-332.3	0.00	0.00	0.00
5,500.0	6.75	172.00	5,480.1	-341.2	48.0	-344.0	0.00	0.00	0.00
5,600.0	6.75	172.00	5,579.4	-352.8	49.6	-355.7	0.00	0.00	0.00
5,700.0	6.75	172.00	5,678.7	-364.5	51.2	-367.5	0.00	0.00	0.00
5,800.0	6.75	172.00	5,778.0	-376.1	52.9	-379.2	0.00	0.00	0.00
5,900.0	6.75	172.00	5,877.3	-387.8	54.5	-390.9	0.00	0.00	0.00
6,000.0	6.75	172.00	5,976.6	-399.4	56.1	-402.7	0.00	0.00	0.00
6,100.0	6.75	172.00	6,075.9	-411.0	57.8	-414.4	0.00	0.00	0.00
6,200.0	6.75	172.00	6,175.2	-422.7	59.4	-426.1	0.00	0.00	0.00
6,275.3	6.75	172.00	6,250.0	-431.4	60.6	-435.0	0.00	0.00	0.00
6,297.2	8.61	177.92	6,271.7	-434.4	60.9	-437.9	9.22	8.49	27.06
6,300.0	8.35	177.87	6,274.5	-434.8	60.9	-438.3	9.22	-9.22	-1.90
6,400.0	0.91	15.98	6,374.1	-441.3	61.4	-444.8	9.22	-7.44	-161.89
6,500.0	10.10	1.06	6,473.6	-431.7	61.8	-435.4	9.22	9.19	-14.92
6,600.0	19.32	0.35	6,570.2	-406.4	62.0	-410.1	9.22	9.22	-0.71
6,700.0	28.54	0.09	6,661.5	-365.8	62.2	-369.7	9.22	9.22	-0.26
6,800.0	37.76	359.95	6,745.1	-311.2	62.2	-315.3	9.22	9.22	-0.14
6,900.0	46.98	359.86	6,818.9	-243.9	62.1	-248.2	9.22	9.22	-0.09
7,000.0	56.20	359.79	6,881.0	-165.6	61.8	-170.2	9.22	9.22	-0.07
7,100.0	65.42	359.74	6,929.7	-78.4	61.5	-83.2	9.22	9.22	-0.05
7,200.0	74.65	359.69	6,963.8	15.5	61.0	10.4	9.22	9.22	-0.05
7,300.0	83.87	359.65	6,982.4	113.6	60.4	108.2	9.22	9.22	-0.04
7,366.5	90.00	359.62	6,986.0	180.0	60.0	174.4	9.22	9.22	-0.04
7,400.0	90.00	359.62	6,986.0	213.5	59.8	207.8	0.00	0.00	0.00
7,500.0	90.00	359.62	6,986.0	313.5	59.1	307.5	0.00	0.00	0.00
7,600.0	90.00	359.62	6,986.0	413.5	58.5	407.2	0.00	0.00	0.00
7,700.0	90.00	359.62	6,986.0	513.5	57.8	506.9	0.00	0.00	0.00
7,800.0	90.00	359.62	6,986.0	613.5	57.1	606.6	0.00	0.00	0.00
7,900.0	90.00	359.62	6,986.0	713.5	56.5	706.3	0.00	0.00	0.00
8,000.0	90.00	359.62	6,986.0	813.5	55.8	806.0	0.00	0.00	0.00
8,100.0	90.00	359.62	6,986.0	913.5	55.1	905.7	0.00	0.00	0.00
8,200.0	90.00	359.62	6,986.0	1,013.5	54.5	1,005.4	0.00	0.00	0.00
8,300.0	90.00	359.62	6,986.0	1,113.5	53.8	1,105.2	0.00	0.00	0.00
8,400.0	90.00	359.62	6,986.0	1,213.5	53.1	1,204.9	0.00	0.00	0.00
8,500.0	90.00	359.62	6,986.0	1,313.5	52.5	1,304.6	0.00	0.00	0.00
8,600.0	90.00	359.62	6,986.0	1,413.5	51.8	1,404.3	0.00	0.00	0.00
8,700.0	90.00	359.62	6,986.0	1,513.5	51.2	1,504.0	0.00	0.00	0.00
8,800.0	90.00	359.62	6,986.0	1,613.5	50.5	1,603.7	0.00	0.00	0.00
8,900.0	90.00	359.62	6,986.0	1,713.5	49.8	1,703.4	0.00	0.00	0.00
9,000.0	90.00	359.62	6,986.0	1,813.4	49.2	1,803.1	0.00	0.00	0.00
9,100.0	90.00	359.62	6,986.0	1,913.4	48.5	1,902.8	0.00	0.00	0.00
9,200.0	90.00	359.62	6,986.0	2,013.4	47.8	2,002.5	0.00	0.00	0.00
9,300.0	90.00	359.62	6,986.0	2,113.4	47.2	2,102.2	0.00	0.00	0.00
9,400.0	90.00	359.62	6,986.0	2,213.4	46.5	2,201.9	0.00	0.00	0.00
9,500.0	90.00	359.62	6,986.0	2,313.4	45.9	2,301.6	0.00	0.00	0.00
9,600.0	90.00	359.62	6,986.0	2,413.4	45.2	2,401.4	0.00	0.00	0.00
9,700.0	90.00	359.62	6,986.0	2,513.4	44.5	2,501.1	0.00	0.00	0.00
9,800.0	90.00	359.62	6,986.0	2,613.4	43.9	2,600.8	0.00	0.00	0.00
9,900.0	90.00	359.62	6,986.0	2,713.4	43.2	2,700.5	0.00	0.00	0.00
10,000.0	90.00	359.62	6,986.0	2,813.4	42.5	2,800.2	0.00	0.00	0.00
10,100.0	90.00	359.62	6,986.0	2,913.4	41.9	2,899.9	0.00	0.00	0.00
10,200.0	90.00	359.62	6,986.0	3,013.4	41.2	2,999.6	0.00	0.00	0.00
10,300.0	90.00	359.62	6,986.0	3,113.4	40.5	3,099.3	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Well:	Emmy State H25-771	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	359.62	6,986.0	3,213.4	39.9	3,199.0	0.00	0.00	0.00
10,500.0	90.00	359.62	6,986.0	3,313.4	39.2	3,298.7	0.00	0.00	0.00
10,600.0	90.00	359.62	6,986.0	3,413.4	38.6	3,398.4	0.00	0.00	0.00
10,700.0	90.00	359.62	6,986.0	3,513.4	37.9	3,498.1	0.00	0.00	0.00
10,800.0	90.00	359.62	6,986.0	3,613.4	37.2	3,597.8	0.00	0.00	0.00
10,900.0	90.00	359.62	6,986.0	3,713.4	36.6	3,697.6	0.00	0.00	0.00
11,000.0	90.00	359.62	6,986.0	3,813.4	35.9	3,797.3	0.00	0.00	0.00
11,100.0	90.00	359.62	6,986.0	3,913.4	35.2	3,897.0	0.00	0.00	0.00
11,200.0	90.00	359.62	6,986.0	4,013.4	34.6	3,996.7	0.00	0.00	0.00
11,300.0	90.00	359.62	6,986.0	4,113.4	33.9	4,096.4	0.00	0.00	0.00
11,400.0	90.00	359.62	6,986.0	4,213.4	33.2	4,196.1	0.00	0.00	0.00
11,500.0	90.00	359.62	6,986.0	4,313.4	32.6	4,295.8	0.00	0.00	0.00
11,600.0	90.00	359.62	6,986.0	4,413.4	31.9	4,395.5	0.00	0.00	0.00
11,700.0	90.00	359.62	6,986.0	4,513.4	31.3	4,495.2	0.00	0.00	0.00
11,800.0	90.00	359.62	6,986.0	4,613.4	30.6	4,594.9	0.00	0.00	0.00
11,900.0	90.00	359.62	6,986.0	4,713.4	29.9	4,694.6	0.00	0.00	0.00
12,000.0	90.00	359.62	6,986.0	4,813.4	29.3	4,794.3	0.00	0.00	0.00
12,100.0	90.00	359.62	6,986.0	4,913.4	28.6	4,894.0	0.00	0.00	0.00
12,200.0	90.00	359.62	6,986.0	5,013.4	27.9	4,993.7	0.00	0.00	0.00
12,300.0	90.00	359.62	6,986.0	5,113.4	27.3	5,093.5	0.00	0.00	0.00
12,400.0	90.00	359.62	6,986.0	5,213.4	26.6	5,193.2	0.00	0.00	0.00
12,500.0	90.00	359.62	6,986.0	5,313.4	26.0	5,292.9	0.00	0.00	0.00
12,600.0	90.00	359.62	6,986.0	5,413.4	25.3	5,392.6	0.00	0.00	0.00
12,700.0	90.00	359.62	6,986.0	5,513.4	24.6	5,492.3	0.00	0.00	0.00
12,800.0	90.00	359.62	6,986.0	5,613.4	24.0	5,592.0	0.00	0.00	0.00
12,900.0	90.00	359.62	6,986.0	5,713.4	23.3	5,691.7	0.00	0.00	0.00
13,000.0	90.00	359.62	6,986.0	5,813.4	22.6	5,791.4	0.00	0.00	0.00
13,100.0	90.00	359.62	6,986.0	5,913.4	22.0	5,891.1	0.00	0.00	0.00
13,200.0	90.00	359.62	6,986.0	6,013.4	21.3	5,990.8	0.00	0.00	0.00
13,300.0	90.00	359.62	6,986.0	6,113.4	20.6	6,090.5	0.00	0.00	0.00
13,400.0	90.00	359.62	6,986.0	6,213.4	20.0	6,190.2	0.00	0.00	0.00
13,500.0	90.00	359.62	6,986.0	6,313.3	19.3	6,289.9	0.00	0.00	0.00
13,600.0	90.00	359.62	6,986.0	6,413.3	18.7	6,389.7	0.00	0.00	0.00
13,700.0	90.00	359.62	6,986.0	6,513.3	18.0	6,489.4	0.00	0.00	0.00
13,800.0	90.00	359.62	6,986.0	6,613.3	17.3	6,589.1	0.00	0.00	0.00
13,900.0	90.00	359.62	6,986.0	6,713.3	16.7	6,688.8	0.00	0.00	0.00
14,000.0	90.00	359.62	6,986.0	6,813.3	16.0	6,788.5	0.00	0.00	0.00
14,100.0	90.00	359.62	6,986.0	6,913.3	15.3	6,888.2	0.00	0.00	0.00
14,200.0	90.00	359.62	6,986.0	7,013.3	14.7	6,987.9	0.00	0.00	0.00
14,300.0	90.00	359.62	6,986.0	7,113.3	14.0	7,087.6	0.00	0.00	0.00
14,400.0	90.00	359.62	6,986.0	7,213.3	13.4	7,187.3	0.00	0.00	0.00
14,500.0	90.00	359.62	6,986.0	7,313.3	12.7	7,287.0	0.00	0.00	0.00
14,600.0	90.00	359.62	6,986.0	7,413.3	12.0	7,386.7	0.00	0.00	0.00
14,700.0	90.00	359.62	6,986.0	7,513.3	11.4	7,486.4	0.00	0.00	0.00
14,800.0	90.00	359.62	6,986.0	7,613.3	10.7	7,586.1	0.00	0.00	0.00
14,900.0	90.00	359.62	6,986.0	7,713.3	10.0	7,685.9	0.00	0.00	0.00
15,000.0	90.00	359.62	6,986.0	7,813.3	9.4	7,785.6	0.00	0.00	0.00
15,100.0	90.00	359.62	6,986.0	7,913.3	8.7	7,885.3	0.00	0.00	0.00
15,200.0	90.00	359.62	6,986.0	8,013.3	8.0	7,985.0	0.00	0.00	0.00
15,300.0	90.00	359.62	6,986.0	8,113.3	7.4	8,084.7	0.00	0.00	0.00
15,400.0	90.00	359.62	6,986.0	8,213.3	6.7	8,184.4	0.00	0.00	0.00
15,500.0	90.00	359.62	6,986.0	8,313.3	6.1	8,284.1	0.00	0.00	0.00
15,600.0	90.00	359.62	6,986.0	8,413.3	5.4	8,383.8	0.00	0.00	0.00
15,700.0	90.00	359.62	6,986.0	8,513.3	4.7	8,483.5	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-771
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-771	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	359.62	6,986.0	8,613.3	4.1	8,583.2	0.00	0.00	0.00	
15,900.0	90.00	359.62	6,986.0	8,713.3	3.4	8,682.9	0.00	0.00	0.00	
16,000.0	90.00	359.62	6,986.0	8,813.3	2.7	8,782.6	0.00	0.00	0.00	
16,100.0	90.00	359.62	6,986.0	8,913.3	2.1	8,882.3	0.00	0.00	0.00	
16,200.0	90.00	359.62	6,986.0	9,013.3	1.4	8,982.1	0.00	0.00	0.00	
16,300.0	90.00	359.62	6,986.0	9,113.3	0.8	9,081.8	0.00	0.00	0.00	
16,400.0	90.00	359.62	6,986.0	9,213.3	0.1	9,181.5	0.00	0.00	0.00	
16,500.0	90.00	359.62	6,986.0	9,313.3	-0.6	9,281.2	0.00	0.00	0.00	
16,600.0	90.00	359.62	6,986.0	9,413.3	-1.2	9,380.9	0.00	0.00	0.00	
16,700.0	90.00	359.62	6,986.0	9,513.3	-1.9	9,480.6	0.00	0.00	0.00	
16,800.0	90.00	359.62	6,986.0	9,613.3	-2.6	9,580.3	0.00	0.00	0.00	
16,900.0	90.00	359.62	6,986.0	9,713.3	-3.2	9,680.0	0.00	0.00	0.00	
17,000.0	90.00	359.62	6,986.0	9,813.3	-3.9	9,779.7	0.00	0.00	0.00	
17,100.0	90.00	359.62	6,986.0	9,913.3	-4.6	9,879.4	0.00	0.00	0.00	
17,200.0	90.00	359.62	6,986.0	10,013.3	-5.2	9,979.1	0.00	0.00	0.00	
17,300.0	90.00	359.62	6,986.0	10,113.3	-5.9	10,078.8	0.00	0.00	0.00	
17,391.2	90.00	359.62	6,986.0	10,204.5	-6.7	10,169.8	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 H25-771 Bl	0.00	0.00	6,986.0	10,204.5	-6.7	1,323,371.90	3,246,702.01	40.217680	-104.616570	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
572.0	572.0	Pierre				
724.0	724.0	Upper Pierre Aquifer Top				
1,612.0	1,612.0	Upper Pierre Aquifer Base				
3,887.8	3,879.0	Parkman				
4,482.9	4,470.0	Sussex				
5,169.6	5,152.0	Shannon				
6,147.4	6,123.0	Teepee Buttes				
6,830.8	6,769.0	Sharon Springs				
6,918.0	6,831.0	Top A Chalk				
6,928.7	6,838.0	Top A Marl				
6,931.8	6,840.0	Top B Chalk				
7,012.8	6,888.0	Top B Marl				
7,179.3	6,958.0	Top C Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-771
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-771	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
6,275.3	6,250.0	-19.7	2.8	Start DLS 9.22 TFO 26.02
6,297.2	6,271.7	-431.4	60.6	Start DLS 9.22 TFO -178.28
7,366.5	6,986.0	-434.4	60.9	TPZ/Landing Pt. at 7366.5 MD
17,391.2	6,986.0	180.0	60.0	TD at 17391.2

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-771

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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	17,391.2	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 -	16,900.0	11,992.0	1,873.4	1,726.0	12.712	SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,391.2	11,992.0	1,758.9	1,625.1	13.144	CC, ES
DP 408						
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,389.0	2,201.6	2,191.1	210.237	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	17,391.2	17,426.4	2,926.7	2,725.2	14.521	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,388.0	2,179.2	2,168.7	208.147	CC
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,462.5	2,179.5	2,168.7	201.541	ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	17,391.2	17,334.3	2,488.0	2,286.0	12.318	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	7,287.7	7,162.4	2,034.1	2,004.3	68.196	CC
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	17,391.2	17,268.5	2,047.2	1,843.5	10.051	ES, SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,436.4	7,370.8	1,570.0	1,538.9	50.507	CC
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	17,391.2	17,305.3	1,608.5	1,404.6	7.889	ES, SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,200.0	67.1	57.5	6.986	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	17,391.2	17,555.7	1,318.3	1,114.2	6.461	SF
Emmy State H25-757 - Wellbore #1 - Design #1	2,400.0	2,400.0	44.7	34.2	4.259	CC, ES
Emmy State H25-757 - Wellbore #1 - Design #1	2,500.0	2,498.7	45.9	35.0	4.219	SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,528.8	2,528.7	22.2	11.1	2.010	CC, ES
Emmy State H25-764 - Wellbore #1 - Design #1	17,391.2	17,460.3	442.3	142.2	1.474	Level 3, SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,201.0	22.6	13.0	2.359	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,391.2	17,431.1	439.5	234.8	2.148	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,001.0	47.5	38.8	5.459	CC, ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,391.2	17,483.3	879.7	675.4	4.306	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,400.0	2,401.0	159.4	148.9	15.182	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	2,600.0	2,600.8	165.8	154.5	14.654	SF
Emmy State H36-766 - Wellbore #1 - Design #1	2,400.0	2,401.0	154.6	144.1	14.727	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	7,250.0	7,418.1	329.9	299.5	10.834	SF
Emmy State H36-773 - Wellbore #1 - Design #1	7,550.0	7,177.1	135.8	104.8	4.387	CC, ES, SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,202.0	154.6	145.0	16.103	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	2,400.0	2,392.6	160.6	150.1	15.349	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,003.0	160.2	151.5	18.404	CC, ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,193.4	166.1	156.5	17.371	SF
Hurley H26-712 - Wellbore #1 - Design #1	17,391.2	14,844.1	1,321.2	1,143.0	7.414	CC, ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	10,045.7	7,420.5	1,690.5	1,641.3	34.362	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,391.2	14,757.7	1,729.3	1,553.9	9.860	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	17,391.2	14,785.4	2,166.2	1,990.0	12.297	CC, ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	9,587.6	6,546.7	2,938.6	2,894.9	67.115	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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 H26-736 - Wellbore #1 - Design #1	17,391.2	14,656.0	2,995.7	2,820.5	17.096	ES, SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	9,522.2	6,185.5	3,284.1	3,241.4	76.925	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,935.0	3,424.9	3,247.0	19.256	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,391.2	15,073.7	3,847.7	3,668.2	21.440	CC, ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	9,934.3	7,450.0	4,265.3	4,216.5	87.314	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,876.6	4,318.0	4,141.8	24.500	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	9,922.8	7,400.0	4,687.7	4,639.8	97.888	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,835.7	4,739.9	4,563.6	26.878	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,781.9	7,248.2	5,110.0	5,064.0	110.965	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,824.8	5,159.3	4,982.5	29.182	ES, SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	9,353.2	6,560.1	5,579.7	5,537.7	133.020	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,867.9	5,589.4	5,410.0	31.165	ES, SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	9,369.6	6,336.3	5,845.6	5,803.6	139.208	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	9,400.0	6,332.5	5,845.7	5,803.5	138.446	ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,391.2	14,771.2	5,994.1	5,816.1	33.672	SF
Hurley H35-720 - Wellbore #1 - Design #1	10,258.5	7,377.5	1,941.3	1,890.8	38.448	CC
Hurley H35-720 - Wellbore #1 - Design #1	10,300.0	7,343.5	1,941.3	1,890.5	38.184	ES
Hurley H35-720 - Wellbore #1 - Design #1	11,100.0	6,900.0	2,015.2	1,958.3	35.423	SF
Hurley H35-727 - Wellbore #1 - Design #1	10,300.6	7,113.4	2,323.8	2,273.6	46.326	CC
Hurley H35-727 - Wellbore #1 - Design #1	10,400.0	7,043.2	2,324.6	2,273.6	45.590	ES
Hurley H35-727 - Wellbore #1 - Design #1	11,100.0	6,761.1	2,405.7	2,349.7	42.956	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,562.7	6,748.3	2,715.3	2,662.6	51.521	CC
Hurley H35-733 - Wellbore #1 - Design #1	10,600.0	6,734.5	2,715.5	2,662.5	51.222	ES
Hurley H35-733 - Wellbore #1 - Design #1	11,400.0	6,600.0	2,831.7	2,773.1	48.358	SF
Hurley H35-740 - Wellbore #1 - Design #1	10,591.2	6,353.2	3,142.2	3,089.9	60.077	CC
Hurley H35-740 - Wellbore #1 - Design #1	10,600.0	6,354.6	3,142.2	3,089.8	59.978	ES
Hurley H35-740 - Wellbore #1 - Design #1	11,600.0	6,450.0	3,297.3	3,237.0	54.614	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	10,490.3	6,216.6	3,505.3	3,453.6	67.746	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	10,500.0	6,217.5	3,505.3	3,453.5	67.626	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	11,800.0	6,335.6	3,740.1	3,678.1	60.328	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	7,000.0	10,357.7	4,159.3	4,109.9	84.200	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	7,066.2	10,300.8	4,159.1	4,110.2	84.984	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	12,100.0	6,950.0	4,602.8	4,538.6	71.722	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	7,050.0	10,117.9	4,579.6	4,531.4	95.029	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	7,177.2	10,001.4	4,579.2	4,531.9	96.765	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,300.0	6,779.9	5,078.7	5,014.1	78.621	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	7,000.0	10,201.6	5,015.9	4,968.1	104.946	ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	7,115.2	10,100.4	5,015.5	4,968.5	106.608	CC
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	12,700.0	6,621.7	5,559.8	5,492.5	82.541	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,354.8	6,819.0	5,428.1	5,377.3	106.949	CC
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,400.0	6,794.5	5,428.2	5,377.1	106.145	ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	13,000.0	6,500.0	5,997.8	5,928.1	86.075	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,452.7	6,458.4	5,729.3	5,677.9	111.584	CC
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,500.0	6,458.0	5,729.5	5,677.7	110.677	ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	13,300.0	6,450.0	6,397.8	6,325.9	89.059	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,005.0	5,963.1	5,954.4	684.650	CC, ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	15,500.0	15,500.0	7,959.6	7,849.4	72.276	SF
Hurley State H35-713 - Wellbore #1 - Design #1	9,956.5	7,408.4	1,460.3	1,411.9	30.156	CC
Hurley State H35-713 - Wellbore #1 - Design #1	10,000.0	7,378.0	1,460.5	1,411.8	29.957	ES
Hurley State H35-713 - Wellbore #1 - Design #1	10,500.0	7,078.7	1,498.6	1,446.3	28.677	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	17,391.2	7,098.3	1,439.0	1,368.2	20.323	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,391.2	7,052.0	1,952.3	1,865.2	22.406	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,391.2	6,570.9	1,973.9	1,886.8	22.667	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,391.2	6,845.0	1,553.2	1,431.2	12.723	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,391.2	7,014.2	1,012.2	938.1	13.661	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,391.2	6,964.0	1,246.9	1,168.2	15.830	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,391.2	6,968.4	2,129.4	2,009.9	17.821	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1- As Drilled	17,391.2	6,966.8	3,099.2	2,976.8	25.312	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,391.2	6,987.0	1,015.5	797.4	4.657	CC, ES, SF
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,391.2	6,933.6	2,893.8	2,803.2	31.949	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,391.2	6,850.1	3,217.4	3,092.3	25.722	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,391.2	6,949.6	2,562.8	2,445.5	21.841	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,391.2	7,221.2	4,600.7	4,473.7	36.234	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,391.2	7,399.8	3,822.6	3,701.8	31.657	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,391.2	7,430.7	4,764.7	4,627.4	34.702	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,391.2	7,630.4	5,351.1	5,222.5	41.611	CC, ES, SF
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,251.2	6,857.0	4,589.8	4,493.8	47.821	CC
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,300.0	6,858.6	4,590.1	4,493.6	47.590	ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	15,400.0	6,895.5	4,731.3	4,626.4	45.124	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	14,106.5	6,900.0	7,144.6	7,049.8	75.401	CC
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,200.0	6,900.0	7,145.2	7,049.5	74.710	ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	16,700.0	6,896.8	7,600.7	7,486.6	66.615	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,688.8	7,000.0	7,273.4	7,191.8	89.071	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,800.0	7,000.0	7,274.3	7,191.6	87.964	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.0	7,000.0	7,910.9	7,806.3	75.640	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	15,508.9	7,014.7	3,133.1	3,024.6	28.856	CC, ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,000.0	7,021.0	3,171.4	3,059.1	28.251	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,724.3	6,979.0	1,943.2	1,707.6	8.250	CC, ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,800.0	6,979.0	1,944.6	1,708.4	8.233	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,840.3	7,003.7	3,191.8	3,011.3	17.688	CC, ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,200.0	7,004.6	3,212.0	3,028.7	17.522	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,405.7	6,989.0	1,913.7	1,690.7	8.580	CC, ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,500.0	6,989.0	1,916.1	1,692.2	8.560	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,095.5	6,912.3	2,049.6	1,964.5	24.094	CC
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,100.0	6,912.1	2,049.6	1,964.5	24.082	ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,400.0	6,904.4	2,072.0	1,984.7	23.738	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,167.4	6,813.3	3,379.6	3,294.1	39.552	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,200.0	6,815.0	3,379.7	3,294.0	39.410	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,900.0	6,852.3	3,457.9	3,366.8	37.963	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,160.4	6,912.2	3,071.6	2,976.2	32.221	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,200.0	6,914.8	3,071.8	2,976.1	32.096	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,700.0	6,949.2	3,118.4	3,018.9	31.339	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,858.6	7,245.0	4,505.2	4,374.6	34.498	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,900.0	7,245.1	4,505.3	4,374.3	34.377	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,391.2	7,246.4	4,536.3	4,400.5	33.382	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,878.4	7,317.9	5,921.7	5,769.9	39.007	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,000.0	7,319.5	5,923.0	5,768.3	38.300	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,391.2	7,324.3	5,943.7	5,780.2	36.367	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,543.9	7,257.8	5,942.1	5,797.4	41.075	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	16,300.0	7,272.2	5,989.9	5,843.7	40.949	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,920.0	6,988.2	4,884.4	4,771.8	43.367	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,000.0	6,989.1	4,885.1	4,771.6	43.075	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,100.0	7,000.8	5,024.9	4,902.9	41.188	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,909.6	7,091.0	2,161.4	2,067.9	23.106	CC, ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,200.0	7,077.1	2,180.8	2,085.1	22.802	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,247.2	7,059.4	3,735.5	3,619.6	32.233	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,300.0	7,059.0	3,735.9	3,619.5	32.100	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,900.0	7,053.7	3,792.1	3,671.4	31.412	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,809.2	7,064.6	2,702.7	2,598.1	25.834	CC, ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,100.0	7,065.1	2,718.3	2,611.7	25.488	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,160.0	7,130.3	1,314.4	1,197.5	11.247	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,200.0	7,130.7	1,315.0	1,198.1	11.245	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,162.5	6,882.8	4,801.5	4,706.3	50.423	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,200.0	6,882.6	4,801.7	4,706.1	50.238	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	15,400.0	6,876.3	4,958.4	4,853.9	47.448	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,158.9	6,905.4	6,102.1	6,006.8	64.035	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,200.0	6,905.7	6,102.2	6,006.5	63.776	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	16,100.0	6,918.3	6,403.3	6,293.5	58.279	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,007.8	6,942.2	6,097.0	6,012.5	72.137	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.0	6,945.1	6,097.7	6,012.3	71.408	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	15,200.0	7,028.0	6,478.7	6,377.6	64.070	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,876.2	7,028.3	4,387.7	4,304.1	52.502	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,900.0	7,030.0	4,387.7	4,303.9	52.360	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	14,100.0	7,114.6	4,554.3	4,461.3	48.975	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,781.1	6,903.0	4,150.8	4,059.1	45.273	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,800.0	6,900.0	4,150.8	4,059.0	45.191	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	14,800.0	6,927.6	4,273.9	4,174.5	43.018	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,222.9	6,946.0	5,538.1	5,336.8	27.509	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	13,300.0	6,946.0	5,538.6	5,336.6	27.414	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	14,300.0	6,946.0	5,641.8	5,431.6	26.831	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,928.1	6,942.8	2,429.7	2,317.4	21.633	CC, ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,200.0	6,945.2	2,444.8	2,330.5	21.376	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	14,200.9	6,850.7	3,262.3	3,166.8	34.158	CC, ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,800.0	6,850.0	3,316.8	3,216.7	33.136	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,220.2	6,964.0	2,069.5	1,973.5	21.547	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,500.0	6,965.9	2,088.3	1,990.2	21.279	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,155.2	6,942.3	610.4	515.1	6.403	CC, ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,200.0	6,943.3	612.0	516.4	6.400	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,163.5	6,500.0	775.0	691.4	9.277	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,200.0	6,500.0	775.8	692.0	9.251	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,022.2	7,156.4	506.1	413.4	5.461	CC, ES, SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,620.0	7,086.5	528.0	445.1	6.371	CC, ES, SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,868.9	6,968.1	1,986.8	1,903.6	23.881	CC
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,900.0	6,967.9	1,987.1	1,903.6	23.800	ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,100.0	6,966.9	2,000.2	1,915.2	23.522	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,894.6	6,930.1	2,973.1	2,889.7	35.684	CC
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,900.0	6,930.1	2,973.1	2,889.7	35.662	ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,500.0	6,931.0	3,034.1	2,946.2	34.514	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,749.4	6,957.2	825.5	743.5	10.060	CC, ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,800.0	6,957.6	827.1	744.6	10.030	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,695.6	6,983.5	1,361.4	1,260.7	13.523	CC
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,700.0	6,983.8	1,361.4	1,260.7	13.517	ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,800.0	6,990.3	1,365.4	1,263.9	13.452	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,547.0	6,915.9	2,622.8	2,533.3	29.319	CC, ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	14,000.0	6,916.4	2,661.6	2,568.7	28.658	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,540.0	6,830.9	1,524.1	1,435.0	17.115	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,700.0	6,827.8	1,532.5	1,442.2	16.976	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,600.0	10,252.0	68.0	-13.1	0.838	Level 1, ES, SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,605.0	10,251.5	67.8	-12.9	0.841	Level 1, CC
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,321.5	6,944.6	2,572.4	2,492.5	32.223	CC, ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,800.0	6,942.0	2,616.5	2,532.5	31.148	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,272.0	6,988.1	200.7	104.8	2.094	CC, ES, SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,665.7	6,968.4	516.8	397.3	4.324	CC, ES, SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,852.5	6,979.5	8.4	-103.4	0.075	Level 1, CC, ES, SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,727.2	6,978.7	791.8	665.5	6.270	CC, ES, SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,728.1	6,951.7	2,143.9	2,023.8	17.849	CC, ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,900.0	6,952.4	2,150.7	2,029.2	17.702	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,368.2	6,961.1	931.0	824.0	8.696	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,400.0	6,961.7	931.6	824.2	8.679	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	16,973.7	6,974.1	3,023.1	2,900.6	24.666	CC
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,000.0	6,974.2	3,023.3	2,900.4	24.616	ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,391.2	6,975.6	3,052.0	2,926.3	24.277	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,127.6	6,940.7	3,738.6	3,624.3	32.701	CC, ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,800.0	6,955.8	3,798.6	3,679.1	31.796	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,534.4	6,898.8	3,244.8	3,136.3	29.914	CC, ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	16,100.0	6,916.7	3,293.7	3,180.9	29.209	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,205.0	6,954.0	2,408.1	2,302.6	22.826	CC, ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,600.0	7,022.1	2,440.1	2,331.6	22.484	SF
Weld County Lumber 01 - Original Drilling - Original Drilling	15,949.4	6,949.9	2,224.4	2,111.8	19.753	CC, ES
Weld County Lumber 01 - Original Drilling - Original Drilling	16,200.0	6,952.7	2,238.5	2,124.0	19.547	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,794.9	7,111.3	1,409.0	1,340.6	20.610	CC
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,800.0	7,111.2	1,409.0	1,340.6	20.584	ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	11,100.0	7,108.0	1,441.7	1,368.8	19.798	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	52.6	3,074.9	3,074.7	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	10,100.0	7,009.7	4,221.1	4,163.6	73.318	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.0	58.4	3,065.4	3,065.2	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	300.0	245.4	3,066.3	3,065.0	2,465.421	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	8,600.0	7,022.3	3,922.8	3,875.2	82.306	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,500.0	7,966.4	23.2	-18.3	0.559	Level 1, ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,520.1	7,967.1	11.6	-17.1	0.405	Level 1, CC, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,435.7	7,997.6	23.1	-11.4	0.669	Level 1, CC, ES, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,524.6	6,965.8	498.7	428.1	7.064	CC, ES, SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,174.0	6,974.4	555.1	496.7	9.506	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,200.0	6,973.9	555.7	497.1	9.483	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,601.6	7,456.4	570.4	476.2	6.052	CC, ES, SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,080.8	6,976.2	451.4	393.8	7.841	CC, ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,100.0	6,976.3	451.8	394.1	7.829	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,461.2	6,919.9	3,718.2	3,666.0	71.322	CC
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,500.0	6,920.1	3,718.4	3,665.9	70.887	ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	10,900.0	6,926.1	3,986.8	3,924.3	63.775	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,954.7	6,940.0	2,892.1	2,862.5	97.738	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	9,300.0	6,940.0	3,189.7	3,152.4	85.538	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	8,945.3	6,921.6	3,198.2	3,150.2	66.637	CC, ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	10,100.0	6,922.1	3,400.2	3,344.2	60.635	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,114.6	6,961.8	1,760.4	1,711.0	35.590	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,500.0	6,962.6	1,802.1	1,750.0	34.555	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,939.3	6,966.7	586.1	508.0	7.501	CC, ES, SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	8,964.0	7,004.7	862.5	814.1	17.795	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,000.0	7,005.5	863.3	814.6	17.720	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,454.5	6,947.1	657.2	617.7	16.602	CC, ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,500.0	6,946.8	658.8	619.1	16.594	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,629.2	6,930.5	1,718.3	1,678.2	42.865	CC, ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	8,000.0	6,931.4	1,757.8	1,716.2	42.220	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,277.3	6,953.9	1,316.7	1,273.3	30.340	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,500.0	6,950.9	1,335.4	1,290.7	29.868	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,637.0	6,917.1	3,356.8	3,285.3	46.953	CC, ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	12,500.0	6,919.2	3,465.9	3,387.9	44.405	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,521.8	6,938.3	1,972.5	1,902.1	27.988	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,800.0	6,940.5	1,992.1	1,919.4	27.409	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,085.3	6,955.6	1,669.9	1,612.4	29.016	CC
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,100.0	6,955.5	1,670.0	1,612.3	28.952	ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,400.0	6,952.3	1,699.3	1,639.5	28.392	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,316.5	6,925.3	3,343.2	3,283.7	56.173	CC, ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	11,400.0	6,924.1	3,514.4	3,446.9	52.075	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,833.7	6,970.1	264.7	200.5	4.120	CC, ES, SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,671.5	6,933.0	2,650.9	2,473.6	14.950	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,700.0	6,933.0	2,651.0	2,473.5	14.930	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	11,000.0	6,933.0	2,671.1	2,491.1	14.835	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	7,889.4	7,037.5	303.0	261.3	7.271	CC, ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	7,900.0	7,037.9	303.2	261.4	7.267	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	11,811.1	6,920.5	3,360.1	3,286.9	45.951	CC, ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	12,700.0	6,960.8	3,475.4	3,395.6	43.550	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,127.2	6,989.9	3,207.4	3,149.3	55.246	CC, ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	11,100.0	6,995.3	3,351.7	3,286.5	51.447	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,293.7	6,942.9	2,402.8	2,334.3	35.102	CC
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,300.0	6,943.0	2,402.8	2,334.3	35.073	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,800.0	6,946.1	2,455.5	2,383.4	34.027	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,294.5	7,458.0	237.1	151.9	2.781	CC
Dechant H25-29D - Original Drilling - Original Drilling - As	12,300.0	7,458.0	237.2	151.5	2.769	ES, SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,469.8	7,783.9	1,253.0	1,173.5	15.762	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	8,600.0	7,746.9	1,259.3	1,178.7	15.621	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,006.4	7,013.2	1,845.1	1,796.3	37.786	CC, ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,400.0	7,007.8	1,886.6	1,835.1	36.643	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,150.5	6,989.8	3,132.5	3,082.6	62.838	CC, ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	10,200.0	6,991.1	3,303.6	3,246.4	57.763	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,706.1	7,085.4	3,200.6	3,159.1	77.084	CC, ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	9,000.0	7,060.3	3,452.2	3,404.4	72.174	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	3.6	2,136.0			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,628.7	7,015.9	2,138.6	2,098.2	52.952	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	8,200.0	7,006.3	2,213.6	2,170.8	51.656	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,323.1	7,134.4	2,510.4	2,463.6	53.620	CC, ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	9,200.0	7,142.0	2,659.1	2,605.7	49.737	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,902.8	6,675.4	6,003.3	5,930.2	82.112	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,000.0	6,677.4	6,004.1	5,930.1	81.120	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	14,300.0	6,735.4	6,463.9	6,372.8	70.964	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,192.3	6,990.6	4,350.6	4,292.0	74.193	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,200.0	6,990.8	4,350.6	4,291.9	74.108	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	11,900.0	7,021.6	4,673.7	4,602.6	65.717	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,741.7	7,018.4	5,438.2	5,374.5	85.438	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,800.0	7,018.2	5,438.5	5,374.3	84.750	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	13,000.0	7,011.7	5,888.4	5,808.2	73.377	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,771.8	6,779.7	4,321.5	4,249.2	59.834	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,800.0	6,800.0	4,321.6	4,249.0	59.553	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	13,200.0	6,825.7	4,548.2	4,465.3	54.841	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,529.6	6,777.6	4,465.1	4,395.2	63.833	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,600.0	6,779.3	4,465.7	4,395.1	63.253	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	13,000.0	6,800.0	4,700.8	4,619.9	58.054	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,891.4	6,967.6	1,407.9	1,343.2	21.735	CC
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,900.0	6,967.6	1,408.0	1,343.1	21.710	ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,100.0	6,966.1	1,423.3	1,357.1	21.484	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,684.1	7,099.9	1,777.1	1,701.5	23.496	CC
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,700.0	7,100.0	1,777.2	1,701.4	23.445	ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	12,000.0	7,102.2	1,805.0	1,726.7	23.072	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,351.6	7,041.1	1,873.0	1,812.1	30.781	CC, ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,700.0	7,033.2	1,905.1	1,841.9	30.146	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,574.2	7,041.3	2,608.3	2,549.3	44.209	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,600.0	7,040.9	2,608.5	2,549.3	44.110	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	10,000.0	7,034.1	2,642.9	2,581.9	43.355	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,110.7	7,038.6	5,980.3	5,922.0	102.662	CC
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,200.0	7,039.6	5,981.0	5,921.9	101.310	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	13,000.0	7,068.9	6,641.6	6,562.2	83.597	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	9,152.6	7,016.1	4,767.7	4,717.8	95.478	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	9,200.0	7,017.0	4,768.0	4,717.7	94.768	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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						
Moser H26-11 - Original Drilling - Original Drilling - As Dr	11,400.0	7,063.3	5,270.6	5,204.7	79.977	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	8,931.6	7,010.0	5,909.0	5,860.8	122.585	CC
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	9,000.0	7,008.1	5,909.4	5,860.7	121.299	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	12,200.0	6,932.4	6,752.1	6,681.4	95.427	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	5,861.1			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,152.7	5,866.1	5,859.7	914.786	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,600.0	6,811.7	7,159.4	7,095.7	112.357	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	571.7	565.8	4,353.6	4,350.7	1,478.746	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,377.2	4,358.9	4,345.5	325.883	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	10,000.0	6,879.4	5,116.9	5,063.9	96.563	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	10,905.6	7,407.3	3,820.2	3,750.0	54.471	CC, ES
Moser H26-18D - Original Drilling - Original Drilling - As D	12,100.0	7,421.1	4,002.5	3,925.1	51.697	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	8,434.8	7,066.3	4,106.7	4,061.8	91.580	CC, ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	10,400.0	7,038.7	4,552.6	4,494.9	78.963	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	8,234.2	7,045.2	4,907.8	4,864.3	112.846	CC, ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	10,900.0	7,052.8	5,585.1	5,524.2	91.742	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,146.4	7,116.4	2,527.0	2,447.1	31.629	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,200.0	7,116.1	2,527.6	2,447.1	31.406	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	12,700.0	7,112.5	2,586.9	2,502.1	30.499	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	12,370.2	7,519.5	4,032.3	3,944.7	46.017	CC
Moser H26-28D - Original Drilling - Original Drilling - As D	12,400.0	7,520.2	4,032.4	3,944.4	45.791	ES
Moser H26-28D - Original Drilling - Original Drilling - As D	13,900.0	7,557.0	4,312.6	4,206.0	40.464	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	20.3	4,590.0			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	4,590.5	4,589.7	5,833.611	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	13,900.0	13,900.0	5,129.4	4,962.3	30.689	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,400.0	2,386.0	5,546.7	5,493.7	104.717	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,941.6	6,972.0	5,556.3	5,399.5	35.424	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	9,300.0	6,972.0	5,720.0	5,554.3	34.530	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,806.4	6,915.5	7,088.7	7,015.6	96.979	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,900.0	6,915.9	7,089.3	7,015.4	95.853	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	15,000.0	6,920.1	7,774.9	7,678.2	80.418	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	0.0	0.0	6,988.7			
HSR Moser 16-27 - Original Drilling - Original Drilling - As	2,511.7	2,533.1	6,992.0	6,977.9	494.024	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	12,600.0	7,000.0	8,725.2	8,654.4	123.167	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	8,877.5	6,971.5	7,097.9	7,048.5	143.686	CC
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	8,900.0	6,971.9	7,097.9	7,048.3	143.172	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	13,300.0	7,048.7	8,362.6	8,280.8	102.243	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	826.0	800.0	7,277.7	7,273.4	1,681.272	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	14,300.0	6,886.8	9,155.8	9,064.4	100.128	SF
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,386.2	6,358.4	7,779.0	7,743.0	216.123	CC, ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	10,600.0	7,024.1	9,961.0	9,907.6	186.349	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	6,385.7	6,347.5	8,351.2	8,315.3	232.434	CC, ES
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	9,400.0	6,829.9	9,998.7	9,952.8	217.989	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,391.0	6,373.2	4,722.4	4,686.6	131.639	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	7,000.0	7,027.1	4,954.7	4,915.8	127.249	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	6,377.5	6,303.0	6,005.3	5,969.5	168.087	CC, ES
Cannon H35-03D - Original Drilling - Original Drilling - As	6,850.0	6,660.6	6,107.9	6,070.3	162.474	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	6,400.9	6,418.7	3,736.0	3,700.0	103.615	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,100.0	6,954.8	4,035.8	3,993.2	94.862	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,371.6	6,262.0	4,610.9	4,575.4	129.821	CC, ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,800.0	6,718.3	4,710.0	4,672.3	124.934	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,402.5	6,462.2	5,365.6	5,329.3	147.582	CC, ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,850.0	6,700.0	5,462.2	5,424.4	144.654	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	6,380.8	6,322.2	6,678.2	6,642.4	186.279	CC, ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	7,050.0	6,917.3	6,836.5	6,797.8	176.672	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,403.1	6,488.3	7,378.8	7,342.4	202.578	CC, ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,000.0	7,054.0	7,539.0	7,500.0	192.946	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,396.0	6,435.5	6,328.7	6,292.5	174.969	CC
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,400.0	6,438.6	6,328.7	6,292.5	174.879	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,250.0	7,015.1	6,688.9	6,643.0	145.787	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,388.4	6,360.6	5,546.3	5,405.2	39.332	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,400.0	6,372.1	5,546.3	5,405.1	39.262	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,850.0	6,781.4	5,678.1	5,528.1	37.845	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,385.9	6,365.3	5,859.3	5,823.2	162.645	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,400.0	6,378.5	5,859.3	5,823.2	162.318	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,900.0	6,741.1	5,951.7	5,913.7	156.760	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,361.1	6,232.8	4,679.9	4,644.5	132.034	CC, ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,900.0	6,886.3	4,798.6	4,760.1	124.933	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,388.5	6,273.2	3,901.9	3,866.0	108.582	CC, ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	7,050.0	7,013.0	4,116.9	4,077.7	105.118	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,375.6	6,279.1	5,569.3	5,533.7	156.422	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,800.0	6,600.0	5,668.4	5,631.1	151.951	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,379.8	6,276.3	5,716.5	5,681.0	160.874	CC, ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,800.0	6,753.9	5,829.7	5,791.9	154.293	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,386.2	6,352.5	6,217.1	6,181.3	173.400	CC, ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,850.0	6,734.1	6,343.3	6,305.5	167.848	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	6,352.7	6,083.2	7,191.0	7,155.6	203.307	CC, ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	7,366.5	7,366.5	7,640.9	7,599.9	186.415	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	662.4	652.4	5,460.1	5,456.7	1,583.763	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	6,350.0	6,269.8	5,473.3	5,437.6	153.405	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	10,200.0	6,875.4	6,945.6	6,893.5	133.151	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	5,517.0	5,507.0	3,285.4	3,163.6	26.958	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	6,500.0	6,483.6	3,287.7	3,144.1	22.889	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,100.0	6,939.7	3,345.5	3,192.1	21.810	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,391.7	6,391.7	3,791.2	3,755.1	104.977	CC
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,400.0	6,399.3	3,791.2	3,755.1	104.854	ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,850.0	6,824.2	3,866.4	3,828.2	101.210	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,384.1	6,358.0	2,019.6	1,983.6	56.089	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,400.0	6,370.6	2,019.7	1,983.6	55.975	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,150.0	6,943.7	2,171.2	2,123.9	45.914	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,393.1	6,382.1	2,596.5	2,560.5	72.053	CC
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,400.0	6,389.4	2,596.5	2,560.4	71.976	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,750.0	6,775.1	2,656.5	2,618.6	70.104	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	5,676.7	5,649.5	4,546.3	4,514.4	142.703	CC
HSR Foster 03-35 - Original Drilling - Original Drilling - A	6,350.0	6,305.7	4,548.2	4,512.4	127.172	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	9,200.0	7,132.0	5,421.6	5,373.9	113.579	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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 04-35 - Wellbore #1 - Wellbore #1 - As Drille	162.7	142.7	6,099.7	6,099.1	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	3,700.0	3,663.2	6,110.9	6,090.6	300.115	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	13,000.0	7,298.9	8,969.9	8,901.3	130.634	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	6,319.1	6,100.0	6,213.6	6,178.6	177.606	CC, ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,600.0	6,676.2	8,247.8	8,195.3	157.005	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	6,389.3	6,384.8	4,913.2	4,877.1	136.162	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	6,400.0	6,393.4	4,913.2	4,877.1	135.972	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	7,000.0	6,859.5	5,021.1	4,982.7	130.568	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,381.0	6,348.4	2,744.1	2,708.2	76.325	CC, ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,800.0	6,733.3	2,803.8	2,766.0	74.077	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	6,414.0	6,435.3	5,024.5	4,988.1	138.275	CC, ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	11,400.0	11,400.0	7,363.1	7,290.8	101.886	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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	6,384.5	6,301.0	2,647.5	2,611.9	74.469	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,650.0	6,547.8	2,691.2	2,654.4	73.069	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,374.7	6,260.1	4,975.8	4,936.8	127.633	CC, ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,500.0	6,300.0	4,989.0	4,949.6	126.668	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,383.5	6,309.1	4,936.4	4,899.0	131.722	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,500.0	6,405.5	4,947.3	4,909.2	129.949	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,387.6	6,312.8	4,801.3	4,763.2	126.171	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,400.0	6,325.2	4,801.4	4,763.0	125.022	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,150.0	6,898.0	5,189.3	5,135.0	95.636	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	902.3	864.3	1,760.5	1,755.7	366.704	CC
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	1,000.0	938.8	1,760.9	1,755.6	333.230	ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,850.0	6,637.6	1,867.9	1,829.8	49.107	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	930.8	906.5	3,038.6	3,033.7	614.097	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,750.0	6,812.3	3,441.9	3,402.8	87.975	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,373.3	6,200.0	4,907.5	4,871.6	136.761	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,500.0	6,200.0	4,921.9	4,885.8	136.311	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,378.8	6,250.0	4,911.7	4,875.5	135.850	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,600.0	6,300.0	4,954.6	4,917.9	134.978	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,377.1	6,276.1	4,964.2	4,925.4	127.943	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,500.0	6,300.0	4,977.2	4,938.1	127.205	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	900.0	881.0	5,491.8	5,487.0	1,131.004	CC
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	1,000.0	953.3	5,492.0	5,486.7	1,029.371	ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,850.0	6,208.0	5,745.0	5,700.9	130.225	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,350.6	6,035.7	5,322.1	5,284.5	141.649	CC, ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,650.0	6,324.3	5,387.4	5,348.1	137.061	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,815.9	6,893.9	3,058.9	3,020.1	78.993	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	8,400.0	8,400.0	3,468.6	3,421.0	72.769	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,509.1	6,446.3	1,595.8	1,558.9	43.192	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,550.0	6,481.0	1,596.0	1,558.9	42.992	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,750.0	6,600.0	1,605.3	1,567.6	42.554	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,704.9	6,812.3	2,834.4	2,795.8	73.515	CC, ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,800.0	6,817.0	2,836.5	2,797.9	73.427	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	904.5	865.5	1,781.9	1,777.1	370.429	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	1,000.0	939.0	1,782.3	1,777.0	337.204	ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,900.0	6,567.8	2,202.1	2,164.0	57.858	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,288.9	6,171.8	3,512.5	3,477.0	98.693	CC
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,300.0	6,182.8	3,512.6	3,476.9	98.510	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,950.0	6,591.6	3,544.3	3,506.4	93.545	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,393.4	6,355.6	3,285.0	3,249.4	92.170	CC
Dechant State H36-11D - Original Drilling - Original Drilling	6,400.0	6,362.2	3,285.0	3,249.4	92.078	ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,650.0	6,599.1	3,336.9	3,300.0	90.408	SF
Dechant State H36-18D - Original Drilling - Original Drilling	100.0	82.7	1,380.3	1,380.1	6,149.650	CC
Dechant State H36-18D - Original Drilling - Original Drilling	1,200.0	1,178.9	1,382.1	1,376.8	257.707	ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,550.0	6,686.1	1,614.7	1,573.6	39.317	SF
Dechant State H36-19 - Original Drilling - Original Drilling	6,395.3	6,349.0	876.8	841.1	24.537	CC
Dechant State H36-19 - Original Drilling - Original Drilling	6,400.0	6,353.1	876.8	841.1	24.521	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,450.0	6,396.9	879.3	843.3	24.420	SF
Dechant State H36-20D - Original Drilling - Original Drilling	6,389.5	6,457.7	2,619.0	2,579.5	66.273	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,550.0	6,615.0	2,639.8	2,599.6	65.659	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,390.9	6,423.5	2,822.9	2,784.3	73.147	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,600.0	6,614.4	2,855.4	2,816.0	72.376	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,403.7	6,592.2	3,991.6	3,948.0	91.552	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,650.0	6,774.5	4,039.9	3,995.3	90.641	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 H25-771
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-771	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

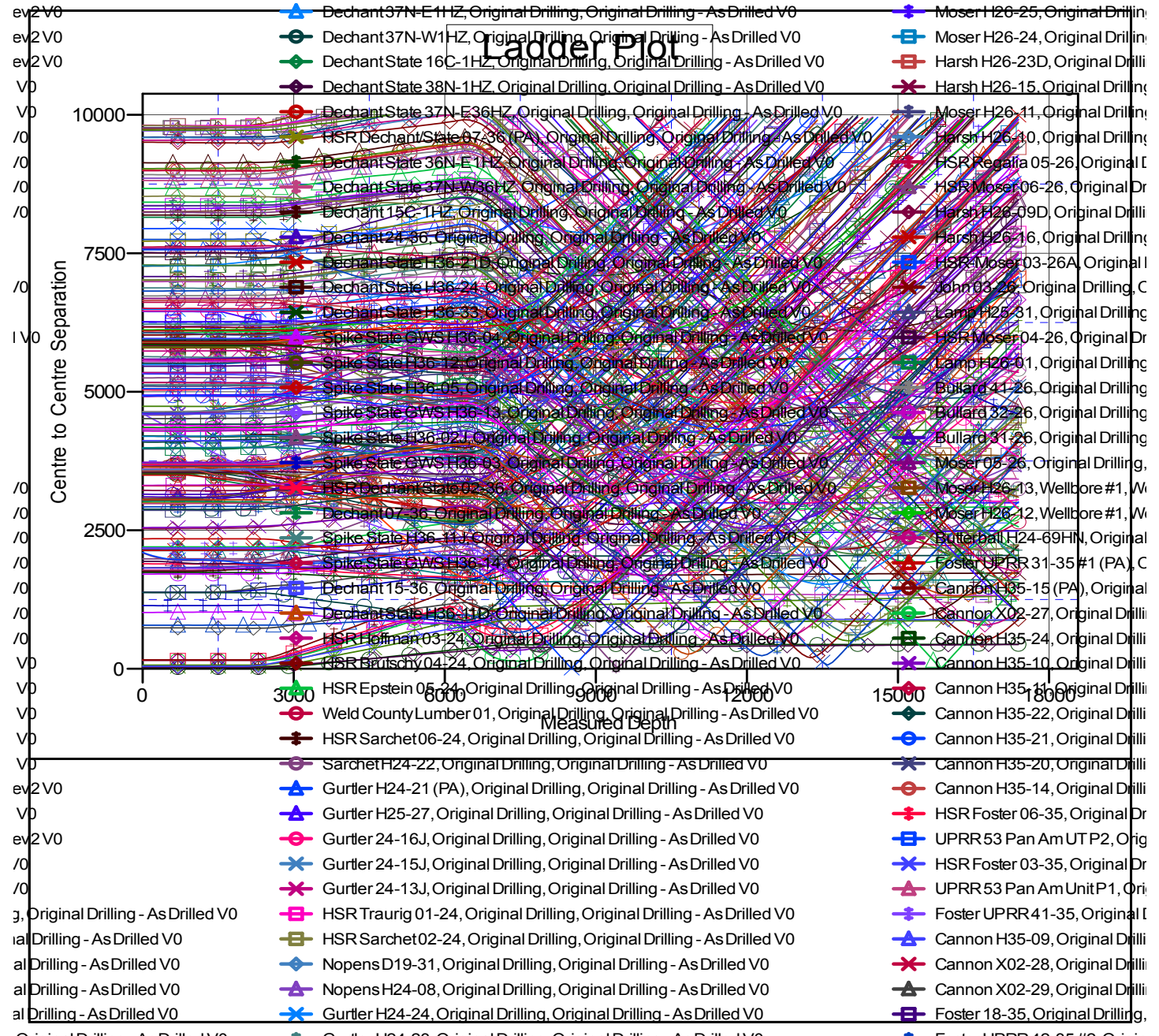
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 36						
Dechant State H36-31D - Original Drilling - Original Drilling	1,086.4	1,072.3	1,377.6	1,372.9	292.767	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,080.0	1,377.7	1,372.9	289.273	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,600.0	6,718.0	1,800.9	1,762.1	46.431	SF
Dechant State H36-32D - Original Drilling - Original Drilling	6,380.6	6,374.9	2,776.4	2,739.3	74.843	CC, ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,600.0	6,624.5	2,808.8	2,770.5	73.433	SF
Dechant State H36-33 - Original Drilling - Original Drilling	6,397.3	6,590.7	3,879.3	3,833.7	85.078	CC
Dechant State H36-33 - Original Drilling - Original Drilling	6,400.0	6,593.0	3,879.3	3,833.7	85.058	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,600.0	6,753.0	3,911.2	3,864.9	84.364	SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,296.9	6,185.6	1,655.1	1,619.9	47.031	CC
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,300.0	6,188.3	1,655.1	1,619.9	47.008	ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,800.0	6,682.6	1,690.0	1,652.4	44.900	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,394.7	6,331.8	2,680.3	2,539.8	19.080	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,400.0	6,337.1	2,680.3	2,539.7	19.064	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,750.0	6,667.4	2,736.5	2,588.8	18.530	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,388.0	6,321.0	835.3	799.6	23.362	CC, ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,500.0	6,422.3	841.0	804.7	23.168	SF
Spike State GWS H36-04 - Original Drilling - Original Drilling	6,354.1	6,289.4	817.3	778.6	21.140	CC, ES
Spike State GWS H36-04 - Original Drilling - Original Drilling	6,700.0	6,623.0	852.9	810.0	19.891	SF
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,518.1	7,444.0	4,583.0	4,542.9	114.430	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,650.0	7,444.0	4,598.6	4,558.2	113.868	SF
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,417.7	6,417.7	4,684.4	4,648.6	130.543	CC
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,450.0	6,636.6	4,685.1	4,648.4	127.654	ES
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,750.0	6,924.1	4,767.5	4,729.3	125.043	SF
Spike State H36-02J - Original Drilling - Original Drilling	6,379.4	6,296.0	1,503.7	1,454.1	30.312	CC
Spike State H36-02J - Original Drilling - Original Drilling	6,400.0	6,316.6	1,504.0	1,453.7	29.900	ES
Spike State H36-02J - Original Drilling - Original Drilling	6,800.0	6,685.3	1,639.9	1,577.4	26.217	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	6,379.5	6,310.5	1,869.6	1,834.0	52.501	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,550.0	6,472.4	1,890.7	1,854.2	51.841	SF
Spike State H36-11J - Original Drilling - Original Drilling - A	6,404.3	6,444.9	3,854.0	3,818.1	107.152	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling - A	6,700.0	6,711.7	3,923.7	3,886.3	105.029	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,389.9	6,349.8	3,103.0	3,067.3	86.957	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,650.0	6,615.8	3,154.3	3,117.3	85.182	SF

Noble Energy, Inc.
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Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4846.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-771
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



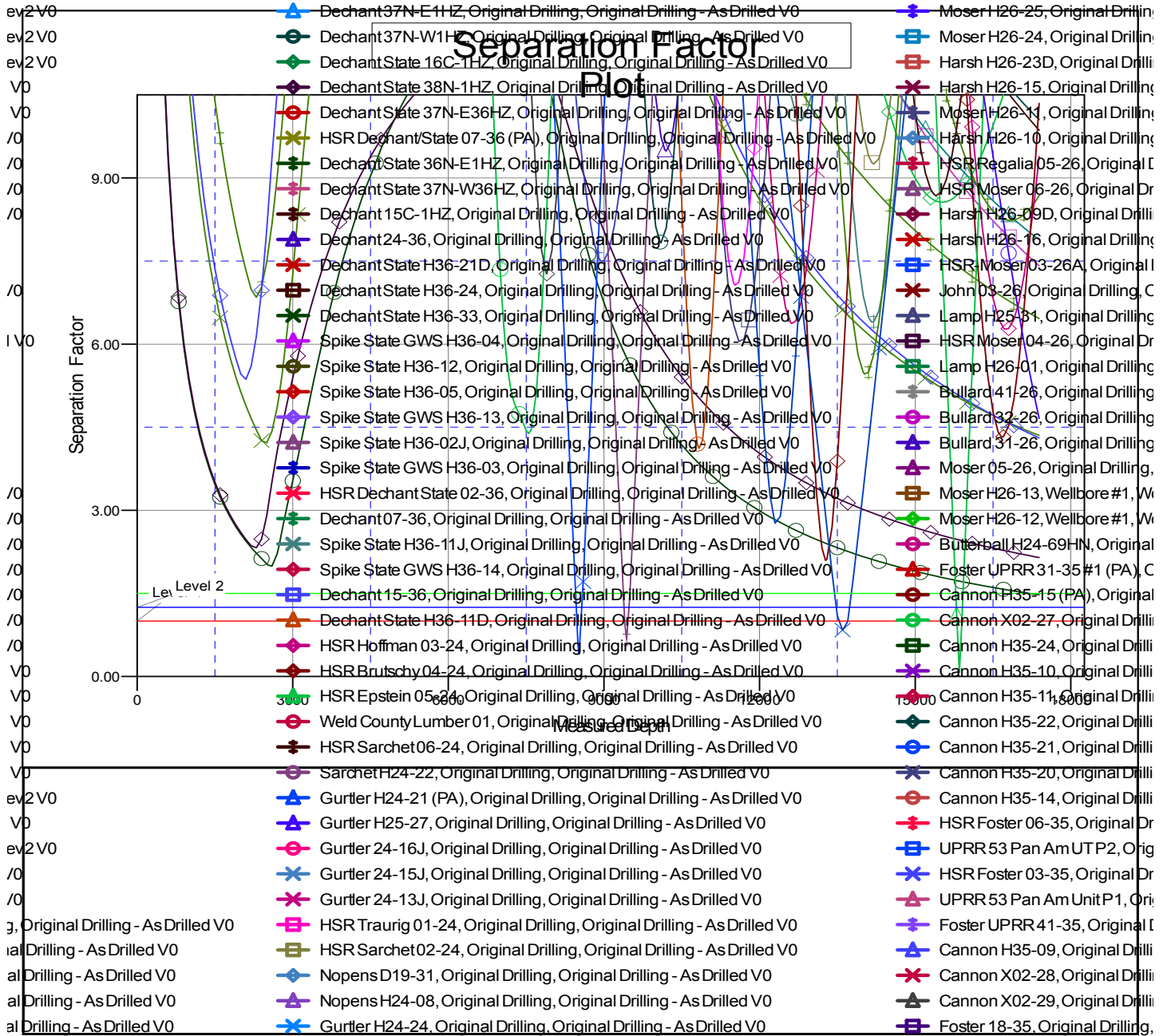
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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