

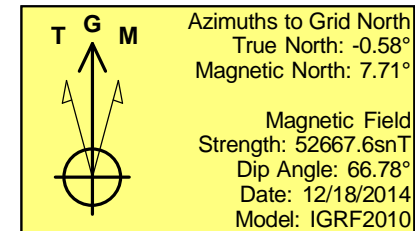
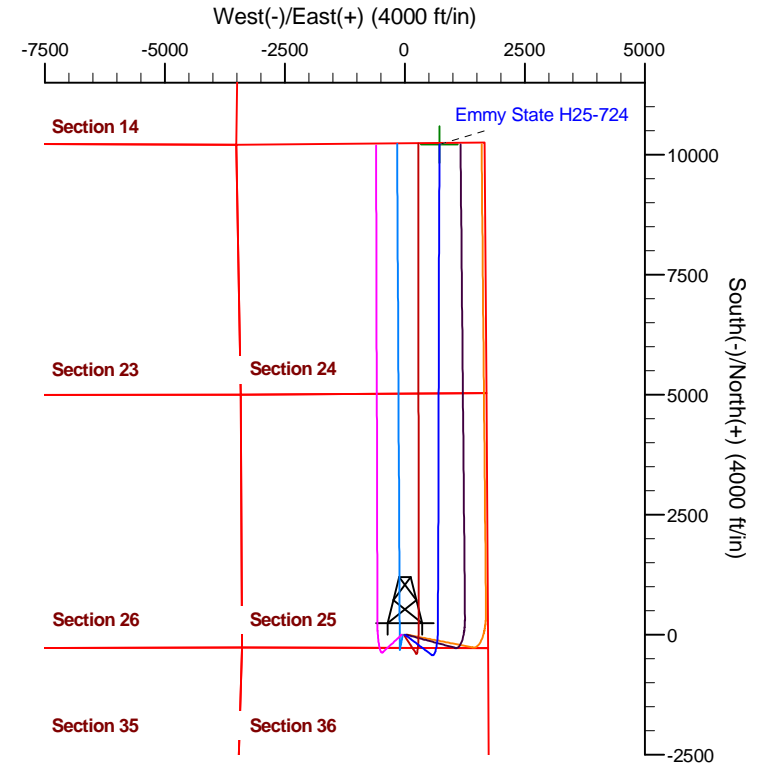
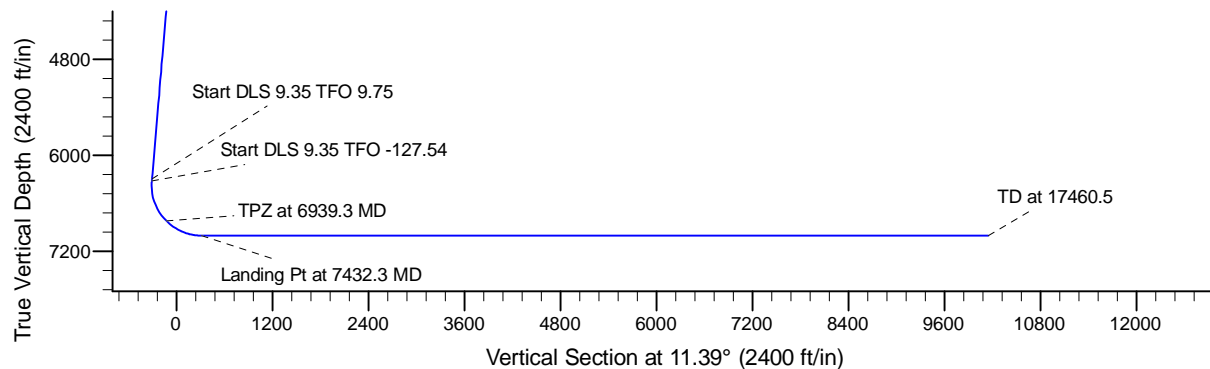
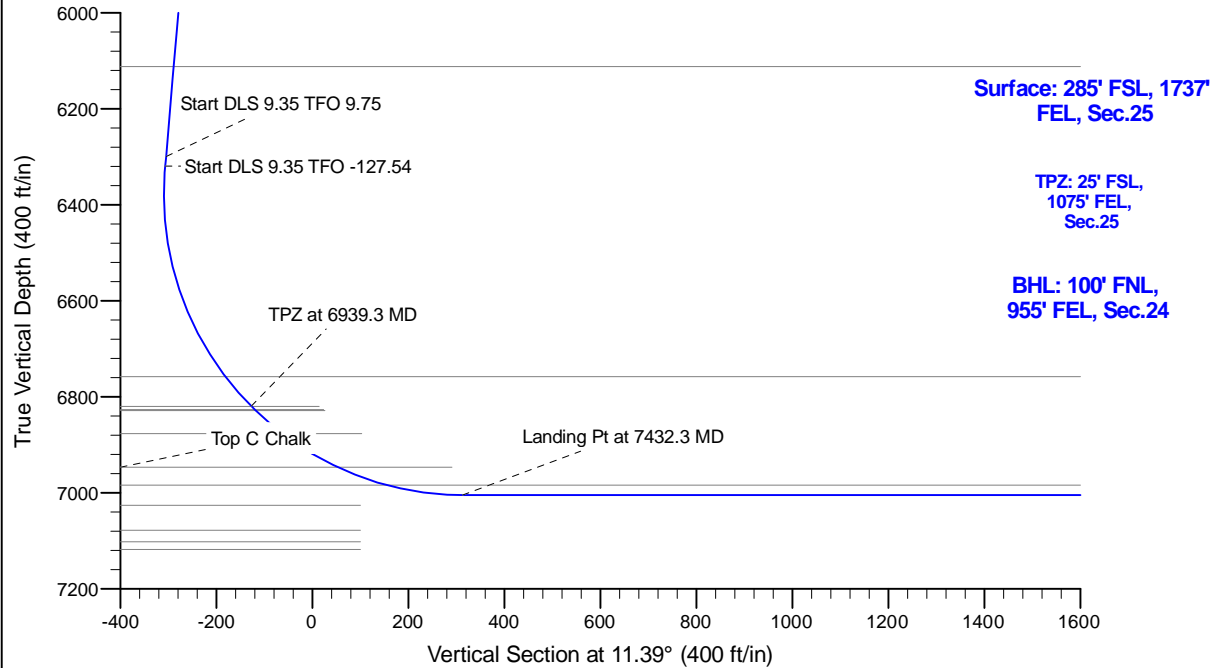
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H25-724
Wellbore: Wellbore #1
Design: Prelim - Rev 2

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	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	0.00	0.0	
3	2950.0	11.00	127.00	2946.6	-31.7	42.0	2.00	127.00	-22.8	
4	6366.1	11.00	127.00	6300.0	-424.0	562.6	0.00	0.00	-304.5	
5	6385.8	12.81	128.40	6319.2	-426.4	565.8	9.35	9.75	-306.3	
6	7432.3	90.00	0.16	7005.0	180.0	690.0	9.35	-127.54	312.7	
7	17460.5	90.00	0.17	7005.0	10208.1	718.5	0.00	90.00	10149.1	Emmy H25-724 BHL



WELL DETAILS: Emmy State H25-724

0.00.0	Ground Level: 4805.0	Latitude: 40.189670	Longitude: -104.609030
1313189.90	Eastings: 3248910.04		

Plan: Prelim - Rev 2 (Emmy State H25-724/Wellbore #1)

Created By: Colby Baxter Date: 14:34, November 01 2017

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-724

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 H25-724
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-724	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 H25-724					
Well Position	+N/-S	-4,995.0 ft	Northing:	1,313,189.90 usft	Latitude:	40.189670
	+E/-W	8,685.3 ft	Easting:	3,248,910.04 usft	Longitude:	-104.609030
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	4,805.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/18/2014	8.29	66.78	52,667.57818875

Design	Prelim - Rev 2			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	11.39

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	
2,950.0	11.00	127.00	2,946.6	-31.7	42.0	2.00	2.00	0.00	127.00	
6,366.1	11.00	127.00	6,300.0	-424.0	562.6	0.00	0.00	0.00	0.00	
6,385.8	12.81	128.40	6,319.2	-426.4	565.8	9.35	9.24	7.14	9.75	
7,432.3	90.00	0.16	7,005.0	180.0	690.0	9.35	7.38	-12.25	-127.54	
17,460.5	90.00	0.17	7,005.0	10,208.1	718.5	0.00	0.00	0.00	90.00	Emmy H25-724 BHL

Noble Energy, Inc.

Planning Report

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Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-724	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	127.00	2,500.0	-1.1	1.4	-0.8	2.00	2.00	0.00
2,600.0	4.00	127.00	2,599.8	-4.2	5.6	-3.0	2.00	2.00	0.00
2,700.0	6.00	127.00	2,699.5	-9.4	12.5	-6.8	2.00	2.00	0.00
2,800.0	8.00	127.00	2,798.7	-16.8	22.3	-12.1	2.00	2.00	0.00
2,900.0	10.00	127.00	2,897.5	-26.2	34.8	-18.8	2.00	2.00	0.00
2,950.0	11.00	127.00	2,946.6	-31.7	42.0	-22.8	2.00	2.00	0.00
3,000.0	11.00	127.00	2,995.7	-37.4	49.7	-26.9	0.00	0.00	0.00
3,100.0	11.00	127.00	3,093.9	-48.9	64.9	-35.1	0.00	0.00	0.00
3,200.0	11.00	127.00	3,192.0	-60.4	80.1	-43.4	0.00	0.00	0.00
3,300.0	11.00	127.00	3,290.2	-71.9	95.4	-51.6	0.00	0.00	0.00
3,400.0	11.00	127.00	3,388.4	-83.4	110.6	-59.9	0.00	0.00	0.00
3,500.0	11.00	127.00	3,486.5	-94.8	125.8	-68.1	0.00	0.00	0.00
3,600.0	11.00	127.00	3,584.7	-106.3	141.1	-76.4	0.00	0.00	0.00
3,700.0	11.00	127.00	3,682.8	-117.8	156.3	-84.6	0.00	0.00	0.00
3,800.0	11.00	127.00	3,781.0	-129.3	171.6	-92.9	0.00	0.00	0.00
3,900.0	11.00	127.00	3,879.2	-140.8	186.8	-101.1	0.00	0.00	0.00
4,000.0	11.00	127.00	3,977.3	-152.2	202.0	-109.4	0.00	0.00	0.00
4,100.0	11.00	127.00	4,075.5	-163.7	217.3	-117.6	0.00	0.00	0.00
4,200.0	11.00	127.00	4,173.7	-175.2	232.5	-125.9	0.00	0.00	0.00
4,300.0	11.00	127.00	4,271.8	-186.7	247.8	-134.1	0.00	0.00	0.00
4,400.0	11.00	127.00	4,370.0	-198.2	263.0	-142.4	0.00	0.00	0.00
4,500.0	11.00	127.00	4,468.1	-209.7	278.2	-150.6	0.00	0.00	0.00
4,600.0	11.00	127.00	4,566.3	-221.1	293.5	-158.9	0.00	0.00	0.00
4,700.0	11.00	127.00	4,664.5	-232.6	308.7	-167.1	0.00	0.00	0.00
4,800.0	11.00	127.00	4,762.6	-244.1	324.0	-175.4	0.00	0.00	0.00
4,900.0	11.00	127.00	4,860.8	-255.6	339.2	-183.6	0.00	0.00	0.00
5,000.0	11.00	127.00	4,959.0	-267.1	354.4	-191.9	0.00	0.00	0.00
5,100.0	11.00	127.00	5,057.1	-278.6	369.7	-200.1	0.00	0.00	0.00
5,200.0	11.00	127.00	5,155.3	-290.0	384.9	-208.4	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-724
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-724	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	11.00	127.00	5,253.5	-301.5	400.1	-216.6	0.00	0.00	0.00
5,400.0	11.00	127.00	5,351.6	-313.0	415.4	-224.9	0.00	0.00	0.00
5,500.0	11.00	127.00	5,449.8	-324.5	430.6	-233.1	0.00	0.00	0.00
5,600.0	11.00	127.00	5,547.9	-336.0	445.9	-241.3	0.00	0.00	0.00
5,700.0	11.00	127.00	5,646.1	-347.5	461.1	-249.6	0.00	0.00	0.00
5,800.0	11.00	127.00	5,744.3	-358.9	476.3	-257.8	0.00	0.00	0.00
5,900.0	11.00	127.00	5,842.4	-370.4	491.6	-266.1	0.00	0.00	0.00
6,000.0	11.00	127.00	5,940.6	-381.9	506.8	-274.3	0.00	0.00	0.00
6,100.0	11.00	127.00	6,038.8	-393.4	522.1	-282.6	0.00	0.00	0.00
6,200.0	11.00	127.00	6,136.9	-404.9	537.3	-290.8	0.00	0.00	0.00
6,300.0	11.00	127.00	6,235.1	-416.4	552.5	-299.1	0.00	0.00	0.00
6,366.1	11.00	127.00	6,300.0	-424.0	562.6	-304.5	0.00	0.00	0.00
6,385.8	12.81	128.40	6,319.2	-426.4	565.8	-306.3	9.35	9.24	7.14
6,400.0	12.05	123.33	6,333.1	-428.2	568.3	-307.6	9.35	-5.38	-35.58
6,500.0	10.50	74.64	6,431.4	-431.6	585.8	-307.4	9.35	-1.54	-48.70
6,600.0	15.77	39.40	6,528.9	-418.6	603.3	-291.3	9.35	5.27	-35.24
6,700.0	23.67	24.21	6,623.0	-389.7	620.2	-259.6	9.35	7.90	-15.19
6,800.0	32.32	16.56	6,711.3	-345.7	636.1	-213.4	9.35	8.65	-7.65
6,900.0	41.25	11.91	6,791.3	-287.7	650.5	-153.6	9.35	8.93	-4.65
7,000.0	50.32	8.68	6,860.9	-217.3	663.2	-82.1	9.35	9.06	-3.23
7,100.0	59.45	6.21	6,918.4	-136.2	673.7	-0.6	9.35	9.13	-2.47
7,200.0	68.62	4.17	6,962.1	-46.8	681.7	88.7	9.35	9.17	-2.04
7,300.0	77.82	2.37	6,991.0	48.7	687.1	183.4	9.35	9.19	-1.80
7,400.0	87.02	0.69	7,004.2	147.7	689.8	280.9	9.35	9.20	-1.68
7,432.3	90.00	0.16	7,005.0	180.0	690.0	312.7	9.35	9.21	-1.65
7,500.0	90.00	0.16	7,005.0	247.7	690.2	379.0	0.00	0.00	0.00
7,600.0	90.00	0.16	7,005.0	347.7	690.5	477.1	0.00	0.00	0.00
7,700.0	90.00	0.16	7,005.0	447.7	690.7	575.2	0.00	0.00	0.00
7,800.0	90.00	0.16	7,005.0	547.7	691.0	673.3	0.00	0.00	0.00
7,900.0	90.00	0.16	7,005.0	647.7	691.3	771.4	0.00	0.00	0.00
8,000.0	90.00	0.16	7,005.0	747.7	691.6	869.5	0.00	0.00	0.00
8,100.0	90.00	0.16	7,005.0	847.7	691.9	967.6	0.00	0.00	0.00
8,200.0	90.00	0.16	7,005.0	947.7	692.1	1,065.7	0.00	0.00	0.00
8,300.0	90.00	0.16	7,005.0	1,047.7	692.4	1,163.7	0.00	0.00	0.00
8,400.0	90.00	0.16	7,005.0	1,147.7	692.7	1,261.8	0.00	0.00	0.00
8,500.0	90.00	0.16	7,005.0	1,247.7	693.0	1,359.9	0.00	0.00	0.00
8,600.0	90.00	0.16	7,005.0	1,347.7	693.3	1,458.0	0.00	0.00	0.00
8,700.0	90.00	0.16	7,005.0	1,447.7	693.5	1,556.1	0.00	0.00	0.00
8,800.0	90.00	0.16	7,005.0	1,547.7	693.8	1,654.2	0.00	0.00	0.00
8,900.0	90.00	0.16	7,005.0	1,647.7	694.1	1,752.3	0.00	0.00	0.00
9,000.0	90.00	0.16	7,005.0	1,747.7	694.4	1,850.3	0.00	0.00	0.00
9,100.0	90.00	0.16	7,005.0	1,847.7	694.7	1,948.4	0.00	0.00	0.00
9,200.0	90.00	0.16	7,005.0	1,947.7	695.0	2,046.5	0.00	0.00	0.00
9,300.0	90.00	0.16	7,005.0	2,047.7	695.2	2,144.6	0.00	0.00	0.00
9,400.0	90.00	0.16	7,005.0	2,147.7	695.5	2,242.7	0.00	0.00	0.00
9,500.0	90.00	0.16	7,005.0	2,247.7	695.8	2,340.8	0.00	0.00	0.00
9,600.0	90.00	0.16	7,005.0	2,347.7	696.1	2,438.9	0.00	0.00	0.00
9,700.0	90.00	0.16	7,005.0	2,447.7	696.4	2,537.0	0.00	0.00	0.00
9,800.0	90.00	0.16	7,005.0	2,547.7	696.6	2,635.0	0.00	0.00	0.00
9,900.0	90.00	0.16	7,005.0	2,647.7	696.9	2,733.1	0.00	0.00	0.00
10,000.0	90.00	0.16	7,005.0	2,747.7	697.2	2,831.2	0.00	0.00	0.00
10,100.0	90.00	0.16	7,005.0	2,847.7	697.5	2,929.3	0.00	0.00	0.00
10,200.0	90.00	0.16	7,005.0	2,947.7	697.8	3,027.4	0.00	0.00	0.00
10,300.0	90.00	0.16	7,005.0	3,047.7	698.1	3,125.5	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
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Well:	Emmy State H25-724	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	0.16	7,005.0	3,147.7	698.3	3,223.6	0.00	0.00	0.00
10,500.0	90.00	0.16	7,005.0	3,247.7	698.6	3,321.7	0.00	0.00	0.00
10,600.0	90.00	0.16	7,005.0	3,347.7	698.9	3,419.7	0.00	0.00	0.00
10,700.0	90.00	0.16	7,005.0	3,447.7	699.2	3,517.8	0.00	0.00	0.00
10,800.0	90.00	0.16	7,005.0	3,547.7	699.5	3,615.9	0.00	0.00	0.00
10,900.0	90.00	0.16	7,005.0	3,647.6	699.7	3,714.0	0.00	0.00	0.00
11,000.0	90.00	0.16	7,005.0	3,747.6	700.0	3,812.1	0.00	0.00	0.00
11,100.0	90.00	0.16	7,005.0	3,847.6	700.3	3,910.2	0.00	0.00	0.00
11,200.0	90.00	0.16	7,005.0	3,947.6	700.6	4,008.3	0.00	0.00	0.00
11,300.0	90.00	0.16	7,005.0	4,047.6	700.9	4,106.4	0.00	0.00	0.00
11,400.0	90.00	0.16	7,005.0	4,147.6	701.2	4,204.4	0.00	0.00	0.00
11,500.0	90.00	0.16	7,005.0	4,247.6	701.4	4,302.5	0.00	0.00	0.00
11,600.0	90.00	0.16	7,005.0	4,347.6	701.7	4,400.6	0.00	0.00	0.00
11,700.0	90.00	0.16	7,005.0	4,447.6	702.0	4,498.7	0.00	0.00	0.00
11,800.0	90.00	0.16	7,005.0	4,547.6	702.3	4,596.8	0.00	0.00	0.00
11,900.0	90.00	0.16	7,005.0	4,647.6	702.6	4,694.9	0.00	0.00	0.00
12,000.0	90.00	0.16	7,005.0	4,747.6	702.9	4,793.0	0.00	0.00	0.00
12,100.0	90.00	0.16	7,005.0	4,847.6	703.1	4,891.1	0.00	0.00	0.00
12,200.0	90.00	0.16	7,005.0	4,947.6	703.4	4,989.1	0.00	0.00	0.00
12,300.0	90.00	0.16	7,005.0	5,047.6	703.7	5,087.2	0.00	0.00	0.00
12,400.0	90.00	0.16	7,005.0	5,147.6	704.0	5,185.3	0.00	0.00	0.00
12,500.0	90.00	0.16	7,005.0	5,247.6	704.3	5,283.4	0.00	0.00	0.00
12,600.0	90.00	0.16	7,005.0	5,347.6	704.6	5,381.5	0.00	0.00	0.00
12,700.0	90.00	0.16	7,005.0	5,447.6	704.9	5,479.6	0.00	0.00	0.00
12,800.0	90.00	0.16	7,005.0	5,547.6	705.1	5,577.7	0.00	0.00	0.00
12,900.0	90.00	0.16	7,005.0	5,647.6	705.4	5,675.8	0.00	0.00	0.00
13,000.0	90.00	0.16	7,005.0	5,747.6	705.7	5,773.8	0.00	0.00	0.00
13,100.0	90.00	0.16	7,005.0	5,847.6	706.0	5,871.9	0.00	0.00	0.00
13,200.0	90.00	0.16	7,005.0	5,947.6	706.3	5,970.0	0.00	0.00	0.00
13,300.0	90.00	0.16	7,005.0	6,047.6	706.6	6,068.1	0.00	0.00	0.00
13,400.0	90.00	0.16	7,005.0	6,147.6	706.9	6,166.2	0.00	0.00	0.00
13,500.0	90.00	0.16	7,005.0	6,247.6	707.1	6,264.3	0.00	0.00	0.00
13,600.0	90.00	0.16	7,005.0	6,347.6	707.4	6,362.4	0.00	0.00	0.00
13,700.0	90.00	0.16	7,005.0	6,447.6	707.7	6,460.5	0.00	0.00	0.00
13,800.0	90.00	0.16	7,005.0	6,547.6	708.0	6,558.5	0.00	0.00	0.00
13,900.0	90.00	0.16	7,005.0	6,647.6	708.3	6,656.6	0.00	0.00	0.00
14,000.0	90.00	0.16	7,005.0	6,747.6	708.6	6,754.7	0.00	0.00	0.00
14,100.0	90.00	0.16	7,005.0	6,847.6	708.9	6,852.8	0.00	0.00	0.00
14,200.0	90.00	0.16	7,005.0	6,947.6	709.1	6,950.9	0.00	0.00	0.00
14,300.0	90.00	0.16	7,005.0	7,047.6	709.4	7,049.0	0.00	0.00	0.00
14,400.0	90.00	0.16	7,005.0	7,147.6	709.7	7,147.1	0.00	0.00	0.00
14,500.0	90.00	0.16	7,005.0	7,247.6	710.0	7,245.2	0.00	0.00	0.00
14,600.0	90.00	0.16	7,005.0	7,347.6	710.3	7,343.3	0.00	0.00	0.00
14,700.0	90.00	0.16	7,005.0	7,447.6	710.6	7,441.3	0.00	0.00	0.00
14,800.0	90.00	0.16	7,005.0	7,547.6	710.9	7,539.4	0.00	0.00	0.00
14,900.0	90.00	0.16	7,005.0	7,647.6	711.1	7,637.5	0.00	0.00	0.00
15,000.0	90.00	0.16	7,005.0	7,747.6	711.4	7,735.6	0.00	0.00	0.00
15,100.0	90.00	0.16	7,005.0	7,847.6	711.7	7,833.7	0.00	0.00	0.00
15,200.0	90.00	0.16	7,005.0	7,947.6	712.0	7,931.8	0.00	0.00	0.00
15,300.0	90.00	0.16	7,005.0	8,047.6	712.3	8,029.9	0.00	0.00	0.00
15,400.0	90.00	0.16	7,005.0	8,147.6	712.6	8,128.0	0.00	0.00	0.00
15,500.0	90.00	0.16	7,005.0	8,247.6	712.9	8,226.0	0.00	0.00	0.00
15,600.0	90.00	0.16	7,005.0	8,347.6	713.2	8,324.1	0.00	0.00	0.00
15,700.0	90.00	0.16	7,005.0	8,447.6	713.4	8,422.2	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-724
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-724	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	0.17	7,005.0	8,547.6	713.7	8,520.3	0.00	0.00	0.00	
15,900.0	90.00	0.17	7,005.0	8,647.6	714.0	8,618.4	0.00	0.00	0.00	
16,000.0	90.00	0.17	7,005.0	8,747.6	714.3	8,716.5	0.00	0.00	0.00	
16,100.0	90.00	0.17	7,005.0	8,847.6	714.6	8,814.6	0.00	0.00	0.00	
16,200.0	90.00	0.17	7,005.0	8,947.6	714.9	8,912.7	0.00	0.00	0.00	
16,300.0	90.00	0.17	7,005.0	9,047.6	715.2	9,010.8	0.00	0.00	0.00	
16,400.0	90.00	0.17	7,005.0	9,147.6	715.5	9,108.8	0.00	0.00	0.00	
16,500.0	90.00	0.17	7,005.0	9,247.6	715.8	9,206.9	0.00	0.00	0.00	
16,600.0	90.00	0.17	7,005.0	9,347.6	716.0	9,305.0	0.00	0.00	0.00	
16,700.0	90.00	0.17	7,005.0	9,447.6	716.3	9,403.1	0.00	0.00	0.00	
16,800.0	90.00	0.17	7,005.0	9,547.6	716.6	9,501.2	0.00	0.00	0.00	
16,900.0	90.00	0.17	7,005.0	9,647.6	716.9	9,599.3	0.00	0.00	0.00	
17,000.0	90.00	0.17	7,005.0	9,747.6	717.2	9,697.4	0.00	0.00	0.00	
17,100.0	90.00	0.17	7,005.0	9,847.6	717.5	9,795.5	0.00	0.00	0.00	
17,200.0	90.00	0.17	7,005.0	9,947.6	717.8	9,893.6	0.00	0.00	0.00	
17,300.0	90.00	0.17	7,005.0	10,047.6	718.1	9,991.6	0.00	0.00	0.00	
17,400.0	90.00	0.17	7,005.0	10,147.6	718.4	10,089.7	0.00	0.00	0.00	
17,460.5	90.00	0.17	7,005.0	10,208.1	718.5	10,149.1	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 H25-724 BHL	0.00	0.01	7,005.0	10,208.1	718.5	1,323,397.59	3,249,628.54	40.217670	-104.606090	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
561.0	561.0	Pierre				
713.0	713.0	Upper Pierre Aquifer Top				
1,601.0	1,601.0	Upper Pierre Aquifer Base				
3,888.6	3,868.0	Parkman				
4,490.7	4,459.0	Sussex				
5,185.4	5,141.0	Shannon				
6,174.6	6,112.0	Teepee Buttes				
6,857.0	6,758.0	Sharon Springs				
6,939.3	6,820.0	Top A Chalk				
6,949.2	6,827.0	Top A Marl				
6,952.1	6,829.0	Top B Chalk				
7,025.8	6,877.0	Top B Marl				
7,161.5	6,947.0	Top C Chalk				
7,270.2	6,984.0	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-724
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-724	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
6,366.1	6,300.0	-31.7	42.0	Start DLS 9.35 TFO 9.75
6,385.8	6,319.2	-424.0	562.6	Start DLS 9.35 TFO -127.54
6,939.3	6,820.0	10,208.1	718.5	TPZ at 6939.3 MD
7,432.3	7,005.0	-426.4	565.8	Landing Pt at 7432.3 MD
17,460.5	7,005.0	180.0	690.0	TD at 17460.5

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-724

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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	17,460.5	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
Offset Well - Wellbore - Design						
D Section 19						
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,331.9	6,937.1	1,693.7	1,599.9	18.072	CC, ES
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,600.0	6,943.1	1,714.7	1,618.4	17.797	SF
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	12,985.1	6,896.4	1,800.8	1,719.7	22.219	CC
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,000.0	6,896.5	1,800.8	1,719.6	22.169	ES
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,300.0	6,898.5	1,828.1	1,744.0	21.720	SF
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,291.0	6,914.1	2,846.9	2,753.6	30.531	CC
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,300.0	6,914.2	2,846.9	2,753.5	30.497	ES
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,900.0	6,918.2	2,911.3	2,812.6	29.494	SF
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,636.2	6,942.9	1,242.5	1,155.4	14.257	CC, ES
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,800.0	6,942.4	1,253.3	1,164.3	14.092	SF
Butterball D18-75HN - Original Drilling - Design #2	17,460.5	7,319.6	3,539.6	3,442.1	36.316	CC, ES, SF
Butterball D18-75HN - Original Drilling - Original Drilling -	17,100.0	17,100.0	3,581.9	3,406.7	20.446	ES, SF
Butterball D18-75HN - Original Drilling - Original Drilling -	17,460.5	6,785.2	3,533.2	3,411.0	28.915	CC
Butterball D18-75HN - Original Drilling - Plan A - Rev 1	17,460.5	6,800.0	3,513.6	3,414.8	35.586	CC, ES, SF
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,605.8	7,550.1	4,961.5	4,841.7	41.408	CC
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,700.0	7,550.9	4,962.4	4,841.2	40.949	ES
Butterball D19-17D - Butterball D19-17D - Butterball D19	17,460.5	7,557.4	5,034.6	4,897.3	36.671	SF
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,594.6	7,047.7	3,199.8	3,084.1	27.644	CC
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,600.0	7,047.7	3,199.8	3,084.0	27.629	ES
Butterball D19-18D - Butterball D19-18D - Butterball D19	17,200.0	7,047.8	3,256.6	3,135.1	26.806	SF
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,012.2	7,015.7	2,197.8	2,085.8	19.639	CC, ES
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,300.0	7,018.5	2,216.5	2,101.5	19.275	SF
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,041.1	7,031.0	2,336.4	2,234.3	22.885	CC, ES
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,400.0	7,033.4	2,363.8	2,259.0	22.552	SF
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	15,083.2	7,015.4	4,716.2	4,613.0	45.687	CC
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	15,100.0	7,015.5	4,716.3	4,612.8	45.599	ES
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	16,500.0	7,031.7	4,924.4	4,807.9	42.272	SF
Butterball D19-75HN - Original Drilling - Design #2	12,173.6	11,818.4	3,591.8	3,542.4	72.613	CC
Butterball D19-75HN - Original Drilling - Design #2	12,200.0	11,818.4	3,591.9	3,542.2	72.202	ES
Butterball D19-75HN - Original Drilling - Design #2	17,460.5	6,832.8	3,815.3	3,715.5	38.218	SF
Butterball D19-75HN - Original Drilling - Original Drilling -	12,296.5	11,644.9	3,579.5	3,439.7	25.605	CC
Butterball D19-75HN - Original Drilling - Original Drilling -	12,300.0	11,643.0	3,579.5	3,439.7	25.604	ES
Butterball D19-75HN - Original Drilling - Original Drilling -	12,600.0	11,521.0	3,586.8	3,445.9	25.447	SF
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,173.3	11,815.8	3,575.2	3,525.8	72.277	CC
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,200.0	11,815.8	3,575.3	3,525.6	71.863	ES
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	17,460.5	6,830.8	3,798.8	3,699.0	38.053	SF
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,049.7	6,910.7	2,852.0	2,770.4	34.960	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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						
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,100.0	6,911.1	2,852.4	2,770.3	34.725	ES
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,700.0	6,915.5	2,925.2	2,837.6	33.427	SF
Butterball H24-69HN - Original Drilling - Design #2	17,460.5	10,832.0	202.4	168.1	5.894	CC, ES, SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,460.5	10,809.3	185.7	57.1	1.445	Level 3, CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 2	17,460.5	10,805.4	199.0	163.3	5.575	CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 3	17,460.5	10,809.1	191.5	160.9	6.266	CC, ES, SF
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,972.2	6,931.5	4,714.9	4,624.7	52.232	CC
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	14,000.0	6,931.5	4,715.0	4,624.5	52.062	ES
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	15,400.0	6,933.0	4,926.4	4,824.1	48.148	SF
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,896.2	7,485.4	879.8	735.4	6.090	CC
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	15,000.0	7,487.1	885.9	733.7	5.821	ES
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	15,100.0	7,488.8	903.1	745.3	5.722	SF
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,598.9	6,953.0	1,991.4	1,868.1	16.143	CC
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,600.0	6,953.0	1,991.4	1,868.1	16.141	ES
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,900.0	6,953.0	2,014.1	1,887.7	15.937	SF
Higgins D19-720 - Original Drilling - Original Drilling - As	17,460.5	6,979.2	5,341.1	5,222.2	44.910	CC, ES, SF
Higgins D19-720 - Original Drilling - Pilot Hole APD - Rev	17,460.5	6,994.0	5,344.9	5,245.5	53.777	CC, ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,433.8	6,987.9	5,345.2	5,245.9	53.833	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,460.5	6,974.4	5,345.2	5,245.6	53.689	ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,935.6	9,645.7	5,300.3	5,196.8	51.205	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,630.3	5,300.6	5,196.5	50.922	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,460.5	7,083.5	5,341.1	5,222.1	44.871	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,935.6	9,645.7	5,300.3	5,196.8	51.205	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,630.3	5,300.6	5,196.5	50.922	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,460.5	7,083.5	5,341.1	5,222.1	44.871	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,935.6	9,645.7	5,300.3	5,196.8	51.205	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,630.3	5,300.6	5,196.5	50.922	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,460.5	7,083.5	5,341.1	5,222.1	44.871	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,935.6	9,645.7	5,300.3	5,196.8	51.205	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	15,000.0	9,630.3	5,300.6	5,196.5	50.922	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	14,765.0	9,782.3	5,302.3	5,200.9	52.270	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	15,300.0	15,300.0	5,313.7	5,178.4	39.255	ES, SF
Independence D18-712 - Independence D18-712 - Prelim	16,940.3	5,970.5	5,767.5	5,651.5	49.736	CC
Independence D18-712 - Independence D18-712 - Prelim	17,000.0	5,966.1	5,767.8	5,651.2	49.480	ES
Independence D18-712 - Independence D18-712 - Prelim	17,460.5	5,931.5	5,790.7	5,669.9	47.909	SF
Independence D18-717 - Independence D18-717 - Prelim	16,895.2	6,327.1	5,463.6	5,347.0	46.848	CC
Independence D18-717 - Independence D18-717 - Prelim	17,000.0	6,345.6	5,464.6	5,346.8	46.391	ES
Independence D18-717 - Independence D18-717 - Prelim	17,460.5	6,741.7	5,489.3	5,365.9	44.485	SF
Independence D18-725 - Independence D18-725 - Prelim	17,424.9	7,095.4	4,942.3	4,819.0	40.097	CC
Independence D18-725 - Independence D18-725 - Prelim	17,460.5	7,125.3	4,942.3	4,818.7	39.974	ES, SF
Independence D18-732 - Independence D18-732 - Prelim	17,460.5	7,183.4	4,557.0	4,433.3	36.845	CC, ES, SF
Independence D18-739 - Independence D18-739 - Prelim	17,460.5	7,372.0	4,203.2	4,078.8	33.790	CC, ES, SF
Independence D18-744 - Independence D18-744 - Prelim	17,460.5	7,300.0	3,811.2	3,686.9	30.641	CC, ES, SF
Independence D18-753 - Independence D18-753 - Prelim	17,026.2	6,340.4	3,429.7	3,311.7	29.061	CC
Independence D18-753 - Independence D18-753 - Prelim	17,100.0	6,350.3	3,430.5	3,311.6	28.857	ES
Independence D18-753 - Independence D18-753 - Prelim	17,460.5	6,487.2	3,456.0	3,333.1	28.126	SF
Independence D18-759 - Independence D18-759 - Prelim	17,144.9	6,625.4	3,140.4	3,020.4	26.169	CC
Independence D18-759 - Independence D18-759 - Prelim	17,200.0	6,663.2	3,140.7	3,020.0	26.017	ES
Independence D18-759 - Independence D18-759 - Prelim	17,460.5	6,954.4	3,146.9	3,022.9	25.383	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 19						
Independence D18-767 - Independence D18-767 - Prelim	17,460.5	7,102.9	2,584.5	2,461.0	20.936	CC, ES, SF
Independence D30-711 - Independence D30-711 - Prelim	17,460.5	5,752.2	5,852.7	5,733.7	49.189	CC, ES, SF
Independence D30-718 - Independence D30-718 - Prelim	17,300.0	7,576.7	5,597.7	5,474.8	45.550	SF
Independence D30-718 - Independence D30-718 - Prelim	17,460.5	6,143.4	5,582.9	5,462.5	46.395	CC, ES
Independence D30-724 - Independence D30-724 - Prelim	17,460.5	7,433.6	5,138.9	5,014.8	41.394	CC, ES, SF
Independence D30-731 - Independence D30-731 - Prelim	7,350.0	17,536.6	4,740.8	4,636.2	45.345	ES
Independence D30-731 - Independence D30-731 - Prelim	7,381.6	17,505.1	4,740.6	4,636.3	45.427	CC
Independence D30-731 - Independence D30-731 - Prelim	17,460.5	7,389.9	4,826.9	4,702.9	38.937	SF
Independence D30-737 - Independence D30-737 - Prelim	17,460.5	7,424.6	4,294.6	4,170.2	34.533	CC, ES, SF
Independence D30-743 - Independence D30-743 - Prelim	17,460.5	7,457.6	3,943.4	3,818.9	31.655	CC, ES, SF
Independence D30-748 - Independence D30-748 - Prelim	17,460.5	7,357.4	3,398.8	3,274.3	27.300	CC, ES, SF
Independence D30-758 - Independence D30-758 - Prelim	17,460.5	7,433.8	3,073.6	2,949.2	24.710	CC, ES, SF
Independence D30-765 - Independence D30-765 - Prelim	7,427.8	17,407.3	2,713.5	2,610.0	26.214	CC
Independence D30-765 - Independence D30-765 - Prelim	17,460.5	7,360.7	2,723.9	2,599.8	21.949	ES, SF
Independence D30-770 - Independence D30-770 - Prelim	17,460.5	7,378.8	2,259.0	2,134.8	18.189	CC, ES, SF
Independence D30-777 - Independence D30-777 - Prelim	17,460.5	7,346.6	1,881.3	1,757.1	15.154	CC, ES, SF
Independence State D30-784 - Independence State D30	17,460.5	7,547.6	1,306.0	1,180.8	10.435	CC, ES, SF
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,402.3	6,929.6	3,899.2	3,804.9	41.338	CC, ES
LDS White D19-10 - LDS White D19-10 - LDS White D19	15,400.0	6,930.4	4,024.8	3,921.9	39.102	SF
LDS White D19-15 - LDS White D19-15 - LDS White D19	12,989.3	6,983.2	3,978.3	3,897.2	49.019	CC
LDS White D19-15 - LDS White D19-15 - LDS White D19	13,000.0	6,983.3	3,978.3	3,897.1	48.950	ES
LDS White D19-15 - LDS White D19-15 - LDS White D19	14,200.0	6,996.7	4,158.4	4,066.9	45.425	SF
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	13,037.8	6,925.6	5,269.0	5,187.6	64.698	CC
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	13,100.0	6,925.5	5,269.4	5,187.3	64.194	ES
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	14,900.0	6,921.8	5,588.4	5,491.4	57.639	SF
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	15,994.5	6,927.2	4,396.0	4,286.5	40.143	CC
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	16,000.0	6,927.2	4,396.0	4,286.4	40.121	ES
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	17,000.0	6,930.8	4,509.5	4,391.3	38.152	SF
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,509.3	6,943.0	5,571.8	5,361.6	26.512	CC
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,600.0	6,943.0	5,572.5	5,361.4	26.397	ES
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	15,600.0	6,943.0	5,677.5	5,457.3	25.779	SF
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,650.1	6,946.6	2,393.7	2,277.9	20.661	CC
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,700.0	6,946.3	2,394.2	2,277.8	20.562	ES
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	17,000.0	6,944.4	2,419.2	2,300.0	20.309	SF
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,070.7	7,019.5	1,520.2	1,400.0	12.654	CC
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,100.0	7,019.3	1,520.5	1,400.0	12.617	ES
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,200.0	7,018.7	1,525.7	1,404.1	12.553	SF
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,422.9	6,918.7	1,563.8	1,459.7	15.017	CC, ES
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,600.0	6,923.1	1,573.8	1,467.8	14.845	SF
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,518.7	6,930.4	2,824.3	2,719.4	26.909	CC, ES
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	16,000.0	6,935.7	2,865.0	2,755.6	26.186	SF
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,028.7	6,947.3	5,519.7	5,400.3	46.200	CC
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,100.0	6,947.0	5,520.2	5,400.0	45.914	ES
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,460.5	6,945.8	5,536.6	5,412.9	44.737	SF
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,106.1	6,909.1	4,061.5	3,941.4	33.816	CC, ES
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,460.5	6,909.9	4,077.0	3,953.3	32.976	SF
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,546.1	6,940.8	5,419.7	5,314.4	51.502	CC
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,600.0	6,941.1	5,419.9	5,314.1	51.227	ES
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	17,100.0	6,949.4	5,638.0	5,519.8	47.684	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 D29-778 - Guttersen D29- 778 - Prelim - Rev 0	17,460.5	14,853.4	6,821.9	6,652.4	40.266	CC, ES, SF
Guttersen D29-30D - Wellbore #1 - Design #1	12,298.2	7,137.3	6,165.2	6,114.6	121.982	CC
Guttersen D29-30D - Wellbore #1 - Design #1	12,400.0	7,137.3	6,166.0	6,114.4	119.569	ES
Guttersen D29-30D - Wellbore #1 - Design #1	15,400.0	7,137.3	6,901.4	6,827.0	92.747	SF
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,060.1	7,024.8	6,246.7	6,181.5	95.786	CC
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,100.0	7,024.8	6,246.9	6,181.3	95.250	ES
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	14,000.0	7,026.1	6,903.9	6,816.3	78.767	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,685.0	6,221.0	6,399.4	6,351.5	133.433	CC
Guttersen D29-65HN - Original Drilling - Original Drilling	9,700.0	6,221.0	6,399.4	6,351.4	133.075	ES
Guttersen D29-65HN - Original Drilling - Original Drilling	13,500.0	6,316.0	7,446.5	7,369.2	96.242	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,663.0	6,151.6	6,419.8	6,391.9	229.742	CC
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,700.0	6,151.6	6,419.9	6,391.7	227.166	ES
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	14,200.0	6,151.6	7,861.1	7,800.6	129.949	SF
Guttersen D29-67HN - Original Drilling - Original Drilling	11,066.0	6,221.0	6,517.5	6,457.6	108.915	CC
Guttersen D29-67HN - Original Drilling - Original Drilling	11,100.0	6,221.0	6,517.6	6,457.4	108.322	ES
Guttersen D29-67HN - Original Drilling - Original Drilling	14,400.0	6,221.0	7,320.7	7,234.4	84.916	SF
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	11,063.5	6,250.0	6,513.2	6,473.5	164.039	CC
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	11,100.0	6,250.0	6,513.3	6,473.3	162.595	ES
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	15,000.0	6,250.0	7,610.3	7,541.2	110.173	SF
Guttersen D29-69HN - Original Drilling - Original Drilling	12,318.4	6,411.0	6,511.6	6,432.1	81.880	CC
Guttersen D29-69HN - Original Drilling - Original Drilling	12,400.0	6,411.0	6,512.2	6,431.8	81.057	ES
Guttersen D29-69HN - Original Drilling - Original Drilling	15,000.0	6,411.0	7,042.2	6,941.6	70.002	SF
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,310.9	6,446.9	6,511.4	6,460.4	127.695	CC
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,400.0	6,446.9	6,512.0	6,460.1	125.502	ES
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	15,700.0	6,446.9	7,340.5	7,263.7	95.488	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	17,460.5	14,807.3	9,938.4	9,769.5	58.829	CC, ES, SF
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	9,974.5	7,310.4	9,379.8	9,325.0	171.168	CC
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0	17,460.5	14,768.7	9,412.8	9,244.7	56.011	ES, SF
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	17,460.5	14,967.6	8,884.5	8,715.9	52.669	CC, ES, SF
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	9,300.1	5,300.4	8,237.4	8,193.0	185.318	CC
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	9,400.0	5,284.4	8,238.0	8,192.8	182.341	ES
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	17,460.5	15,165.7	8,378.0	8,207.7	49.189	SF
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	9,320.5	5,813.7	8,022.0	7,976.0	174.101	CC
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	17,460.5	14,935.7	8,091.4	7,922.0	47.766	ES, SF
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	9,367.8	6,215.1	7,809.4	7,761.9	164.599	CC
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	17,460.5	14,782.9	7,841.2	7,672.4	46.450	ES, SF
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	17,460.5	14,872.3	7,333.6	7,164.0	43.237	CC, ES, SF
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 0	17,460.5	15,111.1	6,289.6	6,119.6	36.996	CC, ES, SF
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0						Out of range
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	8,345.5	6,273.2	6,622.7	6,580.6	157.426	CC
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	8,400.0	6,273.2	6,622.9	6,580.6	156.362	ES
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	12,800.0	6,290.0	7,981.5	7,909.1	110.240	SF
Guttersen D30-68-1HN - Original Drilling - Original Drilling	11,296.4	11,278.0	1,549.0	1,479.7	22.368	CC
Guttersen D30-68-1HN - Original Drilling - Original Drilling	11,300.0	11,278.0	1,549.0	1,479.7	22.357	ES
Guttersen D30-68-1HN - Original Drilling - Original Drilling	12,400.0	11,278.0	1,901.9	1,782.9	15.986	SF
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,290.6	11,260.0	1,548.1	1,506.6	37.278	CC
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,300.0	11,260.0	1,548.2	1,506.5	37.174	ES
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,700.0	11,260.0	1,601.4	1,556.0	35.313	SF
Guttersen D30-69-1HN - Original Drilling - Original Drilling	12,036.9	11,050.0	1,725.4	1,645.3	21.563	CC, ES
Guttersen D30-69-1HN - Original Drilling - Original Drilling	13,200.0	11,050.0	2,080.8	1,965.7	18.079	SF
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	12,006.9	11,000.0	1,765.2	1,717.2	36.769	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	12,400.0	11,000.0	1,808.4	1,756.7	34.939	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	9,924.2	7,150.0	9,658.9	9,605.0	179.075	CC
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0	10,000.0	7,129.9	9,659.2	9,604.6	177.024	ES
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0	12,700.0	6,650.0	9,976.4	9,898.6	128.329	SF
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	10,031.7	7,318.2	9,159.3	9,103.8	165.096	CC
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	10,200.0	7,280.4	9,160.2	9,103.3	160.922	ES
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	14,300.0	6,750.0	9,970.4	9,879.6	109.763	SF
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,821.2	7,450.0	8,660.3	8,605.7	158.756	CC
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,900.0	7,450.0	8,660.6	8,605.4	156.800	ES
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	15,100.0	6,900.0	9,986.1	9,890.1	104.068	SF
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	10,153.0	5,137.9	8,287.5	8,236.9	164.070	CC
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	10,200.0	5,144.5	8,287.6	8,236.6	162.647	ES
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	15,800.0	5,931.1	9,996.9	9,901.3	104.501	SF
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,424.2	6,201.7	7,865.9	7,809.5	139.585	CC
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	10,500.0	6,211.8	7,866.2	7,809.1	137.809	ES
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	15,100.0	6,350.0	9,140.5	9,047.5	98.363	SF
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,277.5	6,317.7	7,711.8	7,656.5	139.530	CC
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,300.0	6,318.7	7,711.8	7,656.4	139.008	ES
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	14,900.0	6,350.0	8,990.6	8,899.8	98.947	SF
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	10,079.2	6,807.4	7,506.2	7,451.5	137.191	CC
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	10,200.0	6,736.5	7,506.7	7,451.1	134.910	ES
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	14,700.0	6,400.0	8,730.4	8,641.0	97.557	SF
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,990.0	7,200.0	6,766.7	6,711.9	123.454	CC
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	10,100.0	7,150.0	6,767.3	6,711.6	121.445	ES
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	14,200.0	6,600.0	7,800.4	7,713.5	89.802	SF
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	9,749.5	7,332.9	6,463.0	6,409.7	121.428	CC
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	9,800.0	7,319.4	6,463.2	6,409.5	120.478	ES
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	13,900.0	6,700.0	7,499.9	7,415.1	88.475	SF
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,309.2	6,978.0	5,072.7	5,031.2	122.151	CC
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,400.0	6,978.0	5,073.5	5,031.1	119.560	ES
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	13,900.0	6,978.0	5,696.0	5,634.5	92.570	SF
Jessie D29-1J - Wellbore #1 - Gyro Surveys	11,482.1	6,880.5	9,706.6	9,639.7	144.952	CC
Jessie D29-1J - Wellbore #1 - Gyro Surveys	11,600.0	6,879.7	9,707.3	9,639.2	142.562	ES
Jessie D29-1J - Wellbore #1 - Gyro Surveys	13,800.0	6,865.3	9,979.5	9,891.4	113.246	SF
Jessie D29-4J - Wellbore #1 - Gyro Surveys	8,816.9	6,675.8	9,794.1	9,749.4	219.256	CC
Jessie D29-4J - Wellbore #1 - Gyro Surveys	8,900.0	6,673.9	9,794.5	9,749.2	216.558	ES
Jessie D29-4J - Wellbore #1 - Gyro Surveys	10,800.0	6,635.1	9,992.7	9,932.1	164.953	SF
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,761.9	6,940.9	7,031.9	6,986.7	155.683	CC
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,800.0	6,941.0	7,032.0	6,986.6	154.817	ES
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	13,500.0	6,955.2	8,479.1	8,399.7	106.740	SF
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,140.9	7,034.7	7,999.1	7,951.2	167.168	CC
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,200.0	7,035.3	7,999.3	7,951.0	165.618	ES
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	14,600.0	7,089.9	9,684.1	9,595.9	109.842	SF
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	7,681.7	6,921.6	6,694.0	6,653.5	165.090	CC
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	7,700.0	6,921.5	6,694.1	6,653.5	164.972	ES
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	12,700.0	6,895.2	8,366.1	8,294.2	116.364	SF
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	7,806.8	6,940.5	8,058.2	8,017.4	197.682	CC, ES
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	13,700.0	6,929.2	9,982.8	9,903.1	125.158	SF
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,369.0	6,877.7	7,233.9	7,168.0	109.644	CC
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,400.0	6,877.4	7,234.0	7,167.7	109.147	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 D29-2J - Wellbore #1 - Kate Red D29-2J	15,100.0	6,850.5	8,139.3	8,043.9	85.316	SF
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,783.4	6,892.3	8,114.8	8,045.1	116.368	CC
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,900.0	6,891.9	8,115.7	8,044.8	114.510	ES
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	16,100.0	6,878.9	9,191.4	9,087.8	88.767	SF
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,450.9	6,843.9	6,761.9	6,704.2	117.048	CC
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,500.0	6,844.3	6,762.1	6,703.9	116.130	ES
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	14,200.0	6,868.1	7,731.6	7,644.5	88.779	SF
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,429.6	6,931.6	8,118.5	8,060.7	140.611	CC
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,500.0	6,931.4	8,118.8	8,060.4	139.061	ES
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	15,300.0	6,917.6	9,467.2	9,372.0	99.414	SF
Kate White D29-1 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-15 - Wellbore #1 - Gyro Surveys	7,928.7	6,600.0	9,302.6	9,262.5	231.743	CC, ES
Kate White D29-15 - Wellbore #1 - Gyro Surveys	11,500.0	6,601.8	9,964.5	9,898.7	151.465	SF
Kate White D29-16 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-7 - Wellbore #1 - Gyro Surveys	10,449.8	6,840.6	9,603.9	9,546.1	166.219	CC
Kate White D29-7 - Wellbore #1 - Gyro Surveys	10,500.0	6,840.5	9,604.1	9,545.8	164.921	ES
Kate White D29-7 - Wellbore #1 - Gyro Surveys	13,200.0	6,833.5	9,989.9	9,907.7	121.502	SF
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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,508.0	6,990.9	4,616.6	4,537.3	58.175	CC
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,600.0	6,991.3	4,617.5	4,537.2	57.446	ES
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	17,400.0	17,400.0	6,726.3	6,592.2	50.152	SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,232.6	7,058.2	2,274.0	2,199.0	30.345	CC, ES
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,700.0	7,056.0	2,321.5	2,242.0	29.210	SF
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	12,383.1	7,449.0	931.1	851.4	11.688	CC, ES
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	13,000.0	7,448.4	1,116.9	1,004.5	9.931	SF
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,093.7	7,422.6	1,228.9	1,136.2	13.257	CC
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,200.0	7,422.2	1,233.5	1,133.6	12.352	ES
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,600.0	7,420.7	1,329.1	1,208.1	10.980	SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	407.8	373.8	3,815.1	3,813.2	1,989.797	CC, ES
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	11,500.0	7,264.4	5,974.1	5,865.3	54.951	SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,673.9	6,867.9	4,522.5	4,478.1	101.732	CC
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,700.0	6,865.3	4,522.6	4,478.0	101.357	ES
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	11,200.0	6,670.2	5,176.1	5,113.9	83.178	SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	9,059.4	6,788.6	5,507.0	5,460.3	117.967	CC
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	9,100.0	6,787.9	5,507.1	5,460.1	117.201	ES
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	12,300.0	6,731.2	6,389.4	6,318.7	90.379	SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	7,686.9	7,016.6	4,177.7	4,136.8	102.095	CC, ES
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	10,100.0	6,828.5	4,822.1	4,767.9	88.883	SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	7,624.2	6,965.2	5,414.0	5,373.3	133.084	CC, ES
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	11,400.0	6,997.3	6,600.4	6,537.2	104.306	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,600.0	7,373.9	4,708.0	4,612.1	49.093	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,712.9	7,374.1	4,706.6	4,610.8	49.126	CC, ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	9,733.2	7,069.5	2,258.3	2,203.1	40.923	CC, ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	10,500.0	7,069.2	2,384.9	2,321.3	37.463	SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	8,317.8	6,956.1	3,437.0	3,390.0	73.117	CC, ES
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	9,800.0	6,906.4	3,742.6	3,685.3	65.238	SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,339.6	7,119.1	2,256.9	2,204.0	42.641	CC, ES, SF
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	433.9	400.0	3,816.6	3,814.5	1,854.791	CC
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	500.0	434.2	3,816.8	3,814.5	1,640.758	ES
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	11,800.0	7,277.7	6,692.2	6,603.0	75.012	SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	7,309.8	6,948.8	3,419.5	3,379.4	85.103	CC, ES
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	9,000.0	6,939.4	3,862.6	3,815.4	81.894	SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	7,219.1	7,041.9	2,249.8	2,207.9	53.756	CC, ES
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	8,200.0	7,043.7	2,501.9	2,452.9	50.993	SF
Dechant D31-77HN - Original Drilling - Original Drilling - A	7,008.1	6,826.0	2,872.3	2,834.2	75.502	CC, ES
Dechant D31-77HN - Original Drilling - Original Drilling - A	7,050.0	6,833.8	2,872.8	2,834.7	75.297	SF
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	7,010.2	6,839.7	2,874.1	2,858.5	184.499	CC, ES
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	9,500.0	6,400.0	3,866.1	3,840.5	150.924	SF
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	7,014.7	6,844.2	2,873.7	2,858.1	184.420	CC, ES
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	9,500.0	6,397.6	3,864.4	3,838.8	150.812	SF
Dechant D32-69HN - Original Drilling - APD Rev 0	7,247.9	6,348.4	6,066.5	6,050.5	379.059	CC
Dechant D32-69HN - Original Drilling - APD Rev 0	7,250.0	6,348.4	6,066.5	6,050.5	378.982	ES
Dechant D32-69HN - Original Drilling - APD Rev 0	13,100.0	6,348.4	8,509.7	8,462.3	179.779	SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	9,137.1	6,870.6	2,809.9	2,762.4	59.143	CC, ES
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	10,200.0	6,881.2	3,004.2	2,948.2	53.593	SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,230.2	6,960.3	1,643.9	1,595.5	33.977	CC, ES
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,700.0	6,964.6	1,709.7	1,657.2	32.568	SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,651.5	6,954.1	1,538.8	1,498.1	37.807	CC, ES
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	7,900.0	6,953.5	1,558.7	1,517.3	37.618	SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	7,745.6	6,764.9	3,006.6	2,966.2	74.551	CC, ES
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	9,100.0	6,732.0	3,297.3	3,249.9	69.522	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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
D Section 30						
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,540.8	6,774.7	5,026.9	4,959.6	74.686	CC
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,600.0	6,775.3	5,027.2	4,959.3	74.032	ES
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	13,600.0	6,800.0	5,432.2	5,347.9	64.422	SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,846.8	6,949.0	4,113.1	4,006.0	38.426	CC
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,900.0	6,949.0	4,113.4	4,005.8	38.232	ES
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	13,000.0	6,949.0	4,271.7	4,154.3	36.412	SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,866.1	6,924.9	2,760.7	2,690.0	39.095	CC
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,900.0	6,924.8	2,760.9	2,689.9	38.891	ES
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	12,600.0	6,923.7	2,856.5	2,779.3	36.987	SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,890.0	6,920.4	1,594.8	1,524.0	22.505	CC
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,900.0	6,920.4	1,594.9	1,523.9	22.465	ES
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	12,200.0	6,920.1	1,624.7	1,550.7	21.964	SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,108.1	6,964.0	1,630.0	1,574.8	29.514	CC, ES
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,500.0	6,961.6	1,676.4	1,617.5	28.417	SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,164.6	6,938.7	2,821.9	2,766.2	50.705	CC
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,200.0	6,939.1	2,822.1	2,766.1	50.386	ES
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	11,100.0	6,947.4	2,972.8	2,909.1	46.616	SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,288.5	6,963.1	5,310.3	5,253.6	93.584	CC
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,300.0	6,963.1	5,310.3	5,253.5	93.408	ES
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	12,900.0	6,955.1	5,917.7	5,840.1	76.313	SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,270.0	6,967.0	2,012.0	1,932.8	25.391	CC, ES
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,600.0	6,967.0	2,038.9	1,957.6	25.061	SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,809.4	6,820.5	5,999.2	5,946.8	114.445	CC
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,900.0	6,819.7	5,999.9	5,946.6	112.740	ES
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	13,100.0	6,792.4	6,842.3	6,764.4	87.808	SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,515.3	6,957.0	4,126.8	4,031.6	43.325	CC, ES
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	11,800.0	6,957.0	4,322.2	4,215.7	40.579	SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	10,996.4	6,850.6	3,459.7	3,397.1	55.270	CC
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	11,000.0	6,850.7	3,459.7	3,397.1	55.238	ES
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	12,200.0	6,862.6	3,663.1	3,590.1	50.226	SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,028.3	6,926.2	2,275.0	2,210.1	35.035	CC, ES
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,600.0	6,929.1	2,345.8	2,275.5	33.384	SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,404.3	6,885.8	3,809.8	3,760.4	77.014	CC, ES
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	11,100.0	6,861.8	4,170.1	4,107.2	66.318	SF
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,784.1	6,940.6	4,649.7	4,597.1	88.485	CC
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,800.0	6,940.3	4,649.7	4,597.0	88.247	ES
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	12,000.0	6,895.3	5,150.5	5,080.4	73.496	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	2,000.0	44.7	36.0	5.139	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,460.5	17,529.4	882.1	682.3	4.415	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	22.4	11.9	2.129	CC
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,499.2	22.6	11.7	2.078	ES, SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,399.0	22.4	11.9	2.130	CC, ES
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,499.4	22.8	11.9	2.095	SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	44.7	34.2	4.259	CC, ES
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,500.0	46.1	35.2	4.220	SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	67.1	56.6	6.388	CC, ES
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,500.0	68.4	57.5	6.266	SF
Emmy State H25-751 - Wellbore #1 - Design #1	17,439.7	17,580.8	1,608.5	1,407.2	7.990	CC, ES, SF
Emmy State H25-757 - Wellbore #1 - Design #1	6,607.0	7,031.2	1,929.3	1,898.0	61.724	CC
Emmy State H25-757 - Wellbore #1 - Design #1	17,460.5	17,495.9	2,047.3	1,845.7	10.158	ES, SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,400.0	2,415.0	2,179.2	2,174.0	415.209	CC, ES
Emmy State H25-764 - Wellbore #1 - Design #1	17,460.5	17,466.3	2,485.5	2,386.1	24.996	SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,402.4	2,414.9	2,201.6	2,191.0	209.065	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	17,460.5	17,391.6	2,926.9	2,725.1	14.505	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,112.1	2,124.1	2,223.9	2,214.7	240.960	CC
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,208.8	2,223.9	2,214.3	231.305	ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,460.5	17,407.9	3,365.1	3,163.5	16.689	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	1,912.1	1,924.1	2,249.1	2,240.7	269.984	CC
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,249.1	2,240.4	258.565	ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,460.5	17,481.1	3,806.6	3,605.3	18.908	SF
Emmy State H36-760 - Wellbore #1 - Design #1	6,700.0	7,805.6	2,076.6	2,044.2	64.014	SF
Emmy State H36-760 - Wellbore #1 - Design #1	6,735.6	7,791.5	2,076.4	2,043.9	64.027	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	2,451.9	2,496.9	2,184.5	2,173.7	201.983	CC
Emmy State H36-766 - Wellbore #1 - Design #1	2,500.0	2,569.7	2,184.6	2,173.5	197.353	ES
Emmy State H36-766 - Wellbore #1 - Design #1	6,650.0	7,808.3	2,466.4	2,434.8	78.248	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,400.0	2,412.0	2,206.9	2,196.3	209.708	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	8,800.0	6,700.0	3,110.9	3,076.3	89.751	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,111.7	2,124.7	2,229.2	2,219.9	241.521	CC
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,200.0	2,229.2	2,219.6	232.271	ES
Emmy State H36-780 - Wellbore #1 - Design #1	9,400.0	6,517.9	3,705.7	3,668.5	99.612	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	1,911.2	1,925.2	2,254.3	2,245.9	270.589	CC
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,254.3	2,245.6	259.163	ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	9,900.0	6,550.0	4,205.5	4,163.8	100.870	SF
Hurley H26-712 - Wellbore #1 - Design #1	10,082.1	7,506.0	4,211.1	4,163.3	88.167	CC
Hurley H26-712 - Wellbore #1 - Design #1	17,460.5	14,863.7	4,247.5	4,072.2	24.224	ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	10,021.7	7,376.7	4,547.0	4,500.6	98.040	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,460.5	14,749.7	4,656.2	4,483.9	27.027	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	9,955.7	7,316.8	5,079.7	5,034.5	112.419	CC
Hurley H26-724 - Wellbore #1 - Design #1	17,460.5	14,814.6	5,092.6	4,919.1	29.348	ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	2,400.0	2,450.0	5,257.1	5,246.4	495.529	CC, ES
Hurley H26-736 - Wellbore #1 - Design #1	17,460.5	14,662.4	5,922.3	5,750.0	34.358	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,449.0	5,275.9	5,265.3	497.415	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,963.3	6,351.6	6,176.3	36.248	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	9,951.8	7,610.3	6,773.7	6,726.0	142.051	CC
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,460.5	15,107.6	6,774.2	6,597.3	38.308	ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	9,908.6	7,428.9	7,120.7	7,074.6	154.378	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,862.2	7,244.8	7,071.7	41.862	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	9,864.4	7,350.0	7,542.7	7,497.8	168.055	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,821.7	7,666.6	7,493.4	44.267	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	2,651.4	3,328.7	7,850.7	7,838.1	619.341	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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						
DP 408						
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,812.1	8,086.1	7,912.4	46.564	SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,110.3	2,126.3	7,893.1	7,883.9	855.131	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,300.0	2,288.4	7,893.3	7,883.3	789.674	ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,879.3	8,516.0	8,339.5	48.243	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	1,910.3	1,926.3	7,914.1	7,905.8	949.933	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,914.2	7,905.5	909.836	ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,460.5	14,746.2	8,920.9	8,746.1	51.050	SF
Hurley H35-720 - Wellbore #1 - Design #1	6,341.7	10,808.7	4,731.7	4,680.9	93.101	CC
Hurley H35-720 - Wellbore #1 - Design #1	6,366.1	10,811.4	4,731.8	4,680.8	92.936	ES
Hurley H35-720 - Wellbore #1 - Design #1	12,700.0	6,722.2	5,217.5	5,153.8	81.839	SF
Hurley H35-727 - Wellbore #1 - Design #1	6,243.3	10,545.9	5,135.8	5,085.8	102.848	CC, ES
Hurley H35-727 - Wellbore #1 - Design #1	12,900.0	6,600.0	5,681.7	5,617.9	88.988	SF
Hurley H35-733 - Wellbore #1 - Design #1	2,400.0	2,449.0	5,320.0	5,309.4	501.566	CC, ES
Hurley H35-733 - Wellbore #1 - Design #1	13,200.0	6,450.0	6,123.6	6,057.4	92.423	SF
Hurley H35-740 - Wellbore #1 - Design #1	2,400.0	2,450.0	5,338.5	5,327.9	503.210	CC, ES
Hurley H35-740 - Wellbore #1 - Design #1	13,800.0	6,139.0	6,761.6	6,692.7	98.071	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,904.6	1,953.6	5,357.1	5,348.8	639.283	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	5,357.4	5,348.7	615.910	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	14,000.0	5,767.1	7,204.5	7,134.9	103.598	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	5,989.2	10,585.8	6,879.8	6,828.9	135.155	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,000.0	10,587.1	6,879.8	6,828.9	135.064	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	14,400.0	6,850.0	8,187.3	8,112.3	109.206	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	5,951.3	10,373.6	7,300.5	7,251.0	147.504	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,000.0	10,379.3	7,300.6	7,251.0	146.994	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	14,700.0	6,700.0	8,721.7	8,645.9	115.044	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	5,854.2	10,402.6	7,727.6	7,679.4	160.485	CC
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	5,900.0	10,407.9	7,727.7	7,679.4	159.909	ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	15,100.0	6,550.0	9,211.0	9,132.5	117.364	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	2,309.8	2,326.8	7,922.1	7,912.0	782.085	CC
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	7,922.1	7,911.6	754.736	ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	15,500.0	6,450.0	9,706.5	9,625.3	119.524	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,110.3	2,126.3	7,944.3	7,935.0	860.672	CC
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,200.0	7,944.3	7,934.7	827.746	ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	15,500.0	6,426.4	9,965.0	9,883.0	121.441	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	1,910.3	1,926.3	7,965.1	7,956.8	956.054	CC
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,965.1	7,956.4	915.698	ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	14,800.0	5,725.8	9,994.9	9,917.1	128.401	SF
Hurley State H35-713 - Wellbore #1 - Design #1	6,368.5	10,519.7	4,272.9	4,221.4	83.008	CC, ES
Hurley State H35-713 - Wellbore #1 - Design #1	12,200.0	6,800.0	4,710.6	4,650.9	78.921	SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,460.5	7,173.5	3,088.0	2,967.5	25.623	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,460.5	7,068.2	4,361.3	4,241.2	36.313	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,460.5	6,358.0	4,380.3	4,264.7	37.902	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,460.5	6,840.8	1,451.7	1,332.9	12.213	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,460.5	6,936.4	3,495.4	3,373.5	28.659	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,460.5	7,058.4	2,562.6	2,442.3	21.315	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,460.5	7,006.7	1,266.6	1,160.1	11.899	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled	17,460.5	7,005.0	876.5	830.1	18.904	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,460.5	7,017.0	3,748.1	3,508.6	15.651	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	17,460.5	6,900.0	5,246.3	5,129.2	44.813	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,460.5	6,800.0	6,126.9	6,003.8	49.771	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,460.5	6,981.3	5,357.2	5,234.1	43.540	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	16,900.0	16,900.0	7,564.2	7,419.3	52.206	SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,460.5	7,090.2	7,450.3	7,317.5	56.084	CC, ES
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,460.5	7,447.6	6,421.4	6,285.8	47.343	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,460.5	7,338.0	7,468.8	7,313.2	47.977	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,460.5	7,649.0	8,251.3	8,125.2	65.389	CC, ES, SF
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,331.9	6,937.1	1,693.7	1,599.9	18.072	CC, ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,600.0	6,943.1	1,714.7	1,618.4	17.797	SF
H Section 21						
Moser 24-21 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
H Section 22						
HSR Demeules 09-22 - Original Drilling - Original Drilling						Out of range
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 23						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,513.9	7,024.5	6,041.4	5,936.1	57.406	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,600.0	7,023.4	6,042.0	5,936.0	57.017	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	17,100.0	7,004.0	6,246.1	6,130.2	53.898	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,741.0	7,009.0	4,863.1	4,630.3	20.889	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,800.0	7,009.0	4,863.5	4,630.2	20.847	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,400.0	7,009.0	4,907.5	4,670.0	20.663	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,845.2	7,074.7	6,112.1	5,932.6	34.051	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,900.0	7,074.9	6,112.3	5,932.4	33.962	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,460.5	7,076.3	6,143.0	5,958.6	33.319	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,422.7	7,019.0	4,821.1	4,600.8	21.876	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,500.0	7,019.0	4,821.7	4,600.7	21.816	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	16,100.0	7,019.0	4,868.5	4,643.2	21.613	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,105.9	6,766.0	4,932.5	4,851.3	60.713	CC, ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	14,500.0	6,828.1	5,125.4	5,034.7	56.521	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,166.8	6,717.7	6,263.8	6,182.1	76.651	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,200.0	6,718.6	6,263.9	6,181.9	76.386	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	15,400.0	6,803.5	6,649.5	6,552.5	68.542	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,164.5	6,877.3	5,967.0	5,875.2	64.977	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,200.0	6,879.0	5,967.1	5,875.0	64.761	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	16,000.0	7,008.8	6,241.9	6,137.2	59.653	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,851.1	7,337.1	7,425.0	7,297.7	58.353	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,900.0	7,337.2	7,425.1	7,297.4	58.133	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,460.5	7,338.8	7,449.9	7,317.0	56.056	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,856.6	7,273.9	8,842.8	8,695.9	60.227	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,000.0	7,275.6	8,843.9	8,694.5	59.180	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,460.5	7,281.3	8,863.4	8,705.7	56.232	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,521.6	7,198.8	8,850.2	8,710.1	63.181	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	17,460.5	7,235.2	9,060.0	8,911.7	61.071	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,908.8	6,988.1	7,796.7	7,687.7	71.514	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,000.0	6,989.1	7,797.2	7,687.4	70.988	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,460.5	7,004.9	7,949.6	7,828.2	65.449	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,920.5	7,200.0	5,051.1	4,960.3	55.600	CC
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,000.0	7,200.0	5,051.7	4,960.2	55.210	ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	15,200.0	7,175.0	5,210.6	5,111.3	52.503	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,246.1	7,124.8	6,649.4	6,536.7	58.998	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,300.0	7,124.2	6,649.6	6,536.4	58.758	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,460.5	7,112.7	6,759.4	6,637.7	55.545	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,818.9	7,092.1	5,604.4	5,502.9	55.251	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,900.0	7,092.2	5,604.9	5,502.9	54.908	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	16,200.0	7,100.0	5,772.0	5,661.8	52.384	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,183.0	7,152.5	4,229.0	4,115.3	37.172	CC
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,200.0	7,152.7	4,229.1	4,115.2	37.139	ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,800.0	7,157.9	4,273.8	4,156.9	36.551	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,152.3	6,872.8	7,697.1	7,605.4	83.928	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,200.0	6,872.6	7,697.3	7,605.1	83.553	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	17,000.0	6,856.8	8,207.0	8,095.8	73.784	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,136.4	6,914.2	8,997.6	8,905.8	98.067	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,200.0	6,914.6	8,997.8	8,905.5	97.473	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	17,460.5	6,939.9	9,592.0	9,476.3	82.888	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,986.1	6,965.9	8,981.5	8,900.4	110.649	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.0	6,970.2	8,982.3	8,900.1	109.304	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.0	7,123.8	9,919.8	9,809.1	89.611	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,875.4	7,103.1	7,270.0	7,189.3	90.099	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 H23-14J - Original Drilling - Original Drilling - As D	12,900.0	7,104.8	7,270.1	7,189.2	89.857	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	15,900.0	7,316.9	7,871.3	7,769.4	77.262	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,776.9	6,894.6	7,042.8	6,954.5	79.789	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,800.0	6,895.3	7,042.8	6,954.4	79.608	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	16,300.0	6,948.7	7,480.8	7,375.1	70.786	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,205.8	6,976.0	8,424.6	8,226.1	42.439	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,300.0	6,976.0	8,425.1	8,225.8	42.268	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	15,500.0	6,976.0	8,731.4	8,515.3	40.410	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,940.0	6,922.6	5,342.1	5,233.2	49.073	CC
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,000.0	6,923.0	5,342.4	5,233.0	48.849	ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	17,200.0	6,932.3	5,488.6	5,371.5	46.837	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	14,267.1	6,949.8	368.3	275.0	3.949	CC, ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,300.0	6,949.7	369.7	275.9	3.940	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,275.4	6,984.0	826.9	733.6	8.864	CC, ES, SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,200.3	7,125.9	2,279.6	2,186.3	24.441	CC, ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,400.0	7,130.1	2,288.3	2,193.9	24.237	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,193.2	6,500.0	3,535.4	3,445.6	39.378	CC
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,200.0	6,500.0	3,535.4	3,445.6	39.354	ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,800.0	6,500.0	3,587.1	3,493.5	38.313	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	13,995.2	7,340.0	3,346.6	3,254.6	36.380	CC
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,000.0	7,340.0	3,346.6	3,254.6	36.365	ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,600.0	7,340.0	3,400.8	3,305.0	35.478	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,545.8	7,342.5	3,399.9	3,317.9	41.482	CC, ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	13,300.0	13,300.0	3,468.5	3,348.8	28.972	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,923.2	6,968.6	896.8	816.3	11.145	CC, ES, SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,958.3	6,959.2	89.3	8.5	1.105	Level 2, CC, ES, SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,793.3	7,032.6	2,056.0	1,976.4	25.830	CC
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,800.0	7,032.7	2,056.0	1,976.3	25.816	ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	13,000.0	7,034.1	2,066.3	1,985.6	25.604	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,743.1	6,970.7	1,539.5	1,441.9	15.766	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,800.0	6,974.5	1,540.6	1,442.6	15.727	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,600.0	6,973.4	266.8	179.8	3.065	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,607.2	6,973.4	266.7	179.7	3.067	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,580.4	7,139.0	1,348.3	1,260.7	15.394	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,600.0	7,138.3	1,348.5	1,260.8	15.380	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	14,039.3	7,343.9	99.3	33.4	1.506	CC, ES, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,381.3	6,969.6	306.0	228.6	3.956	CC, ES, SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,309.4	6,993.4	2,686.7	2,593.6	28.866	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,700.0	6,995.9	2,714.9	2,619.5	28.459	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,693.6	6,896.4	3,435.2	3,319.3	29.633	CC
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,700.0	6,896.6	3,435.2	3,319.3	29.620	ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	17,200.0	6,908.7	3,472.3	3,353.3	29.171	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,888.2	7,004.2	2,903.5	2,794.7	26.699	CC
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,900.0	7,003.9	2,903.5	2,794.7	26.677	ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	16,200.0	7,002.0	2,920.2	2,809.5	26.395	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,769.7	6,990.6	2,128.5	2,005.1	17.262	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,900.0	6,988.4	2,132.4	2,008.4	17.197	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,783.8	7,002.4	776.0	658.6	6.612	CC, ES, SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,413.7	7,025.3	1,975.6	1,871.2	18.933	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,600.0	7,029.5	1,984.3	1,879.1	18.852	SF
HSR Taurig 01-24 - Original Drilling - Original Drilling - A	17,037.7	6,989.5	100.5	-19.2	0.839	Level 1, CC, ES, SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,199.3	6,974.7	824.2	712.5	7.380	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,200.0	6,974.7	824.2	712.5	7.379	ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,300.0	6,977.3	830.3	717.6	7.365	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,602.7	6,971.4	336.7	230.7	3.177	CC, ES, SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,265.2	6,978.7	497.6	394.8	4.843	CC, ES, SF
Weld County Lumber 01 - Original Drilling - Original Drilling	16,006.3	6,985.3	688.2	578.4	6.266	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	10,800.0	7,122.7	1,455.6	1,389.4	21.971	SF
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,843.7	7,122.3	1,455.0	1,388.8	21.996	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	8,290.5	7,075.4	940.1	896.0	21.321	CC
Dechant D30-33D - Original Drilling - Original Drilling - As	8,300.0	7,075.2	940.1	896.0	21.281	ES
Dechant D30-33D - Original Drilling - Original Drilling - As	8,500.0	7,070.8	963.1	917.0	20.863	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	7,250.0	7,081.3	843.6	798.4	18.668	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	7,307.1	7,094.4	841.4	796.5	18.736	CC, ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,600.0	10,811.3	36.9	-22.8	0.618	Level 1, ES, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,613.0	10,811.5	34.5	-11.4	0.751	Level 1, CC
Dechant H25-65HN - Original Drilling - Original Drilling	9,500.0	10,848.5	51.7	-29.9	0.634	Level 1, ES, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,529.9	10,850.0	42.2	-9.8	0.811	Level 1, CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,566.4	7,037.9	2,371.2	2,302.9	34.719	CC, ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,900.0	7,045.0	2,394.6	2,324.4	34.112	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,214.4	6,995.2	2,302.9	2,246.7	40.957	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,600.0	6,981.1	2,335.0	2,276.7	40.112	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,632.7	7,512.3	3,441.3	3,349.7	37.564	CC, ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	12,300.0	7,525.5	3,505.4	3,408.9	36.314	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,112.1	6,962.9	3,308.5	3,253.3	59.929	CC, ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	11,000.0	6,970.7	3,425.6	3,365.2	56.684	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,532.3	6,961.4	867.0	816.4	17.112	CC, ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,700.0	6,962.3	883.1	830.6	16.816	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,017.8	6,970.0	55.0	25.4	1.859	CC, ES, SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,011.3	6,969.7	352.0	305.1	7.506	CC, ES, SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,166.9	6,966.3	1,087.7	1,039.7	22.694	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,200.0	6,966.4	1,088.2	1,040.1	22.657	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,980.4	6,955.9	2,260.2	2,183.8	29.557	CC
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,000.0	6,956.2	2,260.3	2,183.8	29.519	ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,300.0	6,960.9	2,282.7	2,204.6	29.239	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	697.6	700.0	3,437.4	3,433.5	888.932	CC
KY Blue H25-12 - Original Drilling - Original Drilling - As D	800.0	776.8	3,437.8	3,433.3	770.111	ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	10,300.0	7,121.3	3,931.1	3,876.7	72.229	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,308.4	2,286.4	1,481.5	1,468.7	115.281	CC
KY Blue H25-14 - Original Drilling - Original Drilling - As D	2,400.0	2,377.9	1,481.6	1,468.2	110.763	ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,600.0	7,013.5	2,177.2	2,136.5	53.404	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	1,986.5	1,956.6	563.3	552.3	51.289	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	2,100.0	2,066.6	563.7	552.1	48.502	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,700.0	6,990.1	1,115.4	1,074.5	27.287	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	1,934.9	1,907.5	1,289.3	1,278.6	120.455	CC
KY H25-24 - Original Drilling - Original Drilling - As Drilled	2,000.0	1,966.9	1,289.4	1,278.3	116.629	ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,500.0	6,970.8	1,533.4	1,490.1	35.413	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,704.4	6,954.4	485.0	415.7	7.005	CC, ES, SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,576.4	6,987.2	897.9	829.7	13.169	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,600.0	6,987.4	898.2	830.0	13.163	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,136.6	7,022.7	1,187.3	1,131.6	21.326	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,200.0	7,023.3	1,189.0	1,133.1	21.269	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,383.7	6,962.6	483.9	426.3	8.402	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	6,962.6	484.2	426.3	8.364	ES, SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,874.3	7,120.0	2,595.3	2,532.8	41.531	CC
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,900.0	7,120.2	2,595.5	2,532.8	41.419	ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	11,300.0	7,124.2	2,630.0	2,565.1	40.498	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,732.2	6,963.0	211.8	36.2	1.206	Level 2, CC, ES, SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	0.0	0.0	2,515.2			
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,100.0	2,082.7	2,520.1	2,508.4	215.878	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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						
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	8,400.0	7,054.4	3,175.5	3,132.4	73.597	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	11,813.8	6,897.4	6,233.3	6,163.4	89.102	CC
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,900.0	6,901.1	6,233.9	6,163.3	88.199	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	16,000.0	16,000.0	7,505.5	7,389.1	64.471	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,132.7	7,015.9	6,064.7	6,009.1	109.000	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,200.0	7,016.3	6,065.1	6,009.0	108.027	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	13,000.0	7,036.1	6,708.4	6,634.2	90.485	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,306.3	6,917.4	5,271.1	5,205.6	80.511	CC, ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	13,200.0	6,930.9	5,600.9	5,523.0	71.884	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,332.8	7,518.9	2,640.4	2,557.5	31.865	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,400.0	7,519.6	2,641.2	2,558.3	31.845	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,443.7	7,988.5	4,087.6	4,008.2	51.482	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	15,200.0	15,200.0	7,486.0	7,330.6	48.186	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	338.0	358.0	4,405.6	4,403.9	2,599.166	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	1,600.0	1,594.5	4,410.5	4,401.6	498.050	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	11,100.0	7,021.0	5,130.3	5,071.2	86.750	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	519.3	541.3	5,587.9	5,585.2	2,041.715	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	2,420.0	2,479.4	5,597.5	5,583.7	406.339	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	12,300.0	7,023.5	6,756.4	6,689.1	100.461	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,122.0	1,148.1	5,401.6	5,395.4	868.279	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,300.0	1,319.8	5,402.2	5,394.9	748.089	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	11,300.0	7,120.9	7,020.5	6,960.5	117.135	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	12.5	4,322.6			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,184.1	4,325.0	4,318.5	663.906	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	11,100.0	11,100.0	6,055.1	5,985.6	87.082	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	3,910.7	4,947.1	5,166.7	5,139.5	189.971	CC, ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	11,200.0	7,205.2	6,069.0	6,005.9	96.094	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,879.7	6,600.0	8,875.7	8,806.3	127.823	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,000.0	6,600.0	8,876.6	8,806.1	125.981	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	16,400.0	6,702.9	9,960.1	9,859.4	98.885	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	0.0	0.0	7,182.8			
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,200.0	7,031.4	7,208.4	7,152.1	128.100	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	14,000.0	7,095.9	8,154.3	8,072.9	100.203	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,724.9	7,381.2	8,299.8	8,237.7	133.709	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,800.0	7,381.3	8,300.1	8,237.4	132.424	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	15,200.0	7,394.7	9,429.4	9,337.4	102.418	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,773.2	6,745.0	7,193.4	7,124.4	104.285	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,800.0	6,745.6	7,193.5	7,124.3	103.945	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	15,200.0	6,822.5	7,967.1	7,875.1	86.623	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,521.1	6,719.5	7,334.5	7,268.0	110.189	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,600.0	6,721.1	7,335.0	7,267.7	109.113	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	15,000.0	6,800.0	8,117.4	8,027.2	90.028	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,914.1	6,915.6	4,272.4	4,210.5	69.054	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	12,300.0	6,900.0	4,491.6	4,421.1	63.728	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,703.1	7,138.4	4,649.1	4,575.6	63.239	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	13,200.0	7,148.8	4,884.1	4,800.3	58.243	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,367.3	7,140.9	4,730.9	4,670.3	78.137	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,400.0	7,140.2	4,731.0	4,670.2	77.849	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	12,000.0	7,104.2	5,004.6	4,934.4	71.318	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	2,011.0	2,030.3	5,159.9	5,148.5	453.028	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	2,100.0	2,084.4	5,160.2	5,148.4	436.814	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	11,700.0	6,959.2	5,854.8	5,787.6	87.095	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	2,421.5	2,468.8	8,716.2	8,702.5	634.572	CC
Moser 05-26 - Original Drilling - Original Drilling - As Drill	2,500.0	2,655.5	8,716.5	8,702.0	599.313	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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						
Moser 05-26 - Original Drilling - Original Drilling - As Drill	14,700.0	7,153.5	9,966.6	9,878.4	113.004	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	893.1	878.2	8,722.0	8,717.2	1,830.895	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	900.0	882.1	8,722.0	8,717.2	1,819.713	ES
Moser 41-27 - Original Drilling - Original Drilling - As Drill	12,500.0	12,500.0	9,641.7	9,552.0	107.480	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	405.0	400.0	7,183.5	7,181.5	3,609.161	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	957.1	7,185.0	7,179.8	1,363.277	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	13,900.0	7,176.9	8,977.6	8,899.2	114.545	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,251.8			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,200.0	2,146.2	8,257.0	8,244.9	681.119	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	13,700.0	6,947.3	9,978.5	9,900.6	128.125	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	8,058.1			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,152.2	8,063.2	8,056.8	1,257.827	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,300.0	6,800.0	9,964.1	9,897.9	150.374	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	560.8	565.8	6,553.0	6,550.0	2,244.413	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,379.1	6,558.2	6,544.8	490.069	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	12,800.0	6,860.1	9,031.9	8,965.9	136.882	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	5,802.3			
Moser H26-18D - Original Drilling - Original Drilling - As D	14,400.0	7,466.3	7,543.2	7,454.1	84.619	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	213.0	230.0	6,339.6	6,338.6	6,581.029	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,403.4	2,427.5	6,346.2	6,332.6	467.627	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	12,800.0	7,086.1	8,206.6	8,137.3	118.392	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	4.4	7,112.6			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,767.1	7,117.0	7,107.1	718.579	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	13,600.0	7,127.6	9,429.4	9,355.3	127.274	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,158.0	7,124.5	5,403.6	5,326.7	70.312	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,200.0	7,124.2	5,403.7	5,326.5	69.970	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	14,100.0	7,110.3	5,742.0	5,651.0	63.156	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	20.5	5,803.3			
Moser H26-28D - Original Drilling - Original Drilling - As D	15,800.0	7,580.3	7,716.1	7,599.2	65.960	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	31.6	5,804.1			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	5,804.6	5,803.8	7,376.102	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	13,100.0	13,100.0	7,261.9	7,121.1	51.596	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,400.0	2,397.0	7,732.9	7,679.7	145.386	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,500.0	2,497.0	7,734.3	7,679.0	139.636	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	10,900.0	7,002.0	8,904.6	8,730.2	51.053	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,774.9	6,917.0	9,961.9	9,892.1	142.829	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,900.0	6,917.4	9,962.6	9,891.8	140.682	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	12,600.0	6,919.4	9,996.0	9,919.3	130.288	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	0.0	0.0	9,189.3			
HSR Moser 16-27 - Original Drilling - Original Drilling - As	2,431.5	2,500.6	9,192.7	9,178.9	661.962	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	8,900.0	7,031.7	9,993.3	9,947.6	218.809	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	0.0	0.0	9,411.5			
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	100.0	50.2	9,411.7	9,411.5	10,000.000	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	9,900.0	7,013.3	9,998.9	9,943.2	179.691	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	815.0	800.0	9,417.9	9,413.6	2,188.207	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	3,900.0	1,864.6	9,969.6	9,954.9	680.289	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	1,775.4	1,773.4	9,959.3	9,949.4	1,009.796	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	2,400.0	2,360.9	9,961.2	9,947.9	748.086	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	3,100.0	3,220.5	9,999.8	9,982.2	565.604	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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	0.0	0.0	6,450.0			
Cannon Farms 01-35C - Original Drilling - Original Drilling	2,700.0	2,752.6	6,455.7	6,440.4	423.198	ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	7,000.0	7,045.6	6,773.5	6,732.7	166.179	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	0.0	11.0	8,059.6			
Cannon H35-03D - Original Drilling - Original Drilling - As	2,200.0	2,173.4	8,062.0	8,049.8	660.052	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	6,950.0	6,684.1	8,528.7	8,489.6	217.923	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	2,687.9	2,797.9	5,526.8	5,511.4	358.924	CC
Cannon H35-09 - Original Drilling - Original Drilling - As D	2,700.0	2,810.5	5,526.8	5,511.4	357.385	ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,300.0	6,986.8	6,087.9	6,043.1	135.914	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	0.0	0.0	6,598.7			
Cannon H35-10 - Original Drilling - Original Drilling - As D	2,409.8	2,425.5	6,600.1	6,586.6	486.496	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	7,100.0	7,017.4	7,079.4	7,038.9	175.063	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	509.6	524.7	7,437.8	7,435.2	2,780.203	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	700.0	668.6	7,438.4	7,434.7	2,057.856	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,950.0	6,700.0	7,903.2	7,864.0	201.623	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	0.0	0.0	8,774.7			
Cannon H35-12 - Original Drilling - Original Drilling - As D	7,200.0	7,009.1	9,402.9	9,362.5	232.868	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	9,416.1			
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,000.0	967.0	9,420.7	9,415.4	1,773.943	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,950.0	7,069.9	9,852.9	9,812.4	242.999	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	0.0	0.0	8,303.6			
Cannon H35-14 - Original Drilling - Original Drilling - As D	1,800.0	1,769.5	8,310.1	8,300.2	838.061	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,350.0	7,052.7	8,877.9	8,829.6	183.921	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	2,400.0	2,409.0	7,334.0	7,280.6	137.268	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	2,700.0	2,708.5	7,337.0	7,277.0	122.308	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	7,050.0	6,900.3	7,731.8	7,577.6	50.148	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,073.8	2,084.8	8,013.9	8,002.2	683.638	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,200.0	2,163.4	8,014.2	8,002.0	652.879	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,000.0	6,800.0	9,965.0	9,917.9	211.742	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	1,091.0	1,106.1	6,786.9	6,780.9	1,129.846	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	1,300.0	1,284.1	6,787.4	6,780.3	956.133	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,950.0	6,923.8	7,236.1	7,196.1	181.114	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	100.0	0.0	5,779.0	5,778.9	10,000.000	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	600.0	468.1	5,781.1	5,778.4	2,158.654	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,900.0	7,025.5	6,337.4	6,296.9	156.531	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	2,103.6	2,116.8	7,532.1	7,520.3	637.895	CC
Cannon H35-24 - Original Drilling - Original Drilling - As D	2,300.0	2,271.9	7,532.6	7,519.8	588.841	ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,950.0	6,629.4	7,942.5	7,903.5	203.594	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	540.1	542.1	7,371.1	7,368.3	2,640.480	CC
Cannon X02-27 - Original Drilling - Original Drilling - As D	600.0	573.6	7,371.2	7,368.2	2,427.503	ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,950.0	6,878.4	7,659.4	7,619.4	191.338	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	0.0	13.8	8,150.8			
Cannon X02-28 - Original Drilling - Original Drilling - As D	2,500.0	2,540.2	8,155.9	8,141.7	575.290	ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,850.0	6,700.0	8,387.4	8,348.1	213.651	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	718.3	730.3	9,125.5	9,121.7	2,370.752	CC
Cannon X02-29 - Original Drilling - Original Drilling - As D	2,400.0	2,382.8	9,128.9	9,115.2	669.040	ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	6,950.0	6,829.1	9,594.4	9,554.1	238.319	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	651.1	652.2	7,611.6	7,608.2	2,224.952	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,151.5	7,614.1	7,607.7	1,189.983	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,500.0	6,870.5	9,990.7	9,933.1	173.401	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,400.0	2,421.0	5,468.9	5,415.3	102.053	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,500.0	2,521.0	5,470.1	5,414.3	98.055	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,350.0	7,020.6	6,164.6	6,008.3	39.453	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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						
Foster UPRR 32-35 - Original Drilling - Original Drilling -	1,146.5	1,163.5	5,985.0	5,978.7	946.564	CC
Foster UPRR 32-35 - Original Drilling - Original Drilling -	2,406.2	2,430.2	5,990.0	5,976.4	441.238	ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	7,050.0	6,942.4	6,507.1	6,467.1	162.655	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	559.0	566.0	4,236.1	4,233.2	1,450.970	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	2,400.0	2,376.8	4,241.4	4,228.0	317.001	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,400.0	7,014.2	4,911.6	4,861.4	97.853	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	0.0	0.0	4,732.2			
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	2,413.2	2,429.8	4,742.4	4,728.8	348.575	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,900.0	6,945.6	5,113.2	5,073.2	127.860	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	6,756.7			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	1,900.0	1,865.1	6,767.0	6,756.5	646.347	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	12,500.0	7,293.8	9,672.5	9,609.3	153.175	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	149.5	140.5	8,290.9	8,290.4	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,150.3	8,293.5	8,287.1	1,296.670	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	10,800.0	6,700.0	9,984.8	9,929.8	181.546	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	339.5	339.5	8,361.6	8,360.0	5,132.139	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	1,900.0	1,868.0	8,366.7	8,356.2	798.055	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	9,600.0	6,600.0	9,959.5	9,913.8	218.132	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	512.8	525.8	7,080.6	7,077.9	2,649.344	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	700.0	686.4	7,080.9	7,077.2	1,939.394	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	11,700.0	6,935.4	9,988.3	9,932.5	178.935	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	0.0	8.2	4,981.2			
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	2,456.3	2,520.7	4,985.2	4,971.2	356.287	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	7,200.0	6,954.9	5,540.3	5,500.2	138.125	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	5.0	7,214.0			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,662.2	7,215.4	7,206.1	775.530	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	12,200.0	6,700.0	9,982.6	9,922.6	166.418	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,403.4	6,267.0	2,299.7	2,262.7	62.128	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,650.0	6,542.4	2,342.5	2,304.0	60.823	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	900.0	892.0	5,791.9	5,787.0	1,183.206	CC
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	1,000.0	951.5	5,792.3	5,786.9	1,086.972	ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,850.0	6,273.2	6,207.7	6,167.1	153.070	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,429.6	6,429.7	5,377.9	5,338.3	135.958	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,600.0	6,450.0	5,401.9	5,361.9	135.077	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,444.5	6,353.8	4,631.1	4,590.4	113.769	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,450.0	6,359.2	4,631.1	4,590.3	113.338	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,200.0	6,938.1	5,031.6	4,974.5	88.173	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	2,867.9	2,856.9	628.7	612.5	38.939	CC
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	2,950.0	2,938.1	629.0	612.4	37.886	ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,450.0	6,408.6	870.3	832.7	23.153	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,458.6	6,489.5	2,421.2	2,374.1	51.415	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,600.0	6,620.2	2,437.6	2,389.8	51.013	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,401.2	6,200.0	5,500.5	5,463.0	146.588	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,600.0	6,250.0	5,532.3	5,494.2	145.148	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	5,728.4	5,526.4	5,767.2	5,734.0	173.765	CC
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,387.5	6,167.3	5,769.1	5,731.7	154.372	ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,600.0	6,250.0	5,802.1	5,764.0	152.142	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,422.7	6,350.0	5,286.6	5,246.0	130.107	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,550.0	6,350.0	5,300.5	5,259.6	129.630	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,451.5	6,400.0	4,915.4	4,867.5	102.647	CC, ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,550.0	6,400.0	4,924.3	4,876.2	102.393	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,447.9	6,350.0	4,948.8	4,907.8	120.727	CC
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,450.0	6,350.0	4,948.8	4,907.8	120.713	ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,600.0	6,371.8	4,969.3	4,927.9	120.019	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,838.6	6,747.3	294.9	255.9	7.572	CC, ES, SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	900.0	873.0	702.6	697.7	145.546	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	2,400.0	2,370.6	707.6	694.1	52.591	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,400.0	6,301.5	1,112.8	1,075.8	30.057	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,684.0	6,619.2	89.7	51.3	2.333	CC, ES, SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	4,337.6	4,337.9	457.1	432.0	18.260	CC
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	4,500.0	4,501.5	457.7	431.7	17.596	ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	6,650.0	6,636.7	561.8	522.9	14.432	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,676.0	6,506.1	786.1	748.1	20.690	CC, ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,700.0	6,520.0	786.4	748.3	20.668	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,395.7	6,291.9	3,919.2	3,882.1	105.619	CC
Dechant State H36-11D - Original Drilling - Original Drilling	6,400.0	6,295.8	3,919.3	3,882.1	105.547	ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,950.0	6,924.7	4,116.9	4,076.6	102.402	SF
Dechant State H36-18D - Original Drilling - Original Drilling	5,609.5	5,832.0	1,980.7	1,940.1	48.824	CC, ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,550.0	6,667.4	2,034.6	1,990.0	45.661	SF
Dechant State H36-19 - Original Drilling - Original Drilling	2,578.4	2,628.4	2,773.4	2,758.8	190.039	CC
Dechant State H36-19 - Original Drilling - Original Drilling	2,600.0	2,648.0	2,773.4	2,758.7	188.648	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,750.0	6,496.6	3,181.5	3,143.4	83.444	SF
Dechant State H36-20D - Original Drilling - Original Drilling	5,247.5	5,388.1	3,801.9	3,770.2	120.005	CC
Dechant State H36-20D - Original Drilling - Original Drilling	5,300.0	5,413.0	3,802.1	3,770.2	119.273	ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,750.0	6,711.8	3,927.6	3,888.4	100.167	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,403.1	6,398.2	3,069.2	3,031.8	82.014	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,700.0	6,657.3	3,131.7	3,092.9	80.742	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,446.1	6,644.2	4,135.6	4,089.8	90.276	CC
Dechant State H36-24 - Original Drilling - Original Drilling	6,450.0	6,646.7	4,135.6	4,089.8	90.244	ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,650.0	6,793.0	4,168.5	4,121.8	89.350	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 H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 H36-31D - Original Drilling - Original Drilling	1,013.2	1,007.2	2,758.4	2,754.1	640.214	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,065.0	2,758.6	2,753.9	585.725	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,950.0	7,005.1	4,342.2	4,302.4	109.192	SF
Dechant State H36-32D - Original Drilling - Original Drilling	3,490.4	3,705.6	4,586.0	4,564.4	212.489	CC
Dechant State H36-32D - Original Drilling - Original Drilling	3,500.0	3,710.5	4,586.0	4,564.3	212.021	ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,800.0	6,776.7	4,830.5	4,789.4	117.561	SF
Dechant State H36-33 - Original Drilling - Original Drilling	0.0	3.0	4,725.7			
Dechant State H36-33 - Original Drilling - Original Drilling	500.0	478.2	4,726.6	4,724.2	1,938.341	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,750.0	6,824.2	5,508.7	5,463.4	121.618	SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	100.0	72.1	873.2	872.9	4,248.417	CC
HSR Dechant State 02-36 - Original Drilling - Original Drilling	600.0	569.8	874.6	871.5	289.317	ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,500.0	6,425.6	1,131.6	1,094.1	30.162	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,436.4	6,342.8	1,578.0	1,435.9	11.103	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,450.0	6,356.2	1,578.2	1,435.7	11.080	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,600.0	6,502.9	1,598.9	1,453.2	10.974	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	0.0	0.0	1,629.5			
Spike State GWS H36-03 - Original Drilling - Original Drilling	2,400.0	2,372.5	1,637.7	1,624.3	122.517	ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,600.0	6,458.0	2,061.7	2,023.9	54.634	SF
Spike State GWS H36-04 - Original Drilling - Original Drilling	0.0	0.0	2,990.2			
Spike State GWS H36-04 - Original Drilling - Original Drilling	2,500.0	2,527.7	2,996.6	2,982.5	212.436	ES
Spike State GWS H36-04 - Original Drilling - Original Drilling	7,300.0	6,908.8	3,691.1	3,643.5	77.467	SF
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,517.0	7,444.0	5,702.2	5,661.2	139.179	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,700.0	7,444.0	5,726.3	5,684.9	138.237	SF
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,460.3	6,652.5	5,022.5	4,984.0	130.669	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,750.0	6,960.8	5,083.9	5,043.8	126.865	SF
Spike State H36-02J - Original Drilling - Original Drilling	2,580.9	2,586.4	2,806.9	2,792.4	194.096	CC
Spike State H36-02J - Original Drilling - Original Drilling	2,600.0	2,604.1	2,806.9	2,792.3	192.808	ES
Spike State H36-02J - Original Drilling - Original Drilling	7,150.0	6,919.3	3,237.9	3,166.0	44.995	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	2,771.7	2,911.5	3,766.5	3,750.6	236.345	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	2,800.0	2,941.0	3,766.6	3,750.5	234.041	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,800.0	6,658.1	4,024.1	3,985.1	103.317	SF
Spike State H36-11J - Original Drilling - Original Drilling	6,416.7	6,485.9	4,766.8	4,729.0	126.002	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling	6,800.0	6,813.1	4,864.4	4,824.8	122.586	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	1,242.8	1,237.8	4,599.9	4,593.1	676.494	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	2,600.0	2,605.0	4,601.0	4,586.5	316.174	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	7,000.0	7,000.0	4,919.7	4,879.2	121.640	SF

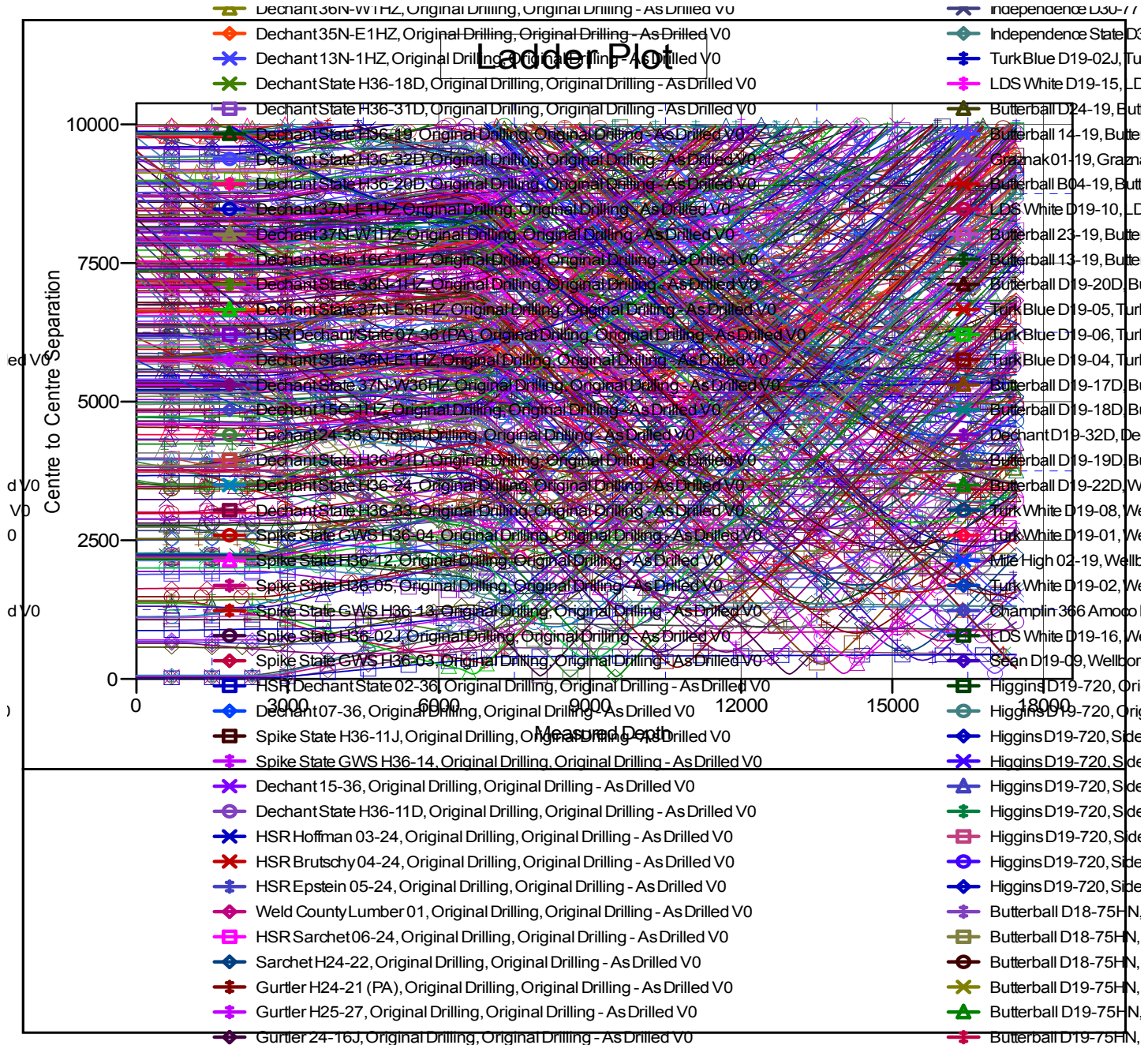
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-724	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 @ 4835.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Emmy State H25-724
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

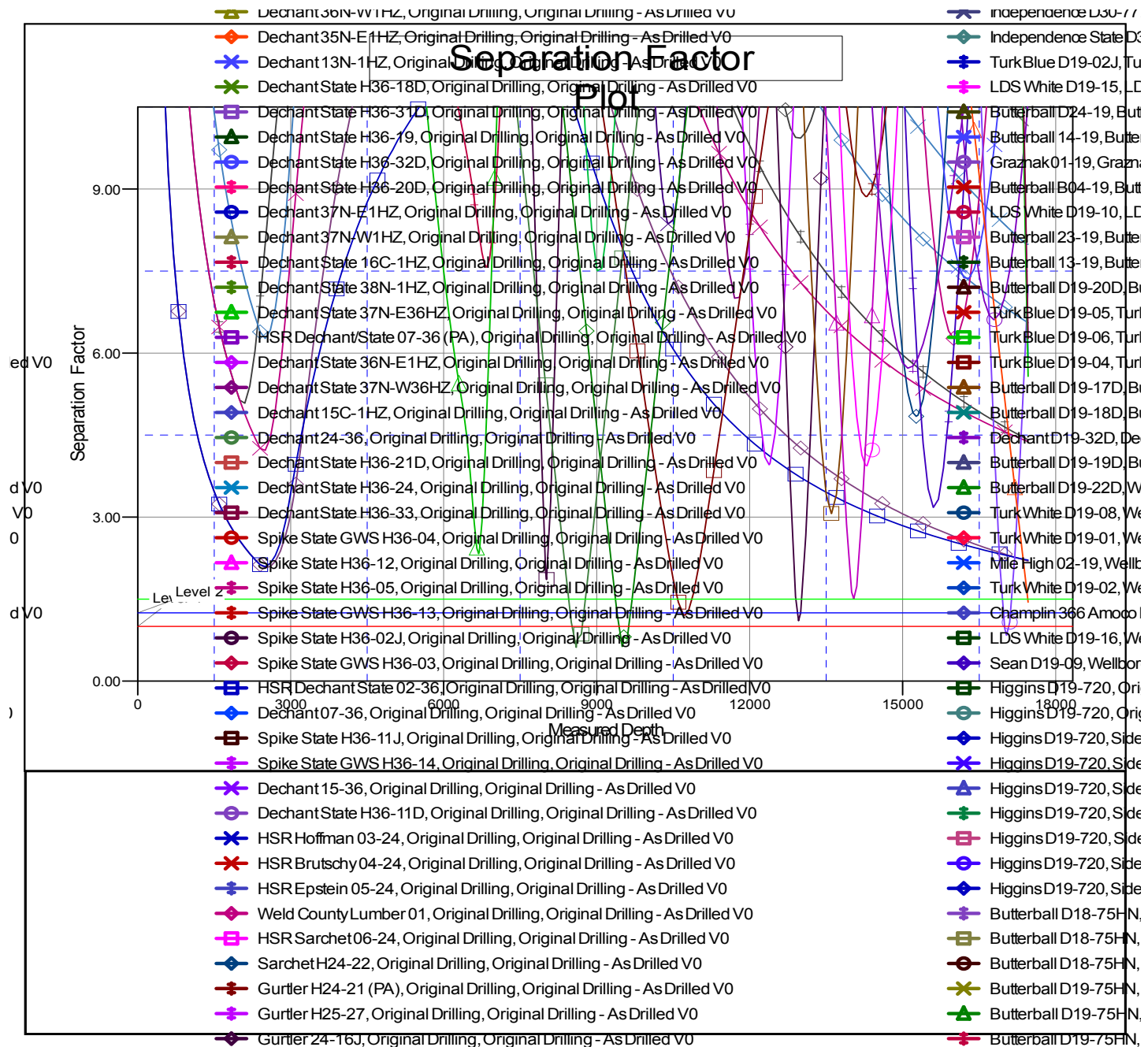
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-724
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4835.0ft (Original Well Elev)
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Reference Well:	Emmy State H25-724	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 H25-724

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