

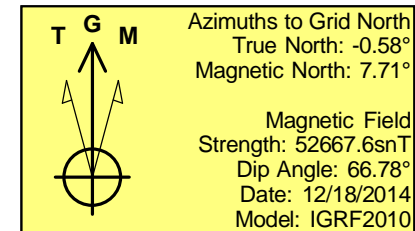
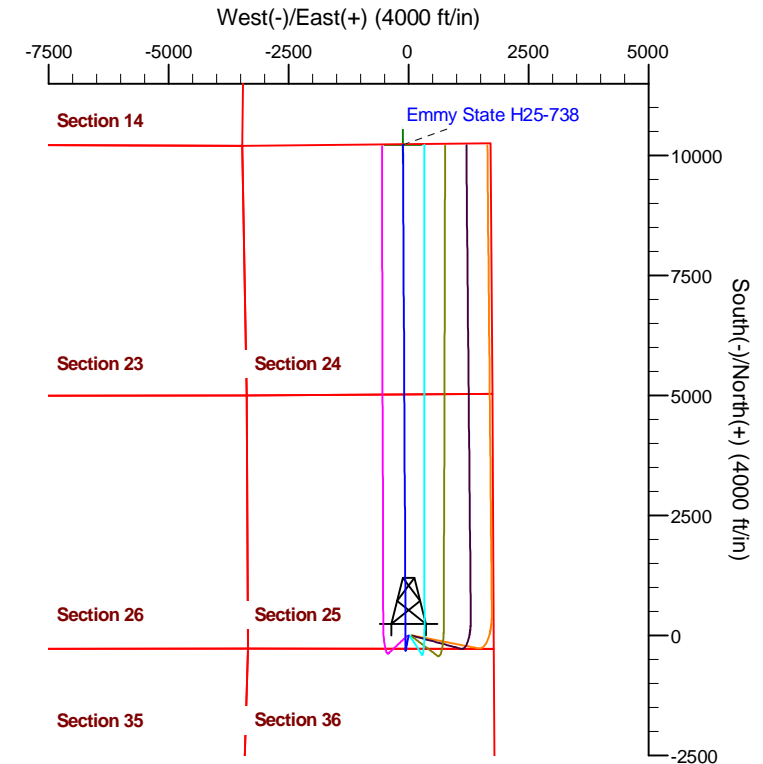
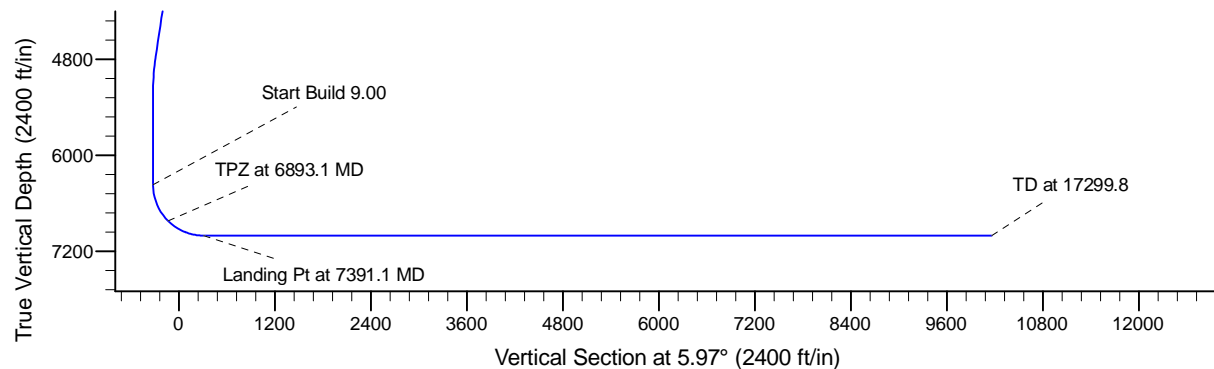
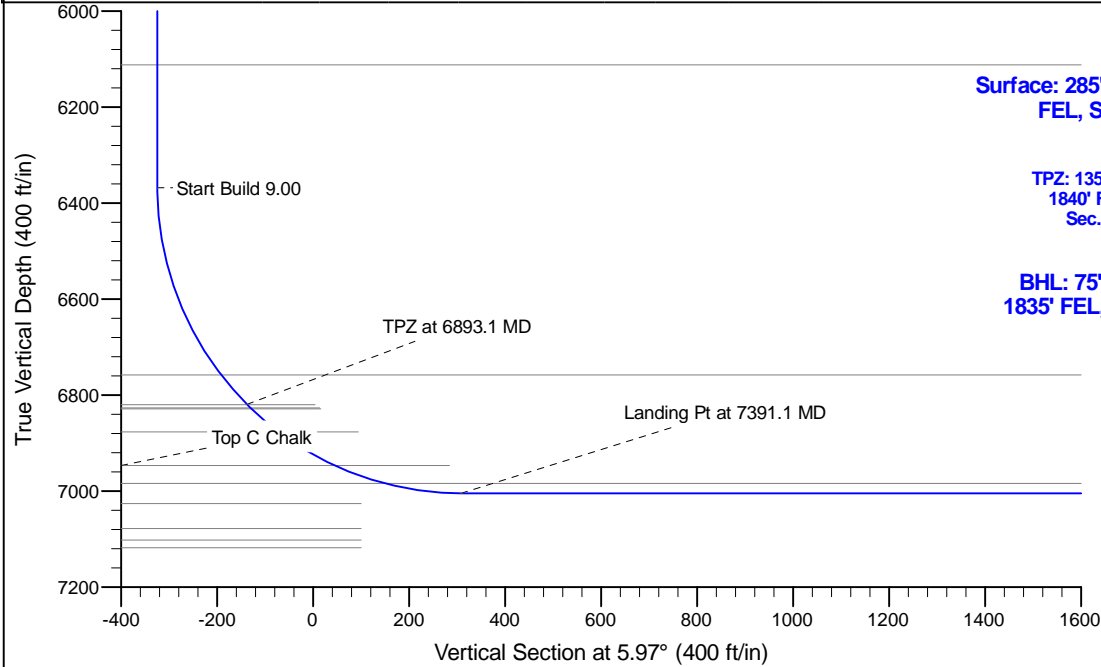
Project: Conceptual Wells
Site: DP 408
Well: Emmy State H25-738
Wellbore: Wellbore #1
Design: Prelim - Rev 2

Northern Region Drilling - DJ Basin

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2600.0	0.00	0.00	2600.0	0.0	0.0	0.00	0.00	0.0	
3	3026.0	8.52	190.62	3024.5	-31.1	-5.8	2.00	190.62	-31.5	
4	4796.7	8.52	190.62	4775.5	-288.9	-54.2	0.00	0.00	-293.0	
5	5222.7	0.00	0.00	5200.0	-320.0	-60.0	2.00	180.00	-324.5	
6	6391.1	0.00	0.00	6368.4	-320.0	-60.0	0.00	0.00	-324.5	
7	7391.1	90.00	359.69	7005.0	316.6	-63.4	9.00	359.69	308.3	
8	17299.8	90.00	359.69	7005.0	10225.2	-116.7	0.00	0.00	10157.6	Emmy H25-738 BHL



WELL DETAILS: Emmy State H25-738

0.00.0	Ground Level: 4805.0	Latitude 40.189670	Longitude -104.609190
1313189.45	Easting 3248865.34		

Plan: Prelim - Rev 2 (Emmy State H25-738/Wellbore #1)

Created By: Colby Baxter Date: 15:26, November 01 2017

Checked: _____ Date: _____

Reviewed: _____ Date: _____

Approved: _____ Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-738

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 H25-738
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 H25-738	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 H25-738					
Well Position	+N/-S	-4,995.5 ft	Northing:	1,313,189.45 usft	Latitude:	40.189670
	+E/-W	8,640.6 ft	Easting:	3,248,865.35 usft	Longitude:	-104.609190
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	52,667.56160979

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	5.97

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	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,026.0	8.52	190.62	3,024.5	-31.1	-5.8	2.00	2.00	0.00	190.62	
4,796.7	8.52	190.62	4,775.5	-288.9	-54.2	0.00	0.00	0.00	0.00	
5,222.7	0.00	0.00	5,200.0	-320.0	-60.0	2.00	-2.00	0.00	180.00	
6,391.1	0.00	0.00	6,368.4	-320.0	-60.0	0.00	0.00	0.00	0.00	
7,391.1	90.00	359.69	7,005.0	316.6	-63.4	9.00	9.00	0.00	359.69	
17,299.8	90.00	359.69	7,005.0	10,225.2	-116.7	0.00	0.00	0.00	0.00	Emmy H25-738 BHL

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	2.00	190.62	2,700.0	-1.7	-0.3	-1.7	2.00	2.00	0.00
2,800.0	4.00	190.62	2,799.8	-6.9	-1.3	-7.0	2.00	2.00	0.00
2,900.0	6.00	190.62	2,899.5	-15.4	-2.9	-15.6	2.00	2.00	0.00
3,000.0	8.00	190.62	2,998.7	-27.4	-5.1	-27.8	2.00	2.00	0.00
3,026.0	8.52	190.62	3,024.5	-31.1	-5.8	-31.5	2.00	2.00	0.00
3,100.0	8.52	190.62	3,097.6	-41.8	-7.8	-42.4	0.00	0.00	0.00
3,200.0	8.52	190.62	3,196.5	-56.4	-10.6	-57.2	0.00	0.00	0.00
3,300.0	8.52	190.62	3,295.4	-71.0	-13.3	-72.0	0.00	0.00	0.00
3,400.0	8.52	190.62	3,394.3	-85.5	-16.0	-86.7	0.00	0.00	0.00
3,500.0	8.52	190.62	3,493.2	-100.1	-18.8	-101.5	0.00	0.00	0.00
3,600.0	8.52	190.62	3,592.1	-114.7	-21.5	-116.3	0.00	0.00	0.00
3,700.0	8.52	190.62	3,691.0	-129.2	-24.2	-131.0	0.00	0.00	0.00
3,800.0	8.52	190.62	3,789.9	-143.8	-27.0	-145.8	0.00	0.00	0.00
3,900.0	8.52	190.62	3,888.8	-158.3	-29.7	-160.6	0.00	0.00	0.00
4,000.0	8.52	190.62	3,987.7	-172.9	-32.4	-175.3	0.00	0.00	0.00
4,100.0	8.52	190.62	4,086.6	-187.5	-35.2	-190.1	0.00	0.00	0.00
4,200.0	8.52	190.62	4,185.5	-202.0	-37.9	-204.9	0.00	0.00	0.00
4,300.0	8.52	190.62	4,284.4	-216.6	-40.6	-219.6	0.00	0.00	0.00
4,400.0	8.52	190.62	4,383.3	-231.2	-43.3	-234.4	0.00	0.00	0.00
4,500.0	8.52	190.62	4,482.2	-245.7	-46.1	-249.2	0.00	0.00	0.00
4,600.0	8.52	190.62	4,581.1	-260.3	-48.8	-264.0	0.00	0.00	0.00
4,700.0	8.52	190.62	4,680.0	-274.8	-51.5	-278.7	0.00	0.00	0.00
4,796.7	8.52	190.62	4,775.5	-288.9	-54.2	-293.0	0.00	0.00	0.00
4,800.0	8.45	190.62	4,778.9	-289.4	-54.3	-293.5	2.00	-2.00	0.00
4,900.0	6.45	190.62	4,878.0	-302.2	-56.7	-306.4	2.00	-2.00	0.00
5,000.0	4.45	190.62	4,977.5	-311.5	-58.4	-315.9	2.00	-2.00	0.00
5,100.0	2.45	190.62	5,077.4	-317.4	-59.5	-321.9	2.00	-2.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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)
5,200.0	0.45	190.62	5,177.3	-319.9	-60.0	-324.4	2.00	-2.00	0.00
5,222.7	0.00	0.00	5,200.0	-320.0	-60.0	-324.5	2.00	-2.00	0.00
5,300.0	0.00	0.00	5,277.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,400.0	0.00	0.00	5,377.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,500.0	0.00	0.00	5,477.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,577.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,677.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,777.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,877.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,977.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,100.0	0.00	0.00	6,077.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,177.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,300.0	0.00	0.00	6,277.3	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,391.1	0.00	0.00	6,368.4	-320.0	-60.0	-324.5	0.00	0.00	0.00
6,400.0	0.80	359.69	6,377.3	-319.9	-60.0	-324.4	9.00	9.00	0.00
6,500.0	9.80	359.69	6,476.8	-310.7	-60.0	-315.3	9.00	9.00	0.00
6,600.0	18.80	359.69	6,573.6	-286.0	-60.2	-290.7	9.00	9.00	0.00
6,700.0	27.80	359.69	6,665.3	-246.5	-60.4	-251.4	9.00	9.00	0.00
6,800.0	36.80	359.69	6,749.8	-193.1	-60.7	-198.4	9.00	9.00	0.00
6,900.0	45.80	359.69	6,824.8	-127.2	-61.0	-132.8	9.00	9.00	0.00
7,000.0	54.80	359.69	6,888.6	-50.3	-61.4	-56.4	9.00	9.00	0.00
7,100.0	63.80	359.69	6,939.6	35.6	-61.9	29.0	9.00	9.00	0.00
7,200.0	72.80	359.69	6,976.5	128.4	-62.4	121.2	9.00	9.00	0.00
7,300.0	81.80	359.69	6,998.5	225.9	-62.9	218.1	9.00	9.00	0.00
7,391.1	90.00	359.69	7,005.0	316.6	-63.4	308.3	9.00	9.00	0.00
7,400.0	90.00	359.69	7,005.0	325.6	-63.5	317.2	0.00	0.00	0.00
7,500.0	90.00	359.69	7,005.0	425.6	-64.0	416.6	0.00	0.00	0.00
7,600.0	90.00	359.69	7,005.0	525.5	-64.5	516.0	0.00	0.00	0.00
7,700.0	90.00	359.69	7,005.0	625.5	-65.1	615.4	0.00	0.00	0.00
7,800.0	90.00	359.69	7,005.0	725.5	-65.6	714.8	0.00	0.00	0.00
7,900.0	90.00	359.69	7,005.0	825.5	-66.2	814.2	0.00	0.00	0.00
8,000.0	90.00	359.69	7,005.0	925.5	-66.7	913.6	0.00	0.00	0.00
8,100.0	90.00	359.69	7,005.0	1,025.5	-67.2	1,013.0	0.00	0.00	0.00
8,200.0	90.00	359.69	7,005.0	1,125.5	-67.8	1,112.4	0.00	0.00	0.00
8,300.0	90.00	359.69	7,005.0	1,225.5	-68.3	1,211.8	0.00	0.00	0.00
8,400.0	90.00	359.69	7,005.0	1,325.5	-68.8	1,311.2	0.00	0.00	0.00
8,500.0	90.00	359.69	7,005.0	1,425.5	-69.4	1,410.6	0.00	0.00	0.00
8,600.0	90.00	359.69	7,005.0	1,525.5	-69.9	1,510.0	0.00	0.00	0.00
8,700.0	90.00	359.69	7,005.0	1,625.5	-70.5	1,609.4	0.00	0.00	0.00
8,800.0	90.00	359.69	7,005.0	1,725.5	-71.0	1,708.8	0.00	0.00	0.00
8,900.0	90.00	359.69	7,005.0	1,825.5	-71.5	1,808.2	0.00	0.00	0.00
9,000.0	90.00	359.69	7,005.0	1,925.5	-72.1	1,907.6	0.00	0.00	0.00
9,100.0	90.00	359.69	7,005.0	2,025.5	-72.6	2,007.0	0.00	0.00	0.00
9,200.0	90.00	359.69	7,005.0	2,125.5	-73.1	2,106.4	0.00	0.00	0.00
9,300.0	90.00	359.69	7,005.0	2,225.5	-73.7	2,205.8	0.00	0.00	0.00
9,400.0	90.00	359.69	7,005.0	2,325.5	-74.2	2,305.2	0.00	0.00	0.00
9,500.0	90.00	359.69	7,005.0	2,425.5	-74.8	2,404.6	0.00	0.00	0.00
9,600.0	90.00	359.69	7,005.0	2,525.5	-75.3	2,504.0	0.00	0.00	0.00
9,700.0	90.00	359.69	7,005.0	2,625.5	-75.8	2,603.4	0.00	0.00	0.00
9,800.0	90.00	359.69	7,005.0	2,725.5	-76.4	2,702.8	0.00	0.00	0.00
9,900.0	90.00	359.69	7,005.0	2,825.5	-76.9	2,802.2	0.00	0.00	0.00
10,000.0	90.00	359.69	7,005.0	2,925.5	-77.4	2,901.6	0.00	0.00	0.00
10,100.0	90.00	359.69	7,005.0	3,025.5	-78.0	3,001.0	0.00	0.00	0.00
10,200.0	90.00	359.69	7,005.0	3,125.5	-78.5	3,100.4	0.00	0.00	0.00

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 H25-738	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)
10,300.0	90.00	359.69	7,005.0	3,225.5	-79.1	3,199.8	0.00	0.00	0.00
10,400.0	90.00	359.69	7,005.0	3,325.5	-79.6	3,299.2	0.00	0.00	0.00
10,500.0	90.00	359.69	7,005.0	3,425.5	-80.1	3,398.6	0.00	0.00	0.00
10,600.0	90.00	359.69	7,005.0	3,525.5	-80.7	3,498.0	0.00	0.00	0.00
10,700.0	90.00	359.69	7,005.0	3,625.5	-81.2	3,597.4	0.00	0.00	0.00
10,800.0	90.00	359.69	7,005.0	3,725.5	-81.7	3,696.8	0.00	0.00	0.00
10,900.0	90.00	359.69	7,005.0	3,825.5	-82.3	3,796.2	0.00	0.00	0.00
11,000.0	90.00	359.69	7,005.0	3,925.5	-82.8	3,895.6	0.00	0.00	0.00
11,100.0	90.00	359.69	7,005.0	4,025.5	-83.4	3,995.0	0.00	0.00	0.00
11,200.0	90.00	359.69	7,005.0	4,125.5	-83.9	4,094.4	0.00	0.00	0.00
11,300.0	90.00	359.69	7,005.0	4,225.5	-84.4	4,193.8	0.00	0.00	0.00
11,400.0	90.00	359.69	7,005.0	4,325.5	-85.0	4,293.2	0.00	0.00	0.00
11,500.0	90.00	359.69	7,005.0	4,425.5	-85.5	4,392.6	0.00	0.00	0.00
11,600.0	90.00	359.69	7,005.0	4,525.5	-86.0	4,492.0	0.00	0.00	0.00
11,700.0	90.00	359.69	7,005.0	4,625.5	-86.6	4,591.4	0.00	0.00	0.00
11,800.0	90.00	359.69	7,005.0	4,725.5	-87.1	4,690.8	0.00	0.00	0.00
11,900.0	90.00	359.69	7,005.0	4,825.5	-87.7	4,790.2	0.00	0.00	0.00
12,000.0	90.00	359.69	7,005.0	4,925.5	-88.2	4,889.6	0.00	0.00	0.00
12,100.0	90.00	359.69	7,005.0	5,025.5	-88.7	4,989.0	0.00	0.00	0.00
12,200.0	90.00	359.69	7,005.0	5,125.5	-89.3	5,088.4	0.00	0.00	0.00
12,300.0	90.00	359.69	7,005.0	5,225.5	-89.8	5,187.8	0.00	0.00	0.00
12,400.0	90.00	359.69	7,005.0	5,325.5	-90.3	5,287.2	0.00	0.00	0.00
12,500.0	90.00	359.69	7,005.0	5,425.5	-90.9	5,386.6	0.00	0.00	0.00
12,600.0	90.00	359.69	7,005.0	5,525.5	-91.4	5,486.0	0.00	0.00	0.00
12,700.0	90.00	359.69	7,005.0	5,625.5	-92.0	5,585.4	0.00	0.00	0.00
12,800.0	90.00	359.69	7,005.0	5,725.5	-92.5	5,684.8	0.00	0.00	0.00
12,900.0	90.00	359.69	7,005.0	5,825.5	-93.0	5,784.2	0.00	0.00	0.00
13,000.0	90.00	359.69	7,005.0	5,925.5	-93.6	5,883.6	0.00	0.00	0.00
13,100.0	90.00	359.69	7,005.0	6,025.5	-94.1	5,983.0	0.00	0.00	0.00
13,200.0	90.00	359.69	7,005.0	6,125.5	-94.6	6,082.4	0.00	0.00	0.00
13,300.0	90.00	359.69	7,005.0	6,225.5	-95.2	6,181.8	0.00	0.00	0.00
13,400.0	90.00	359.69	7,005.0	6,325.5	-95.7	6,281.2	0.00	0.00	0.00
13,500.0	90.00	359.69	7,005.0	6,425.5	-96.3	6,380.6	0.00	0.00	0.00
13,600.0	90.00	359.69	7,005.0	6,525.5	-96.8	6,480.0	0.00	0.00	0.00
13,700.0	90.00	359.69	7,005.0	6,625.5	-97.3	6,579.4	0.00	0.00	0.00
13,800.0	90.00	359.69	7,005.0	6,725.5	-97.9	6,678.8	0.00	0.00	0.00
13,900.0	90.00	359.69	7,005.0	6,825.5	-98.4	6,778.2	0.00	0.00	0.00
14,000.0	90.00	359.69	7,005.0	6,925.5	-98.9	6,877.6	0.00	0.00	0.00
14,100.0	90.00	359.69	7,005.0	7,025.5	-99.5	6,977.0	0.00	0.00	0.00
14,200.0	90.00	359.69	7,005.0	7,125.5	-100.0	7,076.4	0.00	0.00	0.00
14,300.0	90.00	359.69	7,005.0	7,225.5	-100.6	7,175.8	0.00	0.00	0.00
14,400.0	90.00	359.69	7,005.0	7,325.5	-101.1	7,275.2	0.00	0.00	0.00
14,500.0	90.00	359.69	7,005.0	7,425.4	-101.6	7,374.6	0.00	0.00	0.00
14,600.0	90.00	359.69	7,005.0	7,525.4	-102.2	7,474.0	0.00	0.00	0.00
14,700.0	90.00	359.69	7,005.0	7,625.4	-102.7	7,573.4	0.00	0.00	0.00
14,800.0	90.00	359.69	7,005.0	7,725.4	-103.3	7,672.8	0.00	0.00	0.00
14,900.0	90.00	359.69	7,005.0	7,825.4	-103.8	7,772.2	0.00	0.00	0.00
15,000.0	90.00	359.69	7,005.0	7,925.4	-104.3	7,871.6	0.00	0.00	0.00
15,100.0	90.00	359.69	7,005.0	8,025.4	-104.9	7,971.0	0.00	0.00	0.00
15,200.0	90.00	359.69	7,005.0	8,125.4	-105.4	8,070.4	0.00	0.00	0.00
15,300.0	90.00	359.69	7,005.0	8,225.4	-105.9	8,169.8	0.00	0.00	0.00
15,400.0	90.00	359.69	7,005.0	8,325.4	-106.5	8,269.2	0.00	0.00	0.00
15,500.0	90.00	359.69	7,005.0	8,425.4	-107.0	8,368.6	0.00	0.00	0.00
15,600.0	90.00	359.69	7,005.0	8,525.4	-107.6	8,468.0	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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)
15,700.0	90.00	359.69	7,005.0	8,625.4	-108.1	8,567.4	0.00	0.00	0.00
15,800.0	90.00	359.69	7,005.0	8,725.4	-108.6	8,666.8	0.00	0.00	0.00
15,900.0	90.00	359.69	7,005.0	8,825.4	-109.2	8,766.2	0.00	0.00	0.00
16,000.0	90.00	359.69	7,005.0	8,925.4	-109.7	8,865.6	0.00	0.00	0.00
16,100.0	90.00	359.69	7,005.0	9,025.4	-110.2	8,965.0	0.00	0.00	0.00
16,200.0	90.00	359.69	7,005.0	9,125.4	-110.8	9,064.4	0.00	0.00	0.00
16,300.0	90.00	359.69	7,005.0	9,225.4	-111.3	9,163.8	0.00	0.00	0.00
16,400.0	90.00	359.69	7,005.0	9,325.4	-111.9	9,263.2	0.00	0.00	0.00
16,500.0	90.00	359.69	7,005.0	9,425.4	-112.4	9,362.6	0.00	0.00	0.00
16,600.0	90.00	359.69	7,005.0	9,525.4	-112.9	9,462.0	0.00	0.00	0.00
16,700.0	90.00	359.69	7,005.0	9,625.4	-113.5	9,561.4	0.00	0.00	0.00
16,800.0	90.00	359.69	7,005.0	9,725.4	-114.0	9,660.8	0.00	0.00	0.00
16,900.0	90.00	359.69	7,005.0	9,825.4	-114.5	9,760.2	0.00	0.00	0.00
17,000.0	90.00	359.69	7,005.0	9,925.4	-115.1	9,859.6	0.00	0.00	0.00
17,100.0	90.00	359.69	7,005.0	10,025.4	-115.6	9,959.0	0.00	0.00	0.00
17,200.0	90.00	359.69	7,005.0	10,125.4	-116.2	10,058.4	0.00	0.00	0.00
17,299.8	90.00	359.69	7,005.0	10,225.2	-116.7	10,157.6	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 H25-738 BHL	0.00	0.00	7,005.0	10,225.2	-116.7	1,323,414.23	3,248,748.66	40.217740	-104.609240
- 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				
3,879.0	3,868.0	Parkman				
4,476.6	4,459.0	Sussex				
5,163.7	5,141.0	Shannon				
6,134.7	6,112.0	Teepee Buttes				
6,810.3	6,758.0	Sharon Springs				
6,893.1	6,820.0	Top A Chalk				
6,903.1	6,827.0	Top A Marl				
6,906.0	6,829.0	Top B Chalk				
6,980.3	6,877.0	Top B Marl				
7,117.2	6,947.0	Top C Chalk				
7,227.1	6,984.0	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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)	
2,600.0	2,600.0	0.0	0.0	KOP - Start Build 2.00
4,796.7	4,775.5	-288.9	-54.2	Start Drop -2.00
5,222.7	5,200.0	-320.0	-60.0	Start 1168.4 hold at 5222.7 MD
6,391.1	6,368.4	-320.0	-60.0	Start Build 9.00
6,893.1	6,820.0	-132.1	-61.0	TPZ at 6893.1 MD
7,391.1	7,005.0	316.7	-63.4	Landing Pt at 7391.1 MD
17,299.8	7,005.0	10,225.2	-116.7	TD at 17299.8

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-738

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 H25-738
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 H25-738	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	17,299.8	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	14,135.7	6,927.0	2,547.5	2,452.4	26.769	CC, ES
Butterball 13-19 - Butterball 13-19 - Butterball 13-19 - As	14,500.0	6,935.0	2,573.4	2,475.5	26.278	SF
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	12,788.1	6,867.7	2,643.2	2,561.0	32.152	CC
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	12,800.0	6,867.7	2,643.2	2,560.9	32.109	ES
Butterball 14-19 - Butterball 14-19 - Butterball 14-19 - As	13,300.0	6,871.8	2,692.3	2,606.3	31.322	SF
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,085.5	6,905.3	3,700.4	3,605.8	39.115	CC
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,100.0	6,905.4	3,700.4	3,605.6	39.059	ES
Butterball 23-19 - Butterball 23-19 - Butterball 23-19 - As	14,900.0	6,910.8	3,788.9	3,688.3	37.652	SF
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,444.1	6,936.5	2,090.7	2,002.1	23.596	CC, ES
Butterball B04-19 - Butterball B04-19 - Butterball B04-19	13,700.0	6,935.6	2,106.3	2,015.8	23.266	SF
Butterball D18-75HN - Original Drilling - Design #2	17,299.8	7,350.0	4,408.1	4,307.2	43.695	CC, ES, SF
Butterball D18-75HN - Original Drilling - Original Drilling -	17,299.8	6,801.0	4,406.4	4,281.5	35.288	CC, ES, SF
Butterball D18-75HN - Original Drilling - Plan A - Rev 1	17,299.8	6,816.0	4,387.2	4,285.9	43.305	CC, ES, SF
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,344.5	4,200.0	5,797.6	5,693.9	55.865	CC
Butterball D19-17D - Butterball D19-17D - Butterball D19	16,400.0	4,200.0	5,797.9	5,693.6	55.579	ES
Butterball D19-17D - Butterball D19-17D - Butterball D19	17,299.8	4,200.0	5,875.8	5,759.6	50.541	SF
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,386.1	7,048.9	4,072.4	3,955.1	34.719	CC
Butterball D19-18D - Butterball D19-18D - Butterball D19	16,400.0	7,048.9	4,072.4	3,955.0	34.679	ES
Butterball D19-18D - Butterball D19-18D - Butterball D19	17,200.0	7,049.0	4,152.9	4,029.2	33.578	SF
Butterball D19-19D - Butterball D19-19D - Butterball D19	15,812.0	7,012.5	3,065.5	2,952.1	27.020	CC, ES
Butterball D19-19D - Butterball D19-19D - Butterball D19	16,300.0	7,016.2	3,104.1	2,986.8	26.451	SF
Butterball D19-20D - Butterball D19-20D - Butterball D19	14,839.8	7,014.3	3,196.0	3,092.5	30.863	CC, ES
Butterball D19-20D - Butterball D19-20D - Butterball D19	15,300.0	7,017.7	3,229.0	3,122.6	30.338	SF
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	14,862.3	7,013.1	5,576.2	5,471.7	53.355	CC
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	14,900.0	7,013.5	5,576.4	5,471.5	53.155	ES
Butterball D19-22D - Wellbore #1 - Wellbore #1 - As Drill	16,500.0	7,031.9	5,811.7	5,693.5	49.172	SF
Butterball D19-75HN - Original Drilling - Design #2	11,962.2	11,818.4	4,427.8	4,377.3	87.587	CC
Butterball D19-75HN - Original Drilling - Design #2	12,000.0	11,818.4	4,428.0	4,377.1	86.989	ES
Butterball D19-75HN - Original Drilling - Design #2	17,299.8	6,844.7	4,692.1	4,591.0	46.390	SF
Butterball D19-75HN - Original Drilling - Original Drilling -	12,048.1	11,682.0	4,416.4	4,275.2	31.292	CC, ES
Butterball D19-75HN - Original Drilling - Original Drilling -	15,400.0	15,400.0	4,599.6	4,378.0	20.754	SF
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	11,962.0	11,815.8	4,411.2	4,360.7	87.261	CC
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	12,000.0	11,815.8	4,411.4	4,360.5	86.664	ES
Butterball D19-75HN - Original Drilling - Plan A - Rev 1	17,299.8	6,842.8	4,675.5	4,574.4	46.228	SF
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	12,844.2	6,899.5	3,695.2	3,612.4	44.625	CC
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	12,900.0	6,899.9	3,695.6	3,612.3	44.352	ES
Butterball D24-19 - Butterball D24-19 - Butterball D24-19	13,700.0	6,906.1	3,793.0	3,703.7	42.483	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 H25-738
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 H25-738	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 H24-69HN - Original Drilling - Design #2	17,299.8	11,711.6	179.2	140.9	4.672	CC, ES, SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,299.8	11,695.7	164.4	13.8	1.091	Level 2, CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 2	17,299.8	11,684.9	173.3	132.8	4.279	CC, ES, SF
Butterball H24-69HN - Original Drilling - Plan A - Rev 3	17,299.8	11,688.6	162.3	129.4	4.932	CC, ES, SF
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,751.4	6,929.3	5,565.8	5,474.3	60.817	CC
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	13,800.0	6,929.3	5,566.0	5,474.0	60.517	ES
Champlin 366 Amoco F 1 - Wellbore #1 - Wellbore #1 - A	15,500.0	6,930.9	5,834.0	5,729.5	55.818	SF
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,706.7	7,467.2	1,738.2	1,592.7	11.947	CC
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	14,800.0	7,468.6	1,740.7	1,591.4	11.653	ES
Dechant D19-32D - Dechant D19-32D - Dechant D19-32	15,200.0	7,475.0	1,806.9	1,645.4	11.188	SF
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,400.6	6,953.0	2,839.3	2,714.5	22.749	CC, ES
Graznak 01-19 - Graznak 01-19 - Graznak 01-19 - As Dr	13,800.0	6,953.0	2,867.3	2,739.3	22.409	SF
Higgins D19-720 - Original Drilling - Original Drilling - As	17,299.8	6,976.5	6,220.8	6,099.6	51.362	CC, ES, SF
Higgins D19-720 - Original Drilling - Pilot Hole APD - Rev	17,299.8	6,994.0	6,224.5	6,122.9	61.273	CC, ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,186.4	7,024.2	6,224.5	6,124.0	61.941	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,299.8	6,964.0	6,225.2	6,123.6	61.288	ES, SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,675.2	9,680.6	6,157.6	6,052.6	58.692	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,800.0	9,645.7	6,158.4	6,052.5	58.151	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,299.8	7,086.1	6,221.1	6,100.0	51.375	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,675.2	9,680.6	6,157.6	6,052.6	58.692	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,800.0	9,645.7	6,158.4	6,052.5	58.151	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,299.8	7,086.1	6,221.1	6,100.0	51.375	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,675.2	9,680.6	6,157.6	6,052.6	58.692	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,800.0	9,645.7	6,158.4	6,052.5	58.151	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,299.8	7,086.1	6,221.1	6,100.0	51.375	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,675.2	9,680.6	6,157.6	6,052.6	58.692	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	14,800.0	9,645.7	6,158.4	6,052.5	58.151	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - Sidetrack	17,299.8	7,086.1	6,221.1	6,100.0	51.375	SF
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	14,519.4	9,802.4	6,158.3	6,055.4	59.856	CC
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	14,600.0	9,779.6	6,158.7	6,055.2	59.489	ES
Higgins D19-720 - Sidetrack Curve/Horizontal - ST01 - A	17,299.8	7,526.2	6,229.4	6,108.2	51.397	SF
Independence D18-712 - Independence D18-712 - Prelim	16,723.6	5,812.0	6,627.7	6,511.7	57.132	CC
Independence D18-712 - Independence D18-712 - Prelim	16,800.0	5,806.1	6,628.2	6,511.5	56.797	ES
Independence D18-712 - Independence D18-712 - Prelim	17,299.8	5,767.9	6,652.6	6,531.7	55.013	SF
Independence D18-717 - Independence D18-717 - Prelim	16,660.4	6,222.3	6,331.7	6,214.7	54.110	CC
Independence D18-717 - Independence D18-717 - Prelim	17,200.0	17,200.0	6,354.6	6,192.4	39.158	ES, SF
Independence D18-725 - Independence D18-725 - Prelim	17,072.1	6,955.2	5,820.8	5,697.7	47.292	CC
Independence D18-725 - Independence D18-725 - Prelim	17,299.8	7,133.2	5,822.2	5,696.5	46.340	ES, SF
Independence D18-732 - Independence D18-732 - Prelim	17,282.4	7,184.4	5,436.5	5,310.9	43.305	CC
Independence D18-732 - Independence D18-732 - Prelim	17,299.8	7,200.0	5,436.5	5,310.8	43.239	ES, SF
Independence D18-739 - Independence D18-739 - Prelim	17,299.8	7,385.8	5,082.9	4,956.3	40.164	CC, ES, SF
Independence D18-744 - Independence D18-744 - Prelim	17,299.8	7,300.0	4,689.8	4,563.1	37.022	CC, ES, SF
Independence D18-753 - Independence D18-753 - Prelim	16,813.0	6,215.9	4,287.1	4,168.9	36.256	CC, ES
Independence D18-753 - Independence D18-753 - Prelim	17,299.8	6,215.9	4,314.7	4,192.4	35.287	SF
Independence D18-759 - Independence D18-759 - Prelim	16,859.4	6,450.6	4,008.7	3,889.1	33.512	CC
Independence D18-759 - Independence D18-759 - Prelim	16,900.0	6,466.1	4,008.9	3,888.8	33.385	ES
Independence D18-759 - Independence D18-759 - Prelim	17,299.8	6,867.0	4,025.2	3,899.8	32.115	SF
Independence D18-767 - Independence D18-767 - Prelim	17,299.8	7,127.3	3,462.9	3,337.3	27.572	CC, ES, SF
Independence D30-711 - Independence D30-711 - Prelim	17,299.8	5,576.8	6,703.1	6,582.8	55.727	CC, ES, SF
Independence D30-718 - Independence D30-718 - Prelim	6,900.0	17,753.9	6,416.3	6,312.0	61.527	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 19						
Independence D30-718 - Independence D30-718 - Prelim	6,920.0	17,739.4	6,416.3	6,312.1	61.575	CC
Independence D30-718 - Independence D30-718 - Prelim	17,000.0	7,699.6	6,475.3	6,351.7	52.374	SF
Independence D30-724 - Independence D30-724 - Prelim	7,000.0	17,688.6	5,978.1	5,874.3	57.623	ES
Independence D30-724 - Independence D30-724 - Prelim	7,052.6	17,644.3	5,978.0	5,874.5	57.773	CC
Independence D30-724 - Independence D30-724 - Prelim	17,299.8	7,415.9	6,018.8	5,892.6	47.694	SF
Independence D30-731 - Independence D30-731 - Prelim	6,899.6	17,714.2	5,530.8	5,426.6	53.061	CC
Independence D30-731 - Independence D30-731 - Prelim	6,900.0	17,714.2	5,530.8	5,426.6	53.061	ES
Independence D30-731 - Independence D30-731 - Prelim	17,299.8	7,379.9	5,706.7	5,580.8	45.326	SF
Independence D30-737 - Independence D30-737 - Prelim	17,299.8	7,402.8	5,174.3	5,047.9	40.922	CC, ES, SF
Independence D30-743 - Independence D30-743 - Prelim	6,900.0	17,804.9	4,745.9	4,641.3	45.363	ES
Independence D30-743 - Independence D30-743 - Prelim	6,916.9	17,792.6	4,745.9	4,641.4	45.404	CC
Independence D30-743 - Independence D30-743 - Prelim	17,299.8	7,441.6	4,823.0	4,696.4	38.109	SF
Independence D30-748 - Independence D30-748 - Prelim	17,000.0	7,628.4	4,280.2	4,156.4	34.573	SF
Independence D30-748 - Independence D30-748 - Prelim	17,299.8	6,285.7	4,246.7	4,124.0	34.624	CC, ES
Independence D30-758 - Independence D30-758 - Prelim	17,299.8	7,411.7	3,953.3	3,826.8	31.265	CC, ES, SF
Independence D30-765 - Independence D30-765 - Prelim	6,900.0	17,701.2	3,505.6	3,401.8	33.760	ES
Independence D30-765 - Independence D30-765 - Prelim	6,928.2	17,678.1	3,505.6	3,401.9	33.805	CC
Independence D30-765 - Independence D30-765 - Prelim	17,299.8	7,347.6	3,603.2	3,477.2	28.600	SF
Independence D30-770 - Independence D30-770 - Prelim	17,299.8	7,354.8	3,138.6	3,012.3	24.858	CC, ES, SF
Independence D30-777 - Independence D30-777 - Prelim	6,900.0	17,710.5	2,715.3	2,611.3	26.118	ES
Independence D30-777 - Independence D30-777 - Prelim	6,933.8	17,685.6	2,715.2	2,611.4	26.167	CC
Independence D30-777 - Independence D30-777 - Prelim	17,299.8	7,323.2	2,759.7	2,633.6	21.880	SF
Independence State D30-784 - Independence State D30	17,299.8	7,520.9	2,185.3	2,058.0	17.170	CC, ES, SF
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,188.2	6,926.2	4,753.6	4,658.0	49.694	CC
LDS White D19-10 - LDS White D19-10 - LDS White D19	14,200.0	6,926.2	4,753.6	4,657.9	49.636	ES
LDS White D19-10 - LDS White D19-10 - LDS White D19	15,400.0	6,927.1	4,905.6	4,800.9	46.824	SF
LDS White D19-15 - LDS White D19-15 - LDS White D19	12,774.6	6,983.3	4,821.1	4,738.7	58.491	CC
LDS White D19-15 - LDS White D19-15 - LDS White D19	12,800.0	6,983.1	4,821.2	4,738.5	58.325	ES
LDS White D19-15 - LDS White D19-15 - LDS White D19	14,200.0	6,992.4	5,027.4	4,934.2	53.962	SF
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	12,812.5	6,922.1	6,112.1	6,029.6	74.042	CC
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	12,900.0	6,921.9	6,112.8	6,029.4	73.325	ES
LDS White D19-16 - Wellbore #1 - Wellbore #1 - As Drill	15,100.0	6,917.4	6,526.2	6,426.7	65.624	SF
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	15,776.2	6,924.4	5,263.5	5,152.6	47.462	CC
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.0	6,924.5	5,263.6	5,152.5	47.365	ES
Mile High 02-19 - Wellbore #1 - Wellbore #1 - As Drilled	17,100.0	6,928.9	5,427.5	5,306.7	44.954	SF
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,281.4	6,943.0	6,427.0	6,215.6	30.403	CC
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	14,300.0	6,943.0	6,427.1	6,215.5	30.378	ES
Sean D19-09 - Wellbore #1 - Wellbore #1 - As Drilled	15,600.0	6,943.0	6,560.9	6,338.6	29.509	SF
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,448.3	6,941.8	3,266.7	3,149.3	27.818	CC
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,500.0	6,941.5	3,267.2	3,149.2	27.709	ES
Turk Blue D19-02J - Turk Blue D19-02J - Turk Blue D19-	16,900.0	6,938.7	3,297.8	3,177.0	27.287	SF
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	16,876.1	7,017.8	2,396.7	2,274.9	19.672	CC
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	16,900.0	7,017.7	2,396.8	2,274.8	19.637	ES
Turk Blue D19-04 - Turk Blue D19-04 - Turk Blue D19-04	17,100.0	7,016.5	2,407.2	2,283.6	19.484	SF
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,227.3	6,890.7	2,426.4	2,320.8	22.994	CC, ES
Turk Blue D19-05 - Turk Blue D19-05 - Turk Blue D19-05	15,500.0	6,898.2	2,441.6	2,334.0	22.681	SF
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	15,313.4	6,925.3	3,688.0	3,581.6	34.650	CC, ES
Turk Blue D19-06 - Turk Blue D19-06 - Turk Blue D19-06	16,000.0	6,932.9	3,751.4	3,639.8	33.619	SF
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	16,801.0	6,948.3	6,395.8	6,274.9	52.920	CC
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	16,900.0	6,947.9	6,396.6	6,274.8	52.519	ES
Turk White D19-01 - Wellbore #1 - Wellbore #1 - As Drill	17,299.8	6,946.5	6,415.2	6,289.9	51.178	SF
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	16,890.4	6,903.6	4,938.3	4,816.7	40.625	CC
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	16,900.0	6,903.6	4,938.3	4,816.6	40.594	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 H25-738
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 H25-738	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 19						
Turk White D19-02 - Wellbore #1 - Wellbore #1 - As Drill	17,299.8	6,904.5	4,955.2	4,830.1	39.591	SF
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,319.4	6,940.4	6,283.5	6,176.9	58.975	CC
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	15,400.0	6,940.9	6,284.0	6,176.7	58.559	ES
Turk White D19-08 - Wellbore #1 - Wellbore #1 - As Drill	17,200.0	6,950.9	6,558.9	6,438.3	54.392	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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	17,299.8	14,875.5	7,701.6	7,529.9	44.862	CC, ES, SF
Guttersen D29-30D - Wellbore #1 - Design #1	12,065.7	7,137.3	7,002.2	6,950.7	135.892	CC
Guttersen D29-30D - Wellbore #1 - Design #1	12,100.0	7,137.3	7,002.3	6,950.4	135.057	ES
Guttersen D29-30D - Wellbore #1 - Design #1	15,600.0	7,137.3	7,843.6	7,767.2	102.640	SF
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	10,827.0	7,023.5	7,073.6	7,007.6	107.173	CC
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	10,900.0	7,023.6	7,074.0	7,007.3	106.169	ES
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	14,200.0	7,025.1	7,836.6	7,747.0	87.386	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,451.1	6,221.0	7,209.9	7,162.1	150.773	CC
Guttersen D29-65HN - Original Drilling - Original Drilling	9,500.0	6,221.0	7,210.1	7,161.9	149.512	ES
Guttersen D29-65HN - Original Drilling - Original Drilling	14,000.0	6,298.3	8,521.8	8,441.9	106.647	SF
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,429.1	6,151.6	7,229.2	7,201.5	260.743	CC
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	9,500.0	6,151.6	7,229.6	7,201.3	255.355	ES
Guttersen D29-65HN - Original Drilling - Plan A Rev 1	14,600.0	6,151.6	8,888.2	8,826.0	142.953	SF
Guttersen D29-67HN - Original Drilling - Original Drilling	10,831.1	6,221.0	7,339.5	7,279.4	122.064	CC
Guttersen D29-67HN - Original Drilling - Original Drilling	10,900.0	6,221.0	7,339.8	7,279.1	120.818	ES
Guttersen D29-67HN - Original Drilling - Original Drilling	14,700.0	6,221.0	8,296.8	8,208.6	94.083	SF
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	10,828.6	6,250.0	7,335.6	7,295.6	183.433	CC
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	10,900.0	6,250.0	7,336.0	7,295.3	180.528	ES
Guttersen D29-67HN - Original Drilling - Plan A Rev 2	15,300.0	6,250.0	8,591.0	8,520.2	121.407	SF
Guttersen D29-69HN - Original Drilling - Original Drilling	12,083.2	6,367.0	7,342.4	7,262.5	91.874	CC
Guttersen D29-69HN - Original Drilling - Original Drilling	12,200.0	6,367.0	7,343.3	7,262.3	90.665	ES
Guttersen D29-69HN - Original Drilling - Original Drilling	15,100.0	6,366.5	7,938.0	7,836.1	77.936	SF
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,075.8	6,423.8	7,343.9	7,292.4	142.605	CC
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	12,100.0	6,423.8	7,343.9	7,292.2	141.983	ES
Guttersen D29-69HN - Original Drilling - Plan A Rev 2	15,900.0	6,424.6	8,279.9	8,201.5	105.584	SF
Guttersen D29-714 - Guttersen D29-714 - Prelim - Rev 0						Out of range
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 0						Out of range
Guttersen D29-730 - Guttersen D29-730 - Prelim Rev 0						Out of range
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 0						Out of range
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	9,675.4	7,407.6	9,727.6	9,672.2	175.657	CC
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 0	17,299.8	14,984.7	9,764.4	9,593.5	57.143	ES, SF
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	2,000.0	1,979.0	8,532.2	8,521.0	761.098	CC
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	2,100.0	2,028.7	8,532.4	8,520.8	734.982	ES
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 0	17,299.8	15,183.2	9,257.8	9,085.3	53.668	SF
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	2,200.0	2,179.0	8,532.2	8,519.8	689.367	CC
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	2,300.0	2,230.9	8,532.4	8,519.6	667.492	ES
Guttersen D29-758 - Guttersen D29-758 - Prelim - Rev 0	17,299.8	14,950.7	8,971.3	8,799.7	52.300	SF
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	2,600.0	2,579.0	8,532.2	8,517.5	580.034	CC, ES
Guttersen D29-762 - Guttersen D29-762 - Prelim - Rev 0	17,299.8	14,797.9	8,721.1	8,550.1	51.015	SF
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	9,534.9	7,175.6	8,165.2	8,112.3	154.332	CC
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 0	17,299.8	14,888.0	8,213.5	8,041.7	47.818	ES, SF
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 0	17,299.8	15,133.8	7,169.3	6,997.0	41.616	CC, ES, SF
Guttersen D29-790 - Guttersen D29-790 - Prelim - Rev 0						Out of range
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	2,319.7	2,318.6	7,388.3	7,376.4	620.708	CC
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	2,800.0	2,889.8	7,389.1	7,373.8	483.099	ES
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	13,200.0	6,258.0	9,000.1	8,926.1	121.516	SF
Guttersen D30-68-1HN - Original Drilling - Original Drilling	11,101.9	11,278.0	2,377.4	2,307.1	33.807	CC, ES
Guttersen D30-68-1HN - Original Drilling - Original Drilling	12,800.0	11,278.0	2,921.6	2,801.3	24.278	SF
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,096.0	11,260.0	2,376.5	2,334.0	55.892	CC
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,100.0	11,260.0	2,376.5	2,333.9	55.845	ES
Guttersen D30-68-1HN - Original Drilling - Plan A Rev 3	11,700.0	11,260.0	2,452.0	2,405.3	52.481	SF
Guttersen D30-69-1HN - Original Drilling - Original Drilling	11,840.9	11,050.0	2,560.0	2,478.6	31.436	CC, ES
Guttersen D30-69-1HN - Original Drilling - Original Drilling	13,600.0	11,050.0	3,106.1	2,988.9	26.500	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 29						
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	11,810.5	11,000.0	2,599.5	2,550.4	52.912	CC, ES
Guttersen D30-69-1HN - Original Drilling - Plan A Rev 3	12,400.0	11,000.0	2,665.6	2,612.2	49.949	SF
Guttersen Y05-711 - Guttersen Y05-711 - Prelim - Rev 0						Out of range
Guttersen Y05-719 - Guttersen Y05-719 - Prelim - Rev 0						Out of range
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 0						Out of range
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 0						Out of range
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	9,793.9	7,331.1	9,977.6	9,921.7	178.513	CC
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	9,900.0	7,300.0	9,978.3	9,921.5	175.708	ES
Guttersen Y05-741 - Guttersen Y05-741 - Prelim - Rev 0	10,500.0	7,200.0	9,998.8	9,936.9	161.441	SF
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,561.2	7,468.0	9,476.8	9,422.1	173.267	CC
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	9,600.0	7,450.0	9,476.9	9,421.9	172.278	ES
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 0	12,900.0	7,050.0	9,979.6	9,897.6	121.565	SF
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	2,000.0	1,979.0	8,532.2	8,521.0	761.098	CC, ES
Guttersen Y05-756 - Guttersen Y05-756 - Prelim Rev 0	14,000.0	5,504.8	9,959.3	9,875.6	118.995	SF
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	2,200.0	2,179.0	8,532.2	8,519.8	689.367	CC, ES
Guttersen Y05-764 - Guttersen Y05-764 - Prelim Rev 0	15,100.0	6,350.0	9,972.7	9,879.4	106.978	SF
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,025.3	6,250.2	8,528.7	8,473.7	155.008	CC
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	10,100.0	6,253.1	8,529.0	8,473.3	153.175	ES
Guttersen Y05-767 - Guttersen Y05-767 - Prelim - Rev 0	15,200.0	6,350.0	9,972.1	9,879.5	107.660	SF
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	6,900.0	9,770.9	8,314.9	8,267.3	174.941	ES
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	6,969.5	9,718.6	8,314.7	8,267.4	175.698	CC
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 0	15,000.0	6,376.2	9,710.8	9,619.6	106.445	SF
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,719.2	7,233.8	7,584.5	7,529.6	138.102	CC
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	9,800.0	7,200.0	7,584.8	7,529.2	136.455	ES
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 0	14,500.0	6,600.0	8,778.3	8,689.5	98.813	SF
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	7,044.8	9,773.8	7,278.6	7,231.1	152.988	CC
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	9,600.0	7,326.9	7,279.5	7,225.3	134.241	ES
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 0	14,100.0	6,700.0	8,427.0	8,340.8	97.706	SF
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,085.7	6,978.0	5,901.7	5,859.2	139.059	CC
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	11,100.0	6,978.0	5,901.7	5,859.1	138.635	ES
Hettinger C Unit 1 (Exist.) - Wellbore #1 - Design #1	14,100.0	6,978.0	6,626.9	6,563.4	104.446	SF
Jessie D29-1J - Wellbore #1 - Gyro Surveys						Out of range
Jessie D29-4J - Wellbore #1 - Gyro Surveys						Out of range
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,522.6	6,938.6	7,839.9	7,795.0	174.630	CC
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	8,600.0	6,938.8	7,840.3	7,794.8	172.568	ES
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	13,800.0	6,953.9	9,450.6	9,369.5	116.436	SF
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	8,893.7	7,041.5	8,810.1	8,762.3	184.093	CC
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	9,000.0	7,042.6	8,810.8	8,762.1	181.008	ES
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	13,600.0	7,089.5	9,988.2	9,905.1	120.122	SF
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	1,119.2	1,088.3	7,443.9	7,437.9	1,241.024	CC
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	2,500.0	2,432.5	7,446.0	7,432.2	539.933	ES
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	13,000.0	6,882.4	9,327.5	9,254.3	127.387	SF
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	1,165.0	1,142.0	8,809.5	8,803.2	1,400.917	CC
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	2,700.0	2,707.2	8,811.0	8,795.9	580.859	ES
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	12,100.0	6,916.7	9,954.2	9,883.7	141.130	SF
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,127.8	6,860.5	8,063.3	7,996.6	121.006	CC
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	11,200.0	6,859.8	8,063.6	7,996.3	119.831	ES
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	15,300.0	6,834.8	9,078.7	8,981.5	93.395	SF
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,534.9	6,887.8	8,947.5	8,877.1	126.998	CC
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	11,600.0	6,887.6	8,947.8	8,876.7	125.929	ES
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	16,000.0	6,874.0	9,999.8	9,895.9	96.284	SF
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,213.5	6,823.4	7,583.7	7,525.5	130.278	CC
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	10,300.0	6,824.0	7,584.2	7,525.2	128.600	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 29						
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	14,400.0	6,851.8	8,662.5	8,573.7	97.644	SF
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,181.2	6,930.2	8,940.1	8,881.9	153.589	CC
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,300.0	6,929.8	8,940.9	8,881.6	150.894	ES
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	14,600.0	6,917.4	9,972.5	9,880.5	108.355	SF
Kate White D29-1 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-15 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-16 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-7 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-8 - Wellbore #1 - Gyro Surveys						Out of range
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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	12,288.2	6,975.2	5,455.4	5,375.0	67.883	CC
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	12,300.0	6,975.3	5,455.4	5,374.9	67.784	ES
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	14,200.0	6,983.6	5,780.7	5,685.1	60.457	SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,032.0	7,062.8	3,110.6	3,034.4	40.792	CC, ES
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	12,800.0	7,059.3	3,204.0	3,122.1	39.098	SF
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	12,193.5	7,450.5	1,769.0	1,687.8	21.779	CC, ES
Adams D30-30D - Adams D30-30D - Adams D30-30D - A	13,300.0	7,449.5	2,086.5	1,974.2	18.582	SF
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	10,901.7	7,429.8	2,056.2	1,962.8	22.030	CC
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,000.0	7,429.5	2,058.5	1,961.1	21.125	ES
Adams D30-31D - Adams D30-31D - Adams D30-31D - A	11,800.0	7,426.5	2,243.8	2,120.1	18.141	SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	407.8	373.8	3,859.8	3,857.9	2,013.144	CC, ES
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	11,900.0	7,252.4	6,988.1	6,877.6	63.228	SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,456.5	6,852.5	5,329.7	5,285.6	120.734	CC
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	8,500.0	6,848.2	5,329.9	5,285.5	119.987	ES
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	11,400.0	6,627.6	6,084.0	6,020.7	96.150	SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	8,833.0	6,763.5	6,317.1	6,270.5	135.806	CC
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	8,900.0	6,762.3	6,317.4	6,270.4	134.373	ES
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	12,600.0	6,700.0	7,354.6	7,282.2	101.592	SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	2,630.9	2,611.0	4,908.8	4,894.1	333.797	CC
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	2,700.0	2,669.6	4,909.1	4,894.1	326.281	ES
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	10,500.0	6,777.4	5,823.2	5,767.1	103.754	SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	7,398.2	6,963.7	6,212.7	6,173.4	157.929	CC
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	7,400.0	6,963.7	6,212.7	6,173.4	157.912	ES
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	11,800.0	7,000.9	7,613.9	7,548.7	116.694	SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	10,492.5	7,368.7	5,530.7	5,433.7	57.027	CC, ES, SF
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	307.3	266.3	3,043.2	3,042.0	2,622.081	CC
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	9,532.9	7,073.8	3,074.4	3,018.6	55.086	ES
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	10,600.0	7,073.5	3,254.3	3,189.1	49.880	SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	397.5	363.6	3,862.4	3,860.5	2,084.480	CC
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	500.0	434.9	3,862.8	3,860.5	1,650.332	ES
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	10,000.0	6,900.0	4,643.1	4,584.4	79.088	SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,139.7	7,108.9	3,061.6	3,009.0	58.238	CC, ES
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	8,400.0	7,102.9	3,072.6	3,019.6	58.407	SF
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	433.9	400.0	3,861.3	3,859.2	1,876.494	CC
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	500.0	434.0	3,861.5	3,859.2	1,660.380	ES
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	12,300.0	7,274.9	7,765.3	7,675.0	86.068	SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	813.3	779.4	3,858.0	3,853.8	909.773	CC
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	900.0	846.1	3,858.2	3,853.6	825.431	ES
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	9,500.0	6,917.8	4,903.8	4,854.4	99.217	SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	6,838.7	6,878.7	3,033.6	2,994.3	77.159	CC
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	6,850.0	6,888.7	3,033.6	2,994.2	77.033	ES
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	8,600.0	7,021.2	3,485.2	3,434.5	68.815	SF
Dechant D31-77HN - Original Drilling - Original Drilling - A	4,405.8	4,496.0	3,625.1	3,602.2	158.637	CC
Dechant D31-77HN - Original Drilling - Original Drilling - A	6,634.4	6,778.0	3,631.1	3,594.9	100.508	ES
Dechant D31-77HN - Original Drilling - Original Drilling - A	6,950.0	6,778.0	3,649.9	3,613.4	99.943	SF
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	4,432.4	4,520.3	3,629.8	3,620.4	386.188	CC
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	6,634.1	6,756.3	3,633.9	3,619.9	259.222	ES
Dechant D31-77HN - Original Drilling - Plan A - Rev 2	10,200.0	6,350.0	5,050.1	5,023.0	185.986	SF
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	4,439.7	4,527.6	3,629.8	3,620.4	385.499	CC
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	6,639.4	6,760.3	3,634.1	3,620.1	259.100	ES
Dechant D31-77HN - Original Drilling - Plan B - Rev 0	10,200.0	6,348.4	5,048.8	5,021.7	185.893	SF
Dechant D32-69HN - Original Drilling - APD Rev 0	2,000.0	1,995.0	6,574.8	6,570.4	1,511.645	CC, ES
Dechant D32-69HN - Original Drilling - APD Rev 0	13,700.0	6,348.4	9,655.7	9,606.7	197.191	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 30						
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	8,932.2	6,840.3	3,620.7	3,573.2	76.166	CC, ES
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	10,400.0	6,851.6	3,906.9	3,849.2	67.688	SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,035.0	6,959.1	2,455.9	2,407.1	50.347	CC, ES
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	9,700.0	6,965.2	2,544.3	2,490.9	47.638	SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	100.0	61.9	2,266.2	2,266.0	10,000.000	CC
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	2,700.0	2,672.4	2,269.1	2,254.0	150.710	ES
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	8,100.0	6,944.2	2,424.6	2,382.7	57.778	SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	1,306.6	1,271.8	3,767.5	3,760.4	531.685	CC
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	1,400.0	1,342.6	3,767.8	3,760.2	499.155	ES
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	9,500.0	6,682.3	4,279.1	4,229.9	86.977	SF
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,317.3	6,750.1	5,857.2	5,789.2	86.111	CC
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	11,400.0	6,751.0	5,857.8	5,789.0	85.171	ES
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	13,800.0	6,774.6	6,361.6	6,275.2	73.672	SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,631.2	6,949.0	4,946.5	4,838.3	45.751	CC
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	11,700.0	6,949.0	4,946.9	4,838.2	45.490	ES
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	13,000.0	6,949.0	5,132.4	5,013.5	43.172	SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,661.5	6,915.3	3,594.2	3,522.5	50.115	CC
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	11,700.0	6,915.2	3,594.4	3,522.3	49.873	ES
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	12,600.0	6,913.7	3,714.7	3,635.9	47.157	SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,695.0	6,898.3	2,428.5	2,356.5	33.742	CC
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	11,700.0	6,898.3	2,428.5	2,356.4	33.720	ES
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	12,200.0	6,898.5	2,480.4	2,404.8	32.794	SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	9,912.9	6,966.0	2,449.2	2,393.1	43.670	CC, ES
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	10,500.0	6,962.5	2,518.6	2,458.2	41.734	SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	9,959.6	6,926.5	3,641.5	3,585.1	64.623	CC
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	10,000.0	6,926.9	3,641.7	3,585.0	64.230	ES
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	11,200.0	6,940.2	3,846.9	3,781.5	58.778	SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,063.2	6,963.8	6,130.9	6,073.5	106.832	CC
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	10,100.0	6,963.6	6,131.0	6,073.3	106.241	ES
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	13,100.0	6,954.7	6,841.8	6,762.4	86.148	SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,071.8	6,967.0	2,816.2	2,737.4	35.744	CC
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,100.0	6,967.0	2,816.3	2,737.4	35.676	ES
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	8,700.0	6,967.0	2,885.4	2,802.9	34.949	SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,578.6	6,794.3	6,815.6	6,762.9	129.468	CC
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	9,600.0	6,794.2	6,815.6	6,762.8	129.032	ES
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	13,400.0	6,767.1	7,813.7	7,733.8	97.778	SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,299.6	6,957.0	4,949.3	4,853.3	51.530	CC
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	10,300.0	6,957.0	4,949.3	4,853.3	51.528	ES
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	11,900.0	6,957.0	5,201.6	5,093.2	47.970	SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	10,786.0	6,821.8	4,285.8	4,222.4	67.677	CC
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	10,800.0	6,821.9	4,285.8	4,222.3	67.543	ES
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	12,300.0	6,837.2	4,545.3	4,470.8	60.965	SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	10,827.7	6,914.9	3,101.7	3,035.8	47.077	CC, ES
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	11,600.0	6,918.8	3,196.4	3,124.7	44.577	SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,191.5	6,872.0	4,623.1	4,573.3	93.010	CC
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	9,200.0	6,871.9	4,623.1	4,573.3	92.884	ES
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	11,300.0	6,838.9	5,081.1	5,016.5	78.738	SF
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,564.3	6,937.9	5,466.1	5,413.1	103.099	CC
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	9,600.0	6,937.3	5,466.2	5,412.9	102.529	ES
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	12,200.0	6,878.5	6,068.2	5,996.4	84.500	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 H25-738
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 H25-738	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	89.4	80.7	10.278	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,299.8	17,530.1	1,760.8	1,557.9	8.679	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	67.1	56.6	6.388	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	17,200.0	20,614.5	1,321.4	1,088.0	5.661	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,400.0	44.7	34.2	4.259	CC, ES
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	2,500.0	2,498.7	46.1	35.2	4.221	SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,399.0	22.4	11.9	2.130	CC, ES, SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,757.7	2,757.6	21.9	9.9	1.821	CC
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	2,800.0	2,799.8	22.1	9.9	1.809	ES, SF
Emmy State H25-751 - Wellbore #1 - Design #1	17,266.5	17,588.9	728.7	525.4	3.583	CC, ES, SF
Emmy State H25-757 - Wellbore #1 - Design #1	10,608.1	10,840.1	1,143.8	1,066.3	14.764	CC
Emmy State H25-757 - Wellbore #1 - Design #1	17,299.8	17,501.0	1,168.0	964.4	5.737	ES, SF
Emmy State H25-764 - Wellbore #1 - Design #1	7,311.8	7,507.2	1,601.9	1,586.9	106.929	CC
Emmy State H25-764 - Wellbore #1 - Design #1	17,276.7	17,472.5	1,605.7	1,504.3	15.841	ES
Emmy State H25-764 - Wellbore #1 - Design #1	17,299.8	17,466.3	1,606.0	1,504.4	15.810	SF
Emmy State H25-771 - Wellbore #1 - Design #1	7,162.4	7,287.7	2,034.1	2,004.3	68.196	CC
Emmy State H25-771 - Wellbore #1 - Design #1	17,299.8	17,391.2	2,047.4	1,843.4	10.038	ES, SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,112.1	2,124.1	2,179.2	2,170.0	236.116	CC
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,208.8	2,179.2	2,169.6	226.653	ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,299.8	17,434.0	2,485.6	2,281.5	12.178	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	1,912.1	1,924.1	2,204.4	2,196.0	264.617	CC
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,204.4	2,195.7	253.426	ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,299.8	17,481.1	2,927.0	2,723.4	14.380	SF
Emmy State H36-753 - Wellbore #1 - Design #1	7,189.2	7,516.8	828.2	796.5	26.079	CC, ES, SF
Emmy State H36-760 - Wellbore #1 - Design #1	7,206.4	7,333.4	1,306.0	1,275.3	42.545	CC, ES
Emmy State H36-760 - Wellbore #1 - Design #1	7,500.0	7,150.0	1,320.0	1,288.9	42.358	SF
Emmy State H36-766 - Wellbore #1 - Design #1	7,268.1	7,258.7	1,701.4	1,671.2	56.352	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	8,000.0	6,876.8	1,772.2	1,739.7	54.532	SF
Emmy State H36-773 - Wellbore #1 - Design #1	3,068.6	3,046.9	2,161.4	2,148.2	163.555	CC
Emmy State H36-773 - Wellbore #1 - Design #1	7,549.3	7,037.7	2,168.3	2,137.5	70.293	ES
Emmy State H36-773 - Wellbore #1 - Design #1	8,500.0	6,700.0	2,312.1	2,276.8	65.482	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,111.7	2,124.7	2,184.6	2,175.3	236.689	CC
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,200.0	2,184.6	2,175.0	227.625	ES
Emmy State H36-780 - Wellbore #1 - Design #1	8,800.0	6,566.3	2,805.8	2,768.5	75.360	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	1,911.2	1,925.2	2,209.7	2,201.3	265.236	CC
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	2,209.7	2,201.0	254.037	ES
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	9,300.0	6,582.9	3,298.8	3,256.7	78.382	SF
Hurley H26-712 - Wellbore #1 - Design #1	17,299.8	14,882.2	3,367.7	3,190.0	18.959	CC, ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	9,916.6	7,416.3	3,728.2	3,680.1	77.581	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,299.8	14,776.5	3,776.5	3,601.8	21.614	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	17,299.8	14,830.2	4,212.6	4,036.9	23.969	CC, ES, SF
Hurley H26-730 - Wellbore #1 - Design #1	17,299.8	14,565.9	4,629.7	4,453.1	26.206	CC, ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	9,466.7	6,340.2	4,948.7	4,906.2	116.507	CC
Hurley H26-736 - Wellbore #1 - Design #1	17,299.8	14,684.8	5,042.6	4,867.8	28.860	ES, SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	9,500.9	5,589.5	5,234.7	5,193.9	128.314	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,979.2	5,471.6	5,294.2	30.829	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,299.8	15,121.8	5,894.2	5,715.2	32.921	CC, ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	9,806.2	7,450.0	6,302.8	6,255.1	132.054	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,890.9	6,365.2	6,189.7	36.261	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	9,794.2	7,400.0	6,725.0	6,678.2	143.809	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,850.3	6,787.0	6,611.3	38.640	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	9,646.1	7,241.2	7,147.3	7,102.5	159.258	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,840.3	7,206.5	7,030.4	40.917	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 H25-738
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 H25-738	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 H26-776 - Wellbore #1 - Prelim - Rev 2	9,217.6	6,413.7	7,611.4	7,570.8	187.397	CC
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,900.2	7,636.2	7,457.3	42.697	ES, SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	9,266.9	6,116.3	7,870.7	7,830.1	193.718	CC
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	9,300.0	6,112.2	7,870.8	7,829.9	192.516	ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,299.8	14,778.1	8,041.4	7,864.1	45.360	SF
Hurley H35-720 - Wellbore #1 - Design #1	10,105.7	7,404.9	3,978.9	3,929.7	80.960	CC
Hurley H35-720 - Wellbore #1 - Design #1	10,200.0	7,342.4	3,979.2	3,929.3	79.655	ES
Hurley H35-720 - Wellbore #1 - Design #1	12,100.0	6,750.0	4,286.2	4,221.9	66.576	SF
Hurley H35-727 - Wellbore #1 - Design #1	10,203.0	7,080.7	4,361.5	4,312.2	88.437	CC
Hurley H35-727 - Wellbore #1 - Design #1	10,300.0	7,019.1	4,362.0	4,311.9	86.971	ES
Hurley H35-727 - Wellbore #1 - Design #1	12,300.0	6,600.0	4,747.6	4,682.9	73.429	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,492.6	6,551.6	4,742.3	4,690.3	91.236	CC
Hurley H35-733 - Wellbore #1 - Design #1	10,500.0	6,550.7	4,742.3	4,690.3	91.121	ES
Hurley H35-733 - Wellbore #1 - Design #1	12,600.0	6,500.0	5,187.7	5,120.4	77.072	SF
Hurley H35-740 - Wellbore #1 - Design #1	10,389.9	5,860.8	5,121.8	5,072.5	103.912	CC
Hurley H35-740 - Wellbore #1 - Design #1	10,400.0	5,862.4	5,121.8	5,072.5	103.708	ES
Hurley H35-740 - Wellbore #1 - Design #1	13,000.0	6,257.4	5,734.9	5,665.1	82.148	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,904.6	1,953.6	5,320.0	5,311.6	634.848	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	5,320.2	5,311.5	611.637	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	13,200.0	5,944.1	6,181.5	6,110.7	87.344	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,950.0	10,287.5	6,193.9	6,145.5	127.865	ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	7,021.2	10,230.2	6,193.7	6,145.7	129.021	CC
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	13,700.0	6,850.0	7,189.8	7,114.2	95.127	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	7,000.0	10,042.5	6,613.8	6,566.6	140.093	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	7,120.5	9,938.0	6,613.4	6,566.9	142.355	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	13,900.0	6,700.0	7,672.7	7,596.6	100.909	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	7,000.0	10,083.0	7,049.9	7,003.4	151.591	ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	7,074.7	10,019.5	7,049.8	7,003.7	153.063	CC
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	14,300.0	6,575.2	8,158.8	8,080.0	103.530	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,256.4	6,761.8	7,465.5	7,415.6	149.635	CC
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	10,300.0	6,741.1	7,465.6	7,415.4	148.518	ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	14,700.0	6,476.8	8,650.4	8,568.8	105.924	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,303.9	6,251.2	7,759.7	7,710.1	156.365	CC
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	10,400.0	6,261.3	7,760.3	7,709.8	153.628	ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	14,900.0	6,450.0	9,010.9	8,927.4	107.988	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	1,910.3	1,926.3	7,923.4	7,915.1	951.048	CC
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	7,923.4	7,914.7	910.904	ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	15,600.0	6,010.8	9,735.7	9,648.3	111.418	SF
Hurley State H35-713 - Wellbore #1 - Design #1	9,825.4	7,415.0	3,497.9	3,450.6	73.972	CC
Hurley State H35-713 - Wellbore #1 - Design #1	9,900.0	7,378.7	3,498.3	3,450.4	73.059	ES
Hurley State H35-713 - Wellbore #1 - Design #1	11,600.0	6,850.0	3,782.9	3,722.7	62.844	SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,299.8	7,159.7	2,328.8	2,215.1	20.483	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,299.8	7,071.2	3,545.5	3,429.2	30.497	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,299.8	6,405.0	3,571.1	3,458.3	31.658	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,299.8	6,859.6	627.7	515.6	5.599	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,299.8	6,959.3	2,647.7	2,527.5	22.033	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,299.8	7,039.3	1,791.1	1,681.9	16.394	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,299.8	7,004.3	803.0	754.0	16.391	CC, ES, SF
UPRC 13-16J - Wellbore #1 - As Drilled	17,299.8	7,000.7	1,257.6	1,157.1	12.512	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,299.8	7,017.0	2,881.4	2,642.0	12.034	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 H25-738
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 H25-738	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	17,299.8	6,900.0	4,456.3	4,343.9	39.624	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,299.8	6,818.6	5,248.5	5,123.7	42.046	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,299.8	6,981.5	4,493.7	4,370.8	36.538	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,299.8	7,175.3	6,582.3	6,449.6	49.633	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,299.8	7,441.9	5,596.5	5,463.7	42.121	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,299.8	7,375.9	6,628.3	6,476.0	43.533	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,299.8	7,651.7	7,374.5	7,247.0	57.876	CC, ES, SF
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,135.7	6,927.0	2,547.5	2,452.4	26.769	CC, ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,500.0	6,935.0	2,573.4	2,475.5	26.278	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	13,974.8	6,900.0	9,187.4	9,093.8	98.202	CC
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,100.0	6,900.0	9,188.2	9,093.5	96.973	ES
HSR Demeules 09-22 - Original Drilling - Original Drilling	17,299.8	6,900.0	9,770.5	9,650.7	81.505	SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,113.0	6,983.6	9,718.5	9,632.8	113.484	CC
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,200.0	6,986.5	9,718.9	9,632.4	112.392	ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	15,400.0	7,038.0	9,983.7	9,878.0	94.473	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,556.9	7,000.0	9,314.1	9,233.7	115.761	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,600.0	7,000.0	9,314.2	9,233.4	115.180	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	16,100.0	7,000.0	9,965.3	9,856.4	91.553	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 23						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,381.8	7,021.3	5,177.4	5,070.0	48.190	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,400.0	7,021.1	5,177.5	5,069.8	48.112	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,700.0	7,004.3	5,342.6	5,225.2	45.529	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,599.2	7,009.0	3,989.1	3,754.1	16.975	CC
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,600.0	7,009.0	3,989.1	3,754.1	16.974	ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,100.0	7,009.0	4,020.4	3,781.2	16.812	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,713.7	7,062.5	5,237.2	5,055.9	28.885	CC
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,800.0	7,062.7	5,237.9	5,055.8	28.756	ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,299.8	7,064.0	5,269.9	5,083.5	28.263	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,280.5	7,019.0	3,958.0	3,735.5	17.789	CC
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,300.0	7,019.0	3,958.0	3,735.3	17.774	ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,800.0	7,019.0	3,991.9	3,765.1	17.598	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	12,966.4	6,810.6	4,089.6	4,006.1	48.935	CC
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,000.0	6,812.1	4,089.8	4,005.9	48.747	ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	14,100.0	6,866.9	4,243.5	4,151.2	45.970	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,037.7	6,751.4	5,420.1	5,336.0	64.460	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,100.0	6,753.5	5,420.5	5,335.8	64.008	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	14,900.0	6,835.9	5,730.6	5,632.3	58.285	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,032.8	6,895.2	5,114.4	5,020.3	54.340	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,100.0	6,898.5	5,114.8	5,020.1	53.970	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	15,500.0	7,004.3	5,319.8	5,214.2	50.377	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,730.4	7,318.6	6,550.1	6,420.6	50.551	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,800.0	7,318.8	6,550.5	6,420.2	50.260	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,299.8	7,320.1	6,574.8	6,439.4	48.558	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,748.0	7,296.7	7,967.9	7,817.6	53.002	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,900.0	7,298.6	7,969.4	7,816.0	51.964	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,299.8	7,303.5	7,987.0	7,825.9	49.563	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,413.1	7,226.2	7,986.5	7,843.6	55.916	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	17,299.8	7,262.0	8,206.2	8,054.3	54.039	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,791.3	6,998.1	6,929.5	6,818.0	62.153	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,900.0	6,999.3	6,930.4	6,817.8	61.573	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,299.8	7,000.0	7,091.8	6,967.3	56.972	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,780.7	7,182.3	4,200.9	4,108.2	45.332	CC
HSR Grasshopper 09-23 - Original Drilling - Original Drill	13,800.0	7,181.8	4,200.9	4,108.1	45.243	ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,800.0	7,154.8	4,322.7	4,222.3	43.069	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,119.2	7,111.8	5,779.6	5,664.7	50.306	CC
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,200.0	7,111.0	5,780.1	5,664.5	49.975	ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,299.8	7,100.0	5,898.9	5,774.6	47.437	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,683.1	7,091.6	4,746.2	4,642.6	45.835	CC
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,700.0	7,091.7	4,746.2	4,642.5	45.767	ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,800.0	7,093.5	4,875.8	4,764.3	43.722	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,035.9	7,154.2	3,359.6	3,243.8	29.008	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,500.0	7,158.4	3,391.5	3,273.0	28.603	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,033.7	6,885.0	6,844.4	6,750.4	72.762	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,100.0	6,884.6	6,844.8	6,750.1	72.280	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	16,500.0	6,871.7	7,275.2	7,162.7	64.641	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,028.6	6,920.9	8,144.9	8,050.7	86.500	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,100.0	6,921.3	8,145.2	8,050.4	85.879	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	17,299.8	6,947.9	8,777.2	8,658.3	73.832	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,878.2	6,970.8	8,138.3	8,054.9	97.532	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,000.0	6,975.4	8,139.2	8,054.6	96.198	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	16,600.0	7,110.0	8,947.9	8,836.4	80.211	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,752.5	7,092.9	6,427.9	6,345.2	77.752	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 H25-738
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 H25-738	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	12,800.0	7,096.3	6,428.1	6,345.0	77.323	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	15,300.0	7,272.6	6,912.0	6,809.7	67.581	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,653.1	6,900.0	6,193.2	6,102.7	68.422	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,700.0	6,900.0	6,193.4	6,102.4	68.087	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	15,800.0	6,951.5	6,554.5	6,447.6	61.344	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,093.2	6,976.0	7,579.6	7,378.8	37.759	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,200.0	6,976.0	7,580.3	7,378.6	37.573	ES
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	15,100.0	6,976.0	7,840.7	7,623.3	36.055	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	15,802.3	6,935.1	4,474.8	4,363.6	40.257	CC, ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,800.0	6,942.9	4,584.7	4,466.0	38.635	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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	14,082.2	6,923.2	1,221.2	1,126.5	12.902	CC
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,100.0	6,923.2	1,221.3	1,126.5	12.882	ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,200.0	6,923.0	1,226.9	1,131.4	12.855	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,100.3	6,986.5	26.6	-68.4	0.280	Level 1, CC, ES, SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,036.2	7,081.4	1,427.8	1,333.1	15.075	CC, ES
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,200.0	7,084.8	1,437.2	1,341.3	14.991	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,040.0	6,500.0	2,694.6	2,602.7	29.322	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,500.0	6,500.0	2,733.5	2,638.2	28.657	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	13,840.7	7,340.0	2,499.2	2,405.8	26.752	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,200.0	7,340.0	2,524.9	2,428.5	26.191	SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	12,422.4	7,267.9	2,562.3	2,479.4	30.896	CC, ES
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	13,000.0	13,000.0	2,615.8	2,496.3	21.878	SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,748.6	6,977.2	54.4	-27.7	0.663	Level 1, CC, ES, SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,775.7	6,959.4	931.9	849.6	11.318	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	12,800.0	6,959.4	932.3	849.7	11.294	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,628.2	7,019.6	1,214.7	1,133.5	14.965	CC, ES
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,700.0	7,020.1	1,216.8	1,135.0	14.880	SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,574.7	6,984.4	682.2	582.6	6.851	CC, ES
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,600.0	6,986.1	682.7	582.9	6.841	SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,427.5	6,965.1	581.3	492.7	6.565	CC, ES, SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,412.6	7,052.2	504.9	416.3	5.701	CC, ES, SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,754.0	8,190.3	92.3	24.7	1.366	Level 3, CC, ES, SF
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,201.9	6,971.3	531.9	453.1	6.747	CC, ES, SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,149.6	7,000.7	1,841.1	1,746.0	19.361	CC, ES
Gurtler Russell L1 (PA) - Original Drilling - Original Drilling	13,400.0	7,002.4	1,858.0	1,761.0	19.150	SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,540.7	6,923.3	2,562.2	2,444.0	21.669	CC, ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,900.0	6,933.4	2,587.3	2,466.3	21.398	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,730.2	7,000.3	2,036.6	1,925.8	18.392	CC, ES
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,900.0	7,003.6	2,043.6	1,931.5	18.225	SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,605.2	6,995.8	1,254.3	1,128.9	10.006	CC, ES
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,700.0	6,994.2	1,257.9	1,131.9	9.982	SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,608.2	6,993.4	98.2	-20.9	0.824	Level 1, CC, ES, SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,247.8	7,015.4	1,112.7	1,006.5	10.482	CC, ES
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,300.0	7,016.6	1,113.9	1,007.3	10.451	SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	16,854.9	6,994.9	976.8	855.2	8.036	CC, ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	16,900.0	6,995.1	977.8	855.9	8.023	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,010.4	6,971.6	1,693.5	1,580.2	14.938	CC, ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,100.0	6,973.8	1,695.9	1,581.8	14.863	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,417.5	6,957.9	1,201.1	1,093.5	11.162	CC, ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,500.0	6,960.4	1,203.9	1,095.7	11.127	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,087.3	7,021.6	364.1	259.4	3.478	CC, ES, SF
Weld County Lumber 01 - Original Drilling - Original Drilling	15,829.9	6,981.4	179.6	67.9	1.609	CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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	10,673.8	7,127.7	629.6	562.2	9.340	CC, ES, SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.0	72.9	1,153.9	1,153.8	5,928.107	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	8,600.0	7,059.2	1,814.3	1,767.2	38.559	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	118.8	95.8	1,133.7	1,133.4	3,783.654	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	800.0	769.3	1,135.6	1,131.3	267.576	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	7,050.0	7,009.0	1,634.0	1,590.4	37.542	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,400.0	10,004.1	57.5	-5.9	0.907	Level 1, ES, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,433.9	10,004.6	46.4	7.3	1.188	Level 2, CC
Dechant H25-65HN - Original Drilling - Original Drilling	9,300.0	10,036.9	50.1	-10.3	0.829	Level 1, ES, SF
Dechant H25-65HN - Original Drilling - Original Drilling	9,322.6	10,036.7	44.7	-0.1	0.999	Level 1, CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,403.7	7,026.1	1,540.0	1,470.3	22.090	CC, ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,600.0	7,030.3	1,552.4	1,481.2	21.789	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,051.4	6,997.6	1,482.7	1,425.3	25.828	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,300.0	6,990.0	1,503.4	1,444.1	25.379	SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,479.0	7,505.0	2,609.5	2,516.3	27.990	CC
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,500.0	7,505.4	2,609.6	2,516.1	27.918	ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,900.0	7,513.3	2,643.2	2,546.0	27.187	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	9,957.5	6,975.4	2,489.2	2,432.7	44.049	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,000.0	6,975.8	2,489.6	2,432.7	43.768	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,600.0	6,981.0	2,570.8	2,509.5	41.935	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,343.4	6,957.3	1,681.5	1,630.3	32.800	CC, ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,700.0	6,959.1	1,718.9	1,665.2	32.004	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,835.6	6,970.0	857.2	828.3	29.629	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	7,900.0	6,970.0	859.6	830.4	29.423	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	8,826.7	6,963.9	1,162.3	1,115.1	24.631	CC, ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,000.0	6,963.8	1,175.1	1,126.8	24.326	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	8,994.1	7,026.7	276.1	227.4	5.668	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,000.0	7,026.7	276.2	227.4	5.664	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	8,817.3	6,967.7	1,450.2	1,373.0	18.788	CC, ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,000.0	6,970.6	1,461.7	1,383.1	18.607	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	8,841.7	7,077.0	2,897.6	2,849.9	60.706	CC, ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,800.0	7,097.5	3,051.9	2,997.5	56.046	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,332.5	7,016.7	1,376.8	1,337.4	34.985	CC, ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,500.0	7,016.3	1,387.0	1,347.2	34.872	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,508.5	6,980.0	315.8	276.1	7.958	CC, ES, SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,155.9	6,976.3	718.7	676.1	16.862	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,200.0	6,975.7	720.1	677.2	16.792	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,518.6	6,952.5	1,317.3	1,246.8	18.673	CC, ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,700.0	6,952.8	1,329.8	1,258.0	18.521	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,401.9	6,981.8	66.6	-2.9	0.958	Level 1, CC, ES, SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	9,964.5	7,020.3	367.7	311.0	6.482	CC, ES, SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,197.9	6,960.5	1,305.4	1,246.8	22.278	CC
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,200.0	6,960.5	1,305.4	1,246.8	22.272	ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,400.0	6,960.3	1,321.0	1,261.0	22.018	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,713.3	7,088.9	1,770.4	1,706.8	27.845	CC, ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	11,000.0	7,092.9	1,793.5	1,727.7	27.265	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,552.1	6,963.0	612.6	435.7	3.464	CC, ES, SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	7,766.1	7,029.5	2,338.0	2,297.1	57.136	CC, ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	8,400.0	7,052.2	2,422.3	2,377.9	54.596	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 H25-738
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 H25-738	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 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,683.8	6,912.7	5,400.0	5,328.0	75.043	CC
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,700.0	6,913.4	5,400.0	5,327.9	74.883	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	15,800.0	15,800.0	6,786.3	6,668.7	57.674	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,000.6	7,017.3	5,245.1	5,188.0	91.942	CC, ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	12,400.0	7,034.1	5,767.8	5,693.1	77.190	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,167.9	6,931.1	4,442.0	4,374.7	66.006	CC
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,200.0	6,931.4	4,442.1	4,374.5	65.718	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	12,700.0	6,940.8	4,698.8	4,619.9	59.568	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,172.5	7,509.6	1,802.8	1,718.5	21.378	CC, ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,200.0	7,509.8	1,803.0	1,718.6	21.374	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	8,305.0	7,950.0	3,282.9	3,203.7	41.471	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	8,800.0	8,800.0	3,318.7	3,231.1	37.866	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	8,880.6	7,049.6	3,881.1	3,833.2	80.953	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	8,900.0	7,049.3	3,881.2	3,833.1	80.707	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	10,500.0	7,023.0	4,205.3	4,146.0	70.906	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,023.9	7,017.6	5,169.0	5,120.1	105.675	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	9,100.0	7,017.7	5,169.5	5,120.0	104.405	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	11,700.0	7,024.5	5,820.6	5,752.7	85.738	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,577.7	7,168.0	5,233.7	5,191.0	122.470	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	7,600.0	7,167.6	5,233.8	5,191.0	122.287	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	10,700.0	7,107.6	6,094.0	6,033.8	101.227	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	7,502.4	7,084.5	4,172.5	4,132.3	103.826	CC, ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	9,800.0	9,800.0	4,763.2	4,700.9	76.492	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,197.5	7,174.9	4,545.6	4,499.6	98.701	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	8,200.0	7,175.0	4,545.6	4,499.5	98.665	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	10,600.0	7,196.2	5,141.4	5,077.9	80.920	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,771.4	6,635.0	8,042.4	7,970.6	111.975	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	11,800.0	6,635.4	8,042.5	7,970.4	111.558	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	16,200.0	7,170.9	9,179.7	9,074.1	86.935	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,064.8	7,029.4	6,388.2	6,330.6	110.796	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,100.0	7,030.0	6,388.3	6,330.4	110.203	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	13,400.0	7,085.9	7,206.2	7,124.1	87.716	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,611.1	7,329.2	7,476.1	7,412.5	117.722	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,700.0	7,328.9	7,476.6	7,412.3	116.265	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	14,600.0	7,053.6	8,473.3	8,381.4	92.233	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,651.1	6,757.6	6,360.8	6,289.7	89.465	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,700.0	6,758.8	6,361.0	6,289.4	88.893	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	14,400.0	6,826.6	6,928.6	6,836.7	75.398	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,400.1	6,741.0	6,504.0	6,435.4	94.686	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,500.0	6,743.2	6,504.8	6,435.2	93.429	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	14,300.0	6,800.0	7,120.8	7,030.3	78.637	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,767.1	6,944.5	3,446.7	3,383.1	54.187	CC
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	10,800.0	6,944.2	3,446.8	3,382.9	53.936	ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,800.0	6,934.5	3,598.1	3,526.7	50.424	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,559.4	7,136.1	3,816.6	3,741.4	50.750	CC
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,600.0	7,136.4	3,816.8	3,741.2	50.477	ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	12,700.0	7,144.0	3,983.4	3,898.9	47.140	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,224.7	7,120.3	3,909.6	3,848.2	63.677	CC, ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	11,500.0	7,091.3	4,112.2	4,041.7	58.353	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,448.7	7,003.4	4,645.2	4,587.3	80.283	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,500.0	7,002.6	4,645.5	4,587.3	79.819	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	11,200.0	6,982.2	4,964.3	4,896.1	72.859	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	9,981.0	7,094.9	8,017.3	7,959.8	139.422	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 26						
Moser 05-26 - Original Drilling - Original Drilling - As Drill	10,100.0	7,096.1	8,018.2	7,959.7	136.936	ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	14,700.0	7,144.4	9,302.9	9,210.8	100.981	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	10,775.3	7,118.7	8,678.6	8,610.4	127.200	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	10,900.0	7,120.6	8,679.5	8,610.1	124.987	ES
Moser 41-27 - Original Drilling - Original Drilling - As Drill	15,700.0	7,221.7	9,978.1	9,870.5	92.780	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	9,024.8	7,050.0	6,803.8	6,754.8	138.843	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	9,100.0	7,052.0	6,804.2	6,754.6	137.172	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	13,100.0	7,154.9	7,930.2	7,851.9	101.297	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	8,800.2	7,055.6	7,944.8	7,897.5	167.917	CC
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	8,900.0	7,052.8	7,945.4	7,897.4	165.320	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	14,000.0	6,923.7	9,494.1	9,410.6	113.703	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,491.1	7,018.1	7,990.6	7,950.8	200.788	CC
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,700.0	7,700.0	7,993.2	7,950.3	186.224	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,500.0	6,800.0	9,994.1	9,917.2	129.936	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	7,262.2	6,851.7	6,453.8	6,415.2	167.062	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	7,300.0	6,855.8	6,453.9	6,415.2	166.675	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	12,000.0	6,871.0	7,988.1	7,921.8	120.501	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	5,771.7			
Moser H26-18D - Original Drilling - Original Drilling - As D	13,700.0	7,463.5	6,546.9	6,457.4	73.209	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	8,306.0	7,131.8	6,141.3	6,097.2	139.147	CC, ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	12,100.0	7,078.7	7,218.6	7,148.9	103.565	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	8,105.4	7,101.5	6,942.5	6,899.7	162.155	CC, ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	12,800.0	7,114.9	8,380.8	8,306.6	112.954	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,020.5	7,130.5	4,567.3	4,488.5	57.964	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,100.0	7,130.1	4,568.0	4,488.4	57.371	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	13,600.0	7,120.7	4,832.7	4,740.8	52.565	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	20.6	5,773.0			
Moser H26-28D - Original Drilling - Original Drilling - As D	15,100.0	7,581.8	6,711.3	6,594.1	57.262	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	31.6	5,773.6			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	5,774.2	5,773.4	7,337.352	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	14,600.0	14,600.0	7,044.5	6,864.6	39.155	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,811.9	7,002.0	7,591.2	7,434.5	48.446	CC, ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	10,500.0	7,002.0	8,053.1	7,877.6	45.881	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,674.8	6,921.2	9,128.6	9,056.7	126.908	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,800.0	6,921.6	9,129.5	9,056.4	124.896	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	15,700.0	6,932.3	9,976.6	9,873.2	96.446	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	7,335.3	7,030.1	9,087.3	9,047.9	230.708	CC
HSR Moser 16-27 - Original Drilling - Original Drilling - As	7,350.0	7,030.9	9,087.3	9,047.9	230.512	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	11,500.0	7,021.8	9,997.5	9,930.5	149.113	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	8,746.3	6,997.8	9,134.0	9,085.0	186.557	CC
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	8,800.0	6,998.7	9,134.1	9,084.7	184.974	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	12,800.0	7,068.5	9,992.8	9,910.8	121.749	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	815.0	800.0	9,374.2	9,369.9	2,178.044	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	11,000.0	6,935.7	9,988.9	9,920.7	146.467	SF
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,391.4	6,368.8	9,722.6	9,687.0	272.882	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,400.0	6,374.6	9,722.7	9,687.0	272.588	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	7,500.0	7,052.0	9,989.4	9,949.6	251.022	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

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 H25-738
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 H25-738	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 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,380.6	6,362.5	6,130.9	6,095.3	172.408	CC
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,400.0	6,379.7	6,130.9	6,095.3	171.920	ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,950.0	7,042.8	6,284.5	6,245.5	161.426	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	5,221.2	5,209.4	7,811.9	7,782.8	268.210	CC
Cannon H35-03D - Original Drilling - Original Drilling - As	6,300.0	6,263.5	7,813.0	7,778.0	222.915	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	10,300.0	6,727.4	9,975.4	9,924.9	197.483	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	6,402.7	6,432.8	5,237.5	5,201.7	146.129	CC, ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,250.0	7,000.2	5,553.5	5,509.9	127.425	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,567.5	5,554.1	6,302.7	6,271.7	203.141	CC
Cannon H35-10 - Original Drilling - Original Drilling - As D	5,600.0	5,576.3	6,302.7	6,271.6	202.195	ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	7,100.0	7,016.9	6,511.7	6,472.8	167.526	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,409.9	6,500.0	7,186.6	7,150.5	198.909	CC, ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	10,900.0	6,820.6	9,775.2	9,721.9	183.506	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	5,881.3	5,860.5	8,571.7	8,539.0	261.438	CC
Cannon H35-12 - Original Drilling - Original Drilling - As D	6,400.0	6,355.2	8,573.8	8,538.1	240.803	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	9,500.0	7,014.2	9,962.0	9,913.1	203.992	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	6,415.2	6,570.8	9,161.2	9,124.9	251.906	CC, ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	8,200.0	7,232.1	9,942.1	9,899.5	233.655	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,399.9	6,457.1	7,990.3	7,954.3	222.453	CC
Cannon H35-14 - Original Drilling - Original Drilling - As D	6,400.0	6,457.2	7,990.3	7,954.3	222.449	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,350.0	7,057.5	8,340.3	8,293.2	177.080	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,391.1	6,377.4	7,043.2	6,902.1	49.928	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,400.0	6,386.3	7,043.2	6,902.0	49.859	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	7,050.0	6,924.8	7,249.6	7,096.6	47.390	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	5,489.9	5,478.8	7,784.5	7,753.8	253.815	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,400.0	6,413.1	7,784.8	7,749.0	217.306	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,800.0	6,800.0	9,949.8	9,894.8	181.186	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,552.1	5,546.5	6,505.3	6,474.4	209.965	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	5,600.0	5,572.4	6,505.4	6,474.3	208.690	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	10,100.0	7,075.5	8,506.0	8,455.6	168.604	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,394.7	6,304.3	5,655.0	5,619.3	158.645	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,400.0	6,310.2	5,655.0	5,619.3	158.506	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	6,950.0	7,046.8	5,763.7	5,724.7	147.881	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	5,496.3	5,487.9	7,250.2	7,219.5	236.418	CC
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,200.0	6,145.0	7,252.1	7,217.6	210.640	ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	7,050.0	6,700.0	7,440.7	7,402.9	197.267	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	5,747.7	5,729.9	7,053.0	7,021.0	220.285	CC
Cannon X02-27 - Original Drilling - Original Drilling - As D	5,800.0	5,762.5	7,053.1	7,020.8	218.756	ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,950.0	6,916.6	7,232.5	7,194.2	188.518	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,255.3	6,250.1	7,787.0	7,752.1	223.101	CC
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,391.1	6,363.8	7,787.1	7,751.5	218.822	ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	7,050.0	6,822.0	7,987.6	7,949.5	209.426	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	5,495.6	5,500.0	8,891.1	8,859.9	285.047	CC
Cannon X02-29 - Original Drilling - Original Drilling - As D	5,600.0	5,569.9	8,891.3	8,859.7	280.926	ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	8,500.0	8,500.0	9,984.1	9,935.5	205.415	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	5,151.4	5,070.0	7,497.1	7,468.5	262.332	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	5,200.0	5,116.7	7,497.3	7,468.4	259.934	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	12,300.0	6,868.3	9,938.4	9,872.7	151.171	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	6,391.1	6,389.4	5,325.7	5,184.5	37.728	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	6,550.0	6,546.7	5,327.5	5,182.9	36.843	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,300.0	7,019.5	5,401.7	5,246.6	34.826	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,394.5	6,400.0	5,729.2	5,693.4	160.254	CC
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,400.0	6,400.0	5,729.2	5,693.4	160.202	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 H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
Foster UPRR 32-35 - Original Drilling - Original Drilling -	9,800.0	7,019.1	7,286.2	7,236.5	146.470	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,390.5	6,375.7	4,036.7	4,001.0	113.175	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	6,400.0	6,381.9	4,036.7	4,001.0	113.043	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,350.0	7,011.6	4,180.1	4,131.0	85.284	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,200.0	6,187.8	4,412.2	4,377.6	127.538	CC
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,391.1	6,360.2	4,412.8	4,377.2	123.957	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling -	6,900.0	6,946.4	4,484.4	4,446.0	116.740	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	5,653.1	5,640.8	6,583.2	6,551.6	208.520	CC
HSR Foster 03-35 - Original Drilling - Original Drilling - A	6,391.1	6,340.7	6,586.2	6,550.7	185.268	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	11,600.0	7,262.0	8,568.7	8,505.8	136.267	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	4,931.0	4,700.0	8,186.1	8,159.3	305.499	CC, ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	12,000.0	6,727.3	9,957.2	9,890.7	149.669	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	5,989.5	5,967.9	8,207.3	8,173.9	245.658	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	6,000.0	5,977.0	8,207.3	8,173.9	245.265	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	10,700.0	6,627.1	9,952.3	9,896.5	178.210	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	5,307.7	5,300.0	6,889.8	6,860.2	232.459	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	6,400.0	6,405.7	6,889.9	6,854.1	192.632	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	11,400.0	6,938.8	9,299.3	9,240.7	158.874	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,071.0	6,058.8	4,704.0	4,670.1	138.819	CC
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,200.0	6,160.6	4,704.4	4,669.9	136.314	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	7,250.0	6,996.6	4,867.2	4,828.2	124.547	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	5,315.9	5,300.0	7,058.3	7,028.6	237.734	CC
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	6,450.0	6,469.0	7,058.8	7,022.7	195.452	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	12,000.0	6,735.3	9,328.1	9,264.8	147.225	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	5,217.0	5,170.1	2,186.3	2,157.4	75.635	CC
Dechant 07-36 - Original Drilling - Original Drilling - As D	5,400.0	5,350.4	2,186.6	2,156.6	73.092	ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,600.0	6,531.2	2,237.2	2,200.7	61.202	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	5,022.0	4,644.7	5,693.0	5,664.3	198.684	CC, ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,700.0	6,293.6	5,865.9	5,827.0	150.777	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,392.9	6,405.5	5,252.7	5,215.0	139.269	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,550.0	6,450.0	5,272.6	5,234.4	138.022	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,187.0	6,262.9	4,641.8	4,605.7	128.417	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,400.0	6,350.1	4,642.7	4,603.8	119.358	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,150.0	6,930.9	5,045.1	4,989.9	91.406	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,423.2	6,384.3	233.5	197.2	6.433	CC, ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,450.0	6,411.0	233.8	197.4	6.415	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	0.0	0.0	2,525.4			
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,400.0	6,482.4	2,538.8	2,495.5	58.549	ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,550.0	6,626.8	2,557.5	2,513.4	58.057	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,207.1	6,184.8	5,337.9	5,302.5	151.132	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,600.0	6,250.0	5,382.5	5,346.2	148.205	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	5,161.5	5,021.3	5,525.5	5,496.6	191.533	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,600.0	6,272.4	5,589.3	5,552.8	153.498	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,315.6	6,321.3	5,188.6	5,149.8	133.989	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,500.0	6,350.0	5,201.1	5,161.9	132.637	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	5,157.6	5,148.3	5,033.3	4,996.9	138.311	CC
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	5,200.0	5,189.2	5,033.6	4,996.9	137.096	ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,600.0	6,400.0	5,114.3	5,067.8	109.921	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	5,717.8	5,737.6	5,025.5	4,990.2	142.641	CC
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,300.0	6,312.9	5,026.3	4,987.3	128.886	ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,500.0	6,350.0	5,039.1	4,999.5	127.338	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	5,856.8	5,833.0	1,032.3	999.0	30.948	CC
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,000.0	5,969.8	1,032.8	998.7	30.290	ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,750.0	6,740.8	1,048.3	1,010.4	27.655	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	5,199.3	5,147.8	460.2	431.0	15.754	CC
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,391.1	6,339.5	465.1	429.1	12.935	ES
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,450.0	6,385.2	467.0	430.8	12.894	SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,561.5	6,577.0	818.9	781.5	21.898	CC, ES
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	6,600.0	6,598.6	819.6	782.1	21.863	SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	5,163.9	5,130.8	48.0	17.9	1.594	CC, ES, SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	900.0	869.0	1,456.6	1,451.7	302.651	CC
Dechant State 38N-1HZ - Original Drilling - Original Drilling	4,400.0	4,332.1	1,471.7	1,447.1	59.940	ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	6,600.0	6,462.8	1,510.6	1,473.8	41.069	SF
Dechant State H36-11D - Original Drilling - Original Drilling	5,132.6	4,983.2	3,684.3	3,656.2	131.291	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,900.0	6,900.0	3,870.4	3,832.2	101.288	SF
Dechant State H36-18D - Original Drilling - Original Drilling	5,831.2	6,000.5	1,611.7	1,569.7	38.332	CC
Dechant State H36-18D - Original Drilling - Original Drilling	6,391.1	6,554.9	1,612.7	1,568.1	36.146	ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,500.0	6,660.3	1,620.7	1,575.6	35.922	SF
Dechant State H36-19 - Original Drilling - Original Drilling	5,533.2	5,492.7	2,481.8	2,451.0	80.615	CC
Dechant State H36-19 - Original Drilling - Original Drilling	5,600.0	5,548.6	2,482.0	2,450.9	79.757	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,750.0	6,563.0	2,550.8	2,513.9	69.162	SF
Dechant State H36-20D - Original Drilling - Original Drilling	5,371.8	5,458.0	3,460.7	3,429.2	109.705	CC
Dechant State H36-20D - Original Drilling - Original Drilling	5,700.0	5,778.2	3,461.2	3,428.0	104.305	ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,750.0	6,772.7	3,553.1	3,514.9	93.060	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,281.7	6,331.9	2,883.1	2,847.4	80.768	CC
Dechant State H36-21D - Original Drilling - Original Drilling	6,391.1	6,431.4	2,883.3	2,847.1	79.585	ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,650.0	6,660.8	2,934.8	2,897.4	78.463	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 H25-738
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 H25-738	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

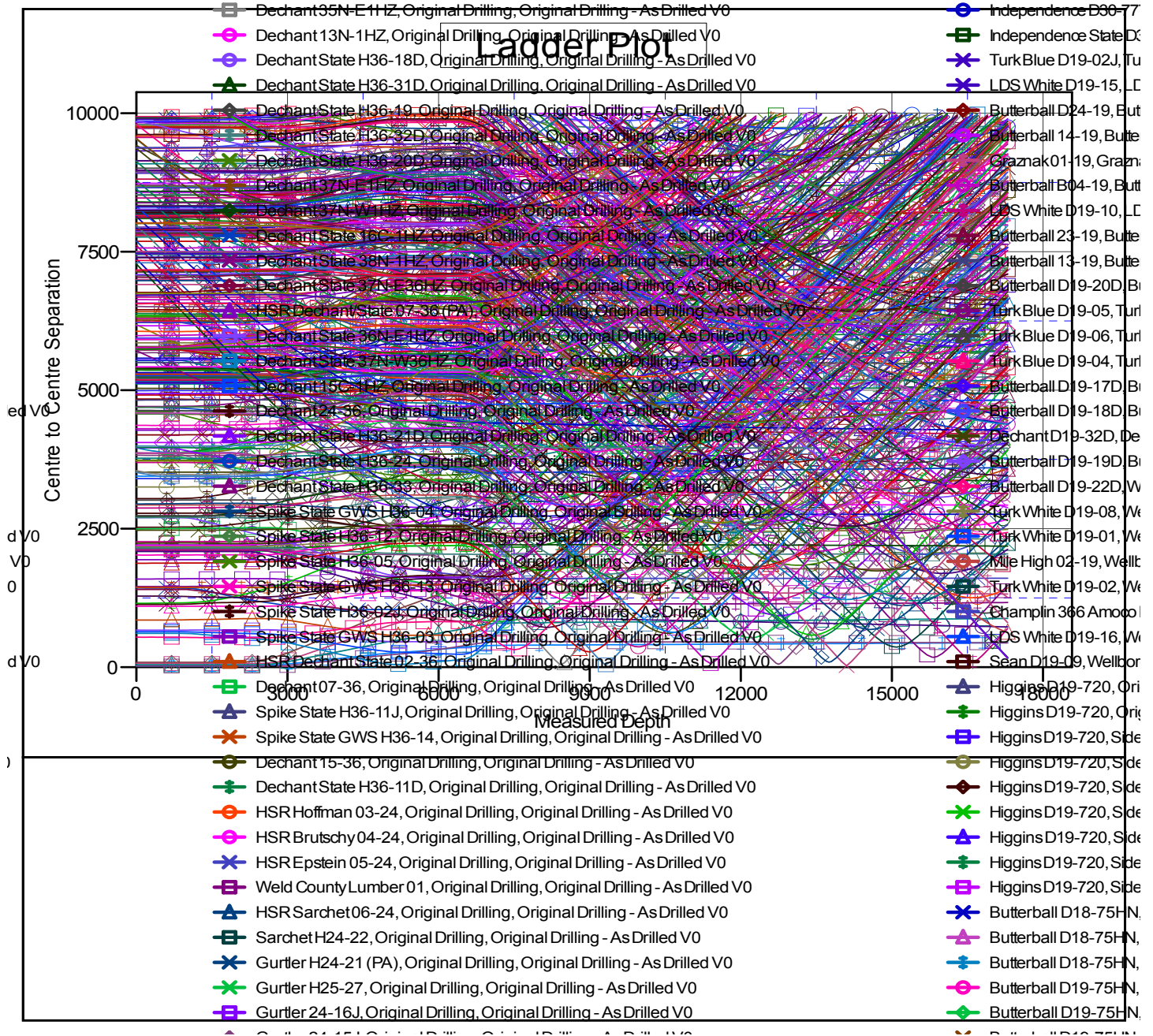
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
H Section 36						
Dechant State H36-24 - Original Drilling - Original Drilling	6,407.3	6,635.0	4,043.7	3,999.4	91.148	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,650.0	6,821.9	4,090.1	4,044.7	90.151	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,014.2	1,008.2	2,719.7	2,715.3	630.358	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,065.0	2,719.9	2,715.2	577.493	ES
Dechant State H36-31D - Original Drilling - Original Drilling	7,000.0	7,054.3	3,711.7	3,673.0	95.958	SF
Dechant State H36-32D - Original Drilling - Original Drilling	5,203.3	5,223.3	4,230.8	4,199.2	133.853	CC
Dechant State H36-32D - Original Drilling - Original Drilling	6,200.0	6,217.1	4,231.9	4,195.3	115.732	ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,750.0	6,759.2	4,297.0	4,257.8	109.596	SF
Dechant State H36-33 - Original Drilling - Original Drilling	0.0	3.0	4,705.4			
Dechant State H36-33 - Original Drilling - Original Drilling	500.0	479.4	4,706.3	4,703.8	1,926.619	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,750.0	6,859.3	5,110.5	5,066.0	114.872	SF
HSR Dechant State 02-36 - Original Drilling - Original Drilling	5,195.4	5,144.1	574.4	545.6	19.918	CC
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,400.0	6,355.6	577.0	541.4	16.218	ES
HSR Dechant State 02-36 - Original Drilling - Original Drilling	6,450.0	6,406.1	578.7	542.9	16.140	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,391.1	6,342.4	1,628.5	1,488.1	11.603	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,400.0	6,351.3	1,628.5	1,488.0	11.587	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Original Drilling	6,550.0	6,499.7	1,648.1	1,504.2	11.460	SF
Spike State GWS H36-03 - Original Drilling - Original Drilling	5,156.6	5,090.5	1,398.8	1,370.2	48.918	CC
Spike State GWS H36-03 - Original Drilling - Original Drilling	5,500.0	5,448.1	1,399.4	1,368.9	45.808	ES
Spike State GWS H36-03 - Original Drilling - Original Drilling	6,600.0	6,495.8	1,429.8	1,393.4	39.229	SF
Spike State GWS H36-04 - Original Drilling - Original Drilling	5,150.9	5,089.9	2,816.5	2,787.9	98.441	CC
Spike State GWS H36-04 - Original Drilling - Original Drilling	5,200.0	5,139.7	2,816.6	2,787.7	97.505	ES
Spike State GWS H36-04 - Original Drilling - Original Drilling	7,250.0	6,924.4	2,958.1	2,911.5	63.420	SF
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,516.8	7,444.0	5,409.1	5,369.9	138.006	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Drilling	6,700.0	7,444.0	5,434.6	5,395.0	137.150	SF
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,426.0	6,660.4	4,912.4	4,875.7	134.131	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Drilling	6,700.0	6,969.0	4,967.8	4,929.6	130.064	SF
Spike State H36-02J - Original Drilling - Original Drilling	5,219.3	5,175.2	2,475.4	2,446.4	85.448	CC
Spike State H36-02J - Original Drilling - Original Drilling	6,400.0	6,350.1	2,480.4	2,429.1	48.378	ES
Spike State H36-02J - Original Drilling - Original Drilling	7,050.0	6,883.1	2,697.8	2,628.7	39.033	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	6,092.1	6,063.2	3,385.1	3,351.2	99.787	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	6,100.0	6,068.6	3,385.1	3,351.1	99.683	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,800.0	6,693.9	3,461.9	3,424.5	92.554	SF
Spike State H36-11J - Original Drilling - Original Drilling	6,411.6	6,509.1	4,506.2	4,470.1	124.944	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling	6,750.0	6,805.6	4,585.9	4,548.2	121.668	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,393.0	6,375.0	4,290.1	4,254.5	120.519	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	6,400.0	6,380.9	4,290.1	4,254.5	120.399	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,950.0	6,950.0	4,459.1	4,420.7	115.963	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
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 H25-738	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 H25-738
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

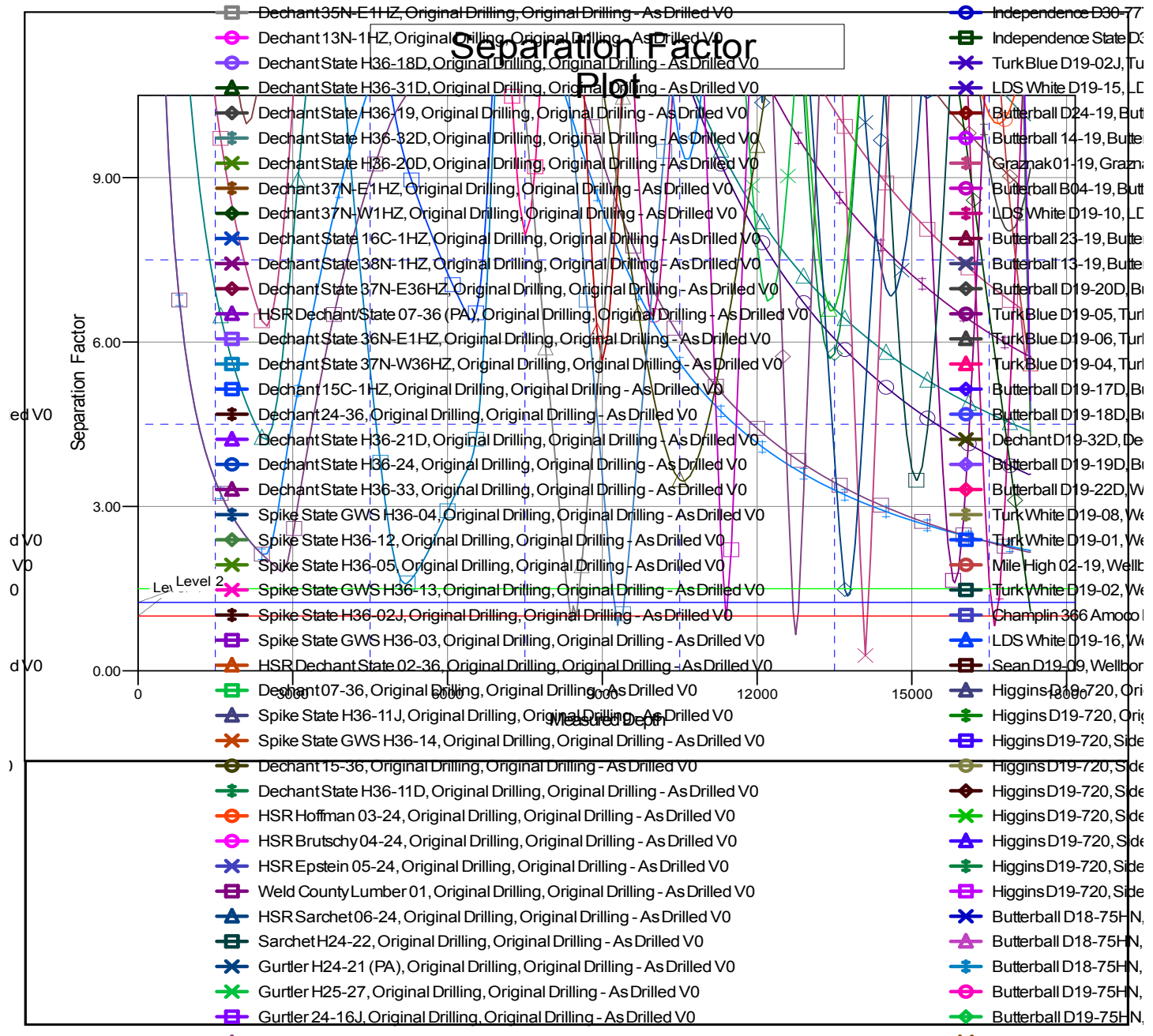
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-738
Project:	Conceptual Wells	TVD Reference:	WELL @ 4835.0ft (Original Well Elev)
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Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Prelim - Rev 2	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Emmy State H25-738

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