

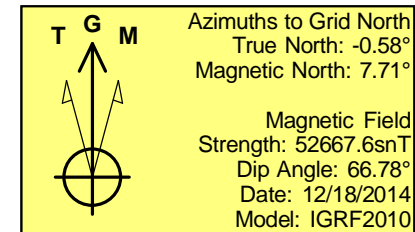
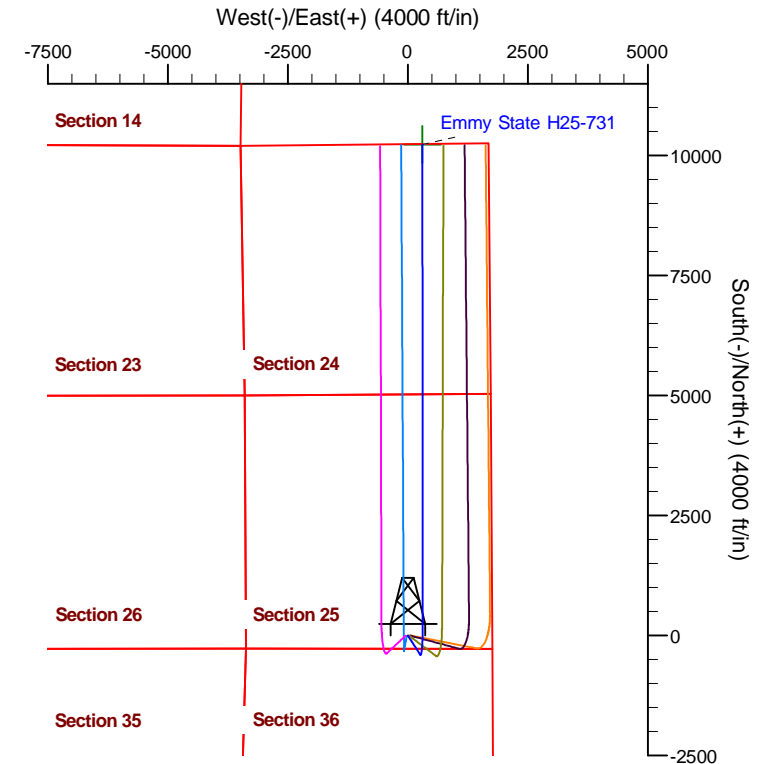
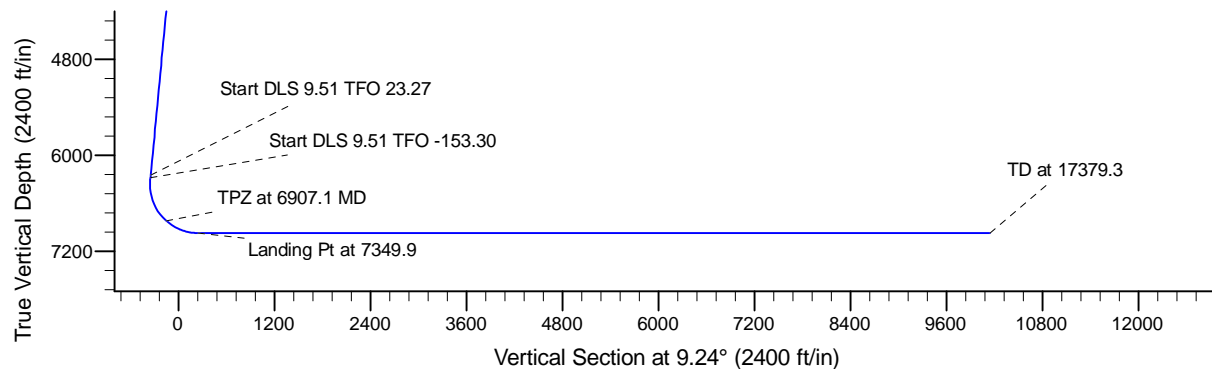
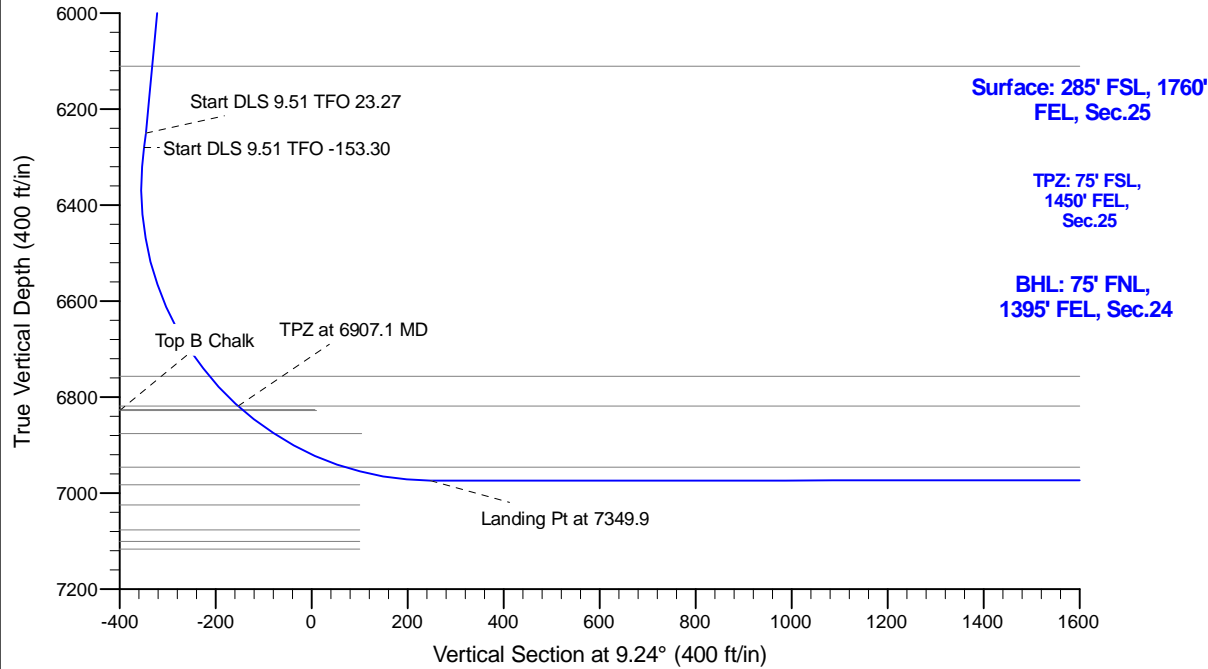
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H25-731
Wellbore: Wellbore #1
Design: Prelim - Rev 2

Northern Region Drilling - DJ Basin

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	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	2762.5	7.25	147.00	2761.5	-19.2	12.5	2.00	147.00	-17.0	
4	6279.1	7.25	147.00	6250.0	-391.4	254.2	0.00	0.00	-345.5	
5	6309.5	9.97	153.60	6280.0	-395.4	256.4	9.51	23.27	-349.0	
6	7349.9	90.00	359.95	6974.0	200.0	310.0	9.51	-153.30	247.2	
7	17379.3	90.00	359.96	6974.0	10229.5	302.2	0.00	90.00	10145.1	Emmy H25-731 BHL



WELL DETAILS: Emmy State H25-731

0.00.0	Ground Level: 4804.0	Latitude	Longitude
1313189.67	3248887.69	40.189670	-104.609110

Plan: Prelim - Rev 2 (Emmy State H25-731/Wellbore #1)

Created By: Colby Baxter Date: 14:56, November 01 2017
Checked: _____ Date: _____
Reviewed: _____ Date: _____
Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-731

Wellbore #1

Plan: Prelim - Rev 2

Standard Planning Report

01 November, 2017

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-731
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

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 H25-731					
Well Position	+N/-S	-4,995.2 ft	Northing:	1,313,189.67 usft	Latitude:	40.189670
	+E/-W	8,662.9 ft	Easting:	3,248,887.70 usft	Longitude:	-104.609110
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,804.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/18/2014	8.29	66.78	52,667.57803727

Design	Prelim - Rev 2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	9.24

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	
2,762.5	7.25	147.00	2,761.5	-19.2	12.5	2.00	2.00	0.00	147.00	
6,279.1	7.25	147.00	6,250.0	-391.4	254.2	0.00	0.00	0.00	0.00	
6,309.5	9.97	153.60	6,280.0	-395.4	256.4	9.51	8.95	21.74	23.27	
7,349.9	90.00	359.95	6,974.0	200.0	310.0	9.51	7.69	-14.77	-153.30	
17,379.3	90.00	359.96	6,974.0	10,229.5	302.2	0.00	0.00	0.00	90.00	Emmy H25-731 BHL

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-731
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	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	147.00	2,500.0	-1.5	1.0	-1.3	2.00	2.00	0.00
2,600.0	4.00	147.00	2,599.8	-5.9	3.8	-5.2	2.00	2.00	0.00
2,700.0	6.00	147.00	2,699.5	-13.2	8.5	-11.6	2.00	2.00	0.00
2,762.5	7.25	147.00	2,761.5	-19.2	12.5	-17.0	2.00	2.00	0.00
2,800.0	7.25	147.00	2,798.7	-23.2	15.1	-20.5	0.00	0.00	0.00
2,900.0	7.25	147.00	2,897.9	-33.8	21.9	-29.8	0.00	0.00	0.00
3,000.0	7.25	147.00	2,997.1	-44.3	28.8	-39.1	0.00	0.00	0.00
3,100.0	7.25	147.00	3,096.3	-54.9	35.7	-48.5	0.00	0.00	0.00
3,200.0	7.25	147.00	3,195.5	-65.5	42.5	-57.8	0.00	0.00	0.00
3,300.0	7.25	147.00	3,294.7	-76.1	49.4	-67.2	0.00	0.00	0.00
3,400.0	7.25	147.00	3,393.9	-86.7	56.3	-76.5	0.00	0.00	0.00
3,500.0	7.25	147.00	3,493.1	-97.3	63.2	-85.9	0.00	0.00	0.00
3,600.0	7.25	147.00	3,592.3	-107.8	70.0	-95.2	0.00	0.00	0.00
3,700.0	7.25	147.00	3,691.5	-118.4	76.9	-104.5	0.00	0.00	0.00
3,800.0	7.25	147.00	3,790.7	-129.0	83.8	-113.9	0.00	0.00	0.00
3,900.0	7.25	147.00	3,889.9	-139.6	90.7	-123.2	0.00	0.00	0.00
4,000.0	7.25	147.00	3,989.1	-150.2	97.5	-132.6	0.00	0.00	0.00
4,100.0	7.25	147.00	4,088.3	-160.8	104.4	-141.9	0.00	0.00	0.00
4,200.0	7.25	147.00	4,187.5	-171.4	111.3	-151.3	0.00	0.00	0.00
4,300.0	7.25	147.00	4,286.7	-181.9	118.2	-160.6	0.00	0.00	0.00
4,400.0	7.25	147.00	4,385.9	-192.5	125.0	-169.9	0.00	0.00	0.00
4,500.0	7.25	147.00	4,485.1	-203.1	131.9	-179.3	0.00	0.00	0.00
4,600.0	7.25	147.00	4,584.3	-213.7	138.8	-188.6	0.00	0.00	0.00
4,700.0	7.25	147.00	4,683.5	-224.3	145.6	-198.0	0.00	0.00	0.00
4,800.0	7.25	147.00	4,782.7	-234.9	152.5	-207.3	0.00	0.00	0.00
4,900.0	7.25	147.00	4,881.9	-245.4	159.4	-216.6	0.00	0.00	0.00
5,000.0	7.25	147.00	4,981.1	-256.0	166.3	-226.0	0.00	0.00	0.00
5,100.0	7.25	147.00	5,080.3	-266.6	173.1	-235.3	0.00	0.00	0.00
5,200.0	7.25	147.00	5,179.5	-277.2	180.0	-244.7	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-731
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	7.25	147.00	5,278.7	-287.8	186.9	-254.0	0.00	0.00	0.00
5,400.0	7.25	147.00	5,377.9	-298.4	193.8	-263.4	0.00	0.00	0.00
5,500.0	7.25	147.00	5,477.1	-308.9	200.6	-272.7	0.00	0.00	0.00
5,600.0	7.25	147.00	5,576.3	-319.5	207.5	-282.0	0.00	0.00	0.00
5,700.0	7.25	147.00	5,675.5	-330.1	214.4	-291.4	0.00	0.00	0.00
5,800.0	7.25	147.00	5,774.7	-340.7	221.3	-300.7	0.00	0.00	0.00
5,900.0	7.25	147.00	5,873.9	-351.3	228.1	-310.1	0.00	0.00	0.00
6,000.0	7.25	147.00	5,973.1	-361.9	235.0	-319.4	0.00	0.00	0.00
6,100.0	7.25	147.00	6,072.3	-372.4	241.9	-328.8	0.00	0.00	0.00
6,200.0	7.25	147.00	6,171.6	-383.0	248.7	-338.1	0.00	0.00	0.00
6,279.1	7.25	147.00	6,250.0	-391.4	254.2	-345.5	0.00	0.00	0.00
6,300.0	9.11	151.97	6,270.7	-394.0	255.7	-347.8	9.51	8.90	23.75
6,309.5	9.97	153.60	6,280.0	-395.4	256.4	-349.0	9.51	9.07	17.30
6,400.0	4.47	93.98	6,369.9	-402.6	263.4	-355.1	9.51	-6.07	-65.85
6,500.0	10.21	25.61	6,469.2	-394.9	271.1	-346.2	9.51	5.74	-68.37
6,600.0	19.21	12.89	6,565.9	-370.8	278.7	-321.2	9.51	9.00	-12.72
6,700.0	28.53	8.20	6,657.2	-331.1	285.8	-280.8	9.51	9.32	-4.69
6,800.0	37.94	5.69	6,740.8	-276.7	292.2	-226.2	9.51	9.41	-2.51
6,900.0	47.39	4.06	6,814.2	-209.3	297.9	-158.7	9.51	9.44	-1.63
7,000.0	56.85	2.87	6,875.5	-130.6	302.6	-80.2	9.51	9.46	-1.19
7,100.0	66.32	1.91	6,923.1	-42.8	306.2	7.0	9.51	9.47	-0.96
7,200.0	75.79	1.08	6,955.5	51.7	308.7	100.6	9.51	9.48	-0.83
7,300.0	85.27	0.32	6,971.9	150.2	309.9	198.0	9.51	9.48	-0.76
7,349.9	90.00	359.95	6,974.0	200.0	310.0	247.2	9.51	9.48	-0.74
7,400.0	90.00	359.95	6,974.0	250.1	310.0	296.7	0.00	0.00	0.00
7,500.0	90.00	359.95	6,974.0	350.1	309.9	395.4	0.00	0.00	0.00
7,600.0	90.00	359.95	6,974.0	450.1	309.8	494.0	0.00	0.00	0.00
7,700.0	90.00	359.95	6,974.0	550.1	309.7	592.7	0.00	0.00	0.00
7,800.0	90.00	359.95	6,974.0	650.1	309.6	691.4	0.00	0.00	0.00
7,900.0	90.00	359.95	6,974.0	750.1	309.5	790.1	0.00	0.00	0.00
8,000.0	90.00	359.95	6,974.0	850.1	309.4	888.8	0.00	0.00	0.00
8,100.0	90.00	359.95	6,974.0	950.1	309.4	987.5	0.00	0.00	0.00
8,200.0	90.00	359.95	6,974.0	1,050.1	309.3	1,086.2	0.00	0.00	0.00
8,300.0	90.00	359.95	6,974.0	1,150.1	309.2	1,184.9	0.00	0.00	0.00
8,400.0	90.00	359.95	6,974.0	1,250.1	309.1	1,283.5	0.00	0.00	0.00
8,500.0	90.00	359.95	6,974.0	1,350.1	309.0	1,382.2	0.00	0.00	0.00
8,600.0	90.00	359.95	6,974.0	1,450.1	308.9	1,480.9	0.00	0.00	0.00
8,700.0	90.00	359.95	6,974.0	1,550.1	308.8	1,579.6	0.00	0.00	0.00
8,800.0	90.00	359.95	6,974.0	1,650.1	308.8	1,678.3	0.00	0.00	0.00
8,900.0	90.00	359.95	6,974.0	1,750.1	308.7	1,777.0	0.00	0.00	0.00
9,000.0	90.00	359.95	6,974.0	1,850.1	308.6	1,875.7	0.00	0.00	0.00
9,100.0	90.00	359.95	6,974.0	1,950.1	308.5	1,974.4	0.00	0.00	0.00
9,200.0	90.00	359.95	6,974.0	2,050.1	308.4	2,073.0	0.00	0.00	0.00
9,300.0	90.00	359.95	6,974.0	2,150.1	308.3	2,171.7	0.00	0.00	0.00
9,400.0	90.00	359.95	6,974.0	2,250.1	308.3	2,270.4	0.00	0.00	0.00
9,500.0	90.00	359.95	6,974.0	2,350.1	308.2	2,369.1	0.00	0.00	0.00
9,600.0	90.00	359.95	6,974.0	2,450.1	308.1	2,467.8	0.00	0.00	0.00
9,700.0	90.00	359.95	6,974.0	2,550.1	308.0	2,566.5	0.00	0.00	0.00
9,800.0	90.00	359.95	6,974.0	2,650.1	307.9	2,665.2	0.00	0.00	0.00
9,900.0	90.00	359.95	6,974.0	2,750.1	307.8	2,763.9	0.00	0.00	0.00
10,000.0	90.00	359.95	6,974.0	2,850.1	307.8	2,862.5	0.00	0.00	0.00
10,100.0	90.00	359.95	6,974.0	2,950.1	307.7	2,961.2	0.00	0.00	0.00
10,200.0	90.00	359.95	6,974.0	3,050.1	307.6	3,059.9	0.00	0.00	0.00
10,300.0	90.00	359.95	6,974.0	3,150.1	307.5	3,158.6	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
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Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,400.0	90.00	359.95	6,974.0	3,250.1	307.4	3,257.3	0.00	0.00	0.00
10,500.0	90.00	359.95	6,974.0	3,350.1	307.3	3,356.0	0.00	0.00	0.00
10,600.0	90.00	359.95	6,974.0	3,450.1	307.3	3,454.7	0.00	0.00	0.00
10,700.0	90.00	359.95	6,974.0	3,550.1	307.2	3,553.4	0.00	0.00	0.00
10,800.0	90.00	359.95	6,974.0	3,650.1	307.1	3,652.0	0.00	0.00	0.00
10,900.0	90.00	359.95	6,974.0	3,750.1	307.0	3,750.7	0.00	0.00	0.00
11,000.0	90.00	359.95	6,974.0	3,850.1	306.9	3,849.4	0.00	0.00	0.00
11,100.0	90.00	359.95	6,974.0	3,950.1	306.9	3,948.1	0.00	0.00	0.00
11,200.0	90.00	359.95	6,974.0	4,050.1	306.8	4,046.8	0.00	0.00	0.00
11,300.0	90.00	359.95	6,974.0	4,150.1	306.7	4,145.5	0.00	0.00	0.00
11,400.0	90.00	359.95	6,974.0	4,250.1	306.6	4,244.2	0.00	0.00	0.00
11,500.0	90.00	359.95	6,974.0	4,350.1	306.5	4,342.9	0.00	0.00	0.00
11,600.0	90.00	359.95	6,974.0	4,450.1	306.5	4,441.5	0.00	0.00	0.00
11,700.0	90.00	359.95	6,974.0	4,550.1	306.4	4,540.2	0.00	0.00	0.00
11,800.0	90.00	359.95	6,974.0	4,650.1	306.3	4,638.9	0.00	0.00	0.00
11,900.0	90.00	359.95	6,974.0	4,750.1	306.2	4,737.6	0.00	0.00	0.00
12,000.0	90.00	359.95	6,974.0	4,850.1	306.1	4,836.3	0.00	0.00	0.00
12,100.0	90.00	359.96	6,974.0	4,950.1	306.1	4,935.0	0.00	0.00	0.00
12,200.0	90.00	359.96	6,974.0	5,050.1	306.0	5,033.7	0.00	0.00	0.00
12,300.0	90.00	359.96	6,974.0	5,150.1	305.9	5,132.4	0.00	0.00	0.00
12,400.0	90.00	359.96	6,974.0	5,250.1	305.8	5,231.1	0.00	0.00	0.00
12,500.0	90.00	359.96	6,974.0	5,350.1	305.8	5,329.7	0.00	0.00	0.00
12,600.0	90.00	359.96	6,974.0	5,450.1	305.7	5,428.4	0.00	0.00	0.00
12,700.0	90.00	359.96	6,974.0	5,550.1	305.6	5,527.1	0.00	0.00	0.00
12,800.0	90.00	359.96	6,974.0	5,650.1	305.5	5,625.8	0.00	0.00	0.00
12,900.0	90.00	359.96	6,974.0	5,750.1	305.4	5,724.5	0.00	0.00	0.00
13,000.0	90.00	359.96	6,974.0	5,850.1	305.4	5,823.2	0.00	0.00	0.00
13,100.0	90.00	359.96	6,974.0	5,950.1	305.3	5,921.9	0.00	0.00	0.00
13,200.0	90.00	359.96	6,974.0	6,050.1	305.2	6,020.6	0.00	0.00	0.00
13,300.0	90.00	359.96	6,974.0	6,150.1	305.1	6,119.3	0.00	0.00	0.00
13,400.0	90.00	359.96	6,974.0	6,250.1	305.1	6,217.9	0.00	0.00	0.00
13,500.0	90.00	359.96	6,974.0	6,350.1	305.0	6,316.6	0.00	0.00	0.00
13,600.0	90.00	359.96	6,974.0	6,450.1	304.9	6,415.3	0.00	0.00	0.00
13,700.0	90.00	359.96	6,974.0	6,550.1	304.8	6,514.0	0.00	0.00	0.00
13,800.0	90.00	359.96	6,974.0	6,650.1	304.8	6,612.7	0.00	0.00	0.00
13,900.0	90.00	359.96	6,974.0	6,750.1	304.7	6,711.4	0.00	0.00	0.00
14,000.0	90.00	359.96	6,974.0	6,850.1	304.6	6,810.1	0.00	0.00	0.00
14,100.0	90.00	359.96	6,974.0	6,950.1	304.5	6,908.8	0.00	0.00	0.00
14,200.0	90.00	359.96	6,974.0	7,050.1	304.5	7,007.5	0.00	0.00	0.00
14,300.0	90.00	359.96	6,974.0	7,150.1	304.4	7,106.1	0.00	0.00	0.00
14,400.0	90.00	359.96	6,974.0	7,250.1	304.3	7,204.8	0.00	0.00	0.00
14,500.0	90.00	359.96	6,974.0	7,350.1	304.2	7,303.5	0.00	0.00	0.00
14,600.0	90.00	359.96	6,974.0	7,450.1	304.2	7,402.2	0.00	0.00	0.00
14,700.0	90.00	359.96	6,974.0	7,550.1	304.1	7,500.9	0.00	0.00	0.00
14,800.0	90.00	359.96	6,974.0	7,650.1	304.0	7,599.6	0.00	0.00	0.00
14,900.0	90.00	359.96	6,974.0	7,750.1	303.9	7,698.3	0.00	0.00	0.00
15,000.0	90.00	359.96	6,974.0	7,850.1	303.9	7,797.0	0.00	0.00	0.00
15,100.0	90.00	359.96	6,974.0	7,950.1	303.8	7,895.7	0.00	0.00	0.00
15,200.0	90.00	359.96	6,974.0	8,050.1	303.7	7,994.3	0.00	0.00	0.00
15,300.0	90.00	359.96	6,974.0	8,150.1	303.7	8,093.0	0.00	0.00	0.00
15,400.0	90.00	359.96	6,974.0	8,250.1	303.6	8,191.7	0.00	0.00	0.00
15,500.0	90.00	359.96	6,974.0	8,350.1	303.5	8,290.4	0.00	0.00	0.00
15,600.0	90.00	359.96	6,974.0	8,450.1	303.4	8,389.1	0.00	0.00	0.00
15,700.0	90.00	359.96	6,974.0	8,550.1	303.4	8,487.8	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-731
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,800.0	90.00	359.96	6,974.0	8,650.1	303.3	8,586.5	0.00	0.00	0.00	
15,900.0	90.00	359.96	6,974.0	8,750.1	303.2	8,685.2	0.00	0.00	0.00	
16,000.0	90.00	359.96	6,974.0	8,850.1	303.2	8,783.9	0.00	0.00	0.00	
16,100.0	90.00	359.96	6,974.0	8,950.1	303.1	8,882.6	0.00	0.00	0.00	
16,200.0	90.00	359.96	6,974.0	9,050.1	303.0	8,981.2	0.00	0.00	0.00	
16,300.0	90.00	359.96	6,974.0	9,150.1	302.9	9,079.9	0.00	0.00	0.00	
16,400.0	90.00	359.96	6,974.0	9,250.1	302.9	9,178.6	0.00	0.00	0.00	
16,500.0	90.00	359.96	6,974.0	9,350.1	302.8	9,277.3	0.00	0.00	0.00	
16,600.0	90.00	359.96	6,974.0	9,450.1	302.7	9,376.0	0.00	0.00	0.00	
16,700.0	90.00	359.96	6,974.0	9,550.1	302.7	9,474.7	0.00	0.00	0.00	
16,800.0	90.00	359.96	6,974.0	9,650.1	302.6	9,573.4	0.00	0.00	0.00	
16,900.0	90.00	359.96	6,974.0	9,750.1	302.5	9,672.1	0.00	0.00	0.00	
17,000.0	90.00	359.96	6,974.0	9,850.1	302.4	9,770.8	0.00	0.00	0.00	
17,100.0	90.00	359.96	6,974.0	9,950.1	302.4	9,869.5	0.00	0.00	0.00	
17,200.0	90.00	359.96	6,974.0	10,050.1	302.3	9,968.1	0.00	0.00	0.00	
17,300.0	90.00	359.96	6,974.0	10,150.1	302.2	10,066.8	0.00	0.00	0.00	
17,379.3	90.00	359.96	6,974.0	10,229.5	302.2	10,145.1	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Emmy H25-731 BHL	0.00	0.00	6,974.0	10,229.5	302.2	1,323,418.67	3,249,189.87	40.217740	-104.607660	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
560.0	560.0	Pierre				
712.0	712.0	Upper Pierre Aquifer Top				
1,600.0	1,600.0	Upper Pierre Aquifer Base				
3,876.9	3,867.0	Parkman				
4,472.6	4,458.0	Sussex				
5,160.1	5,140.0	Shannon				
6,139.0	6,111.0	Teepee Buttes				
6,820.9	6,757.0	Sharon Springs				
6,907.1	6,819.0	Top A Chalk				
6,917.7	6,826.0	Top A Marl				
6,920.8	6,828.0	Top B Chalk				
7,000.8	6,876.0	Top B Marl				
7,165.2	6,946.0	Top C Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-731
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Prelim - Rev 2		

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
6,279.1	6,250.0	-19.2	12.5	Start DLS 9.51 TFO 23.27
6,309.5	6,280.0	-391.4	254.2	Start DLS 9.51 TFO -153.30
6,907.1	6,819.0	10,229.5	302.2	TPZ at 6907.1 MD
7,349.9	6,974.0	-395.4	256.4	Landing Pt at 7349.9
17,379.3	6,974.0	200.0	310.0	TD at 17379.3

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-731

Wellbore #1

Prelim - Rev 2

Anticollision Summary Report

01 November, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Reference	Prelim - Rev 2		
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	11/1/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	17,379.3	Prelim - Rev 2 (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 19						
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,222.4	6,902.6	2,120.7	2,027.0	22.634	CC, ES
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,500.0	6,909.7	2,138.8	2,042.7	22.254	SF
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	12,875.6	6,851.0	2,222.1	2,141.2	27.472	CC
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	12,900.0	6,851.2	2,222.3	2,141.1	27.387	ES
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,300.0	6,854.9	2,262.3	2,177.9	26.816	SF
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,177.9	6,883.9	3,273.8	3,180.6	35.127	CC
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,200.0	6,884.1	3,273.8	3,180.4	35.043	ES
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,800.0	6,888.4	3,332.3	3,234.0	33.876	SF
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,529.3	6,912.8	1,667.2	1,580.0	19.131	CC, ES
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,700.0	6,912.1	1,675.9	1,587.2	18.895	SF
Butterball D18-75HN - Original Drilling - Design #2	17,379.3	7,332.7	3,969.7	3,870.9	40.176	CC, ES, SF
Butterball D18-75HN - Original Drilling - Original Drilling -	17,379.3	6,801.0	3,965.1	3,841.9	32.196	CC, ES, SF
Butterball D18-75HN - Original Drilling - Plan A - Rev 1	17,379.3	6,800.0	3,945.9	3,846.3	39.618	CC, ES, SF
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,485.2	7,521.4	5,397.1	5,277.3	45.063	CC
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,600.0	7,522.5	5,398.3	5,277.0	44.509	ES
Butterball D19-17D - Butterball D19-17D - Butterball D19	17,379.3	7,529.4	5,470.7	5,334.3	40.114	SF
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,480.5	7,020.9	3,635.4	3,519.7	31.396	CC
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,500.0	7,020.9	3,635.5	3,519.5	31.341	ES
Butterball D19-18D - Butterball D19-18D - Butterball D19	17,200.0	7,020.5	3,705.9	3,584.1	30.405	SF
Butterball D19-19D - Butterball D19-19D - Butterball D19	15,901.5	6,983.0	2,631.1	2,519.1	23.504	CC, ES
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,300.0	6,986.5	2,661.1	2,545.6	23.039	SF
Butterball D19-20D - Butterball D19-20D - Butterball D19	14,929.9	6,988.3	2,765.8	2,663.7	27.096	CC, ES
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,300.0	6,990.5	2,790.5	2,685.8	26.672	SF
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	14,963.3	6,983.5	5,146.3	5,043.1	49.891	CC
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	15,000.0	6,983.9	5,146.4	5,042.8	49.697	ES
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	16,500.0	6,999.8	5,370.8	5,254.1	46.054	SF
Butterball D19-75HN - Original Drilling - Design #2	12,058.0	11,818.4	4,011.0	3,961.6	81.225	CC
Butterball D19-75HN - Original Drilling - Design #2	12,100.0	11,818.4	4,011.2	3,961.4	80.558	ES
Butterball D19-75HN - Original Drilling - Design #2	17,379.3	6,817.8	4,251.9	4,152.0	42.551	SF
Butterball D19-75HN - Original Drilling - Original Drilling -	12,164.7	11,661.1	3,999.1	3,859.2	28.599	CC, ES
Butterball D19-75HN - Original Drilling - Original Drilling -	15,900.0	15,900.0	4,190.4	3,973.8	19.344	SF
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,057.8	11,815.8	3,994.4	3,945.0	80.890	CC
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,100.0	11,815.8	3,994.6	3,944.8	80.222	ES
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	17,379.3	6,815.9	4,235.3	4,135.4	42.386	SF
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	12,936.5	6,875.9	3,274.3	3,192.8	40.193	CC
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,000.0	6,876.3	3,274.9	3,192.8	39.889	ES
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,700.0	6,881.4	3,362.1	3,274.4	38.344	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
D Section 19						
Butterball H24-69HN - Original Drilling - Design #2	17,379.3	11,270.6	168.0	139.2	5.828	CC, ES, SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,379.3	11,251.6	161.3	24.8	1.182	Level 2, CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 2	17,379.3	11,243.8	162.6	132.2	5.353	CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 3	17,379.3	11,247.3	156.7	132.4	6.445	CC, ES, SF
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,852.6	6,904.0	5,141.0	5,050.8	57.007	CC
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,900.0	6,904.0	5,141.2	5,050.5	56.714	ES
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	15,400.0	6,903.5	5,368.8	5,266.4	52.420	SF
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,789.9	7,446.2	1,308.6	1,164.2	9.067	CC
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,900.0	7,447.8	1,313.2	1,163.1	8.747	ES
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	15,100.0	7,450.7	1,344.8	1,186.7	8.504	SF
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,489.2	6,923.0	2,416.2	2,293.0	19.613	CC
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,500.0	6,923.0	2,416.2	2,292.9	19.595	ES
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,800.0	6,923.0	2,436.1	2,310.2	19.342	SF
Higgins D19-720 - Original Drilling - Original Drilling - As	17,379.3	6,951.8	5,779.4	5,659.9	48.359	CC, ES, SF
Higgins D19-720 - Original Drilling - Pilot Hole APD - Rev	17,379.3	6,964.0	5,783.3	5,683.3	57.841	CC, ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,323.4	6,967.1	5,783.6	5,684.1	58.137	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,379.3	6,940.3	5,783.8	5,683.7	57.813	ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,814.1	9,645.7	5,730.9	5,627.2	55.290	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,900.0	9,631.3	5,731.5	5,627.1	54.885	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,379.3	7,047.6	5,780.2	5,660.7	48.359	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,814.1	9,645.7	5,730.9	5,627.2	55.290	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,900.0	9,631.3	5,731.5	5,627.1	54.885	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,379.3	7,047.6	5,780.2	5,660.7	48.359	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,814.1	9,645.7	5,730.9	5,627.2	55.290	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,900.0	9,631.3	5,731.5	5,627.1	54.885	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,379.3	7,047.6	5,780.2	5,660.7	48.359	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,814.1	9,645.7	5,730.9	5,627.2	55.290	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,900.0	9,631.3	5,731.5	5,627.1	54.885	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,379.3	7,047.6	5,780.2	5,660.7	48.359	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	14,634.6	9,791.0	5,732.3	5,630.7	56.450	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	15,200.0	15,200.0	5,745.5	5,610.4	42.526	ES, SF
Independence D18-712 - Independence D18-712 - Prelim	16,825.7	5,861.5	6,191.1	6,075.9	53.708	CC
Independence D18-712 - Independence D18-712 - Prelim	16,900.0	5,855.8	6,191.6	6,075.6	53.384	ES
Independence D18-712 - Independence D18-712 - Prelim	17,379.3	5,819.6	6,215.7	6,095.5	51.698	SF
Independence D18-717 - Independence D18-717 - Prelim	16,765.5	6,245.1	5,893.1	5,777.0	50.777	CC
Independence D18-717 - Independence D18-717 - Prelim	16,800.0	6,246.1	5,893.2	5,776.8	50.625	ES
Independence D18-717 - Independence D18-717 - Prelim	17,379.3	6,383.6	5,924.7	5,802.4	48.451	SF
Independence D18-725 - Independence D18-725 - Prelim	17,205.4	6,989.5	5,380.0	5,257.8	44.042	CC
Independence D18-725 - Independence D18-725 - Prelim	17,379.3	7,134.7	5,380.6	5,256.5	43.350	ES, SF
Independence D18-732 - Independence D18-732 - Prelim	17,379.3	7,200.0	4,994.7	4,870.5	40.214	CC, ES, SF
Independence D18-739 - Independence D18-739 - Prelim	17,379.3	7,385.8	4,641.5	4,516.5	37.139	CC, ES, SF
Independence D18-744 - Independence D18-744 - Prelim	17,379.3	7,300.0	4,248.0	4,122.9	33.963	CC, ES, SF
Independence D18-753 - Independence D18-753 - Prelim	16,907.5	6,234.7	3,850.9	3,733.6	32.835	CC, ES
Independence D18-753 - Independence D18-753 - Prelim	17,379.3	6,234.7	3,879.7	3,758.3	31.954	SF
Independence D18-759 - Independence D18-759 - Prelim	16,970.2	6,497.5	3,569.6	3,450.8	30.036	CC
Independence D18-759 - Independence D18-759 - Prelim	17,000.0	6,511.2	3,569.8	3,450.5	29.946	ES
Independence D18-759 - Independence D18-759 - Prelim	17,379.3	6,909.0	3,583.5	3,459.4	28.866	SF
Independence D18-767 - Independence D18-767 - Prelim	17,379.3	7,121.2	3,020.9	2,896.9	24.357	CC, ES, SF
Independence D30-711 - Independence D30-711 - Prelim	17,379.3	5,639.2	6,268.1	6,149.0	52.618	CC, ES, SF
Independence D30-718 - Independence D30-718 - Prelim	17,100.0	7,674.6	6,035.0	5,912.8	49.359	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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
D Section 19						
Independence D30-718 - Independence D30-718 - Prelim	17,379.3	6,058.1	6,005.4	5,884.6	49.715	CC, ES
Independence D30-724 - Independence D30-724 - Prelim	17,379.3	7,412.0	5,577.4	5,452.7	44.752	CC, ES, SF
Independence D30-731 - Independence D30-731 - Prelim	7,150.0	17,637.6	5,141.7	5,037.3	49.267	ES
Independence D30-731 - Independence D30-731 - Prelim	7,198.1	17,591.3	5,141.5	5,037.4	49.402	CC
Independence D30-731 - Independence D30-731 - Prelim	17,379.3	7,372.1	5,265.0	5,140.6	42.323	SF
Independence D30-737 - Independence D30-737 - Prelim	17,379.3	7,401.0	4,732.9	4,608.0	37.899	CC, ES, SF
Independence D30-743 - Independence D30-743 - Prelim	7,250.0	17,575.5	4,354.3	4,250.9	42.072	ES
Independence D30-743 - Independence D30-743 - Prelim	7,308.1	17,517.8	4,354.2	4,251.0	42.215	CC
Independence D30-743 - Independence D30-743 - Prelim	17,379.3	7,436.8	4,381.2	4,256.1	35.033	SF
Independence D30-748 - Independence D30-748 - Prelim	17,200.0	7,509.6	3,838.2	3,714.9	31.130	SF
Independence D30-748 - Independence D30-748 - Prelim	17,379.3	6,283.4	3,812.9	3,692.2	31.589	CC, ES
Independence D30-758 - Independence D30-758 - Prelim	17,379.3	7,410.0	3,511.8	3,386.9	28.126	CC, ES, SF
Independence D30-765 - Independence D30-765 - Prelim	7,250.0	17,469.4	3,114.4	3,011.5	30.241	ES
Independence D30-765 - Independence D30-765 - Prelim	7,292.2	17,427.5	3,114.4	3,011.6	30.313	CC
Independence D30-765 - Independence D30-765 - Prelim	17,379.3	7,341.4	3,161.3	3,036.8	25.392	SF
Independence D30-770 - Independence D30-770 - Prelim	17,379.3	7,354.1	2,697.0	2,572.3	21.628	CC, ES, SF
Independence D30-777 - Independence D30-777 - Prelim	17,379.3	7,322.1	2,317.6	2,192.9	18.593	CC, ES, SF
Independence State D30-784 - Independence State D30	17,379.3	7,521.5	1,743.6	1,617.8	13.864	CC, ES, SF
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,285.6	6,898.8	4,326.7	4,232.5	45.901	CC
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,300.0	6,898.8	4,326.8	4,232.3	45.831	ES
LDS White D19-10 - LDS White D19-10 - LDS White D19	15,400.0	6,900.0	4,467.9	4,364.8	43.326	SF
LDS White D19-15 - LDS White D19-15 - LDS White D19	12,872.6	6,950.7	4,401.1	4,320.0	54.292	CC
LDS White D19-15 - LDS White D19-15 - LDS White D19	12,900.0	6,950.4	4,401.2	4,319.8	54.113	ES
LDS White D19-15 - LDS White D19-15 - LDS White D19	14,200.0	6,937.3	4,596.9	4,505.3	50.225	SF
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	12,916.2	6,895.2	5,691.6	5,610.3	70.022	CC
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	13,000.0	6,895.1	5,692.2	5,610.1	69.332	ES
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	15,000.0	6,892.6	6,061.0	5,963.5	62.167	SF
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	15,876.1	6,904.3	4,829.3	4,719.8	44.104	CC
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	15,900.0	6,904.4	4,829.3	4,719.6	44.007	ES
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	17,000.0	6,909.5	4,958.3	4,839.8	41.841	SF
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,386.6	6,913.0	5,999.8	5,790.2	28.631	CC
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,400.0	6,913.0	5,999.8	5,790.1	28.612	ES
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	15,600.0	6,913.0	6,121.2	5,901.2	27.811	SF
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,200.0	16,200.0	2,849.6	2,705.4	19.770	ES, SF
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,539.1	6,916.2	2,829.3	2,713.4	24.410	CC
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	16,962.5	6,951.7	1,957.5	1,837.4	16.299	CC
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,000.0	6,951.9	1,957.9	1,837.4	16.249	ES
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,200.0	6,953.2	1,971.9	1,849.9	16.161	SF
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,313.5	6,872.3	1,994.1	1,890.0	19.161	CC, ES
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,600.0	6,880.5	2,014.5	1,908.1	18.931	SF
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,405.6	6,897.6	3,255.8	3,150.9	31.022	CC, ES
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	16,000.0	6,905.5	3,309.6	3,199.9	30.144	SF
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	16,906.4	6,917.8	5,956.9	5,837.4	49.874	CC
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,000.0	6,917.4	5,957.6	5,837.2	49.495	ES
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,379.3	6,916.1	5,975.6	5,851.7	48.233	SF
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	16,988.9	6,877.6	4,498.7	4,378.6	37.458	CC
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,000.0	6,877.7	4,498.8	4,378.5	37.423	ES
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,379.3	6,878.2	4,515.6	4,391.9	36.497	SF
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,423.8	6,910.6	5,851.4	5,746.3	55.643	CC
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,500.0	6,911.0	5,851.9	5,746.0	55.250	ES
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	17,200.0	6,920.5	6,115.0	5,996.1	51.405	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 29						
Guttersen D29 778 - Guttersen D29- 778 - Prelim - Rev 0	17,379.3	14,877.2	7,260.0	7,089.9	42.673	CC, ES, SF
Guttersen D29-30D - Wellbore #1 - Design #1	12,173.3	7,107.3	6,585.2	6,534.8	130.570	CC
Guttersen D29-30D - Wellbore #1 - Design #1	12,200.0	7,107.3	6,585.3	6,534.6	129.909	ES
Guttersen D29-30D - Wellbore #1 - Design #1	15,500.0	7,107.3	7,377.7	7,302.9	98.662	SF
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	10,934.8	6,999.2	6,662.2	6,597.3	102.574	CC
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,000.0	6,999.2	6,662.5	6,597.0	101.677	ES
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	14,100.0	7,002.2	7,375.8	7,287.8	83.852	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,559.2	6,221.0	6,804.0	6,756.6	143.689	CC
Guttersen D29-65HN - Original Drilling - Original Drilling	9,600.0	6,221.0	6,804.1	6,756.4	142.668	ES
Guttersen D29-65HN - Original Drilling - Original Drilling	13,800.0	6,299.4	8,014.0	7,935.7	102.395	SF
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,537.2	6,151.6	6,823.5	6,796.2	250.048	CC
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,600.0	6,151.6	6,823.8	6,796.0	245.362	ES
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	14,400.0	6,151.6	8,378.8	8,318.1	138.002	SF
Guttersen D29-67HN - Original Drilling - Original Drilling	10,939.9	6,221.0	6,927.3	6,867.9	116.634	CC
Guttersen D29-67HN - Original Drilling - Original Drilling	11,000.0	6,221.0	6,927.5	6,867.6	115.553	ES
Guttersen D29-67HN - Original Drilling - Original Drilling	14,600.0	6,221.0	7,834.6	7,747.8	90.218	SF
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	10,937.4	6,250.0	6,923.3	6,884.1	176.394	CC
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	11,000.0	6,250.0	6,923.6	6,883.8	173.829	ES
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	15,100.0	6,250.0	8,078.2	8,009.1	116.966	SF
Guttersen D29-69HN - Original Drilling - Original Drilling	12,192.2	6,368.1	6,924.5	6,845.4	87.579	CC
Guttersen D29-69HN - Original Drilling - Original Drilling	12,300.0	6,368.1	6,925.3	6,845.2	86.467	ES
Guttersen D29-69HN - Original Drilling - Original Drilling	15,100.0	6,367.8	7,510.2	7,409.4	74.509	SF
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,184.8	6,424.9	6,925.9	6,875.2	136.787	CC
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,300.0	6,424.9	6,926.8	6,875.1	133.882	ES
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	15,800.0	6,446.9	7,812.8	7,735.8	101.452	SF
Guttersen D29-714 - Guttersen D29-714 - Prelim - Rev 0						Out of range
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 0						Out of range
Guttersen D29-730 - Guttersen D29-730 - Prelim Rev 0						Out of range
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	9,825.1	7,300.0	9,791.1	9,736.8	180.452	CC
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	17,379.3	14,787.2	9,851.3	9,682.6	58.400	ES, SF
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	9,800.9	7,426.1	9,321.2	9,266.4	170.055	CC
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	17,379.3	14,988.9	9,322.9	9,153.6	55.041	ES, SF
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	2,000.0	1,980.0	8,510.7	8,499.5	758.943	CC
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	2,100.0	2,029.1	8,511.0	8,499.4	733.043	ES
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	17,379.3	15,187.2	8,816.4	8,645.4	51.571	SF
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	9,201.0	5,724.3	8,421.7	8,376.7	187.029	CC
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	17,379.3	14,956.0	8,529.8	8,359.8	50.171	ES, SF
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	9,245.1	6,145.9	8,213.5	8,166.9	176.341	CC
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	17,379.3	14,803.1	8,279.6	8,110.1	48.865	ES, SF
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	9,711.7	7,240.1	7,759.3	7,706.5	146.815	CC
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	17,379.3	14,907.2	7,772.0	7,601.6	45.618	ES, SF
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 0	17,379.3	15,135.2	6,727.7	6,557.0	39.402	CC, ES, SF
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0						Out of range
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	8,218.7	6,258.0	7,022.5	6,981.3	170.498	CC, ES
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	13,000.0	6,258.0	8,495.5	8,422.9	117.049	SF
Guttersen D30-68-1HN - Original Drilling - Original Drilling	11,188.2	11,278.0	1,964.3	1,895.1	28.402	CC
Guttersen D30-68-1HN - Original Drilling - Original Drilling	11,200.0	11,278.0	1,964.3	1,895.1	28.364	ES
Guttersen D30-68-1HN - Original Drilling - Original Drilling	12,600.0	11,278.0	2,419.0	2,299.7	20.278	SF
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,182.4	11,260.0	1,963.4	1,922.0	47.454	CC
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,200.0	11,260.0	1,963.4	1,921.9	47.252	ES
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,700.0	11,260.0	2,030.4	1,985.1	44.753	SF
Guttersen D30-69-1HN - Original Drilling - Original Drilling	11,928.1	11,050.0	2,143.6	2,063.5	26.766	CC, ES
Guttersen D30-69-1HN - Original Drilling - Original Drilling	13,400.0	11,050.0	2,600.2	2,484.4	22.452	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
D Section 29						
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	11,897.9	11,000.0	2,183.2	2,135.3	45.565	CC
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	11,900.0	11,000.0	2,183.2	2,135.2	45.544	ES
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	12,400.0	11,000.0	2,240.2	2,188.3	43.150	SF
Guttersen Y05-711 - Guttersen Y05-711 - Prelim - Rev 0						Out of range
Guttersen Y05-719 - Guttersen Y05-719 - Prelim - Rev 0						Out of range
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 0						Out of range
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0						Out of range
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	9,903.7	7,323.4	9,570.8	9,515.7	173.552	CC
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	10,000.0	7,300.0	9,571.2	9,515.2	171.039	ES
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	13,000.0	6,850.0	9,981.0	9,899.8	122.924	SF
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,672.1	7,462.6	9,071.0	9,016.9	167.906	CC
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,800.0	7,450.0	9,071.7	9,016.6	164.652	ES
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	14,100.0	6,950.0	9,973.9	9,884.5	111.544	SF
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	2,000.0	1,980.0	8,510.7	8,499.5	758.943	CC, ES
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	15,000.0	5,704.1	9,992.2	9,902.3	111.165	SF
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,278.6	6,116.4	8,273.2	8,217.9	149.460	CC
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,400.0	6,137.9	8,274.1	8,217.6	146.407	ES
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	15,300.0	6,350.0	9,661.4	9,567.9	103.384	SF
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,140.2	6,254.7	8,120.0	8,065.5	149.098	CC
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,200.0	6,262.5	8,120.2	8,065.2	147.599	ES
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	15,100.0	6,350.0	9,511.3	9,419.9	104.092	SF
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	9,963.2	6,787.7	7,917.0	7,862.6	145.597	CC
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	10,100.0	6,707.4	7,917.7	7,862.3	142.938	ES
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	14,900.0	6,375.8	9,250.3	9,160.4	102.827	SF
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,845.1	7,215.0	7,177.9	7,123.5	132.138	CC
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,900.0	7,200.0	7,178.0	7,123.2	131.037	ES
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	14,400.0	6,600.0	8,318.3	8,230.8	95.071	SF
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	9,595.2	7,350.0	6,873.3	6,820.6	130.599	CC
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	9,700.0	7,319.4	6,873.8	6,820.3	128.520	ES
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	14,000.0	6,700.0	7,968.2	7,883.3	93.867	SF
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,188.2	6,948.0	5,489.2	5,447.8	132.612	CC
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,200.0	6,948.0	5,489.2	5,447.7	132.256	ES
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	14,000.0	6,948.0	6,167.4	6,105.5	99.709	SF
Jessie D29-1J - Wellbore #1 - Gyro Surveys						Out of range
Jessie D29-4J - Wellbore #1 - Gyro Surveys						Out of range
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,633.5	6,916.6	7,438.9	7,394.4	167.059	CC
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,700.0	6,916.7	7,439.2	7,394.3	165.429	ES
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	13,700.0	6,931.4	9,000.2	8,920.3	112.720	SF
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,008.9	7,008.2	8,407.9	8,360.6	177.784	CC
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,100.0	7,009.1	8,408.4	8,360.4	175.251	ES
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	14,400.0	7,063.0	9,987.4	9,900.8	115.319	SF
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	7,554.8	6,883.3	7,097.0	7,057.3	178.651	CC, ES
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	12,900.0	6,848.9	8,884.5	8,812.4	123.310	SF
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	7,675.0	6,908.8	8,461.7	8,421.7	211.528	CC
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	7,700.0	6,908.5	8,461.7	8,421.7	211.214	ES
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	13,000.0	6,954.3	9,997.3	9,922.0	132.780	SF
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,240.4	6,807.2	7,650.2	7,584.7	116.768	CC
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,300.0	6,807.1	7,650.4	7,584.3	115.787	ES
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	15,300.0	6,802.5	8,660.5	8,564.4	90.162	SF
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,651.4	6,864.1	8,532.8	8,463.3	122.918	CC
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,700.0	6,864.0	8,532.9	8,463.0	122.114	ES
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	16,200.0	6,850.0	9,669.2	9,565.5	93.207	SF
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,323.4	6,794.6	7,174.7	7,117.4	125.225	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
D Section 29						
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,400.0	6,794.9	7,175.1	7,117.1	123.747	ES
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	14,300.0	6,817.4	8,202.8	8,115.7	94.147	SF
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,297.5	6,900.8	8,531.6	8,474.2	148.569	CC
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,400.0	6,900.5	8,532.2	8,473.9	146.254	ES
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	15,500.0	6,914.1	9,992.5	9,896.6	104.201	SF
Kate White D29-1 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-15 - Wellbore #1 - Gyro Surveys	7,792.1	6,571.1	9,705.2	9,666.0	247.458	CC
Kate White D29-15 - Wellbore #1 - Gyro Surveys	7,800.0	6,571.1	9,705.2	9,665.9	247.309	ES
Kate White D29-15 - Wellbore #1 - Gyro Surveys	10,200.0	6,571.9	9,999.4	9,944.1	180.888	SF
Kate White D29-16 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-7 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-8 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,388.6	6,936.5	5,037.0	4,957.9	63.667	CC
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,400.0	6,936.6	5,037.0	4,957.8	63.571	ES
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	14,200.0	6,939.8	5,352.8	5,258.6	56.823	SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,121.9	7,030.1	2,694.0	2,619.1	35.979	CC, ES
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,700.0	7,027.4	2,755.3	2,675.6	34.558	SF
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	12,277.1	7,421.3	1,351.5	1,271.8	16.951	CC, ES
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	13,100.0	7,420.9	1,582.3	1,472.3	14.388	SF
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	10,986.7	7,395.7	1,644.8	1,552.4	17.802	CC
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,100.0	7,395.2	1,648.7	1,550.5	16.791	ES
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,700.0	7,392.6	1,792.8	1,670.7	14.681	SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	406.7	373.8	3,837.4	3,835.5	2,004.162	CC, ES
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	11,700.0	7,229.4	6,489.0	6,379.9	59.509	SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,558.3	6,826.2	4,928.6	4,884.8	112.581	CC
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,600.0	6,822.4	4,928.8	4,884.7	111.930	ES
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	11,300.0	6,621.9	5,635.7	5,573.7	90.819	SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	8,937.5	6,746.2	5,914.0	5,868.0	128.494	CC
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	9,000.0	6,745.1	5,914.4	5,867.9	127.233	ES
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	12,400.0	6,687.9	6,852.7	6,782.1	97.098	SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	7,570.3	6,991.2	4,581.2	4,541.1	114.238	CC, ES
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	10,300.0	6,763.8	5,329.4	5,274.9	97.781	SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	7,501.6	6,938.0	5,816.9	5,777.1	146.108	CC, ES
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	11,600.0	6,968.9	7,115.5	7,052.0	111.957	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,500.0	7,347.7	5,121.5	5,025.7	53.458	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,593.2	7,347.8	5,120.7	5,024.9	53.477	CC, ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	9,622.4	7,042.4	2,669.2	2,614.3	48.651	CC, ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	10,600.0	7,041.4	2,842.6	2,778.4	44.293	SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	396.5	363.6	3,840.0	3,838.2	2,075.116	CC
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	8,204.3	6,908.5	3,841.1	3,794.9	83.109	ES
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	10,000.0	6,873.9	4,239.9	4,181.9	73.138	SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,229.6	7,084.8	2,662.0	2,609.7	50.882	CC, ES
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,300.0	7,083.2	2,663.0	2,610.6	50.869	SF
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	433.0	400.0	3,839.0	3,836.9	1,867.510	CC
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	500.0	434.6	3,839.2	3,836.8	1,649.498	ES
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	12,100.0	7,244.8	7,272.7	7,183.2	81.226	SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	7,159.8	6,890.3	3,819.5	3,780.4	97.655	CC, ES
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	9,300.0	6,900.0	4,414.4	4,366.5	92.042	SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	7,065.2	6,984.5	2,646.9	2,606.3	65.212	CC, ES
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	8,400.0	7,002.3	3,000.4	2,951.0	60.724	SF
Dechant D31-77HN - Original Drilling - Original Drilling - A	6,824.6	6,830.8	3,255.5	3,218.3	87.574	CC, ES
Dechant D31-77HN - Original Drilling - Original Drilling - A	6,900.0	6,826.5	3,256.9	3,219.6	87.487	SF
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	6,828.8	6,836.5	3,257.7	3,243.0	221.938	CC, ES
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	9,900.0	6,350.0	4,496.4	4,470.4	172.427	SF
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	6,834.1	6,840.6	3,257.6	3,242.9	221.854	CC, ES
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	9,900.0	6,374.4	4,494.8	4,468.7	172.508	SF
Dechant D32-69HN - Original Drilling - APD Rev 0	6,903.9	6,299.2	6,456.1	6,441.3	436.160	CC, ES
Dechant D32-69HN - Original Drilling - APD Rev 0	13,500.0	6,348.4	9,159.9	9,112.0	191.121	SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	9,024.0	6,822.3	3,217.3	3,170.3	68.579	CC, ES
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	10,300.0	6,830.1	3,461.0	3,404.8	61.577	SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,121.4	6,929.1	2,052.7	2,004.8	42.797	CC, ES
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,700.0	6,933.8	2,132.7	2,080.4	40.788	SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,543.3	6,922.9	1,941.6	1,901.7	48.738	CC, ES
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,900.0	6,922.2	1,974.1	1,933.2	48.302	SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	7,633.4	6,727.7	3,407.1	3,367.7	86.515	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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
D Section 30						
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	9,300.0	6,685.2	3,792.5	3,744.8	79.436	SF
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,419.4	6,738.3	5,442.8	5,375.8	81.264	CC
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,500.0	6,739.3	5,443.4	5,375.7	80.351	ES
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	13,700.0	6,763.3	5,901.2	5,816.5	69.723	SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,729.3	6,919.0	4,531.5	4,424.8	42.465	CC
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,800.0	6,919.0	4,532.0	4,424.6	42.201	ES
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	13,000.0	6,919.0	4,706.2	4,589.0	40.147	SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,753.5	6,888.3	3,178.8	3,108.3	45.124	CC
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,800.0	6,888.2	3,179.1	3,108.2	44.837	ES
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	12,600.0	6,887.4	3,289.5	3,212.3	42.566	SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,781.6	6,871.7	2,012.6	1,941.9	28.477	CC
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,800.0	6,871.8	2,012.7	1,941.8	28.402	ES
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	12,100.0	6,872.8	2,037.6	1,964.2	27.741	SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,000.0	6,965.0	2,042.2	1,987.1	37.070	CC, ES
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,500.0	6,968.0	2,102.5	2,043.4	35.564	SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,051.4	6,888.3	3,233.8	3,178.5	58.495	CC
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,100.0	6,888.6	3,234.2	3,178.4	58.036	ES
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	11,200.0	6,896.4	3,431.7	3,367.5	53.483	SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,166.7	6,940.3	5,723.1	5,666.7	101.432	CC
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,200.0	6,940.2	5,723.2	5,666.5	100.903	ES
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	13,000.0	6,934.4	6,386.0	6,308.2	82.098	SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,160.1	6,937.0	2,417.4	2,339.0	30.829	CC, ES
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,600.0	6,937.0	2,457.1	2,376.1	30.342	SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,685.3	6,774.1	6,409.3	6,357.4	123.535	CC
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,700.0	6,774.0	6,409.3	6,357.3	123.240	ES
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	13,300.0	6,748.0	7,358.2	7,279.8	93.784	SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,397.7	6,927.0	4,540.4	4,445.6	47.888	CC
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,400.0	6,927.0	4,540.4	4,445.6	47.877	ES
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	11,800.0	6,927.0	4,752.0	4,645.7	44.710	SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	10,880.9	6,804.3	3,873.9	3,811.6	62.227	CC
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	10,900.0	6,804.6	3,874.0	3,811.5	62.045	ES
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	12,200.0	6,816.7	4,092.3	4,019.6	56.271	SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	10,917.2	6,890.5	2,690.0	2,625.4	41.596	CC, ES
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,600.0	6,894.0	2,775.3	2,705.1	39.508	SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,288.3	6,853.0	4,218.7	4,169.7	86.127	CC
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,300.0	6,852.9	4,218.7	4,169.6	85.962	ES
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	11,200.0	6,819.8	4,631.5	4,568.5	73.509	SF
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,665.1	6,912.1	5,060.4	5,008.3	97.032	CC
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,700.0	6,911.3	5,060.5	5,008.1	96.489	ES
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	12,100.0	6,843.6	5,615.4	5,545.2	80.002	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,001.0	67.1	58.4	7.707	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,379.3	17,530.1	1,321.8	1,121.1	6.584	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,401.0	44.7	34.2	4.258	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,499.5	45.5	34.6	4.173	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,401.0	22.4	11.9	2.129	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,500.4	22.8	11.9	2.095	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,401.0	22.4	11.9	2.129	CC, ES, SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,401.0	44.7	34.2	4.258	CC, ES
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,501.0	45.7	34.7	4.181	SF
Emmy State H25-751 - Wellbore #1 - Design #1	17,336.2	17,588.7	1,170.2	968.3	5.795	CC, ES, SF
Emmy State H25-757 - Wellbore #1 - Design #1	7,248.3	7,429.5	1,544.1	1,512.3	48.478	CC
Emmy State H25-757 - Wellbore #1 - Design #1	17,379.3	17,501.0	1,608.8	1,406.6	7.958	ES, SF
Emmy State H25-764 - Wellbore #1 - Design #1	6,946.0	7,140.6	1,995.0	1,980.2	134.459	CC
Emmy State H25-764 - Wellbore #1 - Design #1	17,379.3	17,466.3	2,047.4	1,947.4	20.481	ES, SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,404.4	2,418.2	2,179.2	2,168.7	206.745	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	17,379.3	17,391.2	2,488.4	2,286.1	12.298	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,111.7	2,124.7	2,201.6	2,192.3	238.530	CC
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,209.5	2,201.6	2,192.0	228.945	ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,379.3	17,436.3	2,927.0	2,724.5	14.454	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	1,911.7	1,924.7	2,226.7	2,218.4	267.291	CC
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,226.8	2,218.1	255.996	ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,379.3	17,481.1	3,368.1	3,166.2	16.683	SF
Emmy State H36-753 - Wellbore #1 - Design #1	6,850.0	7,843.7	1,231.6	1,198.9	37.615	SF
Emmy State H36-753 - Wellbore #1 - Design #1	7,205.3	7,555.8	1,222.2	1,189.9	37.879	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	7,181.6	7,400.0	1,699.9	1,668.7	54.573	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	7,500.0	7,200.0	1,708.1	1,676.6	54.192	SF
Emmy State H36-766 - Wellbore #1 - Design #1	7,352.1	7,250.0	2,096.2	2,065.5	68.200	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	8,100.0	6,869.3	2,160.5	2,128.3	67.023	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,400.0	2,413.0	2,184.6	2,174.0	207.545	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	8,700.0	6,679.9	2,722.7	2,687.9	78.044	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,111.2	2,125.2	2,206.9	2,197.6	239.098	CC
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,200.0	2,206.9	2,197.3	229.949	ES
Emmy State H36-780 - Wellbore #1 - Design #1	9,100.0	6,530.0	3,252.1	3,215.1	87.934	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	1,910.8	1,925.8	2,232.0	2,223.6	267.906	CC
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,232.0	2,223.3	256.601	ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	9,600.0	6,550.0	3,749.8	3,708.2	90.157	SF
Hurley H26-712 - Wellbore #1 - Design #1	10,007.8	7,519.1	3,799.1	3,751.2	79.228	CC
Hurley H26-712 - Wellbore #1 - Design #1	17,379.3	14,885.7	3,809.0	3,632.9	21.625	ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	9,950.0	7,391.1	4,135.0	4,088.5	88.761	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,379.3	14,775.8	4,217.7	4,044.5	24.359	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	17,379.3	14,835.2	4,654.0	4,479.7	26.709	CC, ES, SF
Hurley H26-730 - Wellbore #1 - Design #1	17,379.3	14,570.3	5,070.9	4,895.7	28.955	CC, ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	2,400.0	2,451.0	5,238.2	5,227.6	493.647	CC, ES
Hurley H26-736 - Wellbore #1 - Design #1	17,379.3	14,686.4	5,483.9	5,310.7	31.673	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,450.0	5,257.1	5,246.4	495.529	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,984.0	5,912.8	5,736.8	33.608	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,379.3	15,127.5	6,335.5	6,157.9	35.677	CC, ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	9,823.8	7,432.6	6,709.2	6,663.1	145.283	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,889.3	6,806.4	6,632.4	39.131	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	9,809.1	7,369.9	7,131.4	7,086.3	157.855	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,848.7	7,228.3	7,054.2	41.532	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,615.8	7,164.8	7,552.8	7,509.9	175.957	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,838.9	7,647.7	7,473.2	43.825	ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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 H26-776 - Wellbore #1 - Prelim - Rev 2	2,109.8	2,126.8	7,872.1	7,862.9	852.848	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,300.0	2,289.4	7,872.3	7,862.4	787.420	ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,902.5	8,077.5	7,900.2	45.562	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	1,909.8	1,926.8	7,893.1	7,884.8	947.401	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,893.2	7,884.5	907.422	ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,379.3	14,774.8	8,482.5	8,306.9	48.303	SF
Hurley H35-720 - Wellbore #1 - Design #1	10,130.5	7,438.1	4,386.8	4,339.2	92.127	CC
Hurley H35-720 - Wellbore #1 - Design #1	10,200.0	7,391.3	4,387.0	4,338.8	91.062	ES
Hurley H35-720 - Wellbore #1 - Design #1	12,400.0	6,726.1	4,752.1	4,688.4	74.628	SF
Hurley H35-727 - Wellbore #1 - Design #1	10,266.1	7,071.9	4,769.0	4,721.0	99.323	CC
Hurley H35-727 - Wellbore #1 - Design #1	10,300.0	7,048.7	4,769.1	4,720.8	98.766	ES
Hurley H35-727 - Wellbore #1 - Design #1	12,600.0	6,600.0	5,214.9	5,151.1	81.660	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,552.4	6,485.6	5,145.8	5,095.5	102.260	CC
Hurley H35-733 - Wellbore #1 - Design #1	10,600.0	6,484.1	5,146.0	5,095.3	101.462	ES
Hurley H35-733 - Wellbore #1 - Design #1	12,900.0	6,450.0	5,656.0	5,589.7	85.251	SF
Hurley H35-740 - Wellbore #1 - Design #1	2,400.0	2,451.0	5,320.0	5,309.4	501.354	CC, ES
Hurley H35-740 - Wellbore #1 - Design #1	13,400.0	6,172.1	6,247.3	6,178.4	90.619	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,903.3	1,953.3	5,338.5	5,330.2	637.340	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	5,338.8	5,330.1	613.773	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	13,600.0	5,828.7	6,691.2	6,621.5	95.941	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,483.5	10,600.7	6,562.9	6,511.6	127.839	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,500.0	10,603.2	6,562.9	6,511.5	127.743	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	14,000.0	6,850.0	7,668.3	7,593.6	102.698	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,483.6	10,407.5	6,985.0	6,934.6	138.677	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,500.0	10,409.9	6,985.0	6,934.6	138.554	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	14,300.0	6,700.0	8,200.8	8,125.3	108.532	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	6,425.2	10,437.7	7,418.0	7,368.7	150.340	CC, ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	14,700.0	6,550.0	8,688.7	8,610.4	111.001	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	6,423.2	10,457.2	7,842.6	7,793.8	160.706	CC, ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	15,100.0	6,450.0	9,182.4	9,101.4	113.284	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,109.8	2,126.8	7,923.4	7,914.2	858.404	CC
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,200.0	7,923.4	7,913.8	825.574	ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	15,500.0	6,450.0	9,648.6	9,564.8	115.188	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	1,909.8	1,926.8	7,944.3	7,935.9	953.539	CC
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,944.3	7,935.6	913.301	ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	15,400.0	5,862.1	9,950.8	9,867.4	119.384	SF
Hurley State H35-713 - Wellbore #1 - Design #1	9,871.7	7,428.3	3,904.4	3,858.3	84.851	CC
Hurley State H35-713 - Wellbore #1 - Design #1	9,900.0	7,414.9	3,904.4	3,858.2	84.472	ES
Hurley State H35-713 - Wellbore #1 - Design #1	11,900.0	6,822.3	4,246.7	4,187.2	71.301	SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,379.3	7,138.1	2,693.6	2,576.2	22.939	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,379.3	7,039.1	3,946.6	3,828.6	33.450	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,379.3	6,358.0	3,963.5	3,849.5	34.771	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Plan A - Rev 2	17,379.3	6,397.6	3,956.4	3,863.0	42.387	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Plan C - Rev 0	17,379.3	6,397.6	3,957.4	3,864.1	42.408	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,379.3	6,844.5	1,019.2	901.2	8.632	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Plan A - Rev 0	17,379.3	6,844.5	1,019.2	901.2	8.632	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,379.3	6,918.8	3,066.3	2,945.4	25.373	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,379.3	7,019.1	2,161.8	2,046.1	18.677	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,379.3	6,975.5	954.8	869.5	11.196	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1- As Drilled	17,379.3	6,973.2	979.0	904.5	13.142	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,379.3	6,987.0	3,312.7	3,074.2	13.888	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,379.3	6,870.5	4,842.1	4,727.6	42.275	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,379.3	6,800.0	5,687.1	5,563.6	46.072	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,379.3	6,949.9	4,923.2	4,800.7	40.189	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,379.3	7,065.2	7,013.8	6,881.6	53.052	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,379.3	7,414.6	6,003.8	5,869.9	44.836	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,379.3	7,323.1	7,043.7	6,890.0	45.828	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,379.3	7,619.9	7,812.8	7,686.5	61.905	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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	15,433.4	7,007.1	5,609.7	5,504.1	53.120	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,500.0	7,008.0	5,610.1	5,503.9	52.821	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,700.0	7,023.5	5,750.9	5,635.8	49.967	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,655.9	6,979.0	4,427.0	4,194.3	19.031	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,700.0	6,979.0	4,427.2	4,194.2	18.999	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,200.0	6,979.0	4,460.3	4,223.4	18.831	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,764.5	7,038.6	5,676.0	5,497.4	31.766	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,800.0	7,038.7	5,676.1	5,497.1	31.708	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,379.3	7,040.2	5,709.2	5,525.4	31.056	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,337.5	6,989.0	4,389.7	4,169.6	19.938	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,400.0	6,989.0	4,390.2	4,169.5	19.890	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,900.0	6,989.0	4,425.6	4,201.0	19.706	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,020.9	6,759.3	4,508.5	4,426.9	55.224	CC
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,100.0	6,762.3	4,509.2	4,426.9	54.757	ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	14,300.0	6,815.0	4,686.2	4,595.3	51.564	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,086.6	6,709.7	5,839.6	5,757.5	71.089	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,100.0	6,710.1	5,839.6	5,757.3	70.984	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	15,100.0	6,783.7	6,176.6	6,079.8	63.801	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,082.6	6,861.9	5,539.6	5,447.4	60.078	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,100.0	6,862.7	5,539.6	5,447.2	59.974	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	15,800.0	6,973.8	5,798.8	5,694.1	55.360	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,775.1	7,297.8	6,989.2	6,861.5	54.759	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,800.0	7,297.9	6,989.2	6,861.3	54.648	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,379.3	7,299.5	7,015.2	6,881.7	52.529	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,785.6	7,255.2	8,405.6	8,258.0	56.969	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,900.0	7,256.6	8,406.4	8,256.6	56.140	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,379.3	7,262.5	8,426.5	8,267.8	53.095	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,450.6	7,182.4	8,417.7	8,277.6	60.083	CC
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,500.0	7,183.4	8,417.8	8,277.6	60.012	ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	17,379.3	7,218.8	8,635.8	8,487.0	58.039	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,834.0	6,961.1	7,363.3	7,253.8	67.273	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,900.0	6,961.8	7,363.6	7,253.5	66.897	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,379.3	6,978.2	7,523.7	7,401.3	61.484	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,837.1	7,172.5	4,626.5	4,535.5	50.822	CC
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,900.0	7,170.9	4,626.9	4,535.3	50.521	ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	15,000.0	7,140.8	4,770.3	4,671.1	48.081	SF
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	15,316.9	6,847.6	6,957.6	6,852.5	66.221	CC
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	15,400.0	6,846.4	6,958.1	6,852.3	65.762	ES
Ritchey 06-23 - Original Drilling - Original Drilling - As Dri	17,379.3	6,800.0	7,256.8	7,137.1	60.635	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,167.7	7,100.0	6,215.7	6,102.7	54.982	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,200.0	7,100.0	6,215.8	6,102.5	54.840	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,379.3	7,100.0	6,332.7	6,210.3	51.708	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,736.5	7,069.3	5,175.2	5,073.4	50.861	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,800.0	7,069.4	5,175.6	5,073.3	50.596	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	16,000.0	7,071.5	5,327.2	5,217.0	48.318	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,095.4	7,128.9	3,794.9	3,680.8	33.273	CC
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,100.0	7,128.9	3,794.9	3,680.8	33.264	ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,700.0	7,134.7	3,842.8	3,725.4	32.749	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,077.7	6,847.0	7,269.9	7,177.8	78.938	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,100.0	6,846.9	7,270.0	7,177.7	78.764	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	16,800.0	6,831.4	7,763.0	7,651.4	69.592	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,066.2	6,888.2	8,570.6	8,478.4	92.993	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,100.0	6,888.4	8,570.6	8,478.2	92.681	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	17,379.3	6,906.9	9,188.8	9,072.1	78.736	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,915.1	6,933.2	8,558.8	8,477.3	105.025	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,000.0	6,935.8	8,559.3	8,477.0	104.033	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	16,900.0	7,087.4	9,440.1	9,329.5	85.374	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,796.6	7,067.8	6,848.4	6,767.5	84.675	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,900.0	7,075.1	6,849.2	6,767.3	83.696	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	15,600.0	7,265.7	7,397.4	7,295.9	72.876	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,699.1	6,875.1	6,617.0	6,528.3	74.657	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,800.0	6,878.0	6,617.7	6,528.2	73.895	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	16,100.0	6,932.4	7,038.8	6,932.8	66.419	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,133.7	6,946.0	8,001.2	7,802.8	40.340	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,200.0	6,946.0	8,001.4	7,802.5	40.219	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	15,300.0	6,946.0	8,289.3	8,073.6	38.432	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,856.6	6,912.0	4,908.4	4,799.1	44.906	CC
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,900.0	6,912.8	4,908.5	4,798.8	44.746	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	17,000.0	6,915.7	5,039.8	4,922.5	42.948	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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	14,163.3	6,908.9	794.2	701.0	8.521	CC, ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,200.0	6,908.8	795.1	701.5	8.494	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,175.6	6,954.8	399.6	306.2	4.278	CC, ES, SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,104.9	7,073.7	1,854.8	1,761.6	19.896	CC, ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,300.0	7,077.8	1,865.0	1,770.6	19.745	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,103.2	6,500.0	3,108.8	3,018.5	34.431	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,600.0	6,500.0	3,148.3	3,054.5	33.555	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	13,904.7	7,340.0	2,925.0	2,833.0	31.772	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	16,300.0	16,300.0	3,769.2	3,581.1	20.034	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,484.3	7,272.2	2,981.9	2,900.3	36.558	CC
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,500.0	7,265.8	2,981.9	2,900.3	36.525	ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	13,100.0	13,100.0	3,033.8	2,915.2	25.582	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,824.0	6,957.1	474.2	393.6	5.882	CC, ES, SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,855.4	6,929.3	511.7	430.9	6.331	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,900.0	6,929.4	513.7	432.4	6.321	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,697.9	6,996.2	1,634.6	1,555.0	20.528	CC
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,700.0	6,996.2	1,634.6	1,555.0	20.524	ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,900.0	6,997.6	1,647.1	1,566.2	20.375	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,644.6	6,946.7	1,110.2	1,012.4	11.348	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,700.0	6,950.2	1,111.6	1,013.4	11.322	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,505.7	6,960.8	157.8	70.7	1.812	CC, ES, SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,485.2	7,065.6	928.9	841.5	10.637	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,500.0	7,065.1	929.0	841.6	10.627	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,881.4	7,762.8	61.8	-4.6	0.931	Level 1, CC, ES, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,279.9	6,940.4	114.4	37.1	1.479	Level 3, CC, ES, SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,216.3	6,967.1	2,262.7	2,170.0	24.424	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,500.0	6,968.9	2,280.4	2,185.8	24.099	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,603.0	6,884.8	2,998.5	2,882.2	25.777	CC, ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	17,000.0	6,894.5	3,024.6	2,905.6	25.399	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,795.5	7,031.9	2,470.3	2,361.0	22.598	CC
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,800.0	7,031.9	2,470.3	2,360.9	22.590	ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	16,100.0	7,025.9	2,489.0	2,377.7	22.369	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,675.2	6,963.2	1,692.1	1,568.7	13.716	CC
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,700.0	6,962.8	1,692.2	1,568.7	13.697	ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,800.0	6,961.1	1,696.7	1,572.5	13.670	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,684.0	6,966.8	340.0	222.5	2.894	CC, ES, SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,317.5	6,990.4	1,544.6	1,440.1	14.785	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,400.0	6,992.2	1,546.8	1,441.8	14.727	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	16,934.7	6,961.2	537.8	417.9	4.486	CC, ES, SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,093.0	6,945.1	1,258.2	1,146.5	11.257	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,100.0	6,945.3	1,258.2	1,146.4	11.250	ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,200.0	6,947.9	1,262.8	1,150.1	11.203	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,497.8	6,934.9	768.2	662.2	7.245	CC
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,500.0	6,935.0	768.2	662.2	7.243	ES, SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,162.0	6,948.8	66.7	-36.1	0.649	Level 1, CC, ES, SF
Weld County Lumber 01 - Original Drilling - Original Drilling	15,905.8	6,952.5	254.9	144.9	2.318	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,700.0	7,095.0	1,041.0	974.8	15.732	SF
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,746.7	7,094.4	1,040.0	974.0	15.757	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	74.0	1,138.5	1,138.3	5,797.425	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	8,500.0	7,048.2	1,381.6	1,335.8	30.173	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	129.2	107.2	1,118.0	1,117.6	3,070.071	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	800.0	770.3	1,119.8	1,115.6	263.630	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	7,150.0	7,039.9	1,242.5	1,198.3	28.132	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,500.0	10,404.4	16.5	-48.1	0.255	Level 1, ES, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,508.4	10,404.4	14.2	-28.1	0.335	Level 1, CC
Dechant H25-64-1HN - Original Drilling - Plan A - Rev 3	8,510.4	10,421.9	25.0	8.6	1.522	CC, ES, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,400.0	10,439.7	18.2	-76.6	0.192	Level 1, ES
Dechant H25-65HN - Original Drilling - Original Drilling	9,416.2	10,440.2	8.4	-40.0	0.173	Level 1, CC, SF
Dechant H25-65HN - Original Drilling - Plan A - Rev 3	9,425.2	10,434.2	15.0	-7.0	0.683	Level 1, CC, ES, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,471.6	7,002.0	1,954.3	1,886.0	28.629	CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,500.0	7,002.6	1,954.5	1,886.0	28.538	ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,800.0	7,009.0	1,981.6	1,911.3	28.173	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,121.2	6,953.4	1,890.2	1,834.2	33.713	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,400.0	6,944.5	1,910.7	1,852.8	33.042	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,542.1	7,480.8	3,024.0	2,932.2	32.968	CC
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,600.0	7,481.6	3,024.5	2,932.2	32.760	ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	12,100.0	7,489.7	3,075.0	2,978.7	31.916	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,021.4	6,939.3	2,896.0	2,840.8	52.503	CC, ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,800.0	6,946.5	2,998.8	2,938.5	49.721	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,426.4	6,930.1	1,276.9	1,226.6	25.374	CC, ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,600.0	6,930.9	1,288.6	1,236.8	24.878	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,915.0	6,940.0	459.5	430.6	15.879	CC, ES, SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	8,907.5	6,937.1	759.9	713.5	16.360	CC, ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,000.0	6,937.1	765.5	718.3	16.213	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,068.3	6,940.6	678.7	631.1	14.255	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,100.0	6,940.7	679.5	631.7	14.230	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,885.7	6,931.9	1,851.8	1,776.0	24.412	CC
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,900.0	6,932.1	1,851.9	1,776.0	24.384	ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,100.0	6,935.2	1,864.2	1,787.0	24.159	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	8,903.7	7,055.0	3,300.4	3,253.5	70.373	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	10,100.0	7,080.7	3,510.4	3,456.2	64.764	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,307.4	2,286.5	1,459.5	1,446.7	113.589	CC
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,400.0	2,378.9	1,459.6	1,446.2	109.090	ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,500.0	6,964.8	1,775.1	1,735.2	44.518	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	1,982.4	1,953.5	546.7	535.8	49.869	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,100.0	2,067.5	547.1	535.5	47.064	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,600.0	6,953.7	712.5	672.5	17.802	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,228.6	6,945.9	1,117.7	1,075.5	26.438	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,300.0	6,945.1	1,120.0	1,077.5	26.320	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,600.0	6,923.3	902.8	833.6	13.053	CC, ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,700.0	6,923.6	908.3	838.2	12.958	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,476.9	6,954.5	480.7	412.5	7.055	CC, ES, SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,038.6	6,948.7	775.0	719.6	13.998	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,100.0	6,948.0	777.4	721.7	13.973	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,279.4	6,931.6	896.9	839.5	15.625	CC, ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	6,931.4	905.0	846.5	15.471	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,780.5	7,077.1	2,182.1	2,119.7	35.014	CC
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,800.0	7,077.3	2,182.1	2,119.7	34.930	ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	11,200.0	7,083.0	2,222.0	2,157.0	34.176	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,630.4	6,933.0	202.5	27.5	1.157	Level 2, CC, ES, SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	0.0	0.0	2,493.8			
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,100.0	2,083.8	2,498.6	2,486.9	213.969	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	8,600.0	6,918.5	2,840.7	2,797.2	65.211	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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	11,732.9	6,878.6	5,814.5	5,744.3	82.824	CC
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,800.0	6,881.4	5,814.9	5,744.1	82.129	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	16,400.0	16,400.0	7,452.2	7,333.2	62.635	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,052.1	6,986.2	5,652.4	5,596.8	101.612	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,100.0	6,986.4	5,652.6	5,596.6	100.913	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	12,700.0	7,001.9	6,242.0	6,168.1	84.463	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,222.7	6,901.5	4,854.1	4,788.4	73.922	CC
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,300.0	6,902.5	4,854.7	4,788.4	73.191	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	13,000.0	6,917.0	5,169.2	5,091.1	66.152	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,239.4	7,482.7	2,220.5	2,137.6	26.797	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,300.0	7,483.2	2,221.3	2,138.4	26.785	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,365.7	7,950.0	3,683.7	3,604.9	46.760	CC
Dechant H25-33D - Original Drilling - Original Drilling - As	8,400.0	7,950.0	3,683.9	3,604.8	46.619	ES
Dechant H25-33D - Original Drilling - Original Drilling - As	9,800.0	9,800.0	3,931.2	3,831.9	39.605	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	8,939.0	7,028.3	4,283.7	4,236.6	91.065	CC, ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	10,800.0	7,000.0	4,670.3	4,611.6	79.464	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	518.1	541.1	5,566.9	5,564.2	2,036.711	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,100.0	6,981.6	5,571.9	5,523.9	116.111	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	12,000.0	6,984.4	6,292.6	6,225.5	93.856	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,121.1	1,148.1	5,379.4	5,373.1	864.970	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,300.0	1,312.9	5,379.9	5,372.7	747.525	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	11,000.0	7,084.0	6,562.0	6,503.0	111.154	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	13.4	4,300.3			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,185.1	4,302.7	4,296.2	660.153	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	10,100.0	7,005.5	5,227.8	5,175.7	100.373	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,252.3	7,142.0	4,945.0	4,899.4	108.545	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,300.0	7,142.0	4,945.2	4,899.4	107.893	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	10,900.0	7,165.8	5,609.2	5,546.4	89.196	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,809.2	6,600.0	8,456.2	8,386.3	120.962	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,900.0	6,600.0	8,456.7	8,386.0	119.585	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	16,900.0	7,187.2	9,869.3	9,762.9	92.731	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,110.7	7,000.4	6,796.0	6,739.9	120.947	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,200.0	7,002.6	6,796.6	6,739.7	119.384	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	13,700.0	7,061.1	7,685.5	7,604.3	94.588	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,653.5	7,040.7	7,886.6	7,825.6	129.152	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,700.0	7,040.6	7,886.8	7,825.3	128.322	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	14,900.0	7,029.5	8,957.4	8,866.5	98.548	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,696.4	6,739.5	6,774.4	6,705.1	97.696	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,800.0	6,741.9	6,775.2	6,705.0	96.424	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	14,700.0	6,800.0	7,409.7	7,318.8	81.472	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,444.5	6,700.0	6,916.4	6,849.6	103.446	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,500.0	6,712.1	6,916.6	6,849.2	102.628	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	14,700.0	6,779.0	7,643.8	7,553.6	84.822	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,827.2	6,893.9	3,856.7	3,794.7	62.216	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	12,000.0	6,887.2	4,031.0	3,960.9	57.496	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,617.2	7,108.1	4,231.3	4,158.2	57.955	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	12,900.0	7,116.1	4,421.4	4,338.6	53.350	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,282.8	7,100.6	4,318.7	4,258.9	72.309	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,300.0	7,100.2	4,318.7	4,258.8	72.152	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	11,800.0	7,066.2	4,577.3	4,507.8	65.871	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,503.7	6,967.7	5,049.0	4,992.4	89.182	CC, ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	11,400.0	6,947.9	5,393.3	5,326.4	80.554	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,019.8	7,069.8	8,425.0	8,369.1	150.598	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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 05-26 - Original Drilling - Original Drilling - As Drill	10,100.0	7,070.6	8,425.4	8,368.8	148.837	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	15,100.0	7,123.4	9,838.2	9,746.7	107.483	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	891.9	877.9	8,701.0	8,696.2	1,827.874	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	900.0	882.6	8,701.0	8,696.2	1,814.698	ES
Moser 41-27 - Original Drilling - Original Drilling - As Drill	14,200.0	14,200.0	9,700.9	9,593.9	90.669	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	404.0	400.0	7,162.0	7,160.0	3,602.423	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	957.9	7,163.5	7,158.2	1,358.497	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	13,500.0	7,136.2	8,459.7	8,381.8	108.650	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,230.0			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,200.0	2,147.1	8,235.2	8,223.0	679.133	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	14,300.0	6,900.0	9,973.1	9,890.7	120.969	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,035.8			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,153.3	8,040.9	8,034.5	1,253.582	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,900.0	6,776.3	9,954.5	9,883.2	139.610	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	559.8	565.8	6,530.6	6,527.7	2,238.487	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,379.9	6,535.9	6,522.5	488.293	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	12,400.0	6,847.0	8,515.4	8,449.7	129.495	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	5,787.0			
Moser H26-18D - Original Drilling - Original Drilling - As D	14,000.0	7,434.2	7,027.0	6,938.5	79.380	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	212.2	230.2	6,317.6	6,316.6	6,566.149	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,404.4	2,429.3	6,324.2	6,310.6	465.728	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	15,300.0	15,300.0	9,541.2	9,433.0	88.192	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	5.3	7,090.4			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,767.9	7,094.9	7,085.0	716.130	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	13,200.0	7,091.3	8,911.3	8,837.6	120.920	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,075.2	7,098.5	4,983.8	4,906.7	64.657	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,100.0	7,098.3	4,983.8	4,906.5	64.456	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	13,800.0	7,080.3	5,273.8	5,183.2	58.216	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	21.1	5,788.1			
Moser H26-28D - Original Drilling - Original Drilling - As D	15,500.0	7,558.0	7,240.6	7,123.6	61.881	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	32.6	5,788.8			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	5,789.4	5,788.6	7,356.477	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	14,100.0	14,100.0	7,166.7	7,000.3	43.081	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,400.0	2,398.0	7,710.6	7,657.4	144.914	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,500.0	2,498.0	7,711.7	7,656.3	139.187	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	10,700.0	6,972.0	8,480.8	8,306.9	48.751	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,348.5	6,325.8	6,333.0	6,297.0	175.554	CC
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,350.0	6,327.2	6,333.0	6,297.0	175.513	ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,950.0	7,056.7	6,510.0	6,470.4	164.392	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	0.0	11.9	8,040.0			
Cannon H35-03D - Original Drilling - Original Drilling - As	4,400.0	4,454.7	8,055.0	8,030.2	324.855	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	9,900.0	6,700.0	9,933.4	9,887.0	214.071	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	6,353.2	6,400.0	5,463.3	5,427.0	150.363	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,250.0	6,969.8	5,803.1	5,759.7	133.672	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,468.1	5,488.7	6,550.4	6,519.5	211.543	CC
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,600.0	5,578.9	6,550.8	6,519.2	207.288	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	7,100.0	7,015.7	6,794.1	6,754.7	172.550	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	507.5	523.5	7,418.0	7,415.3	2,781.912	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	700.0	669.1	7,418.5	7,414.9	2,051.266	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	10,900.0	6,791.0	9,993.4	9,942.5	196.215	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	0.0	0.0	8,754.3			
Cannon H35-12 - Original Drilling - Original Drilling - As D	9,000.0	6,997.0	9,954.8	9,910.5	224.811	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	9,397.0			
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,350.0	6,500.0	9,422.0	9,385.3	256.843	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,150.0	7,147.1	9,651.3	9,611.4	241.922	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,342.7	6,413.2	8,229.0	8,192.7	226.383	CC
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,350.0	6,418.3	8,229.0	8,192.7	226.166	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,300.0	7,026.2	8,579.8	8,533.2	184.102	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,344.7	6,324.9	7,255.0	7,114.4	51.591	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,350.0	6,330.1	7,255.0	7,114.3	51.548	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	7,000.0	6,885.5	7,459.2	7,306.6	48.854	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,073.1	2,085.1	7,993.1	7,981.4	681.922	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,200.0	2,164.1	7,993.5	7,981.2	651.073	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,400.0	6,800.0	9,944.6	9,894.0	196.572	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,164.6	5,283.7	6,763.4	6,733.9	229.237	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,200.0	5,300.0	6,763.5	6,733.8	228.135	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,950.0	6,934.0	6,925.2	6,886.3	177.695	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	100.0	0.0	5,760.1	5,760.0	10,000.000	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	600.0	468.9	5,762.2	5,759.5	2,149.561	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,900.0	7,030.3	6,038.3	5,998.9	153.069	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	5,464.3	5,466.1	7,493.7	7,462.8	242.499	CC
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,100.0	6,063.5	7,496.4	7,461.9	216.991	ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,900.0	6,625.9	7,641.4	7,603.5	201.767	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,158.6	5,961.9	7,248.6	7,214.2	211.167	CC
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,322.9	6,033.9	7,248.8	7,213.8	207.266	ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,950.0	6,903.3	7,441.1	7,402.2	191.364	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,339.4	6,319.0	8,008.7	7,972.7	222.298	CC, ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,950.0	6,762.6	8,182.7	8,144.3	213.143	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	717.5	730.6	9,107.3	9,103.5	2,366.483	CC
Cannon X02-29 - Original Drilling - Original Drilling - As D	2,700.0	2,636.4	9,111.8	9,096.7	601.019	ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	6,950.0	6,824.2	9,317.9	9,278.8	238.105	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	650.1	652.2	7,589.6	7,586.2	2,219.975	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,152.3	7,592.1	7,585.7	1,186.040	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,900.0	6,855.7	9,952.1	9,890.8	162.197	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,400.0	2,422.0	5,446.8	5,393.2	101.603	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,600.0	2,621.8	5,449.6	5,391.7	94.010	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,250.0	6,987.8	5,768.1	5,613.3	37.267	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	1,145.1	1,163.2	5,964.1	5,957.7	943.867	CC
Foster UPRR 32-35 - Original Drilling - Original Drilling -	2,411.1	2,434.1	5,969.0	5,955.5	438.946	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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						
Foster UPRR 32-35 - Original Drilling - Original Drilling -	7,050.0	6,948.9	6,169.6	6,130.5	157.722	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	558.1	566.1	4,214.4	4,211.5	1,444.251	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	2,400.0	2,377.7	4,219.8	4,206.4	315.309	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,300.0	6,982.2	4,522.9	4,474.2	92.979	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	5,664.7	5,755.9	4,687.5	4,655.1	144.748	CC
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	5,900.0	5,968.7	4,687.9	4,654.2	139.081	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,850.0	6,929.0	4,780.0	4,741.1	122.903	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	6,734.6			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	1,900.0	1,865.9	6,744.9	6,734.4	644.079	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	12,100.0	7,249.8	9,160.5	9,097.7	145.763	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	148.5	140.5	8,268.6	8,268.1	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,151.2	8,271.2	8,264.8	1,292.536	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	11,500.0	6,700.0	9,996.0	9,935.0	163.940	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	338.5	339.5	8,340.0	8,338.4	5,126.365	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	1,900.0	1,869.1	8,345.1	8,334.6	795.696	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,200.0	6,594.3	9,960.1	9,909.7	197.431	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	511.8	525.8	7,059.3	7,056.6	2,643.654	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	700.0	687.3	7,059.7	7,056.0	1,931.882	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	11,900.0	6,917.5	9,891.8	9,833.5	169.639	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	0.0	9.1	4,960.0			
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	2,600.0	2,653.0	4,964.0	4,949.3	337.469	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	7,200.0	6,949.4	5,193.4	5,154.1	132.249	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	5.8	7,192.0			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,663.1	7,193.4	7,184.1	772.908	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	12,300.0	6,700.0	9,788.3	9,726.1	157.330	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	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	6,374.0	6,276.7	2,200.3	2,164.5	61.516	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,600.0	6,528.3	2,238.8	2,201.7	60.401	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	900.0	893.0	5,783.4	5,778.5	1,180.589	CC
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	1,000.0	952.3	5,783.7	5,778.4	1,084.802	ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,750.0	6,276.1	6,005.9	5,966.5	152.725	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,391.4	6,425.4	5,281.1	5,242.8	137.841	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,550.0	6,450.0	5,302.6	5,263.9	137.018	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,394.2	6,340.2	4,598.3	4,559.2	117.648	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,400.0	6,345.9	4,598.3	4,559.1	117.159	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,100.0	6,897.8	4,962.4	4,907.8	90.887	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	5,474.5	5,447.7	526.6	495.3	16.857	CC
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	5,700.0	5,671.9	527.2	494.6	16.181	ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,550.0	6,513.4	545.5	508.0	14.541	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,406.8	6,479.5	2,429.8	2,384.9	54.139	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,550.0	6,615.3	2,446.9	2,401.4	53.740	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,366.7	6,200.0	5,387.4	5,351.2	148.480	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,550.0	6,250.0	5,415.6	5,378.9	147.191	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,361.9	6,203.9	5,629.4	5,593.1	155.054	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,550.0	6,250.0	5,656.7	5,619.9	153.600	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,382.4	6,350.0	5,203.0	5,163.5	131.873	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,500.0	6,350.0	5,215.2	5,175.5	131.485	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,387.4	6,370.4	4,954.3	4,907.9	106.626	CC, ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,500.0	6,400.0	4,965.8	4,919.0	106.003	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,393.2	6,350.0	4,949.6	4,909.8	124.419	CC, ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,500.0	6,350.0	4,960.2	4,920.2	124.057	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,772.1	6,746.4	668.2	629.8	17.435	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,800.0	6,761.9	668.7	630.3	17.428	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	3,365.1	3,330.8	684.2	665.5	36.520	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	3,600.0	3,563.8	684.9	664.8	34.127	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,450.0	6,384.3	792.4	755.6	21.539	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,650.1	6,629.9	448.7	410.7	11.804	CC, ES, SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,592.0	6,578.1	208.9	170.9	5.504	CC, ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,600.0	6,584.2	208.9	170.9	5.500	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,536.7	6,432.0	1,138.7	1,101.7	30.770	CC, ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,650.0	6,500.0	1,143.1	1,105.7	30.606	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,373.8	6,312.0	3,771.1	3,735.2	104.898	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,900.0	6,900.0	3,960.4	3,921.6	102.259	SF
Dechant State H36-18D - Original Drilling - Original Drilling	6,352.7	6,512.4	1,777.0	1,733.2	40.565	CC, ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,500.0	6,656.0	1,789.5	1,745.1	40.264	SF
Dechant State H36-19 - Original Drilling - Original Drilling	4,500.8	4,519.0	2,736.2	2,710.9	108.303	CC
Dechant State H36-19 - Original Drilling - Original Drilling	4,600.0	4,604.7	2,736.4	2,710.6	106.074	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,700.0	6,504.6	2,847.3	2,810.1	76.521	SF
Dechant State H36-20D - Original Drilling - Original Drilling	6,354.4	6,411.3	3,626.4	3,589.7	98.749	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,700.0	6,710.3	3,700.6	3,662.5	96.925	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,378.7	6,412.1	2,936.0	2,899.6	80.593	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,650.0	6,649.7	2,991.7	2,954.1	79.553	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,405.9	6,640.8	4,051.5	4,006.7	90.553	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,600.0	6,779.4	4,082.4	4,036.9	89.737	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,012.7	1,007.7	2,739.0	2,734.7	635.591	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,065.0	2,739.2	2,734.5	581.606	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,900.0	6,988.4	3,999.1	3,960.4	103.151	SF
Dechant State H36-32D - Original Drilling - Original Drilling	6,148.6	6,170.6	4,462.6	4,425.6	120.700	CC
Dechant State H36-32D - Original Drilling - Original Drilling	6,322.0	6,304.0	4,462.8	4,425.0	118.084	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 H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

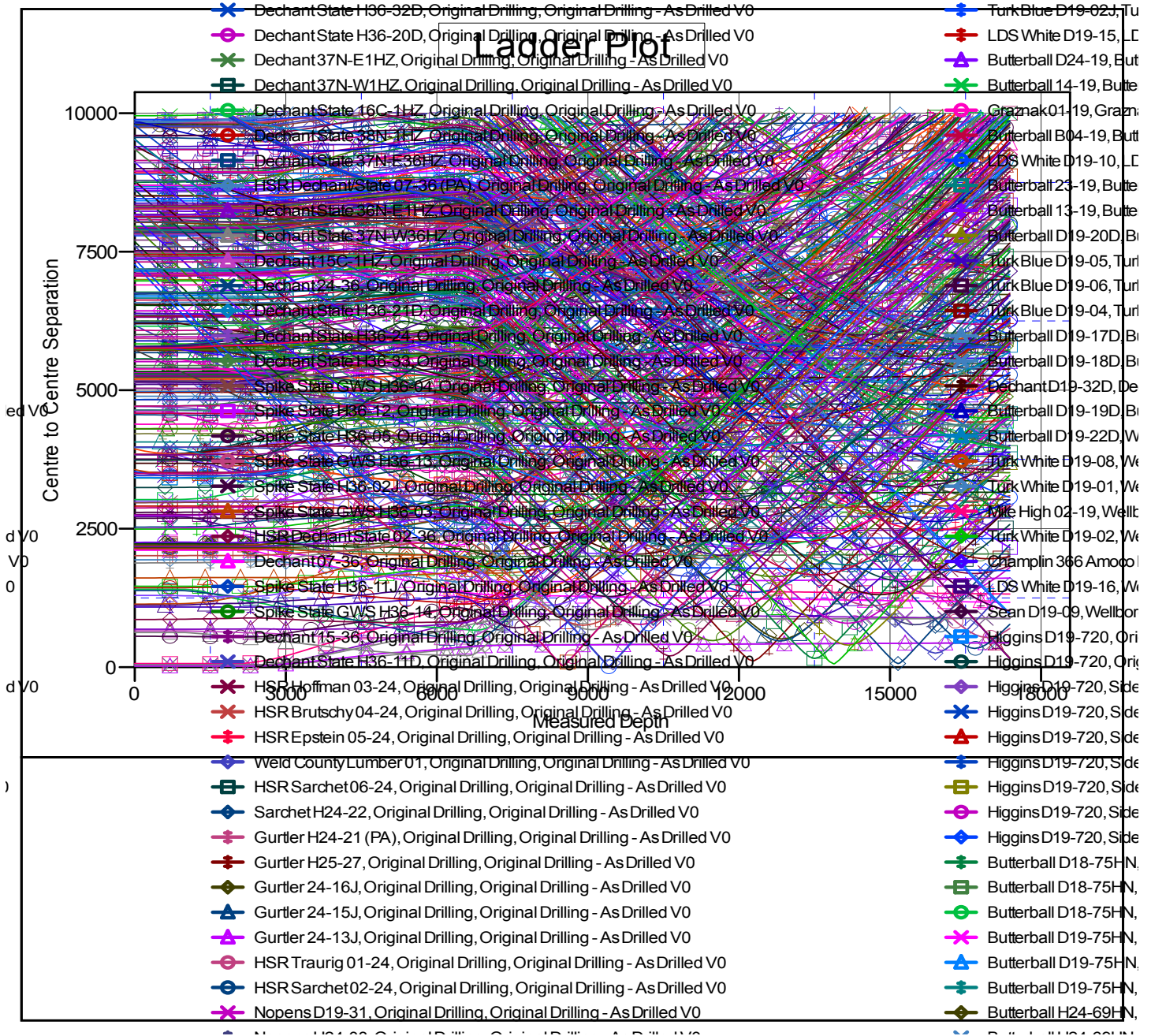
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 36						
Dechant State H36-32D - Original Drilling - Original Drilling	6,750.0	6,757.1	4,544.5	4,504.6	113.998	SF
Dechant State H36-33 - Original Drilling - Original Drilling	0.0	4.0	4,715.5			
Dechant State H36-33 - Original Drilling - Original Drilling	500.0	479.6	4,716.4	4,714.0	1,930.162	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,700.0	6,820.8	5,275.6	5,231.2	118.744	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	5,018.4	4,972.7	805.9	777.8	28.663	CC
HSR Dechant State 02-36 - Original Drilling - Original Dri	5,200.0	5,150.6	806.6	777.4	27.649	ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,500.0	6,454.7	826.2	789.4	22.442	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,398.9	6,343.9	1,539.7	1,398.9	10.934	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,400.0	6,344.9	1,539.7	1,398.9	10.932	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,550.0	6,493.0	1,558.5	1,414.4	10.816	SF
Spike State GWS H36-03 - Original Drilling - Original Dri	0.0	0.0	1,610.2			
Spike State GWS H36-03 - Original Drilling - Original Dri	3,200.0	3,174.4	1,618.9	1,601.2	91.545	ES
Spike State GWS H36-03 - Original Drilling - Original Dri	6,600.0	6,490.8	1,738.9	1,701.9	46.948	SF
Spike State GWS H36-04 - Original Drilling - Original Dri	0.0	0.0	2,968.6			
Spike State GWS H36-04 - Original Drilling - Original Dri	2,600.0	2,624.1	2,974.7	2,960.1	203.586	ES
Spike State GWS H36-04 - Original Drilling - Original Dri	7,200.0	6,882.6	3,301.1	3,254.6	70.972	SF
Spike State GWS H36-13 - Original Drilling - Original Dri	6,496.1	7,444.0	5,529.2	5,489.4	139.138	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	6,650.0	7,444.0	5,547.3	5,507.2	138.396	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,421.0	6,648.6	4,932.4	4,895.3	132.849	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	6,700.0	6,974.5	4,991.6	4,952.9	128.906	SF
Spike State H36-02J - Original Drilling - Original Drilling -	6,335.9	6,285.0	2,699.3	2,649.5	54.221	CC
Spike State H36-02J - Original Drilling - Original Drilling -	6,350.0	6,299.0	2,699.4	2,649.1	53.709	ES
Spike State H36-02J - Original Drilling - Original Drilling -	7,050.0	6,875.0	2,927.0	2,857.7	42.182	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	5,324.7	5,317.7	3,633.9	3,603.8	120.945	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	6,013.4	6,017.2	3,636.6	3,602.5	106.407	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,750.0	6,649.1	3,717.1	3,679.3	98.281	SF
Spike State H36-11J - Original Drilling - Original Drilling -	6,395.2	6,494.8	4,606.0	4,569.4	125.728	CC
Spike State H36-11J - Original Drilling - Original Drilling -	6,400.0	6,498.9	4,606.0	4,569.4	125.645	ES
Spike State H36-11J - Original Drilling - Original Drilling -	6,750.0	6,798.8	4,694.3	4,656.1	122.711	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,355.6	6,339.7	4,478.4	4,442.3	124.040	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,950.0	6,890.0	4,666.4	4,627.6	120.229	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4834.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-731
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.58°



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

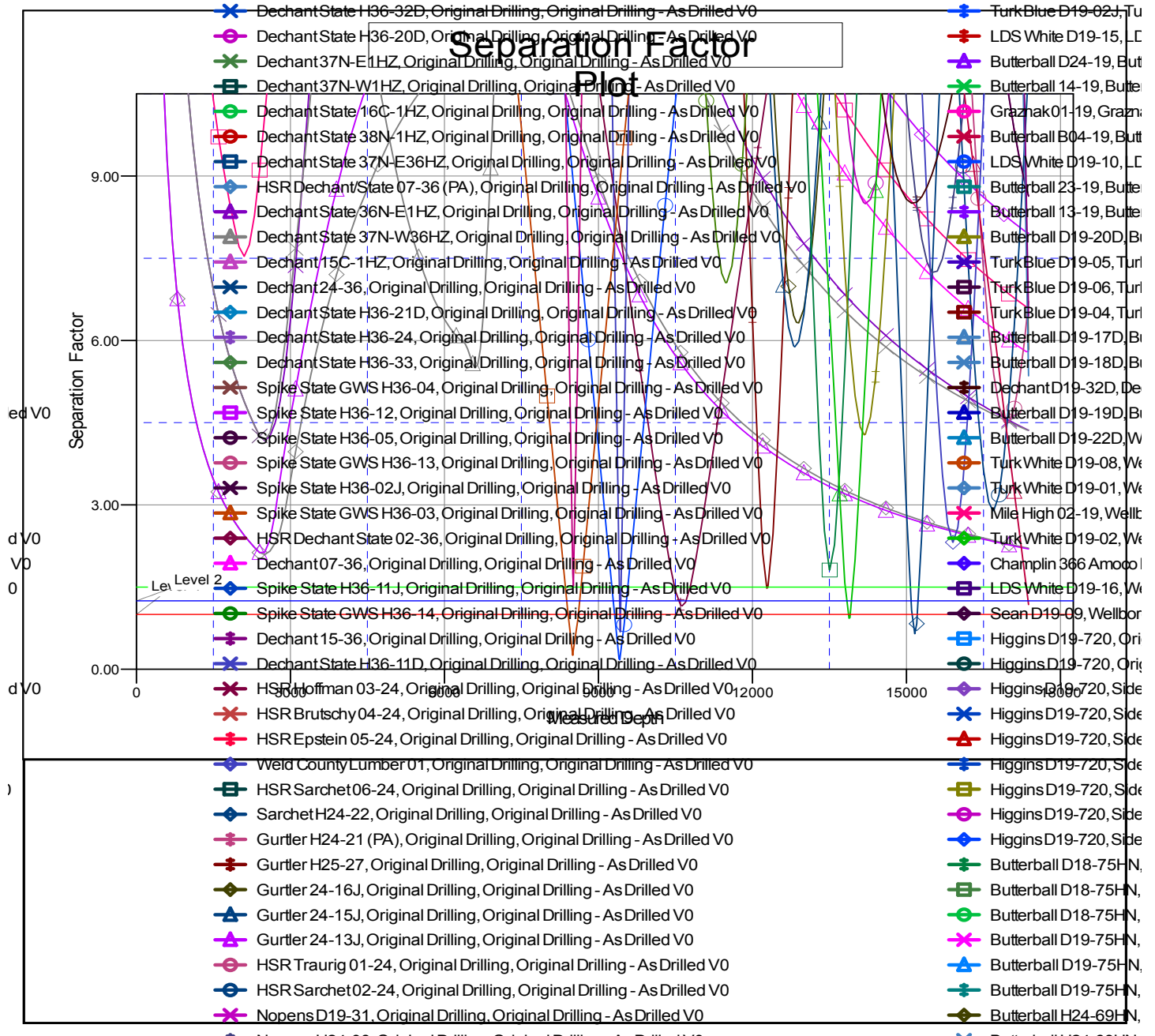
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-731
Project:	Conceptual Wells	TVD Reference:	WELL @ 4834.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4834.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-731	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:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Emmy State H25-731

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.58°



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