

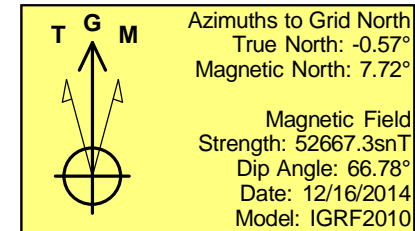
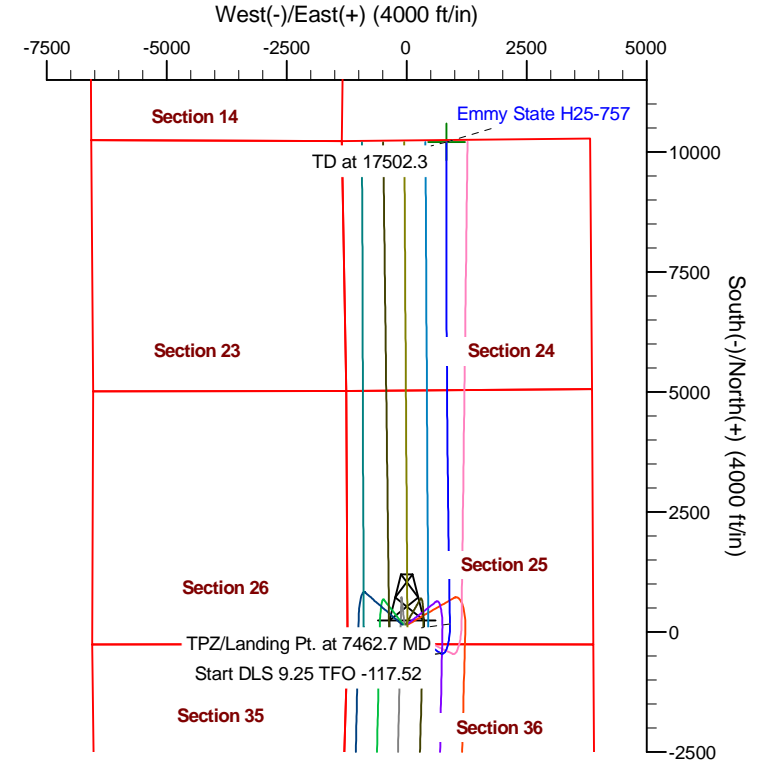
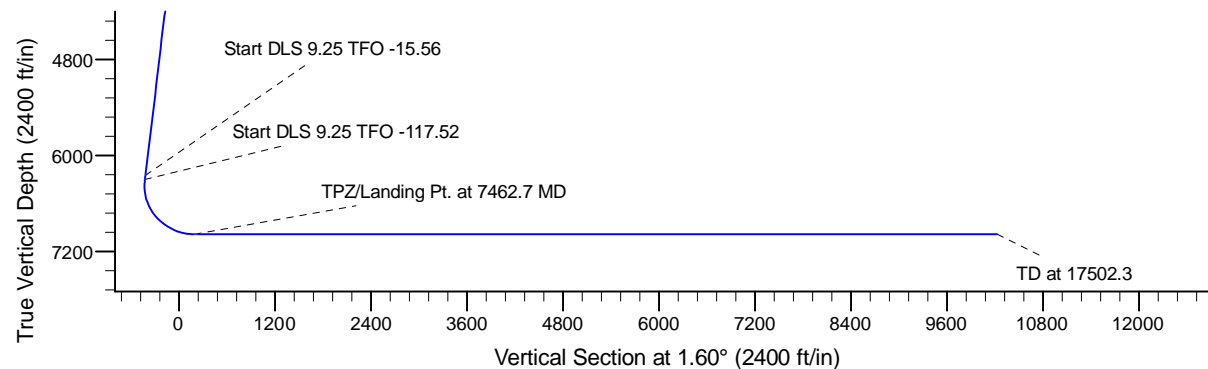
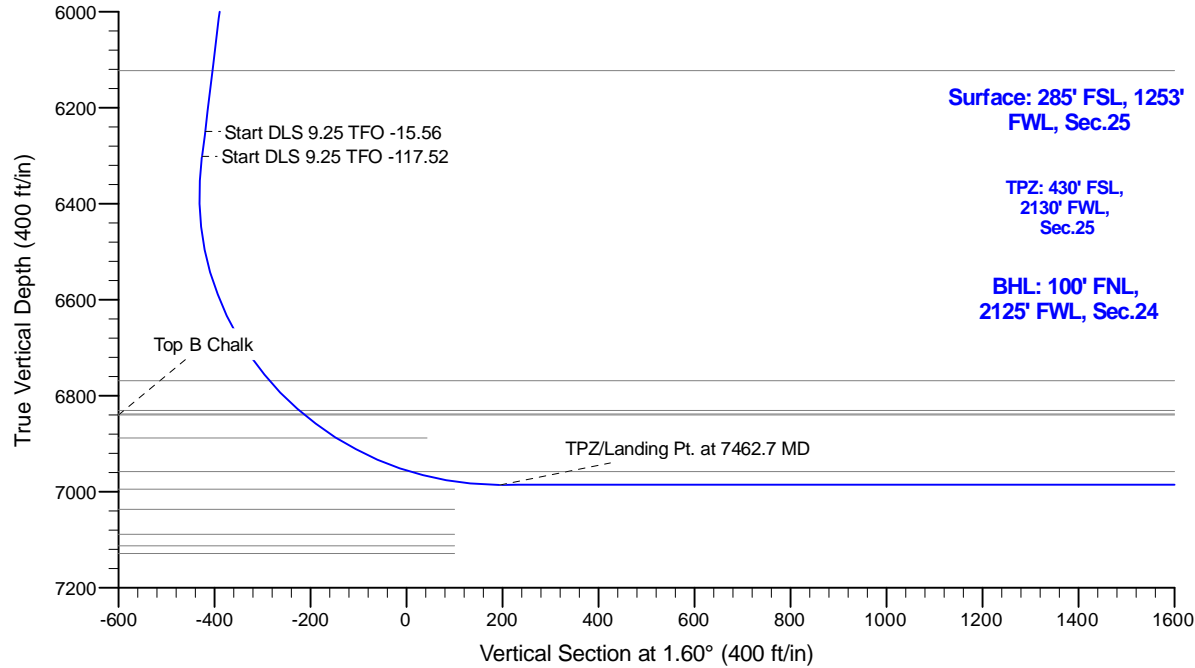
Project: Conceptual Wells
 Site: DP 408
 Well: Emmy State H25-757
 Wellbore: Wellbore #1
 Design: Design #1

Northern Region Drilling - DJ Basin

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

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	2400.0	0.00	0.00	2400.0	0.0	0.0	0.00	0.00	0.0	
3	3062.5	13.25	122.00	3056.6	-40.4	64.7	2.00	122.00	-38.6	
4	6343.2	13.25	122.00	6250.0	-438.9	702.4	0.00	0.00	-419.0	
5	6396.8	18.07	117.72	6301.5	-446.0	714.9	9.25	-15.56	-425.8	
6	7462.7	90.00	359.00	6986.0	170.0	900.0	9.25	-117.52	195.1	
7	17502.3	90.00	0.18	6986.0	10209.2	828.3	0.01	89.99	10228.4	Emmy State H25-757 BHL



WELL DETAILS: Emmy State H25-757

Ground Level:	4816.0
Northing	1313168.32
Easting	3246753.38
Latitude	40.189670
Longitude	-104.616750

Plan: Design #1 (Emmy State H25-757/Wellbore #1)

Created By: Colby Baxter	Date: 11:31, November 16 2017
Checked: _____	Date: _____
Reviewed: _____	Date: _____
Approved: _____	Date: _____

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-757

Wellbore #1

Plan: Design #1

Standard Planning Report

01 November, 2017

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-757
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Conceptual Wells		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	DP 408			
Site Position:		Northing:	1,318,184.69 usft	Latitude: 40.203616
From:	Lat/Long	Easting:	3,240,225.17 usft	Longitude: -104.639942
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence: 0.56 °

Well	Emmy State H25-757			
Well Position	+N/-S	-5,016.6 ft	Northing:	1,313,168.32 usft
	+E/-W	6,528.5 ft	Easting:	3,246,753.38 usft
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft
			Ground Level:	4,816.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/16/2014	8.30	66.78	52,667.26626496

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	1.60

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,062.5	13.25	122.00	3,056.6	-40.4	64.7	2.00	2.00	0.00	122.00	
6,343.2	13.25	122.00	6,250.0	-438.9	702.4	0.00	0.00	0.00	0.00	
6,396.8	18.07	117.72	6,301.5	-446.0	714.9	9.25	9.00	-8.00	-15.56	
7,462.7	90.00	359.00	6,986.0	170.0	900.0	9.25	6.75	-11.14	-117.52	
17,502.3	90.00	0.18	6,986.0	10,209.2	828.3	0.01	0.00	0.01	89.99	Emmy State H25-757

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-757
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	2.00	122.00	2,500.0	-0.9	1.5	-0.9	2.00	2.00	0.00
2,600.0	4.00	122.00	2,599.8	-3.7	5.9	-3.5	2.00	2.00	0.00
2,700.0	6.00	122.00	2,699.5	-8.3	13.3	-7.9	2.00	2.00	0.00
2,800.0	8.00	122.00	2,798.7	-14.8	23.6	-14.1	2.00	2.00	0.00
2,900.0	10.00	122.00	2,897.5	-23.1	36.9	-22.0	2.00	2.00	0.00
3,000.0	12.00	122.00	2,995.6	-33.2	53.1	-31.7	2.00	2.00	0.00
3,062.5	13.25	122.00	3,056.6	-40.4	64.7	-38.6	2.00	2.00	0.00
3,100.0	13.25	122.00	3,093.1	-45.0	72.0	-42.9	0.00	0.00	0.00
3,200.0	13.25	122.00	3,190.5	-57.1	91.4	-54.5	0.00	0.00	0.00
3,300.0	13.25	122.00	3,287.8	-69.3	110.8	-66.1	0.00	0.00	0.00
3,400.0	13.25	122.00	3,385.1	-81.4	130.3	-77.7	0.00	0.00	0.00
3,500.0	13.25	122.00	3,482.5	-93.6	149.7	-89.3	0.00	0.00	0.00
3,600.0	13.25	122.00	3,579.8	-105.7	169.1	-100.9	0.00	0.00	0.00
3,700.0	13.25	122.00	3,677.1	-117.8	188.6	-112.5	0.00	0.00	0.00
3,800.0	13.25	122.00	3,774.5	-130.0	208.0	-124.1	0.00	0.00	0.00
3,900.0	13.25	122.00	3,871.8	-142.1	227.5	-135.7	0.00	0.00	0.00
4,000.0	13.25	122.00	3,969.2	-154.3	246.9	-147.3	0.00	0.00	0.00
4,100.0	13.25	122.00	4,066.5	-166.4	266.3	-158.9	0.00	0.00	0.00
4,200.0	13.25	122.00	4,163.8	-178.6	285.8	-170.5	0.00	0.00	0.00
4,300.0	13.25	122.00	4,261.2	-190.7	305.2	-182.1	0.00	0.00	0.00
4,400.0	13.25	122.00	4,358.5	-202.9	324.6	-193.7	0.00	0.00	0.00
4,500.0	13.25	122.00	4,455.8	-215.0	344.1	-205.3	0.00	0.00	0.00
4,600.0	13.25	122.00	4,553.2	-227.2	363.5	-216.9	0.00	0.00	0.00
4,700.0	13.25	122.00	4,650.5	-239.3	383.0	-228.5	0.00	0.00	0.00
4,800.0	13.25	122.00	4,747.9	-251.4	402.4	-240.1	0.00	0.00	0.00
4,900.0	13.25	122.00	4,845.2	-263.6	421.8	-251.7	0.00	0.00	0.00
5,000.0	13.25	122.00	4,942.5	-275.7	441.3	-263.3	0.00	0.00	0.00
5,100.0	13.25	122.00	5,039.9	-287.9	460.7	-274.9	0.00	0.00	0.00
5,200.0	13.25	122.00	5,137.2	-300.0	480.1	-286.5	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-757
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	13.25	122.00	5,234.5	-312.2	499.6	-298.1	0.00	0.00	0.00
5,400.0	13.25	122.00	5,331.9	-324.3	519.0	-309.7	0.00	0.00	0.00
5,500.0	13.25	122.00	5,429.2	-336.5	538.5	-321.3	0.00	0.00	0.00
5,600.0	13.25	122.00	5,526.6	-348.6	557.9	-332.8	0.00	0.00	0.00
5,700.0	13.25	122.00	5,623.9	-360.8	577.3	-344.4	0.00	0.00	0.00
5,800.0	13.25	122.00	5,721.2	-372.9	596.8	-356.0	0.00	0.00	0.00
5,900.0	13.25	122.00	5,818.6	-385.0	616.2	-367.6	0.00	0.00	0.00
6,000.0	13.25	122.00	5,915.9	-397.2	635.6	-379.2	0.00	0.00	0.00
6,100.0	13.25	122.00	6,013.3	-409.3	655.1	-390.8	0.00	0.00	0.00
6,200.0	13.25	122.00	6,110.6	-421.5	674.5	-402.4	0.00	0.00	0.00
6,300.0	13.25	122.00	6,207.9	-433.6	694.0	-414.0	0.00	0.00	0.00
6,343.2	13.25	122.00	6,250.0	-438.9	702.4	-419.0	0.00	0.00	0.00
6,396.8	18.07	117.72	6,301.5	-446.0	714.9	-425.8	9.25	9.00	-8.00
6,400.0	17.93	116.85	6,304.6	-446.5	715.8	-426.2	9.25	-4.21	-26.64
6,500.0	15.99	85.45	6,400.5	-452.3	743.3	-431.3	9.25	-1.94	-31.40
6,600.0	18.89	55.74	6,496.0	-442.1	770.5	-420.4	9.25	2.89	-29.71
6,700.0	24.98	36.88	6,588.9	-416.0	796.6	-393.6	9.25	6.10	-18.86
6,800.0	32.52	25.65	6,676.5	-374.8	821.0	-351.7	9.25	7.54	-11.22
6,900.0	40.72	18.42	6,756.8	-319.5	843.0	-295.8	9.25	8.19	-7.24
7,000.0	49.23	13.28	6,827.5	-251.6	862.0	-227.3	9.25	8.51	-5.13
7,100.0	57.91	9.33	6,886.8	-172.8	877.6	-148.1	9.25	8.69	-3.95
7,200.0	66.70	6.08	6,933.3	-85.1	889.4	-60.2	9.25	8.79	-3.26
7,300.0	75.55	3.23	6,965.6	9.1	897.0	34.2	9.25	8.85	-2.85
7,400.0	84.43	0.60	6,983.0	107.4	900.2	132.6	9.25	8.88	-2.63
7,462.7	90.00	359.00	6,986.0	170.0	900.0	195.1	9.25	8.89	-2.55
7,500.0	90.00	359.00	6,986.0	207.3	899.4	232.4	0.01	0.00	0.01
7,600.0	90.00	359.02	6,986.0	307.3	897.6	332.3	0.01	0.00	0.01
7,700.0	90.00	359.03	6,986.0	407.3	895.9	432.2	0.01	0.00	0.01
7,800.0	90.00	359.04	6,986.0	507.3	894.2	532.1	0.01	0.00	0.01
7,900.0	90.00	359.05	6,986.0	607.2	892.6	632.0	0.01	0.00	0.01
8,000.0	90.00	359.06	6,986.0	707.2	890.9	731.9	0.01	0.00	0.01
8,100.0	90.00	359.08	6,986.0	807.2	889.3	831.8	0.01	0.00	0.01
8,200.0	90.00	359.09	6,986.0	907.2	887.7	931.7	0.01	0.00	0.01
8,300.0	90.00	359.10	6,986.0	1,007.2	886.1	1,031.6	0.01	0.00	0.01
8,400.0	90.00	359.11	6,986.0	1,107.2	884.5	1,131.5	0.01	0.00	0.01
8,500.0	90.00	359.12	6,986.0	1,207.2	883.0	1,231.4	0.01	0.00	0.01
8,600.0	90.00	359.13	6,986.0	1,307.2	881.5	1,331.3	0.01	0.00	0.01
8,700.0	90.00	359.15	6,986.0	1,407.2	880.0	1,431.2	0.01	0.00	0.01
8,800.0	90.00	359.16	6,986.0	1,507.1	878.5	1,531.2	0.01	0.00	0.01
8,900.0	90.00	359.17	6,986.0	1,607.1	877.0	1,631.1	0.01	0.00	0.01
9,000.0	90.00	359.18	6,986.0	1,707.1	875.6	1,731.0	0.01	0.00	0.01
9,100.0	90.00	359.19	6,986.0	1,807.1	874.2	1,830.9	0.01	0.00	0.01
9,200.0	90.00	359.20	6,986.0	1,907.1	872.8	1,930.8	0.01	0.00	0.01
9,300.0	90.00	359.22	6,986.0	2,007.1	871.4	2,030.7	0.01	0.00	0.01
9,400.0	90.00	359.23	6,986.0	2,107.1	870.0	2,130.6	0.01	0.00	0.01
9,500.0	90.00	359.24	6,986.0	2,207.1	868.7	2,230.5	0.01	0.00	0.01
9,600.0	90.00	359.25	6,986.0	2,307.1	867.4	2,330.5	0.01	0.00	0.01
9,700.0	90.00	359.26	6,986.0	2,407.1	866.1	2,430.4	0.01	0.00	0.01
9,800.0	90.00	359.28	6,986.0	2,507.0	864.8	2,530.3	0.01	0.00	0.01
9,900.0	90.00	359.29	6,986.0	2,607.0	863.6	2,630.2	0.01	0.00	0.01
10,000.0	90.00	359.30	6,986.0	2,707.0	862.3	2,730.1	0.01	0.00	0.01
10,100.0	90.00	359.31	6,986.0	2,807.0	861.1	2,830.0	0.01	0.00	0.01
10,200.0	90.00	359.32	6,986.0	2,907.0	859.9	2,930.0	0.01	0.00	0.01
10,300.0	90.00	359.33	6,986.0	3,007.0	858.8	3,029.9	0.01	0.00	0.01

Noble Energy, Inc.

Planning Report

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Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,400.0	90.00	359.35	6,986.0	3,107.0	857.6	3,129.8	0.01	0.00	0.01
10,500.0	90.00	359.36	6,986.0	3,207.0	856.5	3,229.7	0.01	0.00	0.01
10,600.0	90.00	359.37	6,986.0	3,307.0	855.4	3,329.6	0.01	0.00	0.01
10,700.0	90.00	359.38	6,986.0	3,407.0	854.3	3,429.6	0.01	0.00	0.01
10,800.0	90.00	359.39	6,986.0	3,507.0	853.2	3,529.5	0.01	0.00	0.01
10,900.0	90.00	359.40	6,986.0	3,607.0	852.1	3,629.4	0.01	0.00	0.01
11,000.0	90.00	359.42	6,986.0	3,707.0	851.1	3,729.4	0.01	0.00	0.01
11,100.0	90.00	359.43	6,986.0	3,807.0	850.1	3,829.3	0.01	0.00	0.01
11,200.0	90.00	359.44	6,986.0	3,907.0	849.1	3,929.2	0.01	0.00	0.01
11,300.0	90.00	359.45	6,986.0	4,007.0	848.2	4,029.1	0.01	0.00	0.01
11,400.0	90.00	359.46	6,986.0	4,106.9	847.2	4,129.1	0.01	0.00	0.01
11,500.0	90.00	359.48	6,986.0	4,206.9	846.3	4,229.0	0.01	0.00	0.01
11,600.0	90.00	359.49	6,986.0	4,306.9	845.4	4,328.9	0.01	0.00	0.01
11,700.0	90.00	359.50	6,986.0	4,406.9	844.5	4,428.9	0.01	0.00	0.01
11,800.0	90.00	359.51	6,986.0	4,506.9	843.6	4,528.8	0.01	0.00	0.01
11,900.0	90.00	359.52	6,986.0	4,606.9	842.8	4,628.7	0.01	0.00	0.01
12,000.0	90.00	359.53	6,986.0	4,706.9	842.0	4,728.7	0.01	0.00	0.01
12,100.0	90.00	359.55	6,986.0	4,806.9	841.2	4,828.6	0.01	0.00	0.01
12,200.0	90.00	359.56	6,986.0	4,906.9	840.4	4,928.5	0.01	0.00	0.01
12,300.0	90.00	359.57	6,986.0	5,006.9	839.6	5,028.5	0.01	0.00	0.01
12,400.0	90.00	359.58	6,986.0	5,106.9	838.9	5,128.4	0.01	0.00	0.01
12,500.0	90.00	359.59	6,986.0	5,206.9	838.2	5,228.3	0.01	0.00	0.01
12,600.0	90.00	359.60	6,986.0	5,306.9	837.5	5,328.3	0.01	0.00	0.01
12,700.0	90.00	359.62	6,986.0	5,406.9	836.8	5,428.2	0.01	0.00	0.01
12,800.0	90.00	359.63	6,986.0	5,506.9	836.1	5,528.2	0.01	0.00	0.01
12,900.0	90.00	359.64	6,986.0	5,606.9	835.5	5,628.1	0.01	0.00	0.01
13,000.0	90.00	359.65	6,986.0	5,706.9	834.9	5,728.0	0.01	0.00	0.01
13,100.0	90.00	359.66	6,986.0	5,806.9	834.3	5,828.0	0.01	0.00	0.01
13,200.0	90.00	359.68	6,986.0	5,906.9	833.7	5,927.9	0.01	0.00	0.01
13,300.0	90.00	359.69	6,986.0	6,006.9	833.1	6,027.9	0.01	0.00	0.01
13,400.0	90.00	359.70	6,986.0	6,106.9	832.6	6,127.8	0.01	0.00	0.01
13,500.0	90.00	359.71	6,986.0	6,206.9	832.1	6,227.8	0.01	0.00	0.01
13,600.0	90.00	359.72	6,986.0	6,306.9	831.6	6,327.7	0.01	0.00	0.01
13,700.0	90.00	359.73	6,986.0	6,406.9	831.1	6,427.7	0.01	0.00	0.01
13,800.0	90.00	359.75	6,986.0	6,506.9	830.7	6,527.6	0.01	0.00	0.01
13,900.0	90.00	359.76	6,986.0	6,606.9	830.2	6,627.5	0.01	0.00	0.01
14,000.0	90.00	359.77	6,986.0	6,706.9	829.8	6,727.5	0.01	0.00	0.01
14,100.0	90.00	359.78	6,986.0	6,806.9	829.4	6,827.4	0.01	0.00	0.01
14,200.0	90.00	359.79	6,986.0	6,906.9	829.0	6,927.4	0.01	0.00	0.01
14,300.0	90.00	359.80	6,986.0	7,006.9	828.7	7,027.3	0.01	0.00	0.01
14,400.0	90.00	359.82	6,986.0	7,106.9	828.4	7,127.3	0.01	0.00	0.01
14,500.0	90.00	359.83	6,986.0	7,206.9	828.1	7,227.2	0.01	0.00	0.01
14,600.0	90.00	359.84	6,986.0	7,306.9	827.8	7,327.2	0.01	0.00	0.01
14,700.0	90.00	359.85	6,986.0	7,406.9	827.5	7,427.2	0.01	0.00	0.01
14,800.0	90.00	359.86	6,986.0	7,506.9	827.3	7,527.1	0.01	0.00	0.01
14,900.0	90.00	359.88	6,986.0	7,606.9	827.0	7,627.1	0.01	0.00	0.01
15,000.0	90.00	359.89	6,986.0	7,706.9	826.8	7,727.0	0.01	0.00	0.01
15,100.0	90.00	359.90	6,986.0	7,806.9	826.6	7,827.0	0.01	0.00	0.01
15,200.0	90.00	359.91	6,986.0	7,906.9	826.5	7,926.9	0.01	0.00	0.01
15,300.0	90.00	359.92	6,986.0	8,006.9	826.3	8,026.9	0.01	0.00	0.01
15,400.0	90.00	359.93	6,986.0	8,106.9	826.2	8,126.8	0.01	0.00	0.01
15,500.0	90.00	359.95	6,986.0	8,206.9	826.1	8,226.8	0.01	0.00	0.01
15,600.0	90.00	359.96	6,986.0	8,306.9	826.0	8,326.8	0.01	0.00	0.01
15,700.0	90.00	359.97	6,986.0	8,406.9	825.9	8,426.7	0.01	0.00	0.01

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-757
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
15,800.0	90.00	359.98	6,986.0	8,506.9	825.9	8,526.7	0.01	0.00	0.01	
15,900.0	90.00	359.99	6,986.0	8,606.9	825.9	8,626.6	0.01	0.00	0.01	
16,000.0	90.00	0.01	6,986.0	8,706.9	825.9	8,726.6	0.01	0.00	0.01	
16,100.0	90.00	0.02	6,986.0	8,806.9	825.9	8,826.6	0.01	0.00	0.01	
16,200.0	90.00	0.03	6,986.0	8,906.9	825.9	8,926.5	0.01	0.00	0.01	
16,300.0	90.00	0.04	6,986.0	9,006.9	826.0	9,026.5	0.01	0.00	0.01	
16,400.0	90.00	0.05	6,986.0	9,106.9	826.1	9,126.4	0.01	0.00	0.01	
16,500.0	90.00	0.06	6,986.0	9,206.9	826.2	9,226.4	0.01	0.00	0.01	
16,600.0	90.00	0.08	6,986.0	9,306.9	826.3	9,326.4	0.01	0.00	0.01	
16,700.0	90.00	0.09	6,986.0	9,406.9	826.4	9,426.3	0.01	0.00	0.01	
16,800.0	90.00	0.10	6,986.0	9,506.9	826.6	9,526.3	0.01	0.00	0.01	
16,900.0	90.00	0.11	6,986.0	9,606.9	826.8	9,626.3	0.01	0.00	0.01	
17,000.0	90.00	0.12	6,986.0	9,706.9	827.0	9,726.2	0.01	0.00	0.01	
17,100.0	90.00	0.13	6,986.0	9,806.9	827.2	9,826.2	0.01	0.00	0.01	
17,200.0	90.00	0.15	6,986.0	9,906.9	827.5	9,926.2	0.01	0.00	0.01	
17,300.0	90.00	0.16	6,986.0	10,006.9	827.7	10,026.1	0.01	0.00	0.01	
17,400.0	90.00	0.17	6,986.0	10,106.9	828.0	10,126.1	0.01	0.00	0.01	
17,500.0	90.00	0.18	6,986.0	10,206.9	828.3	10,226.1	0.01	0.00	0.01	
17,502.3	90.00	0.18	6,986.0	10,209.2	828.3	10,228.4	0.01	0.00	0.01	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
- hit/miss target										
- Shape										
Emmy State H25-757 Bl	0.00	0.00	6,986.0	10,209.2	828.3	1,323,377.04	3,247,581.67	40.217670	-104.613420	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
572.0	572.0	Pierre				
724.0	724.0	Upper Pierre Aquifer Top				
1,612.0	1,612.0	Upper Pierre Aquifer Base				
3,907.4	3,879.0	Parkman				
4,514.5	4,470.0	Sussex				
5,215.2	5,152.0	Shannon				
6,212.8	6,123.0	Teepee Buttes				
6,916.3	6,769.0	Sharon Springs				
7,005.4	6,831.0	Top A Chalk				
7,016.3	6,838.0	Top A Marl				
7,019.5	6,840.0	Top B Chalk				
7,102.2	6,888.0	Top B Marl				
7,272.0	6,958.0	Top C Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Emmy State H25-757
Company:	Northern Region Drilling - Sandbox	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Project:	Conceptual Wells	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site:	DP 408	North Reference:	Grid
Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,400.0	2,400.0	0.0	0.0	KOP - Start Build 2.00
6,343.2	6,250.0	-40.4	64.7	Start DLS 9.25 TFO -15.56
6,396.8	6,301.5	-438.9	702.4	Start DLS 9.25 TFO -117.52
7,462.7	6,986.0	-446.0	714.9	TPZ/Landing Pt. at 7462.7 MD
17,502.3	6,986.0	170.0	900.0	TD at 17502.3

Northern Region Drilling - Sandbox

Conceptual Wells

DP 408

Emmy State H25-757

Wellbore #1

Design #1

Anticollision Summary Report

01 November, 2017

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Reference	Design #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.0 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	11/1/2017		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	17,502.3	Design #1 (Wellbore #1)	MWD+IFR1+MS_WY	Fixed:v2:Rockies, crustal dec + 3-axis correction	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 19						
Butterball H24-69HN - Original Drilling - Original Drilling -	17,400.0	11,992.0	915.8	773.3	6.426	SF
Butterball H24-69HN - Original Drilling - Original Drilling -	17,502.3	11,992.0	888.7	752.5	6.524	CC, ES
DP 408						
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	2,000.0	1,989.0	2,201.6	2,192.9	253.821	CC, ES
Emmy H25-711 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,528.0	2,928.3	2,727.6	14.589	SF
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	3,406.4	2,975.3	2,144.4	2,130.9	158.495	CC, ES
Emmy State H25-718 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,365.9	2,488.3	2,287.2	12.371	SF
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	7,021.9	6,596.6	1,925.0	1,893.7	61.615	CC
Emmy State H25-724 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,434.0	2,047.1	1,848.2	10.291	ES, SF
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	7,381.1	7,188.0	1,543.3	1,511.6	48.691	CC
Emmy State H25-731 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,338.8	1,608.3	1,408.9	8.066	ES, SF
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	7,434.7	7,198.1	1,149.4	1,118.0	36.631	CC
Emmy State H25-738 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,268.9	1,167.6	966.7	5.813	ES, SF
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	7,497.5	7,327.6	686.0	653.8	21.272	CC
Emmy State H25-744 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,315.7	728.8	527.4	3.619	ES, SF
Emmy State H25-751 - Wellbore #1 - Design #1	2,200.0	2,200.0	22.4	12.8	2.329	CC, ES
Emmy State H25-751 - Wellbore #1 - Design #1	17,502.3	17,571.3	439.4	238.5	2.188	SF
Emmy State H25-764 - Wellbore #1 - Design #1	2,400.0	2,404.0	22.4	17.1	4.259	CC, ES, SF
Emmy State H25-771 - Wellbore #1 - Design #1	2,400.0	2,400.0	44.7	34.2	4.259	CC, ES
Emmy State H25-771 - Wellbore #1 - Design #1	2,500.0	2,500.2	46.0	35.1	4.218	SF
Emmy State H25-777 - Wellbore #1 - Design #1	2,200.0	2,201.0	67.2	57.6	6.995	CC, ES
Emmy State H25-777 - Wellbore #1 - Design #1	17,502.3	17,421.5	1,318.5	1,116.3	6.524	SF
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,001.0	92.2	83.5	10.597	CC, ES
Emmy State H25-785 - Wellbore #1 - Prelim - Rev 2	17,502.3	17,485.6	1,759.4	1,557.8	8.725	SF
Emmy State H36-753 - Wellbore #1 - Design #1	2,400.0	2,400.0	154.6	144.1	14.731	CC, ES
Emmy State H36-753 - Wellbore #1 - Design #1	7,700.0	7,228.1	316.4	281.6	9.100	SF
Emmy State H36-760 - Wellbore #1 - Design #1	2,400.0	2,371.0	153.0	142.5	14.621	CC
Emmy State H36-760 - Wellbore #1 - Design #1	7,462.7	7,305.6	157.8	124.8	4.787	SF
Emmy State H36-760 - Wellbore #1 - Design #1	7,499.8	7,270.4	157.4	124.6	4.794	ES
Emmy State H36-766 - Wellbore #1 - Design #1	2,400.0	2,401.0	154.6	144.1	14.728	CC, ES
Emmy State H36-766 - Wellbore #1 - Design #1	2,500.0	2,496.9	157.1	146.2	14.394	SF
Emmy State H36-773 - Wellbore #1 - Design #1	2,400.0	2,401.0	159.4	148.9	15.183	CC, ES
Emmy State H36-773 - Wellbore #1 - Design #1	2,600.0	2,600.8	164.7	153.4	14.529	SF
Emmy State H36-780 - Wellbore #1 - Design #1	2,200.0	2,202.0	167.1	157.5	17.398	CC, ES
Emmy State H36-780 - Wellbore #1 - Design #1	2,400.0	2,390.9	173.6	163.1	16.602	SF
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,003.0	178.6	169.9	20.521	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
DP 408						
Emmy State H36-787 - Wellbore #1 - Prelim - Rev 2	2,300.0	2,285.0	193.1	183.1	19.368	SF
Hurley H26-712 - Wellbore #1 - Design #1	14,937.6	12,282.7	2,194.0	2,067.1	17.287	CC
Hurley H26-712 - Wellbore #1 - Design #1	17,502.3	14,847.4	2,200.8	2,025.2	12.533	ES, SF
Hurley H26-717 - Wellbore #1 - Design #1	10,196.5	7,455.0	2,553.3	2,505.5	53.377	CC
Hurley H26-717 - Wellbore #1 - Design #1	17,502.3	14,752.7	2,609.0	2,436.4	15.114	ES, SF
Hurley H26-724 - Wellbore #1 - Design #1	16,534.8	13,824.0	3,044.8	2,889.7	19.626	CC
Hurley H26-724 - Wellbore #1 - Design #1	17,502.3	14,791.6	3,045.8	2,872.2	17.542	ES, SF
Hurley H26-730 - Wellbore #1 - Design #1	15,872.0	12,901.4	3,459.9	3,316.5	24.134	CC
Hurley H26-730 - Wellbore #1 - Design #1	17,502.3	14,528.9	3,462.6	3,288.1	19.845	ES, SF
Hurley H26-736 - Wellbore #1 - Design #1	2,400.0	2,439.0	3,624.9	3,614.3	342.478	CC, ES
Hurley H26-736 - Wellbore #1 - Design #1	17,502.3	14,655.3	3,875.4	3,702.8	22.455	SF
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,438.0	3,639.0	3,628.4	343.885	CC, ES
Hurley H26-743 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,940.9	4,304.5	4,129.3	24.558	SF
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,316.0	14,904.9	4,727.3	4,553.9	27.251	CC
Hurley H26-750 - Wellbore #1 - Prelim - Rev 2	17,502.3	15,081.3	4,727.4	4,550.4	26.717	ES, SF
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	10,082.0	7,461.2	5,128.8	5,081.3	108.011	CC
Hurley H26-756 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,869.7	5,197.7	5,024.3	29.968	ES, SF
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	10,087.0	7,422.3	5,551.1	5,504.5	118.874	CC
Hurley H26-762 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,828.9	5,619.6	5,446.0	32.377	ES, SF
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	2,684.3	3,274.3	5,871.7	5,859.0	465.323	CC
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	2,700.0	3,289.9	5,871.7	5,859.0	463.105	ES
Hurley H26-768 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,818.4	6,039.0	5,865.0	34.706	SF
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	2,402.2	2,412.0	5,913.5	5,903.1	566.437	CC, ES
Hurley H26-776 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,868.7	6,469.1	6,292.4	36.608	SF
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,005.0	5,933.5	5,924.8	681.251	CC, ES
Hurley H26-783 - Wellbore #1 - Prelim - Rev 2	17,502.3	14,761.1	6,873.8	6,698.6	39.244	SF
Hurley H35-720 - Wellbore #1 - Design #1	6,385.9	10,865.2	2,768.5	2,716.8	53.551	CC, ES
Hurley H35-720 - Wellbore #1 - Design #1	11,400.0	6,870.7	2,889.7	2,834.8	52.618	SF
Hurley H35-727 - Wellbore #1 - Design #1	6,362.4	10,625.9	3,162.8	3,111.7	61.884	CC, ES
Hurley H35-727 - Wellbore #1 - Design #1	11,500.0	6,700.0	3,300.4	3,246.1	60.810	SF
Hurley H35-733 - Wellbore #1 - Design #1	10,725.5	6,644.8	3,569.1	3,518.5	70.555	CC, ES
Hurley H35-733 - Wellbore #1 - Design #1	11,800.0	6,550.0	3,724.2	3,667.7	65.928	SF
Hurley H35-740 - Wellbore #1 - Design #1	2,400.0	2,439.0	3,742.1	3,731.5	353.552	CC, ES
Hurley H35-740 - Wellbore #1 - Design #1	12,200.0	6,367.4	4,249.2	4,190.5	72.402	SF
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	1,906.2	1,944.2	3,755.8	3,747.4	449.126	CC
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,000.0	3,755.9	3,747.2	431.804	ES
Hurley H35-746 - Wellbore #1 - Prelim - Rev 2	12,400.0	6,145.8	4,692.6	4,633.0	78.738	SF
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	6,123.5	10,612.3	4,890.3	4,838.4	94.100	CC, ES
Hurley H35-755 - Wellbore #1 - Prelim - Rev 2	12,700.0	6,925.0	5,580.9	5,517.9	88.498	SF
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,068.1	10,405.8	5,309.2	5,258.8	105.237	CC
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	6,100.0	10,409.7	5,309.3	5,258.7	104.981	ES
Hurley H35-761 - Wellbore #1 - Prelim - Rev 2	12,900.0	6,750.0	6,058.1	5,994.8	95.598	SF
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	5,952.5	10,432.3	5,731.8	5,682.8	117.121	CC
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	6,000.0	10,438.2	5,732.0	5,682.8	116.651	ES
Hurley H35-768 - Wellbore #1 - Prelim - Rev 2	13,400.0	6,600.0	6,582.9	6,516.5	99.121	SF
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	2,400.0	2,406.0	5,961.3	5,950.8	567.203	CC, ES
Hurley H35-774 - Wellbore #1 - Prelim - Rev 2	13,700.0	6,500.0	7,022.2	6,953.5	102.292	SF
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	2,200.0	2,205.0	5,982.7	5,973.1	622.631	CC, ES
Hurley H35-779 - Wellbore #1 - Prelim - Rev 2	14,000.0	6,450.0	7,425.7	7,355.0	105.046	SF
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	2,000.0	2,005.0	6,002.3	5,993.6	689.158	CC, ES
Hurley H35-787 - Wellbore #1 - Prelim - Rev 2	14,600.0	6,088.3	8,088.1	8,014.1	109.290	SF
Hurley State H35-713 - Wellbore #1 - Design #1	6,440.8	10,607.8	2,318.4	2,265.5	43.852	CC
Hurley State H35-713 - Wellbore #1 - Design #1	6,450.0	10,607.3	2,318.4	2,265.5	43.833	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DP 408						
Hurley State H35-713 - Wellbore #1 - Design #1	6,500.0	10,606.5	2,319.1	2,266.1	43.732	SF
H Section 13						
Karakakes H13-25 - Original Drilling - Original Drilling - A	17,502.3	7,111.5	1,587.9	1,493.1	16.743	CC, ES, SF
Karakakes H13-33 - Original Drilling - Original Drilling - A	17,502.3	7,048.0	2,567.4	2,458.6	23.590	CC, ES, SF
Karakakes H14-63HN - Original Drilling - Original Drilling	17,502.3	6,453.0	2,593.4	2,488.6	24.745	CC, ES, SF
Sarchet H13-75HN - Original Drilling - Original Drilling	17,502.3	6,836.3	718.4	605.1	6.340	CC, ES, SF
UPRC 13-13J - Original Drilling - Original Drilling - As Dri	17,502.3	6,961.9	1,610.2	1,498.7	14.431	CC, ES, SF
UPRC 13-14J - Original Drilling - Original Drilling - As Dri	17,502.3	6,983.4	1,125.9	1,061.5	17.484	CC, ES, SF
UPRC 13-15J - Original Drilling - Original Drilling - As Dri	17,502.3	6,970.9	1,362.7	1,262.0	13.528	CC, ES, SF
UPRC 13-16J - Wellbore #1 - Wellbore #1 - As Drilled	17,502.3	6,969.0	2,270.0	2,156.5	19.996	CC, ES, SF
UPRR 39 Pan Am B1 (PA) - Original Drilling - Original Dr	17,502.3	6,987.0	1,773.8	1,538.6	7.540	CC, ES, SF
H Section 14						
Bohlender H14-09 - Original Drilling - Original Drilling - A	17,502.3	6,900.0	3,512.8	3,406.5	33.038	CC, ES, SF
Bohlender H14-15 - Original Drilling - Original Drilling - A	17,502.3	6,825.6	4,089.4	3,966.0	33.138	CC, ES, SF
Bohlender H14-16 - Original Drilling - Original Drilling - A	17,502.3	6,949.5	3,380.1	3,258.9	27.902	CC, ES, SF
Wilcox H14-03J - Original Drilling - Original Drilling - As D	17,502.3	7,197.2	5,449.1	5,320.0	42.180	CC, ES, SF
Wilcox H14-10 - Original Drilling - Original Drilling - As Dr	17,502.3	7,405.1	4,563.6	4,434.2	35.279	CC, ES, SF
Wilcox H14-11 - Original Drilling - Original Drilling - As Dr	17,502.3	7,392.3	5,554.8	5,408.9	38.086	CC, ES, SF
Wilcox H14-13 - Original Drilling - Original Drilling - As Dr	17,502.3	7,627.0	6,220.6	6,094.1	49.156	CC, ES, SF
H Section 19						
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,375.9	6,876.2	3,731.0	3,637.2	39.790	CC
Butterball 13-19 - Original Drilling - Original Drilling - As D	14,400.0	6,876.9	3,731.1	3,637.0	39.675	ES
Butterball 13-19 - Original Drilling - Original Drilling - As D	15,300.0	6,904.4	3,842.8	3,740.7	37.617	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	14,194.1	6,900.0	8,002.9	7,910.9	86.947	CC
HSR Demeules 09-22 - Original Drilling - Original Drilling	14,700.0	14,700.0	8,019.1	7,895.6	64.921	ES, SF
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,345.3	6,951.5	8,533.5	8,449.2	101.304	CC
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	13,400.0	6,953.1	8,533.6	8,448.9	100.739	ES
HSR Duryea - Wellbore #1 - Wellbore #1 - As Drilled	17,000.0	7,052.8	9,295.1	9,185.8	85.024	SF
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,799.3	7,000.0	8,129.5	8,050.2	102.459	CC
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	12,900.0	7,000.0	8,130.2	8,050.0	101.387	ES
Sarchet 16-22 - Wellbore #1 - Wellbore #1 - As Drilled	16,300.0	7,000.0	8,862.8	8,760.0	86.188	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 23						
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,597.0	7,011.9	3,997.8	3,892.0	37.778	CC
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	15,600.0	7,011.9	3,997.8	3,891.9	37.770	ES
Eachus 32-23 - Original Drilling - Original Drilling - As Dri	16,300.0	7,021.0	4,059.6	3,949.5	36.868	SF
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	16,812.4	6,979.0	2,816.5	2,583.8	12.102	CC, ES
Eachus 41-23 (PA) - Original Drilling - Original Drilling - A	17,000.0	6,979.0	2,822.8	2,588.9	12.069	SF
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	16,917.1	7,015.9	4,066.0	3,888.0	22.841	CC, ES
Eachus UPRR 31-23 - Original Drilling - Original Drilling -	17,400.0	7,017.2	4,094.8	3,913.6	22.593	SF
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,501.5	6,989.0	2,777.8	2,557.4	12.606	CC, ES
Eachus UPRR 42-23 (PA) - Original Drilling - Original Dri	15,700.0	6,989.0	2,784.9	2,563.3	12.569	SF
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,202.1	6,842.8	2,904.7	2,822.6	35.354	CC, ES
HSR Alberstein 16-23 - Original Drilling - Original Drilling	13,600.0	6,862.5	2,932.0	2,847.4	34.677	SF
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,272.6	6,773.7	4,235.0	4,152.3	51.241	CC
HSR Ashley 15-23A - Original Drilling - Original Drilling -	13,300.0	6,774.7	4,235.1	4,152.2	51.108	ES
HSR Ashley 15-23A - Original Drilling - Original Drilling -	14,300.0	6,821.2	4,358.7	4,269.5	48.900	SF
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,258.5	6,892.3	3,929.9	3,837.3	42.455	CC
HSR Benirschke 10-23 - Original Drilling - Original Drillin	14,300.0	6,894.4	3,930.1	3,837.2	42.308	ES
HSR Benirschke 10-23 - Original Drilling - Original Drillin	15,000.0	6,941.5	3,999.5	3,902.2	41.092	SF
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	16,924.0	7,263.5	5,379.4	5,251.7	42.148	CC
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,000.0	7,263.7	5,379.9	5,251.5	41.909	ES
HSR Eachus 03-23 - Original Drilling - Original Drilling - A	17,502.3	7,265.2	5,410.7	5,278.0	40.763	SF
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	16,931.2	7,295.3	6,795.9	6,648.3	46.035	CC
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,100.0	7,297.4	6,798.1	6,647.0	44.990	ES
HSR Eachus 04-23 - Original Drilling - Original Drilling - A	17,502.3	7,302.3	6,820.2	6,661.1	42.863	SF
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	15,614.8	7,231.1	6,806.5	6,665.2	48.170	CC, ES
HSR Eachus 05-23 - Original Drilling - Original Drilling - A	16,600.0	7,249.6	6,878.4	6,735.0	47.987	SF
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	15,993.1	6,978.6	5,751.6	5,641.9	52.468	CC
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	16,000.0	6,978.7	5,751.6	5,641.9	52.439	ES
HSR Fruman 06-23 - Original Drilling - Original Drilling - A	17,502.3	6,994.8	5,948.5	5,828.4	49.547	SF
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,012.0	7,123.5	3,018.4	2,927.1	33.049	CC, ES
HSR Grasshopper 09-23 - Original Drilling - Original Drill	14,400.0	7,114.8	3,043.4	2,949.8	32.538	SF
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	16,324.8	7,074.6	4,604.7	4,491.6	40.692	CC, ES
Ritchey 21-23 - Original Drilling - Original Drilling - As Dri	17,200.0	7,067.4	4,687.9	4,569.3	39.516	SF
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	14,905.0	7,066.4	3,563.7	3,461.7	34.940	CC, ES
Ritchey 24-23 - Original Drilling - Original Drilling - As Dri	15,400.0	7,067.3	3,598.2	3,493.5	34.376	SF
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,255.9	7,129.7	2,183.4	2,069.1	19.116	CC, ES
Ritchey 31-24 - Original Drilling - Original Drilling - As Dri	16,300.0	7,130.1	2,183.8	2,069.5	19.105	SF
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,256.5	6,870.5	5,660.0	5,567.5	61.195	CC
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	14,300.0	6,870.3	5,660.2	5,567.3	60.962	ES
UPRC 23-11J - Original Drilling - Original Drilling - As Dri	15,800.0	6,862.2	5,869.0	5,766.5	57.242	SF
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,248.9	6,899.1	6,960.6	6,868.0	75.191	CC
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	14,300.0	6,899.4	6,960.8	6,867.8	74.843	ES
UPRC 23-12J - Original Drilling - Original Drilling - As Dri	16,600.0	6,914.0	7,352.3	7,244.0	67.906	SF
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,113.9	6,939.5	6,953.3	6,871.2	84.712	CC
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	13,200.0	6,942.2	6,953.8	6,871.0	83.976	ES
UPRC H23-13 - Wellbore #1 - Wellbore #1 - As Drilled	15,700.0	7,040.8	7,424.5	7,324.9	74.523	SF
UPRC H23-14J - Original Drilling - Original Drilling - As D	12,986.2	7,042.9	5,243.7	5,162.4	64.468	CC
UPRC H23-14J - Original Drilling - Original Drilling - As D	13,000.0	7,043.8	5,243.7	5,162.3	64.378	ES
UPRC H23-14J - Original Drilling - Original Drilling - As D	14,600.0	7,156.7	5,487.8	5,395.8	59.659	SF
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,880.6	6,892.9	5,008.2	4,919.2	56.245	CC
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	13,900.0	6,893.5	5,008.2	4,919.0	56.146	ES
UPRC H23-24 - Original Drilling - Original Drilling - As Dr	15,200.0	6,925.2	5,180.7	5,083.1	53.126	SF
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,326.7	6,946.0	6,394.6	6,195.7	32.157	CC
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	13,400.0	6,946.0	6,395.0	6,195.5	32.061	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 23						
UPRR 53 Pan Am B#1 (PA) - Original Drilling - Original D	14,600.0	6,946.0	6,521.7	6,313.5	31.324	SF
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,017.4	6,928.7	3,296.8	3,187.4	30.128	CC, ES
UPRR 53 Pan Am UT V#1 - Original Drilling - Original Dr	16,400.0	6,932.0	3,319.1	3,207.3	29.699	SF
H Section 24						
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,320.4	6,868.8	2,403.8	2,310.5	25.762	CC, ES
Gurtler 24-09J - Original Drilling - Original Drilling - As Dr	14,800.0	6,868.2	2,451.0	2,353.1	25.034	SF
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,335.9	6,961.0	1,210.7	1,117.2	12.936	CC, ES
Gurtler 24-10J - Original Drilling - Original Drilling - As Dr	14,500.0	6,962.2	1,221.8	1,126.3	12.794	SF
Gurtler 24-11J - Original Drilling - Original Drilling - As Dr	14,267.2	7,010.8	246.9	153.5	2.644	CC, ES, SF
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,270.6	6,500.0	1,539.7	1,452.0	17.566	CC, ES
Gurtler 24-12J - Original Drilling - Original Drilling - As Dr	14,400.0	6,500.0	1,545.1	1,457.0	17.531	SF
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,072.1	7,340.0	1,334.9	1,242.5	14.436	CC, ES
Gurtler 24-12J - Original Drilling - ST01 - ST01 Original D	14,100.0	7,340.0	1,335.2	1,242.6	14.420	SF
Gurtler 24-13J - Original Drilling - Original Drilling - As Dr	12,706.6	7,148.1	1,382.3	1,301.0	17.003	CC, ES, SF
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	12,981.2	6,959.3	1,130.7	1,049.9	13.998	CC
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,000.0	6,959.2	1,130.8	1,049.8	13.951	ES
Gurtler 24-15J - Original Drilling - Original Drilling - As Dr	13,100.0	6,958.7	1,136.9	1,054.6	13.808	SF
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,007.5	6,929.9	2,116.9	2,035.9	26.143	CC, ES
Gurtler 24-16J - Original Drilling - Original Drilling - As Dr	13,400.0	6,930.4	2,152.8	2,067.8	25.322	SF
Gurtler H24-14 - Original Drilling - Original Drilling - As D	12,861.2	6,971.1	30.5	-49.3	0.382	Level 1, CC, ES, SF
Gurtler H24-21 (PA) - Original Drilling - Original Drilling -	14,808.7	6,971.5	500.9	402.8	5.107	CC, ES, SF
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,662.1	6,923.9	1,765.8	1,678.7	20.262	CC
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,700.0	6,923.9	1,766.2	1,678.6	20.152	ES
Gurtler H24-23 - Original Drilling - Original Drilling - As D	13,900.0	6,923.9	1,781.7	1,691.9	19.842	SF
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,651.1	6,903.6	671.0	583.6	7.681	CC, ES
Gurtler H24-24 - Original Drilling - Original Drilling - As D	13,700.0	6,902.3	672.7	584.5	7.629	SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,800.0	9,390.6	73.0	-13.5	0.844	Level 1, ES, SF
Gurtler H24-99HZ - Wellbore #1 - Original Drilling	13,831.7	9,386.4	65.9	-10.9	0.858	Level 1, CC
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,432.1	6,943.1	1,716.2	1,638.6	22.138	CC, ES
Gurtler H25-27 - Original Drilling - Original Drilling - As D	12,800.0	6,941.2	1,755.0	1,673.1	21.425	SF
Gurtler Russell L1 (PA) - Original Drilling - Original Drillin	13,382.8	6,980.8	655.8	562.6	7.034	CC, ES, SF
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,764.7	6,935.7	1,389.0	1,272.5	11.920	CC, ES
HSR Brutschy 04-24 - Original Drilling - Original Drilling -	16,800.0	6,936.8	1,389.4	1,272.8	11.909	SF
HSR Epstein 05-24 - Original Drilling - Original Drilling - A	15,958.5	7,024.5	858.5	749.0	7.846	CC, ES, SF
HSR Hoffman 03-24 - Original Drilling - Original Drilling -	16,838.3	6,973.2	81.7	-41.9	0.661	Level 1, CC, ES, SF
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	16,850.6	6,956.4	1,270.4	1,152.7	10.795	CC, ES
HSR Sarchet 02-24 - Original Drilling - Original Drilling - A	17,000.0	6,957.0	1,279.1	1,159.8	10.723	SF
HSR Sarchet 06-24 - Original Drilling - Original Drilling - A	15,480.5	6,971.5	67.2	-37.4	0.642	Level 1, CC, ES, SF
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,104.8	6,969.2	2,147.4	2,027.3	17.878	CC, ES
HSR Traurig 01-24 - Original Drilling - Original Drilling - A	17,400.0	6,970.0	2,167.6	2,044.6	17.624	SF
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,260.2	6,942.6	2,869.8	2,757.8	25.627	CC
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,300.0	6,943.5	2,870.0	2,757.6	25.522	ES
Nopens D19-31 - Original Drilling - Original Drilling - As D	16,800.0	6,955.2	2,919.8	2,802.8	24.971	SF
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,660.8	6,913.3	2,380.0	2,273.8	22.412	CC
Nopens H24-08 - Original Drilling - Original Drilling - As D	15,700.0	6,914.4	2,380.3	2,273.6	22.314	ES
Nopens H24-08 - Original Drilling - Original Drilling - As D	16,000.0	6,920.8	2,403.9	2,294.3	21.930	SF
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,324.8	6,953.0	1,545.1	1,442.1	14.995	CC, ES
Sarchet H24-22 - Original Drilling - Original Drilling - As D	15,500.0	6,965.7	1,554.9	1,449.9	14.806	SF
Weld County Lumber 01 - Original Drilling - Original Drilli	16,070.5	6,950.8	1,356.9	1,246.7	12.318	CC
Weld County Lumber 01 - Original Drilling - Original Drilli	16,100.0	6,951.2	1,357.2	1,246.6	12.275	ES
Weld County Lumber 01 - Original Drilling - Original Drilli	16,200.0	6,952.3	1,363.0	1,251.4	12.206	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As D	10,904.6	7,105.5	549.5	483.2	8.295	CC, ES
Dechant 21-25 - Original Drilling - Original Drilling - As D	11,000.0	7,104.5	557.7	487.9	7.993	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	8,304.9	7,048.1	2,903.2	2,859.1	65.836	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	9,700.0	7,026.4	3,219.1	3,164.0	58.395	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	7,384.2	7,048.1	2,784.9	2,739.4	61.256	CC, ES, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,668.6	8,841.1	15.9	-17.8	0.472	Level 1, CC, SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	8,700.0	8,840.5	35.1	-27.7	0.559	Level 1, ES
Dechant H25-65HN - Original Drilling - Original Drilling	9,549.1	8,864.3	6.7	-33.0	0.168	Level 1, CC, ES, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	11,637.3	6,979.0	358.5	289.9	5.229	CC, ES, SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - A	10,287.3	6,968.8	307.1	250.6	5.430	CC, ES, SF
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,716.4	7,465.5	1,427.5	1,335.4	15.485	CC, ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	11,800.0	7,466.6	1,430.0	1,337.2	15.411	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,199.2	6,963.2	1,314.0	1,258.3	23.564	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,200.0	6,963.3	1,314.0	1,258.3	23.563	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	10,300.0	6,964.2	1,317.9	1,261.9	23.514	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,554.3	6,923.3	2,851.8	2,801.2	56.358	CC
KY Blue D30-32 - Original Drilling - Original Drilling - As D	9,600.0	6,923.5	2,852.1	2,801.1	55.879	ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	10,600.0	6,927.9	3,036.4	2,976.6	50.812	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,046.9	6,940.0	2,013.5	1,983.7	67.522	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,900.0	6,940.0	2,186.1	2,151.0	62.181	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,039.4	6,927.0	2,328.2	2,281.2	49.637	CC, ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	9,900.0	6,927.3	2,481.4	2,427.2	45.790	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,219.8	6,953.8	891.7	843.5	18.507	CC, ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	9,400.0	6,954.2	909.7	859.4	18.086	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	9,052.9	6,954.3	283.8	206.9	3.691	CC, ES, SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,089.0	7,023.1	1,732.1	1,684.5	36.326	CC
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,100.0	7,023.3	1,732.2	1,684.5	36.296	ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	9,300.0	7,027.5	1,745.0	1,696.6	36.060	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	7,568.4	6,955.1	226.2	185.3	5.533	CC, ES, SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,732.2	6,938.2	836.6	795.5	20.389	CC, ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	7,800.0	6,938.3	839.3	798.0	20.340	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,385.0	6,950.9	441.2	398.1	10.230	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	8,400.0	6,950.7	441.4	398.1	10.191	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,743.6	6,919.3	2,499.7	2,430.4	36.079	CC
Moore UPRC H25-01 - Original Drilling - Original Drilling	11,800.0	6,919.4	2,500.3	2,430.3	35.747	ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	12,400.0	6,920.9	2,584.0	2,508.4	34.174	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,631.0	6,943.9	1,115.2	1,046.8	16.316	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	11,800.0	6,945.3	1,127.9	1,057.4	16.003	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,192.8	6,953.2	807.2	751.5	14.480	CC
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,200.0	6,953.1	807.2	751.4	14.451	ES
Moser 25-32 - Original Drilling - Original Drilling - As Drill	10,300.0	6,952.1	814.3	757.0	14.215	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drill	10,416.4	6,927.5	2,481.6	2,424.0	43.087	CC, ES
Moser 25-42 - Original Drilling - Original Drilling - As Drill	11,200.0	6,926.6	2,601.8	2,536.9	40.072	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	10,948.3	7,009.0	593.8	531.1	9.478	CC, ES, SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,776.0	6,933.0	1,790.8	1,615.6	10.216	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	10,800.0	6,933.0	1,791.0	1,615.4	10.200	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dr	11,000.0	6,933.0	1,804.7	1,626.9	10.148	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,172.1	2,151.2	746.9	734.8	61.843	CC
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,300.0	2,275.0	747.4	734.6	58.407	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	8,012.9	7,047.5	1,181.9	1,139.8	28.049	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 26						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	11,929.1	6,906.4	4,216.7	4,145.9	59.531	CC, ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	13,100.0	6,958.1	4,377.3	4,299.2	56.033	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,259.6	6,988.8	4,069.8	4,013.4	72.095	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	10,300.0	6,989.0	4,070.0	4,013.3	71.752	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	11,600.0	6,996.4	4,286.6	4,222.5	66.814	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	11,414.1	6,927.3	3,260.5	3,194.2	49.207	CC, ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	12,100.0	6,932.6	3,332.3	3,262.1	47.488	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,300.0	7,465.7	628.2	542.6	7.344	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	12,400.0	7,466.3	619.1	535.8	7.438	ES
Dechant H25-29D - Original Drilling - Original Drilling - As	12,406.7	7,466.4	619.0	536.0	7.454	CC
Dechant H25-33D - Original Drilling - Original Drilling - As	8,574.9	7,887.5	2,125.3	2,045.5	26.629	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	8,600.0	7,883.2	2,125.5	2,045.5	26.587	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	317.3	326.4	2,559.6	2,558.0	1,664.432	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	400.0	386.1	2,559.9	2,558.0	1,323.929	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	9,700.0	7,012.5	2,772.4	2,721.9	54.930	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	508.3	519.3	3,633.0	3,630.4	1,378.444	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	1,500.0	1,497.0	3,637.8	3,629.5	439.325	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dr	10,700.0	6,988.6	4,243.8	4,187.5	75.284	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,141.3	1,156.4	3,258.3	3,252.0	517.711	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	1,400.0	1,393.3	3,259.1	3,251.4	423.097	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dr	9,300.0	7,079.1	4,330.2	4,283.0	91.778	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	0.0	3.6	2,180.1			
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	1,200.0	1,187.9	2,182.9	2,176.4	334.386	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dr	8,300.0	7,019.9	3,066.4	3,024.0	72.264	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	4,002.7	4,835.0	3,227.4	3,201.3	123.665	CC, ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	9,600.0	7,145.5	3,572.0	3,519.3	67.765	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,023.6	6,649.6	6,859.1	6,788.4	97.052	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	12,100.0	6,650.9	6,859.5	6,788.2	96.208	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	14,900.0	6,715.7	7,445.2	7,355.5	82.976	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,329.8	6,994.6	5,212.7	5,155.6	91.304	CC
HSR Moser 06-26 - Original Drilling - Original Drilling - As	10,400.0	6,996.2	5,213.2	5,155.6	90.506	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	12,400.0	7,031.1	5,612.7	5,542.9	80.324	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,877.4	7,026.3	6,297.8	6,235.9	101.647	CC
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	10,900.0	7,026.3	6,297.9	6,235.7	101.366	ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	13,600.0	7,018.5	6,868.1	6,788.8	86.636	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	11,900.2	6,764.0	5,177.6	5,107.7	74.021	CC, ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	13,600.0	6,800.0	5,451.9	5,371.1	67.413	SF
John 03-26 - Original Drilling - Original Drilling - As Drille	11,652.3	6,752.7	5,321.7	5,254.1	78.702	CC
John 03-26 - Original Drilling - Original Drilling - As Drille	11,700.0	6,753.8	5,321.9	5,254.0	78.273	ES
John 03-26 - Original Drilling - Original Drilling - As Drille	13,500.0	6,800.0	5,636.5	5,556.9	70.890	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,011.3	6,943.7	2,266.9	2,204.2	36.197	CC, ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dri	11,300.0	6,941.3	2,285.3	2,221.2	35.685	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	11,800.9	7,102.7	2,634.1	2,560.6	35.831	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dri	12,200.0	7,105.7	2,664.4	2,588.4	35.061	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,475.4	7,061.6	2,734.1	2,674.5	45.836	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,500.0	7,061.0	2,734.2	2,674.4	45.734	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dri	10,900.0	7,051.9	2,767.0	2,705.3	44.849	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	9,707.8	7,011.3	3,473.5	3,416.1	60.520	CC, ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dri	10,300.0	7,001.8	3,523.9	3,464.5	59.348	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drill	2,413.0	2,417.3	6,724.7	6,711.1	496.701	CC, ES
Moser 05-26 - Original Drilling - Original Drilling - As Drill	13,700.0	7,086.2	7,670.8	7,591.8	97.183	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drill	881.4	855.3	6,732.5	6,727.9	1,445.596	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drill	900.0	866.0	6,732.5	6,727.8	1,421.426	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 26						
Moser 41-27 - Original Drilling - Original Drilling - As Drill	14,500.0	14,500.0	8,268.4	8,163.3	78.737	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dr	397.5	381.5	5,140.3	5,138.4	2,693.086	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dr	1,000.0	955.0	5,142.1	5,136.8	977.078	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dr	12,100.0	7,084.6	6,298.3	6,232.7	96.009	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	6,161.6			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,400.0	2,347.0	6,168.4	6,155.1	464.649	ES
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	12,900.0	6,925.0	7,786.7	7,716.7	111.312	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	5,905.6			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.0	1,152.5	5,910.7	5,904.3	921.856	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	12,500.0	6,800.0	8,310.8	8,247.2	130.732	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	571.7	565.8	4,398.2	4,395.3	1,493.902	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,400.0	2,377.1	4,403.5	4,390.1	329.233	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	10,700.0	6,866.3	6,156.7	6,104.2	117.257	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.0	0.0	4,597.2			
Moser H26-18D - Original Drilling - Original Drilling - As D	12,700.0	7,423.3	4,969.8	4,893.0	64.703	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	248.6	254.6	4,238.7	4,237.6	3,752.890	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,408.3	2,426.3	4,247.4	4,233.9	312.852	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	11,000.0	7,046.8	5,538.8	5,481.8	97.134	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.0	0.0	4,985.8			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.0	1,763.9	4,991.1	4,981.2	504.455	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	11,600.0	7,065.5	6,620.2	6,559.7	109.466	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	12,261.4	7,110.0	3,383.3	3,305.7	43.594	CC
Moser H26-27D - Original Drilling - Original Drilling - As D	12,300.0	7,109.7	3,383.5	3,305.6	43.414	ES
Moser H26-27D - Original Drilling - Original Drilling - As D	13,000.0	7,104.0	3,463.5	3,380.8	41.855	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.0	16.5	4,614.2			
Moser H26-28D - Original Drilling - Original Drilling - As D	14,500.0	7,555.3	5,291.3	5,185.4	49.938	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.0	20.3	4,607.3			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.0	196.0	4,607.9	4,607.1	5,855.727	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	14,900.0	14,900.0	6,152.3	5,969.1	33.577	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,400.0	2,386.0	5,591.0	5,538.0	105.553	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,500.0	2,486.0	5,592.5	5,537.4	101.368	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	9,600.0	6,972.0	6,606.1	6,441.6	40.144	SF
H Section 27						
HSR Moser 1-27 - Original Drilling - Original Drilling - As	11,931.1	6,909.6	7,945.5	7,874.5	111.979	CC
HSR Moser 1-27 - Original Drilling - Original Drilling - As	12,000.0	6,910.0	7,945.8	7,874.3	111.093	ES
HSR Moser 1-27 - Original Drilling - Original Drilling - As	15,600.0	6,917.5	8,764.2	8,668.8	91.912	SF
HSR Moser 16-27 - Original Drilling - Original Drilling - As	0.0	0.0	7,033.4			
HSR Moser 16-27 - Original Drilling - Original Drilling - As	2,427.0	2,460.5	7,037.1	7,023.4	512.292	ES
HSR Moser 16-27 - Original Drilling - Original Drilling - As	13,500.0	7,000.0	9,882.7	9,812.1	140.002	SF
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	0.0	0.0	7,312.5			
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	100.0	46.7	7,312.6	7,312.4	10,000.000	ES
Moser 09-27X (PA) - Original Drilling - Original Drilling - A	14,200.0	7,060.9	9,510.3	9,428.3	116.047	SF
Moser 24-27 - Original Drilling - Original Drilling - As Drill	826.0	800.0	7,320.8	7,316.5	1,691.228	CC, ES
Moser 24-27 - Original Drilling - Original Drilling - As Drill	14,600.0	6,868.1	9,992.3	9,904.1	113.256	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 34						
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	1,799.7	1,786.8	7,983.0	7,973.0	801.184	CC
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	2,400.0	2,359.8	7,984.8	7,971.5	599.833	ES
Moser H34-09 - Wellbore #1 - Wellbore #1 - As Drilled	6,950.0	6,942.5	8,604.4	8,563.7	211.592	SF
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	2,466.5	2,532.8	8,558.4	8,544.3	608.808	CC
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	2,500.0	2,560.1	8,558.5	8,544.2	601.811	ES
Moser H34-16 - Wellbore #1 - Wellbore #1 - As Drilled	7,000.0	6,729.0	9,176.5	9,136.4	228.916	SF
Moser H34-31 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
Cannon Farms 01-35C - Original Drilling - Original Drilling	5,751.6	5,754.5	5,111.1	5,077.1	150.360	CC
Cannon Farms 01-35C - Original Drilling - Original Drilling	6,100.0	6,096.5	5,111.6	5,075.3	141.011	ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	7,050.0	7,053.2	5,390.2	5,348.5	129.073	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	0.0	1.7	6,255.0			
Cannon H35-03D - Original Drilling - Original Drilling - As	2,200.0	2,173.2	6,256.6	6,244.4	512.304	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	6,850.0	6,607.7	6,737.1	6,697.5	170.129	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	3,565.8	3,528.7	4,107.3	4,087.3	205.819	CC
Cannon H35-09 - Original Drilling - Original Drilling - As D	3,600.0	3,548.6	4,107.3	4,087.2	204.223	ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	7,200.0	6,944.8	4,541.5	4,496.6	101.150	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	2,432.7	2,440.0	4,941.5	4,927.8	361.655	CC, ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	6,850.0	6,706.5	5,292.4	5,252.3	132.100	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	463.1	467.1	5,609.1	5,606.8	2,366.828	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	600.0	571.7	5,609.6	5,606.5	1,841.308	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	6,700.0	6,600.0	6,030.4	5,991.0	153.048	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	0.0	0.0	6,856.1			
Cannon H35-12 - Original Drilling - Original Drilling - As D	600.0	549.7	6,858.9	6,856.0	2,322.556	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	7,000.0	6,846.5	7,513.7	7,473.2	185.754	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.0	0.0	7,648.7			
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,000.0	957.3	7,653.5	7,648.2	1,450.177	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	7,050.0	7,068.8	8,197.8	8,156.4	197.994	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	0.0	0.0	6,680.1			
Cannon H35-14 - Original Drilling - Original Drilling - As D	1,900.0	1,864.0	6,686.0	6,675.5	638.764	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	7,350.0	7,016.7	7,309.4	7,261.3	151.921	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	2,400.0	2,398.0	5,898.3	5,845.1	110.853	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	4,500.0	4,453.8	5,924.6	5,825.2	59.595	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	6,950.0	6,791.4	6,194.6	6,041.8	40.524	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,100.0	2,100.0	6,063.4	6,051.6	513.006	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	2,200.0	2,164.5	6,063.7	6,051.4	494.390	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	6,900.0	6,700.0	6,659.0	6,619.2	167.264	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	945.0	949.1	4,961.3	4,956.2	967.198	CC
Cannon H35-21 - Original Drilling - Original Drilling - As D	1,200.0	1,180.9	4,961.9	4,955.4	761.800	ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	6,900.0	6,827.7	5,442.5	5,402.1	134.718	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	107.0	0.0	4,120.7	4,120.6	10,000.000	CC
Cannon H35-22 - Original Drilling - Original Drilling - As D	200.0	70.4	4,120.9	4,120.5	9,631.937	ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	7,050.0	7,050.0	4,704.3	4,662.7	113.036	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	1,905.4	1,907.8	5,873.1	5,862.4	552.214	CC
Cannon H35-24 - Original Drilling - Original Drilling - As D	2,200.0	2,166.5	5,873.8	5,861.6	481.467	ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	6,850.0	6,570.0	6,247.7	6,208.1	157.794	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	5,671.0	5,644.2	6,072.2	6,038.8	181.875	CC
Cannon X02-27 - Original Drilling - Original Drilling - As D	5,700.0	5,657.2	6,072.3	6,038.7	181.154	ES
Cannon X02-27 - Original Drilling - Original Drilling - As D	6,850.0	6,735.2	6,241.2	6,200.9	154.609	SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	2,590.9	2,641.3	6,637.5	6,622.8	451.609	CC
Cannon X02-28 - Original Drilling - Original Drilling - As D	5,300.0	5,500.0	6,651.8	6,620.0	209.714	ES
Cannon X02-28 - Original Drilling - Original Drilling - As D	6,800.0	6,646.6	6,816.0	6,776.1	170.824	SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	2,530.7	2,615.8	7,456.7	7,441.9	504.271	CC, ES
Cannon X02-29 - Original Drilling - Original Drilling - As D	7,150.0	7,150.0	8,076.0	8,033.7	191.028	SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	662.4	652.4	5,503.4	5,500.0	1,596.343	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.0	1,154.0	5,505.8	5,499.4	859.339	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,000.0	6,867.2	8,046.4	7,994.7	155.736	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,400.0	2,410.0	3,347.2	3,293.8	62.717	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,500.0	2,510.0	3,348.4	3,292.8	60.258	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	7,200.0	6,943.3	4,200.7	4,045.7	27.089	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling -	0.0	0.0	4,029.3			

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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
Foster UPRR 32-35 - Original Drilling - Original Drilling -	2,411.6	2,425.0	4,036.5	4,022.9	297.453	ES
Foster UPRR 32-35 - Original Drilling - Original Drilling -	6,850.0	6,763.3	4,570.8	4,530.9	114.371	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling -	595.2	591.2	2,210.5	2,207.4	715.600	CC
Foster UPRR 41-35 - Original Drilling - Original Drilling -	2,100.0	2,086.2	2,211.8	2,200.1	189.207	ES
Foster UPRR 41-35 - Original Drilling - Original Drilling -	7,300.0	6,962.0	2,997.3	2,947.8	60.532	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	0.0	0.0	2,953.8			
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	2,500.0	2,496.9	2,965.5	2,951.4	211.499	ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	6,800.0	6,777.6	3,283.2	3,243.1	81.714	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - A	0.0	0.0	4,638.0			
HSR Foster 03-35 - Original Drilling - Original Drilling - A	1,900.0	1,867.0	4,648.3	4,637.8	443.707	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - A	7,350.0	7,076.5	5,495.9	5,454.8	133.556	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	162.6	142.7	6,144.1	6,143.6	10,000.000	CC
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.0	1,150.3	6,146.5	6,140.1	960.990	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	12,300.0	6,733.5	9,047.7	8,988.0	151.591	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	347.7	336.7	6,306.7	6,305.1	3,850.510	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	2,000.0	1,946.1	6,312.2	6,301.2	574.759	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	11,700.0	6,642.3	9,550.3	9,497.6	181.275	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - A	523.1	525.1	5,074.3	5,071.6	1,884.352	CC
HSR Foster 06-35 - Original Drilling - Original Drilling - A	700.0	683.9	5,074.6	5,070.9	1,393.229	ES
HSR Foster 06-35 - Original Drilling - Original Drilling - A	7,000.0	6,810.8	5,773.6	5,733.5	143.881	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	280.5	278.5	3,019.6	3,018.3	2,346.712	CC
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	2,500.0	2,530.8	3,023.7	3,009.5	214.197	ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	6,750.0	6,624.9	3,494.6	3,455.3	88.943	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.0	0.0	5,101.6			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.0	1,663.4	5,103.1	5,093.8	548.241	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	7,050.0	6,700.0	5,908.7	5,869.2	149.528	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region Drilling - Sandbox	Local Co-ordinate Reference:	Well Emmy State H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,557.3	6,395.5	2,240.1	2,202.6	59.672	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,750.0	6,572.2	2,268.5	2,229.9	58.709	SF
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,409.2	6,125.0	5,123.7	5,083.2	126.471	CC, ES
Dechant 13N-1HZ - Original Drilling - Original Drilling - A	6,600.0	6,298.3	5,152.2	5,110.5	123.432	SF
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,483.0	6,407.3	4,894.8	4,854.7	121.955	CC, ES
Dechant 14C-1HZ - Original Drilling - Original Drilling - A	6,700.0	6,450.0	4,936.7	4,895.8	120.849	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,520.1	6,375.0	4,583.1	4,541.5	110.057	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,550.0	6,403.7	4,583.9	4,541.4	107.912	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,250.0	6,905.5	4,963.8	4,906.9	87.167	SF
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	6,956.9	6,671.4	1,041.1	1,001.6	26.339	CC, ES
Dechant 15C-1HZ - Original Drilling - Original Drilling - A	7,000.0	6,684.7	1,042.3	1,002.7	26.324	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,608.0	6,613.5	2,884.8	2,843.9	70.566	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,900.0	6,856.4	2,944.9	2,902.2	68.984	SF
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,453.5	6,200.0	4,909.2	4,871.0	128.726	CC, ES
Dechant 35N-E1HZ - Original Drilling - Original Drilling -	6,700.0	6,226.8	4,962.6	4,923.8	127.854	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,442.0	6,250.0	4,992.8	4,954.4	129.857	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,700.0	6,300.0	5,050.4	5,011.1	128.660	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,475.8	6,300.0	4,889.2	4,848.0	118.786	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,650.0	6,350.0	4,916.2	4,874.4	117.576	SF
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,487.4	6,001.8	5,245.6	5,200.9	117.338	CC, ES
Dechant 37N-E1HZ - Original Drilling - Original Drilling -	6,900.0	6,370.4	5,369.6	5,321.8	112.420	SF
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,508.7	6,230.9	5,071.4	5,030.8	125.029	CC, ES
Dechant 37N-W1HZ - Original Drilling - Original Drilling -	6,750.0	6,350.0	5,117.9	5,076.2	122.788	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,133.5	6,884.4	2,209.3	2,169.1	54.913	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,150.0	6,883.7	2,209.5	2,169.2	54.896	SF
Dechant State 36N-E1HZ - Original Drilling - Original Drilling	6,861.7	6,612.6	801.1	762.1	20.533	CC, ES, SF
Dechant State 37N-E36HZ - Original Drilling - Original Drilling	7,053.5	6,780.1	2,002.6	1,962.6	50.115	CC, ES, SF
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	7,013.6	6,638.4	1,366.1	1,326.3	34.320	CC, ES
Dechant State 37N-W36HZ - Original Drilling - Original Drilling	7,050.0	6,644.4	1,366.7	1,326.9	34.298	SF
Dechant State 38N-1HZ - Original Drilling - Original Drilling	7,036.4	6,600.0	2,700.1	2,660.8	68.638	CC, ES
Dechant State 38N-1HZ - Original Drilling - Original Drilling	7,150.0	6,600.0	2,705.1	2,665.6	68.536	SF
Dechant State H36-11D - Original Drilling - Original Drilling	6,478.1	6,358.0	3,231.9	3,194.0	85.317	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	6,750.0	6,604.4	3,291.8	3,252.4	83.513	SF
Dechant State H36-18D - Original Drilling - Original Drilling	6,534.0	6,604.8	1,211.9	1,165.8	26.239	CC, ES
Dechant State H36-18D - Original Drilling - Original Drilling	6,650.0	6,707.8	1,223.1	1,176.2	26.036	SF
Dechant State H36-19 - Original Drilling - Original Drilling	5,323.2	5,249.9	1,223.3	1,192.4	39.535	CC
Dechant State H36-19 - Original Drilling - Original Drilling	5,400.0	5,321.0	1,223.6	1,192.1	38.941	ES
Dechant State H36-19 - Original Drilling - Original Drilling	6,450.0	6,304.1	1,278.5	1,240.6	33.686	SF
Dechant State H36-20D - Original Drilling - Original Drilling	6,433.4	6,423.9	2,721.9	2,681.2	66.898	CC, ES
Dechant State H36-20D - Original Drilling - Original Drilling	6,650.0	6,615.2	2,759.2	2,717.5	66.220	SF
Dechant State H36-21D - Original Drilling - Original Drilling	6,511.2	6,469.0	2,610.4	2,570.3	65.169	CC, ES
Dechant State H36-21D - Original Drilling - Original Drilling	6,700.0	6,627.4	2,640.2	2,599.3	64.525	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,519.0	6,635.0	3,827.5	3,781.0	82.468	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,750.0	6,807.3	3,872.2	3,824.7	81.461	SF
Dechant State H36-31D - Original Drilling - Original Drilling	1,086.3	1,072.0	1,384.7	1,380.0	294.343	CC
Dechant State H36-31D - Original Drilling - Original Drilling	1,100.0	1,079.7	1,384.7	1,380.0	290.818	ES
Dechant State H36-31D - Original Drilling - Original Drilling	6,600.0	6,659.9	2,389.6	2,350.0	60.399	SF
Dechant State H36-32D - Original Drilling - Original Drilling	4,950.3	4,966.2	3,134.1	3,103.0	100.846	CC
Dechant State H36-32D - Original Drilling - Original Drilling	5,000.0	5,002.4	3,134.2	3,102.9	100.004	ES
Dechant State H36-32D - Original Drilling - Original Drilling	6,650.0	6,601.9	3,221.6	3,180.5	78.386	SF
Dechant State H36-33 - Original Drilling - Original Drilling	4,195.9	3,997.4	4,129.7	4,099.9	138.425	CC
Dechant State H36-33 - Original Drilling - Original Drilling	4,300.0	4,300.0	4,129.9	4,097.7	128.460	ES
Dechant State H36-33 - Original Drilling - Original Drilling	6,650.0	6,725.2	4,198.8	4,150.8	87.463	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 H25-757
Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

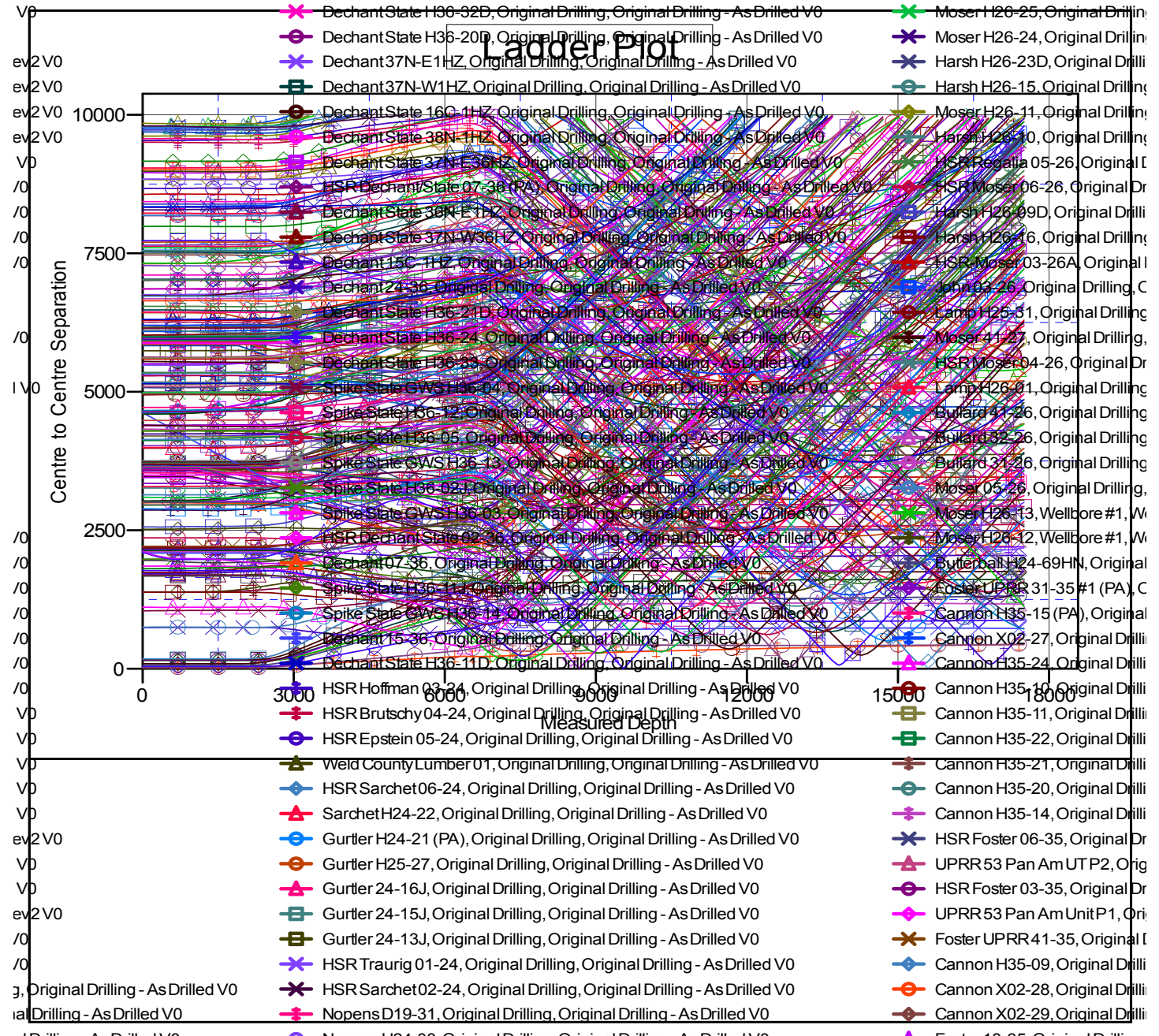
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,814.6	6,638.5	903.8	865.3	23.461	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	6,900.0	6,702.7	908.2	869.3	23.368	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,649.2	6,505.2	2,090.1	1,944.8	14.382	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,650.0	6,506.0	2,090.1	1,944.8	14.380	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,850.0	6,680.7	2,116.2	1,967.0	14.177	SF
Spike State GWS H36-03 - Original Drilling - Original Dri	6,469.7	6,319.9	389.7	352.1	10.360	CC, ES
Spike State GWS H36-03 - Original Drilling - Original Dri	6,500.0	6,347.8	390.6	352.7	10.325	SF
Spike State GWS H36-04 - Original Drilling - Original Dri	100.0	65.1	1,046.8	1,046.6	5,359.117	CC
Spike State GWS H36-04 - Original Drilling - Original Dri	2,500.0	2,478.7	1,051.3	1,037.4	75.437	ES
Spike State GWS H36-04 - Original Drilling - Original Dri	6,850.0	6,662.7	1,631.9	1,586.7	36.144	SF
Spike State GWS H36-13 - Original Drilling - Original Dri	6,560.2	7,444.0	4,742.2	4,700.2	112.751	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	6,750.0	7,444.0	4,772.8	4,730.1	111.888	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,519.7	6,640.1	4,603.3	4,564.5	118.486	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	6,850.0	6,953.9	4,689.2	4,648.5	115.236	SF
Spike State H36-02J - Original Drilling - Original Drilling -	6,417.3	6,271.3	1,578.8	1,527.6	30.826	CC
Spike State H36-02J - Original Drilling - Original Drilling -	6,450.0	6,302.7	1,579.7	1,527.4	30.199	ES
Spike State H36-02J - Original Drilling - Original Drilling -	6,900.0	6,705.9	1,748.3	1,682.3	26.478	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	5,304.2	5,257.2	2,228.3	2,197.4	72.049	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - A	6,600.0	6,446.6	2,303.6	2,264.8	59.255	SF
Spike State H36-11J - Original Drilling - Original Drilling -	6,468.4	6,453.3	3,918.9	3,880.5	102.202	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling -	6,800.0	6,738.4	4,005.4	3,965.2	99.855	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	6,391.1	6,293.2	3,374.1	3,336.3	89.267	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	6,400.0	6,305.0	3,374.1	3,336.3	89.102	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	6,700.0	6,578.6	3,440.0	3,400.4	86.958	SF

Noble Energy, Inc.
Anticollision Summary Report

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Project:	Conceptual Wells	TVD Reference:	WELL @ 4846.0ft (Original Well Elev)
Reference Site:	DP 408	MD Reference:	WELL @ 4846.0ft (Original Well Elev)
Site Error:	0.0 ft	North Reference:	Grid
Reference Well:	Emmy State H25-757	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Design #1	Offset TVD Reference:	Offset Datum

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

Coordinates are relative to: Emmy State H25-757
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.57°



Noble Energy, Inc.
Anticollision Summary Report

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Coordinate System is US State Plane 1983, Colorado Northern Zone
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