

Project: Mustang  
Site: H Section 25  
Well: Emmy State H36-766  
Wellbore: Wellbore #1  
Design: Plan #2

# Northern Region - DJ Basin

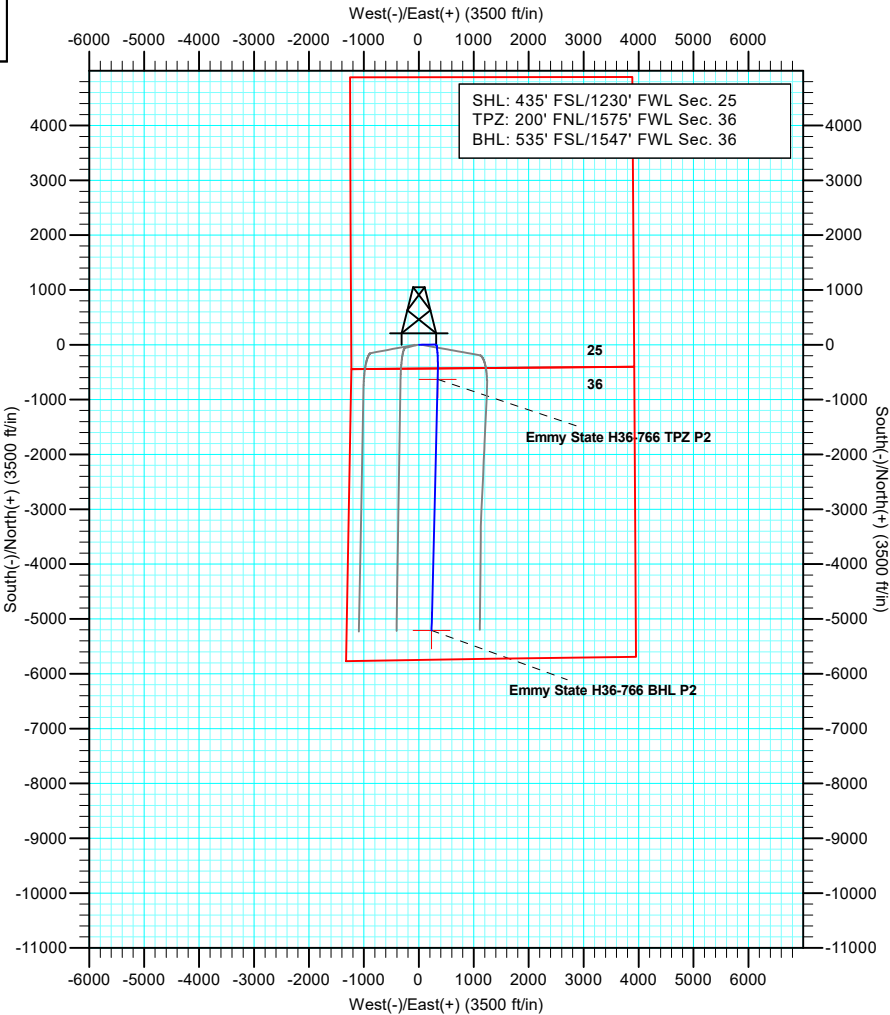
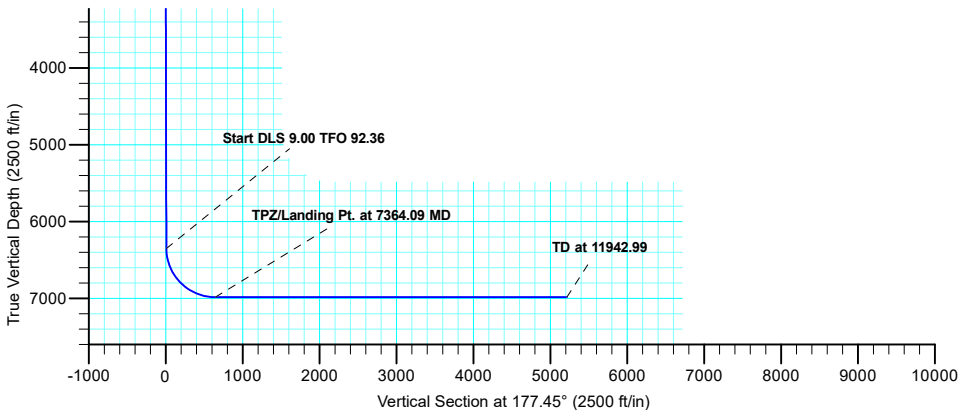
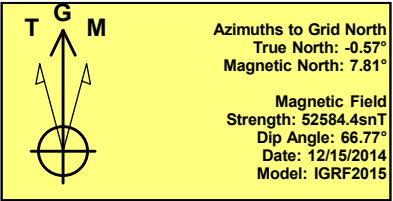
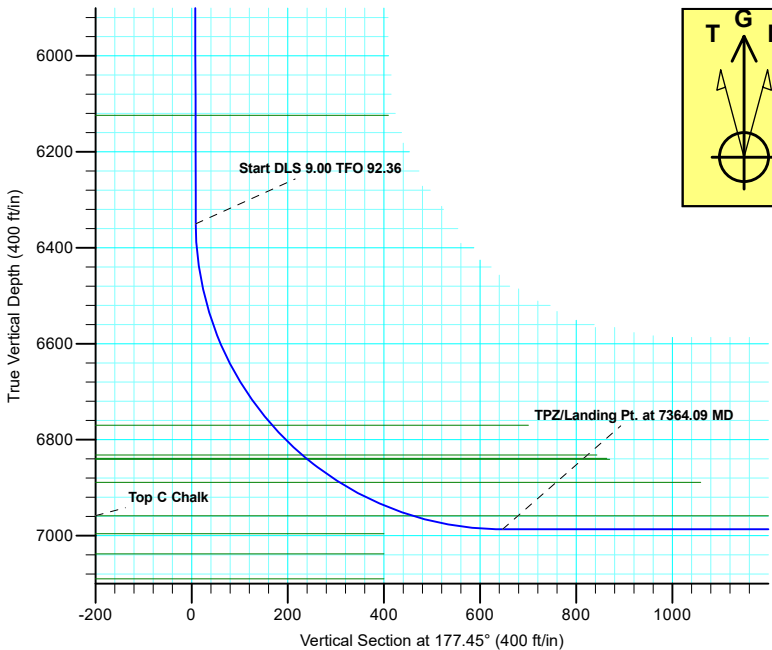
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00
3	2420.00	4.40	89.04	2419.79	0.14	8.44	2.00	89.04	0.23
4	6362.07	4.40	89.04	6350.24	5.23	310.84	0.00	0.00	8.58
5	7364.09	90.00	181.41	6987.00	-632.39	344.15	9.00	92.36	647.06
6	11942.99	90.00	181.41	6987.00	-5209.91	231.75	0.00	0.00	5215.07

WELL DETAILS: Emmy State H36-766

+N/-S	+E/-W	Ground Level: Northing	Ground Level: Easting	Ground Level: Latitude	Ground Level: Longitude	Slot
0.00	0.00	1313321.07	3246729.51	40.1900899	-104.6168300	



Plan: Plan #2 (Emmy State H36-766/Wellbore #1)

Created By: Shelly C. Peterkin Date: 13:39, May 29 2019

# **Northern Region - DJ Basin**

**Mustang**

**H Section 25**

**Emmy State H36-766**

**Wellbore #1**

**Plan: Plan #2**

## **Standard Planning Report**

**29 May, 2019**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Project:</b>	Mustang	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site:</b>	H Section 25	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

<b>Project</b>	Mustang, Weld County Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		H Section 25			
Site Position:		Northing:	1,313,437.52 usft	Latitude:	40.1904331
From:	Map	Easting:	3,245,869.57 usft	Longitude:	-104.6199038
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.57 °

Well	Emmy State H36-766					
Well Position	+N/-S	-116.46 ft	Northing:	1,313,321.07 usft	Latitude:	40.1900899
	+E/-W	859.94 ft	Easting:	3,246,729.51 usft	Longitude:	-104.6168300
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,817.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	12/15/2014	8.38	66.77	52,584.40495403

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	177.45

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,420.00	4.40	89.04	2,419.79	0.14	8.44	2.00	2.00	0.00	89.04	
6,362.07	4.40	89.04	6,350.24	5.23	310.84	0.00	0.00	0.00	0.00	
7,364.09	90.00	181.41	6,987.00	-632.39	344.15	9.00	8.54	9.22	92.36	Emmy State H36-766
11,942.99	90.00	181.41	6,987.00	-5,209.91	231.75	0.00	0.00	0.00	0.00	Emmy State H36-766

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Project:</b>	Mustang	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site:</b>	H Section 25	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
573.00	0.00	0.00	573.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
725.00	0.00	0.00	725.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,613.00	0.00	0.00	1,613.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
2,300.00	2.00	89.04	2,299.98	0.03	1.74	0.05	2.00	2.00	0.00
2,400.00	4.00	89.04	2,399.84	0.12	6.98	0.19	2.00	2.00	0.00
2,420.00	4.40	89.04	2,419.79	0.14	8.44	0.23	2.00	2.00	0.00
Start 3942.07 hold at 2420.00 MD									
2,500.00	4.40	89.04	2,499.55	0.25	14.58	0.40	0.00	0.00	0.00
2,600.00	4.40	89.04	2,599.25	0.37	22.25	0.61	0.00	0.00	0.00
2,700.00	4.40	89.04	2,698.96	0.50	29.92	0.83	0.00	0.00	0.00
2,800.00	4.40	89.04	2,798.66	0.63	37.59	1.04	0.00	0.00	0.00
2,900.00	4.40	89.04	2,898.37	0.76	45.26	1.25	0.00	0.00	0.00
3,000.00	4.40	89.04	2,998.07	0.89	52.93	1.46	0.00	0.00	0.00
3,100.00	4.40	89.04	3,097.78	1.02	60.60	1.67	0.00	0.00	0.00
3,200.00	4.40	89.04	3,197.48	1.15	68.28	1.89	0.00	0.00	0.00
3,300.00	4.40	89.04	3,297.19	1.28	75.95	2.10	0.00	0.00	0.00
3,400.00	4.40	89.04	3,396.90	1.41	83.62	2.31	0.00	0.00	0.00
3,500.00	4.40	89.04	3,496.60	1.54	91.29	2.52	0.00	0.00	0.00
3,600.00	4.40	89.04	3,596.31	1.67	98.96	2.73	0.00	0.00	0.00
3,700.00	4.40	89.04	3,696.01	1.79	106.63	2.94	0.00	0.00	0.00
3,800.00	4.40	89.04	3,795.72	1.92	114.30	3.16	0.00	0.00	0.00
3,884.53	4.40	89.04	3,880.00	2.03	120.79	3.34	0.00	0.00	0.00
Parkman									
3,900.00	4.40	89.04	3,895.42	2.05	121.97	3.37	0.00	0.00	0.00
4,000.00	4.40	89.04	3,995.13	2.18	129.64	3.58	0.00	0.00	0.00
4,100.00	4.40	89.04	4,094.83	2.31	137.31	3.79	0.00	0.00	0.00

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## Planning Report

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<b>Site:</b>	H Section 25	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,200.00	4.40	89.04	4,194.54	2.44	144.98	4.00	0.00	0.00	0.00
4,300.00	4.40	89.04	4,294.24	2.57	152.66	4.22	0.00	0.00	0.00
4,400.00	4.40	89.04	4,393.95	2.70	160.33	4.43	0.00	0.00	0.00
4,477.28	4.40	89.04	4,471.00	2.80	166.25	4.59	0.00	0.00	0.00
<b>Sussex</b>									
4,500.00	4.40	89.04	4,493.65	2.83	168.00	4.64	0.00	0.00	0.00
4,600.00	4.40	89.04	4,593.36	2.96	175.67	4.85	0.00	0.00	0.00
4,700.00	4.40	89.04	4,693.06	3.09	183.34	5.06	0.00	0.00	0.00
4,800.00	4.40	89.04	4,792.77	3.22	191.01	5.27	0.00	0.00	0.00
4,900.00	4.40	89.04	4,892.47	3.34	198.68	5.49	0.00	0.00	0.00
5,000.00	4.40	89.04	4,992.18	3.47	206.35	5.70	0.00	0.00	0.00
5,100.00	4.40	89.04	5,091.89	3.60	214.02	5.91	0.00	0.00	0.00
5,161.30	4.40	89.04	5,153.00	3.68	218.72	6.04	0.00	0.00	0.00
<b>Shannon</b>									
5,200.00	4.40	89.04	5,191.59	3.73	221.69	6.12	0.00	0.00	0.00
5,300.00	4.40	89.04	5,291.30	3.86	229.36	6.33	0.00	0.00	0.00
5,400.00	4.40	89.04	5,391.00	3.99	237.04	6.55	0.00	0.00	0.00
5,500.00	4.40	89.04	5,490.71	4.12	244.71	6.76	0.00	0.00	0.00
5,600.00	4.40	89.04	5,590.41	4.25	252.38	6.97	0.00	0.00	0.00
5,700.00	4.40	89.04	5,690.12	4.38	260.05	7.18	0.00	0.00	0.00
5,800.00	4.40	89.04	5,789.82	4.51	267.72	7.39	0.00	0.00	0.00
5,900.00	4.40	89.04	5,889.53	4.64	275.39	7.60	0.00	0.00	0.00
6,000.00	4.40	89.04	5,989.23	4.76	283.06	7.82	0.00	0.00	0.00
6,100.00	4.40	89.04	6,088.94	4.89	290.73	8.03	0.00	0.00	0.00
6,135.17	4.40	89.04	6,124.00	4.94	293.43	8.10	0.00	0.00	0.00
<b>Teepee Buttes</b>									
6,200.00	4.40	89.04	6,188.64	5.02	298.40	8.24	0.00	0.00	0.00
6,300.00	4.40	89.04	6,288.35	5.15	306.07	8.45	0.00	0.00	0.00
6,362.07	4.40	89.04	6,350.24	5.23	310.84	8.58	0.00	0.00	0.00
<b>Start DLS 9.00 TFO 92.36</b>									
6,400.00	5.45	127.78	6,388.03	4.15	313.72	9.79	9.00	2.78	102.16
6,450.00	8.89	151.96	6,437.65	-0.71	317.41	14.82	9.00	6.87	48.35
6,500.00	12.99	161.93	6,486.73	-9.47	320.97	23.72	9.00	8.20	19.95
6,550.00	17.28	167.10	6,534.99	-22.06	324.37	36.45	9.00	8.59	10.34
6,600.00	21.66	170.25	6,582.12	-38.40	327.60	52.92	9.00	8.76	6.29
6,650.00	26.08	172.37	6,627.83	-58.40	330.62	73.03	9.00	8.84	4.25
6,700.00	30.52	173.91	6,671.85	-81.93	333.43	96.66	9.00	8.88	3.09
6,750.00	34.97	175.10	6,713.89	-108.84	336.00	123.66	9.00	8.91	2.37
6,800.00	39.44	176.04	6,753.70	-138.98	338.32	153.87	9.00	8.93	1.89
6,821.40	41.35	176.39	6,770.00	-152.82	339.24	167.74	9.00	8.94	1.64
<b>Sharon Springs</b>									
6,850.00	43.91	176.83	6,791.04	-172.15	340.38	187.10	9.00	8.94	1.51
6,900.00	48.38	177.49	6,825.67	-208.15	342.16	223.15	9.00	8.95	1.33
6,909.61	49.24	177.61	6,832.00	-215.37	342.47	230.38	9.00	8.95	1.22
<b>Top A Chalk</b>									
6,920.43	50.21	177.74	6,839.00	-223.63	342.80	238.64	9.00	8.95	1.19
<b>Top A Marl</b>									
6,923.57	50.49	177.77	6,841.00	-226.04	342.90	241.05	9.00	8.96	1.16
<b>Top B Chalk</b>									
6,950.00	52.86	178.07	6,857.39	-246.76	343.65	261.78	9.00	8.96	1.12
7,000.00	57.34	178.58	6,885.99	-287.74	344.84	302.78	9.00	8.96	1.03
7,005.62	57.84	178.64	6,889.00	-292.48	344.96	307.52	9.00	8.96	0.97
<b>Top B Marl</b>									

# Noble Energy, Inc.

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<b>Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,050.00	61.82	179.05	6,911.30	-330.84	345.73	345.87	9.00	8.96	0.92
7,100.00	66.31	179.47	6,933.16	-375.79	346.31	390.80	9.00	8.97	0.85
7,150.00	70.79	179.87	6,951.44	-422.31	346.57	437.29	9.00	8.97	0.80
7,174.30	72.97	180.06	6,959.00	-445.40	346.59	460.36	9.00	8.97	0.76
Top C Chalk									
7,200.00	75.28	180.25	6,966.03	-470.12	346.52	485.05	9.00	8.97	0.75
7,250.00	79.76	180.61	6,976.83	-518.92	346.15	533.79	9.00	8.97	0.72
7,300.00	84.25	180.96	6,983.79	-568.42	345.47	583.21	9.00	8.97	0.70
7,350.00	88.74	181.31	6,986.84	-618.30	344.48	633.00	9.00	8.97	0.69
7,364.09	90.00	181.41	6,987.00	-632.39	344.15	647.06	9.00	8.97	0.69
TPZ/Landing Pt. at 7364.09 MD									
7,400.00	90.00	181.41	6,987.00	-668.29	343.27	682.88	0.00	0.00	0.00
7,500.00	90.00	181.41	6,987.00	-768.26	340.81	782.64	0.00	0.00	0.00
7,600.00	90.00	181.41	6,987.00	-868.23	338.36	882.40	0.00	0.00	0.00
7,700.00	90.00	181.41	6,987.00	-968.20	335.90	982.17	0.00	0.00	0.00
7,800.00	90.00	181.41	6,987.00	-1,068.17	333.45	1,081.93	0.00	0.00	0.00
7,900.00	90.00	181.41	6,987.00	-1,168.14	330.99	1,181.69	0.00	0.00	0.00
8,000.00	90.00	181.41	6,987.00	-1,268.11	328.54	1,281.45	0.00	0.00	0.00
8,100.00	90.00	181.41	6,987.00	-1,368.08	326.08	1,381.22	0.00	0.00	0.00
8,200.00	90.00	181.41	6,987.00	-1,468.05	323.63	1,480.98	0.00	0.00	0.00
8,300.00	90.00	181.41	6,987.00	-1,568.02	321.17	1,580.74	0.00	0.00	0.00
8,400.00	90.00	181.41	6,987.00	-1,667.99	318.72	1,680.50	0.00	0.00	0.00
8,500.00	90.00	181.41	6,987.00	-1,767.96	316.26	1,780.26	0.00	0.00	0.00
8,600.00	90.00	181.41	6,987.00	-1,867.93	313.81	1,880.03	0.00	0.00	0.00
8,700.00	90.00	181.41	6,987.00	-1,967.90	311.35	1,979.79	0.00	0.00	0.00
8,800.00	90.00	181.41	6,987.00	-2,067.87	308.90	2,079.55	0.00	0.00	0.00
8,900.00	90.00	181.41	6,987.00	-2,167.84	306.45	2,179.31	0.00	0.00	0.00
9,000.00	90.00	181.41	6,987.00	-2,267.81	303.99	2,279.07	0.00	0.00	0.00
9,100.00	90.00	181.41	6,987.00	-2,367.78	301.54	2,378.84	0.00	0.00	0.00
9,200.00	90.00	181.41	6,987.00	-2,467.75	299.08	2,478.60	0.00	0.00	0.00
9,300.00	90.00	181.41	6,987.00	-2,567.72	296.63	2,578.36	0.00	0.00	0.00
9,400.00	90.00	181.41	6,987.00	-2,667.69	294.17	2,678.12	0.00	0.00	0.00
9,500.00	90.00	181.41	6,987.00	-2,767.66	291.72	2,777.88	0.00	0.00	0.00
9,600.00	90.00	181.41	6,987.00	-2,867.63	289.26	2,877.65	0.00	0.00	0.00
9,700.00	90.00	181.41	6,987.00	-2,967.60	286.81	2,977.41	0.00	0.00	0.00
9,800.00	90.00	181.41	6,987.00	-3,067.57	284.35	3,077.17	0.00	0.00	0.00
9,900.00	90.00	181.41	6,987.00	-3,167.54	281.90	3,176.93	0.00	0.00	0.00
10,000.00	90.00	181.41	6,987.00	-3,267.51	279.44	3,276.69	0.00	0.00	0.00
10,100.00	90.00	181.41	6,987.00	-3,367.48	276.99	3,376.46	0.00	0.00	0.00
10,200.00	90.00	181.41	6,987.00	-3,467.45	274.53	3,476.22	0.00	0.00	0.00
10,300.00	90.00	181.41	6,987.00	-3,567.42	272.08	3,575.98	0.00	0.00	0.00
10,400.00	90.00	181.41	6,987.00	-3,667.39	269.62	3,675.74	0.00	0.00	0.00
10,500.00	90.00	181.41	6,987.00	-3,767.35	267.17	3,775.51	0.00	0.00	0.00
10,600.00	90.00	181.41	6,987.00	-3,867.32	264.71	3,875.27	0.00	0.00	0.00
10,700.00	90.00	181.41	6,987.00	-3,967.29	262.26	3,975.03	0.00	0.00	0.00
10,800.00	90.00	181.41	6,987.00	-4,067.26	259.81	4,074.79	0.00	0.00	0.00
10,900.00	90.00	181.41	6,987.00	-4,167.23	257.35	4,174.55	0.00	0.00	0.00
11,000.00	90.00	181.41	6,987.00	-4,267.20	254.90	4,274.32	0.00	0.00	0.00
11,100.00	90.00	181.41	6,987.00	-4,367.17	252.44	4,374.08	0.00	0.00	0.00
11,200.00	90.00	181.41	6,987.00	-4,467.14	249.99	4,473.84	0.00	0.00	0.00
11,300.00	90.00	181.41	6,987.00	-4,567.11	247.53	4,573.60	0.00	0.00	0.00
11,400.00	90.00	181.41	6,987.00	-4,667.08	245.08	4,673.36	0.00	0.00	0.00
11,500.00	90.00	181.41	6,987.00	-4,767.05	242.62	4,773.13	0.00	0.00	0.00
11,600.00	90.00	181.41	6,987.00	-4,867.02	240.17	4,872.89	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Project:</b>	Mustang	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site:</b>	H Section 25	<b>North Reference:</b>	Grid
<b>Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,700.00	90.00	181.41	6,987.00	-4,966.99	237.71	4,972.65	0.00	0.00	0.00
11,800.00	90.00	181.41	6,987.00	-5,066.96	235.26	5,072.41	0.00	0.00	0.00
11,900.00	90.00	181.41	6,987.00	-5,166.93	232.80	5,172.17	0.00	0.00	0.00
11,942.99	90.00	181.41	6,987.00	-5,209.91	231.75	5,215.07	0.00	0.00	0.00
TD at 11942.99									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Emmy State H36-766 Bl - plan hits target center - Point	0.00	0.00	6,987.00	-5,209.91	231.75	1,308,111.16	3,246,961.26	40.1757825	-104.6161864
Emmy State H36-766 TF - plan hits target center - Point	0.00	0.00	6,987.00	-632.39	344.15	1,312,688.67	3,247,073.66	40.1883446	-104.6156208

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
573.00	573.00	Pierre				
725.00	725.00	Upper Pierre Aquifer Top				
1,613.00	1,613.00	Upper Pierre Aquifer Base				
3,884.53	3,880.00	Parkman				
4,477.28	4,471.00	Sussex				
5,161.30	5,153.00	Shannon				
6,135.17	6,124.00	Teepee Buttes				
6,821.40	6,770.00	Sharon Springs				
6,909.61	6,832.00	Top A Chalk				
6,920.43	6,839.00	Top A Marl				
6,923.57	6,841.00	Top B Chalk				
7,005.62	6,889.00	Top B Marl				
7,174.30	6,959.00	Top C Chalk				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,200.00	2,200.00	0.00	0.00	Start Build 2.00
2,420.00	2,419.79	0.14	8.44	Start 3942.07 hold at 2420.00 MD
6,362.07	6,350.24	5.23	310.84	Start DLS 9.00 TFO 92.36
7,364.09	6,987.00	-632.39	344.15	TPZ/Landing Pt. at 7364.09 MD
11,942.99	6,987.00	-5,209.91	231.75	TD at 11942.99

# **Northern Region - DJ Basin**

**Mustang**

**H Section 25**

**Emmy State H36-766**

**Wellbore #1**

**Plan #2**

## **Anticollision Summary Report**

**29 May, 2019**



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00 ft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	5/29/2019		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	11,942.99	Plan #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 31						
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	11,307.60	6,706.93	4,731.65	4,661.50	67.453	CC
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	11,400.00	6,705.80	4,732.55	4,661.50	66.608	ES
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,700.00	4,774.19	4,698.16	62.792	SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	9,488.48	7,014.85	7,285.02	7,226.20	123.846	CC
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	9,600.00	7,015.25	7,285.88	7,225.96	121.611	ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	11,943.61	7,023.04	7,687.59	7,606.22	94.475	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	8,299.41	7,190.77	5,951.85	5,891.15	98.059	CC
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	8,400.00	7,193.51	5,952.70	5,891.09	96.614	ES
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	11,400.00	7,330.66	6,709.88	6,623.44	77.625	SF
Dechant D31-21D (PR) - Wellbore #1 - As Drilled	9,447.72	6,985.12	6,252.38	6,195.50	109.914	CC
Dechant D31-21D (PR) - Wellbore #1 - As Drilled	9,500.00	6,986.02	6,252.60	6,195.22	108.971	ES
Dechant D31-21D (PR) - Wellbore #1 - As Drilled	11,943.61	7,027.16	6,732.02	6,653.68	85.929	SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	10,808.37	7,213.05	6,228.75	6,159.60	90.076	CC
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	10,900.00	7,217.91	6,229.42	6,159.33	88.872	ES
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	11,943.61	7,273.19	6,331.08	6,250.82	78.885	SF
Dechant D31-31D (SI) - Dechant D31-31D Gyros - As-Dr	8,484.01	7,000.00	3,679.48	3,619.48	61.323	CC
Dechant D31-31D (SI) - Dechant D31-31D Gyros - As-Dr	8,500.00	7,000.00	3,679.51	3,619.35	61.159	ES
Dechant D31-31D (SI) - Dechant D31-31D Gyros - As-Dr	9,900.00	7,000.00	3,942.54	3,870.17	54.477	SF
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	8,484.00	7,087.63	3,678.86	3,618.79	61.237	CC
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	8,500.00	7,087.71	3,678.90	3,618.66	61.073	ES
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	9,900.00	7,095.03	3,941.96	3,869.53	54.423	SF
Dechant State D31-32 (SI) - Wellbore #1 - As-Drilled	9,469.35	6,971.70	4,027.93	3,973.13	73.508	CC
Dechant State D31-32 (SI) - Wellbore #1 - As-Drilled	9,500.00	6,972.18	4,028.04	3,972.97	73.135	ES
Dechant State D31-32 (SI) - Wellbore #1 - As-Drilled	11,100.00	7,000.15	4,345.42	4,277.72	64.182	SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	11,943.61	6,970.11	7,505.43	7,425.33	93.700	CC, ES, SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	11,943.61	7,044.10	6,301.41	6,220.60	77.973	CC, ES, SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	11,236.79	11,236.79	6,836.12	6,750.83	80.149	CC
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	11,300.00	6,836.42	6,750.28	79.373	ES
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	11,400.00	6,838.07	6,750.62	78.192	SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	11,435.08	6,932.22	7,879.64	7,807.56	109.313	CC
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,931.44	7,879.91	7,807.20	108.381	ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,925.79	7,896.03	7,819.14	102.687	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	10,182.05	6,846.49	7,886.52	7,826.13	130.580	CC
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	10,300.00	6,847.23	7,887.41	7,825.92	128.270	ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,856.95	8,080.85	8,004.74	106.171	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	10,534.34	6,800.00	7,122.16	7,058.75	112.331	CC
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	10,600.00	6,800.00	7,122.46	7,058.44	111.250	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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 31						
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,840.11	7,260.07	7,183.84	95.249	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	10,077.72	6,894.94	5,779.70	5,718.42	94.318	CC
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	10,100.00	6,894.59	5,779.75	5,718.26	94.003	ES
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,865.68	6,073.36	5,996.48	79.000	SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	10,264.42	6,943.40	4,153.28	4,091.80	67.550	CC
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	10,300.00	6,944.23	4,153.44	4,091.61	67.176	ES
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	11,900.00	6,989.84	4,463.61	4,389.09	59.898	SF
Riva Blue D31-14 (PR) - Wellbore #1 - Gyro Surveys	11,882.95	6,912.31	5,671.43	5,595.23	74.427	CC
Riva Blue D31-14 (PR) - Wellbore #1 - Gyro Surveys	11,942.99	6,911.10	5,671.74	5,594.96	73.862	ES
Riva Blue D31-14 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,911.08	5,671.75	5,594.96	73.856	SF
Riva D 31-10 (PR) - Wellbore #1 - As-Drilled	10,103.53	7,048.38	6,575.73	6,515.31	108.838	CC
Riva D 31-10 (PR) - Wellbore #1 - As-Drilled	10,200.00	7,050.62	6,576.43	6,515.11	107.249	ES
Riva D 31-10 (PR) - Wellbore #1 - As-Drilled	11,943.61	7,091.20	6,828.20	6,751.73	89.300	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	8,385.77	6,911.09	4,696.75	4,650.81	102.237	CC
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	8,400.00	6,911.20	4,696.77	4,650.73	102.000	ES
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	10,900.00	6,931.16	5,327.31	5,262.97	82.806	SF
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	7,345.97	7,027.95	5,530.64	5,490.16	136.642	CC
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	7,364.09	7,028.57	5,530.69	5,490.15	136.422	ES
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	11,000.00	7,100.41	6,636.17	6,572.38	104.031	SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	9,068.00	6,948.00	5,607.10	5,304.04	18.502	CC
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	9,100.00	6,948.00	5,607.19	5,303.86	18.485	ES
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	9,900.00	6,948.00	5,668.49	5,358.25	18.271	SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	8,856.68	6,828.38	5,504.01	5,454.85	111.959	CC
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	8,900.00	6,828.88	5,504.18	5,454.66	111.145	ES
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	11,900.00	6,867.75	6,289.17	6,217.21	87.404	SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	7,504.69	6,853.49	7,933.09	7,892.51	195.513	CC, ES
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,765.20	9,090.22	9,018.36	126.510	SF
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	8,797.82	6,917.77	6,875.10	6,826.19	140.574	CC
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	8,900.00	6,920.23	6,875.86	6,826.12	138.228	ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	11,943.61	6,993.38	7,560.24	7,486.56	102.602	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	8,966.37	7,210.00	7,906.44	7,855.57	155.420	CC
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	9,000.00	7,210.00	7,906.51	7,855.36	154.575	ES
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	11,943.61	7,210.00	8,448.42	8,373.01	112.028	SF
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	7,485.11	7,278.14	3,695.23	3,586.28	33.917	CC
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	7,500.00	7,277.87	3,695.26	3,586.26	33.899	ES
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	8,300.00	7,263.35	3,783.99	3,670.48	33.336	SF
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Survey	8,219.36	6,941.00	7,358.69	7,062.26	24.824	CC
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Survey	8,300.00	6,941.00	7,359.13	7,062.13	24.778	ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Survey	9,700.00	6,941.00	7,506.17	7,198.00	24.357	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
H Section 25						
Dechant 21-25 - Original Drilling - Original Drilling - As Dr	573.72	556.73	2,993.66	2,990.74	1,026.766	CC
Dechant 21-25 - Original Drilling - Original Drilling - As Dr	1,400.00	1,372.20	2,995.71	2,988.10	393.338	ES
Dechant 21-25 - Original Drilling - Original Drilling - As Dr	6,700.00	6,829.39	3,714.43	3,669.69	83.036	SF
Dechant D30-33D - Original Drilling - Original Drilling - As	100.00	51.75	3,015.39	3,015.23	10,000.000	CC, ES
Dechant D30-33D - Original Drilling - Original Drilling - As	9,200.00	9,200.00	4,869.41	4,811.39	83.929	SF
Dechant D31-30D - Original Drilling - Original Drilling - As	100.00	57.12	3,007.01	3,006.84	10,000.000	CC
Dechant D31-30D - Original Drilling - Original Drilling - As	200.00	150.90	3,007.40	3,006.72	4,421.286	ES
Dechant D31-30D - Original Drilling - Original Drilling - As	8,500.00	7,077.36	3,777.36	3,723.61	70.272	SF
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,571.24	8,193.35	1,291.65	1,243.14	26.627	CC, ES
Dechant H25-64-1HN - Original Drilling - Original Drilling	6,650.00	8,196.52	1,298.86	1,249.55	26.338	SF
Dechant H25-65HN - Original Drilling - Original Drilling	908.95	911.99	1,824.31	1,821.94	770.346	CC
Dechant H25-65HN - Original Drilling - Original Drilling	1,700.00	1,692.45	1,825.11	1,818.24	265.920	ES
Dechant H25-65HN - Original Drilling - Original Drilling	6,650.00	8,299.33	2,182.29	2,131.08	42.614	SF
Emmy H25-711 - Emmy H25-711 OH - As-Drilled	824.46	812.47	2,227.95	2,223.60	512.533	CC
Emmy H25-711 - Emmy H25-711 OH - As-Drilled	2,011.33	1,997.02	2,229.04	2,218.04	202.614	ES
Emmy H25-711 - Emmy H25-711 OH - As-Drilled	8,800.00	5,984.58	3,715.97	3,673.60	87.706	SF
Emmy State H25-718 - Emmy State H25-718 OH - As-Dr	2,772.51	2,592.29	2,186.25	2,173.32	169.138	CC
Emmy State H25-718 - Emmy State H25-718 OH - As-Dr	2,800.00	2,608.73	2,186.32	2,173.32	168.209	ES
Emmy State H25-718 - Emmy State H25-718 OH - As-Dr	8,600.00	6,315.70	3,336.12	3,294.45	80.077	SF
Emmy State H25-724 - Emmy State H25-724 OH - As-Dr	2,743.27	2,563.76	2,152.26	2,139.38	167.111	CC, ES
Emmy State H25-724 - Emmy State H25-724 OH - As-Dr	8,200.00	6,521.00	2,689.20	2,650.02	68.643	SF
Emmy State H25-731 - Emmy State H25-731 OH - As-Dr	3,754.37	3,587.00	2,125.66	2,108.74	125.600	CC, ES
Emmy State H25-731 - Emmy State H25-731 OH - As-Dr	8,200.00	8,200.00	2,434.62	2,391.66	56.662	SF
Emmy State H25-738 - Emmy State H25-738 OH - As-Dr	6,946.82	6,994.00	1,720.44	1,686.68	50.965	CC
Emmy State H25-738 - Emmy State H25-738 OH - As-Dr	6,950.00	6,994.00	1,720.44	1,686.68	50.952	ES
Emmy State H25-738 - Emmy State H25-738 OH - As-Dr	7,150.00	6,953.38	1,734.64	1,700.37	50.620	SF
Emmy State H25-744 - Emmy State H25-744 OH - As-Dr	6,950.17	6,862.69	1,303.41	1,269.75	38.725	CC, ES
Emmy State H25-744 - Emmy State H25-744 OH - As-Dr	7,000.00	6,854.23	1,304.32	1,270.63	38.709	SF
Emmy State H25-751 - Emmy State H25-751 OH - As-Dr	0.00	0.00	159.38			
Emmy State H25-751 - Emmy State H25-751 OH - As-Dr	1,929.16	1,928.24	161.34	153.13	19.641	ES
Emmy State H25-751 - Emmy State H25-751 OH - As-Dr	2,700.00	2,683.44	180.66	170.04	17.013	SF
Emmy State H25-757 - Emmy State H25-757 OH - As-Dr	2,387.43	2,385.70	153.16	141.14	12.742	CC
Emmy State H25-757 - Emmy State H25-757 OH - As-Dr	2,400.00	2,397.97	153.17	141.12	12.706	ES
Emmy State H25-757 - Emmy State H25-757 OH - As-Dr	2,600.00	2,590.20	157.92	145.28	12.494	SF
Emmy State H25-764 - Emmy State H25-764 OH - As-Dr	7,063.50	7,081.21	119.77	84.87	3.432	CC, ES, SF
Emmy State H25-771 - Emmy State H25-771 OH - As-Dr	0.00	0.00	154.61			
Emmy State H25-771 - Emmy State H25-771 OH - As-Dr	2,201.00	2,200.06	155.27	143.59	13.297	ES
Emmy State H25-771 - Emmy State H25-771 OH - As-Dr	6,903.66	7,035.80	271.81	237.96	8.029	SF
Emmy State H25-777 - Emmy State H25-777 OH - As-Dr	2,068.01	2,068.05	154.15	142.97	13.787	CC
Emmy State H25-777 - Emmy State H25-777 OH - As-Dr	2,200.00	2,198.79	154.35	142.83	13.399	ES
Emmy State H25-777 - Emmy State H25-777 OH - As-Dr	2,300.00	2,294.46	156.94	145.16	13.327	SF
Emmy State H25-785 - Emmy State H25-785 OH - As-Dr	282.17	282.53	168.12	166.83	131.204	CC
Emmy State H25-785 - Emmy State H25-785 OH - As-Dr	2,006.09	2,006.20	173.45	162.42	15.715	ES
Emmy State H25-785 - Emmy State H25-785 OH - As-Dr	2,100.00	2,093.27	175.37	164.11	15.578	SF
Emmy State H36-753 - Wellbore #1 - Plan #2	2,426.67	2,422.26	44.37	33.89	4.232	CC, ES
Emmy State H36-753 - Wellbore #1 - Plan #2	2,500.00	2,494.45	45.30	34.55	4.212	SF
Emmy State H36-773 - Wellbore #1 - Plan #2	2,200.00	2,200.00	22.35	12.75	2.329	CC, ES, SF
Emmy State H36-787 - Wellbore #1 - Plan #2	2,200.00	2,202.00	69.84	60.24	7.274	CC, ES, SF
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,040.02	5,987.91	4,176.72	4,142.61	122.459	CC
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,100.00	6,027.38	4,176.85	4,142.47	121.485	ES
HSR Cohn 03-25 - Original Drilling - Original Drilling - As	6,650.00	6,604.96	4,244.91	4,207.33	112.963	SF
HSR Crowe 06-25 - Original Drilling - Original Drilling - As	6,364.48	6,322.95	2,848.30	2,812.26	79.023	CC, ES
HSR Crowe 06-25 - Original Drilling - Original Drilling - As	6,650.00	6,606.45	2,911.41	2,873.80	77.417	SF

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
H Section 25						
HSR Dechant 04-25 - Original Drilling - Original Drilling -	1,544.40	1,538.55	2,703.51	2,694.97	316.589	CC, ES
HSR Dechant 04-25 - Original Drilling - Original Drilling -	6,700.00	7,118.85	4,428.68	4,389.73	113.693	SF
HSR Dechant 05-25 - Original Drilling - Original Drilling -	1,063.25	1,058.27	2,729.07	2,723.30	472.708	CC
HSR Dechant 05-25 - Original Drilling - Original Drilling -	2,200.00	2,179.84	2,730.20	2,717.96	223.094	ES
HSR Dechant 05-25 - Original Drilling - Original Drilling -	6,600.00	6,559.84	2,873.59	2,836.35	77.146	SF
KY Blue D30-32 - Original Drilling - Original Drilling - As D	6,416.97	6,279.65	4,036.66	4,000.75	112.410	CC, ES
KY Blue D30-32 - Original Drilling - Original Drilling - As D	7,050.00	6,828.75	4,204.01	4,164.73	107.039	SF
KY Blue H25-04J - Original Drilling - Original Drilling - As	6,856.15	7,400.00	2,821.99	2,807.35	192.756	CC, ES
KY Blue H25-04J - Original Drilling - Original Drilling - As	8,400.00	7,400.00	3,535.72	3,515.21	172.397	SF
KY Blue H25-09 - Original Drilling - Original Drilling - As D	6,449.18	6,400.00	3,330.65	3,294.26	91.541	CC
KY Blue H25-09 - Original Drilling - Original Drilling - As D	6,450.00	6,400.00	3,330.65	3,294.26	91.537	ES
KY Blue H25-09 - Original Drilling - Original Drilling - As D	7,000.00	6,815.96	3,459.16	3,420.06	88.483	SF
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,392.46	6,310.68	2,310.63	2,274.53	64.016	CC
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,400.00	6,317.69	2,310.66	2,274.53	63.945	ES
KY Blue H25-10 - Original Drilling - Original Drilling - As D	6,700.00	6,626.07	2,368.07	2,330.23	62.584	SF
KY Blue H25-11 - Original Drilling - Original Drilling - As D	6,364.32	6,303.15	1,618.44	1,560.51	27.938	CC, ES
KY Blue H25-11 - Original Drilling - Original Drilling - As D	6,650.00	6,577.17	1,680.94	1,618.14	26.764	SF
KY Blue H25-12 - Original Drilling - Original Drilling - As D	1,384.52	1,379.69	1,768.15	1,760.00	217.075	CC
KY Blue H25-12 - Original Drilling - Original Drilling - As D	1,500.00	1,487.29	1,768.41	1,759.61	200.853	ES
KY Blue H25-12 - Original Drilling - Original Drilling - As D	6,550.00	6,582.27	2,011.40	1,974.11	53.937	SF
KY Blue H25-14 - Original Drilling - Original Drilling - As D	6,502.99	6,459.23	396.09	359.48	10.819	CC, ES
KY Blue H25-14 - Original Drilling - Original Drilling - As D	6,600.00	6,551.44	399.84	362.69	10.764	SF
KY Blue H25-15 - Original Drilling - Original Drilling - As D	6,540.12	6,476.76	1,463.48	1,426.75	39.843	CC
KY Blue H25-15 - Original Drilling - Original Drilling - As D	6,550.00	6,487.46	1,463.49	1,426.71	39.782	ES
KY Blue H25-15 - Original Drilling - Original Drilling - As D	6,850.00	6,735.43	1,490.36	1,452.05	38.904	SF
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,411.50	6,357.01	1,404.18	1,367.96	38.762	CC, ES
KY H25-24 - Original Drilling - Original Drilling - As Drilled	6,600.00	6,556.79	1,423.16	1,385.86	38.150	SF
Moore UPRC H25-01 - Original Drilling - Original Drilling	6,402.32	6,367.14	5,287.41	5,251.17	145.899	CC, ES
Moore UPRC H25-01 - Original Drilling - Original Drilling	6,900.00	6,756.77	5,444.72	5,406.06	140.843	SF
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,377.71	6,300.11	4,506.40	4,470.40	125.203	CC, ES
Moore UPRC H25-02 - Original Drilling - Original Drilling	6,750.00	6,650.64	4,605.66	4,567.67	121.250	SF
Moser 25-32 - Original Drilling - Original Drilling - As Drille	6,385.26	6,329.59	3,081.31	3,045.19	85.309	CC, ES
Moser 25-32 - Original Drilling - Original Drilling - As Drille	6,750.00	6,713.16	3,171.90	3,133.70	83.032	SF
Moser 25-42 - Original Drilling - Original Drilling - As Drille	6,413.12	6,357.00	4,273.81	4,237.56	117.898	CC, ES
Moser 25-42 - Original Drilling - Original Drilling - As Drille	6,900.00	6,775.23	4,405.30	4,366.54	113.664	SF
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	5,679.35	5,659.06	3,457.86	3,425.76	107.708	CC
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	5,800.00	5,761.21	3,458.16	3,425.42	105.633	ES
UPRR 53 Pan Am T#2 - Original Drilling - Original Drilling	6,650.00	6,502.10	3,539.02	3,501.83	95.175	SF
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dri	6,398.50	6,338.62	4,169.08	4,132.86	115.112	CC
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dri	6,400.00	6,340.05	4,169.08	4,132.86	115.086	ES
UPRR 53 Pan Am UT T#1 - Original Drilling - Original Dri	6,850.00	6,776.79	4,297.70	4,259.01	111.086	SF
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,166.81	2,144.88	596.83	584.78	49.559	CC
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	2,200.00	2,175.88	596.89	584.66	48.823	ES
Von Feldt 1-25B - Original Drilling - Original Drilling - As D	6,450.00	6,434.22	815.10	778.72	22.408	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	0.00	0.00	5,481.22			
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	700.00	671.24	5,483.94	5,480.34	1,522.474	ES
Bullard 31-26 - Original Drilling - Original Drilling - As Dril	6,850.00	6,605.44	5,903.88	5,866.16	156.533	SF
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	812.24	817.29	4,203.58	4,199.21	961.842	CC
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	900.00	883.31	4,203.81	4,199.01	876.090	ES
Bullard 32-26 - Original Drilling - Original Drilling - As Dril	6,850.00	6,782.31	4,589.59	4,551.31	119.889	SF
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	0.00	4.79	4,519.99			
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	400.00	377.39	4,521.55	4,519.65	2,379.700	ES
Bullard 41-26 - Original Drilling - Original Drilling - As Dril	6,900.00	6,716.65	4,960.09	4,921.92	129.944	SF
Dechant H25-29D - Original Drilling - Original Drilling - As	0.00	0.00	4,485.21			
Dechant H25-29D - Original Drilling - Original Drilling - As	1,300.00	1,323.23	4,490.57	4,482.35	545.832	ES
Dechant H25-29D - Original Drilling - Original Drilling - As	6,600.00	7,066.71	4,995.02	4,935.54	83.980	SF
Dechant H25-33D - Original Drilling - Original Drilling - As	6,510.52	7,635.21	1,977.88	1,917.52	32.770	CC, ES
Dechant H25-33D - Original Drilling - Original Drilling - As	6,750.00	7,892.96	2,007.48	1,945.86	32.579	SF
Harsh H26-09D - Original Drilling - Original Drilling - As D	321.58	329.59	2,442.50	2,440.94	1,567.124	CC
Harsh H26-09D - Original Drilling - Original Drilling - As D	400.00	387.25	2,442.83	2,440.89	1,260.711	ES
Harsh H26-09D - Original Drilling - Original Drilling - As D	6,700.00	6,765.83	2,770.55	2,732.55	72.901	SF
Harsh H26-10 - Original Drilling - Original Drilling - As Dri	511.80	521.80	3,536.07	3,533.42	1,333.390	CC
Harsh H26-10 - Original Drilling - Original Drilling - As Dri	1,500.00	1,495.75	3,540.76	3,532.48	427.830	ES
Harsh H26-10 - Original Drilling - Original Drilling - As Dri	6,900.00	6,825.82	3,983.81	3,945.31	103.453	SF
Harsh H26-15 - Original Drilling - Original Drilling - As Dri	1,135.66	1,149.74	3,217.45	3,211.19	514.164	CC
Harsh H26-15 - Original Drilling - Original Drilling - As Dri	1,400.00	1,390.53	3,218.40	3,210.71	418.350	ES
Harsh H26-15 - Original Drilling - Original Drilling - As Dri	7,800.00	7,120.62	3,771.48	3,728.16	87.071	SF
Harsh H26-16 - Original Drilling - Original Drilling - As Dri	0.00	2.73	2,138.22			
Harsh H26-16 - Original Drilling - Original Drilling - As Dri	1,200.00	1,187.34	2,140.66	2,134.13	328.031	ES
Harsh H26-16 - Original Drilling - Original Drilling - As Dri	7,100.00	6,967.49	2,533.00	2,493.56	64.222	SF
Harsh H26-23D - Original Drilling - Original Drilling - As D	5,183.96	5,519.01	2,887.62	2,855.72	90.533	CC
Harsh H26-23D - Original Drilling - Original Drilling - As D	5,200.00	5,529.64	2,887.64	2,855.67	90.331	ES
Harsh H26-23D - Original Drilling - Original Drilling - As D	6,600.00	6,684.24	2,973.49	2,934.91	77.077	SF
HSR Moser 04-26 - Original Drilling - Original Drilling - As	1,895.03	1,863.08	7,436.60	7,426.16	712.032	CC
HSR Moser 04-26 - Original Drilling - Original Drilling - As	2,000.00	1,931.70	7,436.83	7,425.91	681.062	ES
HSR Moser 04-26 - Original Drilling - Original Drilling - As	6,950.00	6,526.43	7,925.41	7,887.81	210.754	SF
HSR Moser 06-26 - Original Drilling - Original Drilling - As	0.00	0.00	5,185.42			
HSR Moser 06-26 - Original Drilling - Original Drilling - As	2,207.01	2,204.77	5,190.68	5,178.34	420.688	ES
HSR Moser 06-26 - Original Drilling - Original Drilling - As	6,900.00	6,752.14	5,566.83	5,528.57	145.511	SF
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	2,215.04	2,214.95	6,436.16	6,423.75	518.873	CC, ES
HSR Regalia 05-26 - Original Drilling - Original Drilling - A	7,100.00	7,000.01	6,875.25	6,835.79	174.218	SF
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	572.48	543.49	6,163.88	6,161.02	2,152.464	CC
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	2,200.00	2,166.41	6,165.68	6,153.49	505.857	ES
HSR-Moser 03-26A - Original Drilling - Original Drilling - A	6,700.00	6,500.01	6,447.94	6,410.87	173.942	SF
Hurley H26-712 - Hurley H26-712 OH - As-Drilled	6,257.15	6,519.00	2,730.76	2,698.51	84.696	CC, ES
Hurley H26-712 - Hurley H26-712 OH - As-Drilled	6,500.00	6,562.17	2,750.87	2,718.16	84.113	SF
Hurley H26-717 - Hurley H26-717 OH - As-Drilled	6,172.06	6,423.00	2,850.42	2,818.88	90.370	CC, ES
Hurley H26-717 - Hurley H26-717 OH - As-Drilled	6,400.00	6,517.00	2,856.49	2,824.23	88.557	SF
Hurley H26-724 - Hurley H26-724 OH - As-Drilled	6,128.47	6,382.40	3,219.15	3,188.17	103.913	CC, ES
Hurley H26-724 - Hurley H26-724 OH - As-Drilled	6,600.00	6,517.00	3,273.47	3,241.22	101.495	SF
Hurley H26-730 - Hurley H26-730 OH - As-Drilled	1,476.63	1,513.68	3,475.44	3,467.18	420.430	CC
Hurley H26-730 - Hurley H26-730 OH - As-Drilled	1,600.00	1,613.19	3,475.86	3,466.96	390.878	ES
Hurley H26-730 - Hurley H26-730 OH - As-Drilled	6,600.00	6,423.00	3,716.16	3,684.40	117.002	SF
Hurley H26-736 - Hurley H26-736 OH - As-Drilled	1,387.69	1,424.73	3,489.51	3,481.75	450.021	CC
Hurley H26-736 - Hurley H26-736 OH - As-Drilled	1,500.00	1,521.17	3,489.77	3,481.42	418.171	ES
Hurley H26-736 - Hurley H26-736 OH - As-Drilled	6,650.00	6,423.00	3,932.46	3,899.91	120.779	SF
Hurley H26-743 - Hurley H26-743 OH - As-Drilled	1,289.38	1,327.64	3,506.11	3,498.93	488.036	CC

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



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Hurley H26-743 - Hurley H26-743 OH - As-Drilled	1,600.00	1,617.08	3,507.36	3,498.46	394.345	ES
Hurley H26-743 - Hurley H26-743 OH - As-Drilled	6,650.00	6,045.00	4,200.67	4,168.57	130.854	SF
Hurley H26-750 - Hurley H26-750 OH - As-Drilled	6,179.52	6,707.00	4,798.88	4,765.79	145.032	CC, ES
Hurley H26-750 - Hurley H26-750 OH - As-Drilled	6,500.00	6,801.00	4,811.90	4,778.02	142.046	SF
Hurley H26-756 - Hurley H26-756 OH - As-Drilled	6,223.16	6,707.00	5,063.35	5,030.63	154.729	CC, ES
Hurley H26-756 - Hurley H26-756 OH - As-Drilled	6,600.00	6,801.00	5,092.28	5,058.69	151.576	SF
Hurley H26-762 - Hurley H26-762 OH - As-Drilled	6,126.05	6,571.01	5,432.27	5,400.59	171.496	CC, ES
Hurley H26-762 - Hurley H26-762 OH - As-Drilled	6,950.00	6,797.43	5,564.08	5,530.37	165.076	SF
Hurley H26-768 - Hurley H26-768 OH - As-Drilled	5,881.87	6,330.00	5,684.63	5,654.35	187.750	CC
Hurley H26-768 - Hurley H26-768 OH - As-Drilled	6,000.00	6,370.51	5,684.95	5,654.28	185.320	ES
Hurley H26-768 - Hurley H26-768 OH - As-Drilled	10,000.00	6,519.00	7,479.29	7,435.68	171.535	SF
Hurley H26-776 - Hurley H26-776 OH - As-Drilled	1,353.73	1,357.77	5,822.19	5,814.74	781.698	CC
Hurley H26-776 - Hurley H26-776 OH - As-Drilled	1,500.00	1,472.13	5,822.64	5,814.47	712.147	ES
Hurley H26-776 - Hurley H26-776 OH - As-Drilled	10,700.00	6,517.00	8,356.28	8,308.76	175.841	SF
Hurley H26-783 - Hurley H26-783 OH - As-drilled	0.00	0.00	5,844.89			
Hurley H26-783 - Hurley H26-783 OH - As-drilled	1,900.00	1,882.16	5,850.75	5,840.25	557.062	ES
Hurley H26-783 - Hurley H26-783 OH - As-drilled	11,100.00	6,423.00	8,825.33	8,775.60	177.459	SF
Hurley H35-727 - Wellbore #1 - Plan #2	11,464.89	13,979.25	2,621.91	2,508.00	23.018	CC
Hurley H35-727 - Wellbore #1 - Plan #2	11,943.61	14,414.40	2,629.09	2,507.50	21.623	ES, SF
Hurley H35-733 - Wellbore #1 - Plan #2	11,943.61	14,885.82	3,267.87	3,145.07	26.612	CC, ES, SF
Hurley H35-746 - Wellbore #1 - Plan #2	2,107.09	2,144.09	3,621.88	3,609.84	300.749	CC
Hurley H35-746 - Wellbore #1 - Plan #2	2,200.00	2,223.48	3,621.95	3,609.42	288.977	ES
Hurley H35-746 - Wellbore #1 - Plan #2	11,943.61	14,681.20	3,964.68	3,842.26	32.385	SF
Hurley H35-755 - Wellbore #1 - Plan #2	11,943.61	14,917.94	4,470.20	4,347.23	36.353	CC, ES, SF
Hurley H35-768 - Wellbore #1 - Plan #2	11,943.61	14,522.78	5,163.91	5,041.83	42.301	CC, ES, SF
Hurley H35-774 - Wellbore #1 - Plan #2	11,943.61	14,868.49	5,818.13	5,674.30	40.450	CC, ES, SF
Hurley H35-787 - Wellbore #1 - Plan #2	2,200.00	2,204.00	5,910.84	5,898.37	474.139	CC, ES
Hurley H35-787 - Wellbore #1 - Plan #2	11,943.61	14,654.82	6,483.78	6,361.49	53.020	SF
Hurley State H35-713 - Wellbore #1 - Plan #2	11,943.61	14,667.49	1,959.85	1,837.64	16.036	CC, ES, SF
John 03-26 - Original Drilling - Original Drilling - As Drilled	2,167.77	2,144.06	6,071.12	6,059.07	503.647	CC
John 03-26 - Original Drilling - Original Drilling - As Drilled	2,200.00	2,168.37	6,071.14	6,058.93	497.170	ES
John 03-26 - Original Drilling - Original Drilling - As Drilled	6,850.00	6,600.01	6,452.57	6,414.93	171.425	SF
Lamp H25-31 - Original Drilling - Original Drilling - As Dril	0.00	11.13	3,832.49			
Lamp H25-31 - Original Drilling - Original Drilling - As Dril	400.00	393.80	3,833.63	3,831.67	1,958.790	ES
Lamp H25-31 - Original Drilling - Original Drilling - As Dril	6,650.00	6,606.44	3,988.05	3,950.61	106.507	SF
Lamp H26-01 - Original Drilling - Original Drilling - As Dril	1,432.32	1,444.48	3,829.88	3,821.92	481.512	CC, ES
Lamp H26-01 - Original Drilling - Original Drilling - As Dril	6,700.00	6,820.48	4,888.22	4,849.69	126.850	SF
Lamp H26-08 - Original Drilling - Original Drilling - As Dril	1,716.49	1,722.65	3,541.64	3,532.07	370.156	CC
Lamp H26-08 - Original Drilling - Original Drilling - As Dril	1,800.00	1,786.94	3,541.86	3,531.88	354.898	ES
Lamp H26-08 - Original Drilling - Original Drilling - As Dril	7,150.00	7,091.11	4,068.02	4,026.77	98.615	SF
Lamp H26-22 - Original Drilling - Original Drilling - As Dril	3,272.17	3,500.01	3,506.65	3,483.47	151.251	CC
Lamp H26-22 - Original Drilling - Original Drilling - As Dril	3,600.00	3,836.68	3,508.67	3,482.42	133.705	ES
Lamp H26-22 - Original Drilling - Original Drilling - As Dril	6,650.00	6,730.83	3,692.55	3,645.83	79.035	SF
Moser 05-26 - Original Drilling - Original Drilling - As Drille	2,216.57	2,224.34	6,640.00	6,627.58	534.435	CC, ES
Moser 05-26 - Original Drilling - Original Drilling - As Drille	10,500.00	6,981.15	8,999.71	8,947.24	171.506	SF
Moser 41-27 - Original Drilling - Original Drilling - As Drille	885.35	858.39	6,646.24	6,641.56	1,421.078	CC
Moser 41-27 - Original Drilling - Original Drilling - As Drille	900.00	866.99	6,646.24	6,641.50	1,402.159	ES
Moser 41-27 - Original Drilling - Original Drilling - As Drille	10,400.00	7,032.58	9,960.29	9,907.72	189.498	SF
Moser H26-11 - Original Drilling - Original Drilling - As Dri	398.44	381.45	5,063.30	5,061.39	2,649.630	CC
Moser H26-11 - Original Drilling - Original Drilling - As Dri	1,000.00	954.99	5,065.02	5,059.76	962.438	ES
Moser H26-11 - Original Drilling - Original Drilling - As Dri	7,250.00	6,924.86	5,581.72	5,542.24	141.400	SF
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	6,097.89			
Moser H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	2,200.00	2,145.88	6,103.45	6,091.33	503.493	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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 H26-12 - Wellbore #1 - Wellbore #1 - As Drilled	10,800.00	7,168.91	8,321.77	8,265.20	147.124	SF
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	5,873.71			
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	1,200.00	1,151.82	5,878.69	5,872.29	917.238	ES
Moser H26-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,300.00	7,203.54	7,817.49	7,755.38	125.855	SF
Moser H26-14 - Original Drilling - Original Drilling - As Dr	572.85	565.86	4,370.04	4,367.10	1,482.922	CC
Moser H26-14 - Original Drilling - Original Drilling - As Dr	2,202.53	2,199.44	4,375.05	4,362.74	355.404	ES
Moser H26-14 - Original Drilling - Original Drilling - As Dr	9,700.00	6,860.41	5,559.15	5,508.03	108.746	SF
Moser H26-18D - Original Drilling - Original Drilling - As D	0.00	0.00	4,447.96			
Moser H26-18D - Original Drilling - Original Drilling - As D	6,750.00	7,115.00	5,516.71	5,461.30	99.569	SF
Moser H26-24 - Original Drilling - Original Drilling - As Dr	241.38	246.39	4,177.12	4,176.04	3,852.343	CC
Moser H26-24 - Original Drilling - Original Drilling - As Dr	2,215.61	2,242.91	4,185.82	4,173.32	334.768	ES
Moser H26-24 - Original Drilling - Original Drilling - As Dr	7,300.00	7,091.67	4,712.88	4,672.61	117.030	SF
Moser H26-25 - Original Drilling - Original Drilling - As Dr	0.00	0.00	4,935.45			
Moser H26-25 - Original Drilling - Original Drilling - As Dr	1,800.00	1,764.95	4,940.29	4,930.40	499.157	ES
Moser H26-25 - Original Drilling - Original Drilling - As Dr	9,700.00	7,037.24	6,426.44	6,375.57	126.344	SF
Moser H26-27D - Original Drilling - Original Drilling - As D	0.00	14.67	4,471.33			
Moser H26-27D - Original Drilling - Original Drilling - As D	6,800.00	6,937.79	5,698.35	5,658.36	142.517	SF
Moser H26-28D - Original Drilling - Original Drilling - As D	0.00	15.91	4,464.54			
Moser H26-28D - Original Drilling - Original Drilling - As D	9,200.00	9,200.00	8,498.08	8,419.57	108.250	SF
Moser H26-29D - Original Drilling - Original Drilling - As D	0.00	19.55	4,457.86			
Moser H26-29D - Original Drilling - Original Drilling - As D	200.00	196.00	4,458.42	4,457.63	5,665.800	ES
Moser H26-29D - Original Drilling - Original Drilling - As D	6,750.00	3,538.10	6,785.53	6,752.12	203.125	SF
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,200.00	2,185.00	5,549.42	5,500.92	114.424	CC
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	2,300.00	2,284.98	5,551.16	5,500.45	109.470	ES
Moser, Wesley E. G. U. B1 (PA) - Original Drilling - Origin	7,300.00	6,968.79	5,974.55	5,819.33	38.491	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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	11,422.90	7,030.22	2,653.06	2,580.66	36.643	CC, ES
Cannon Farms 01-35C - Original Drilling - Original Drilling	11,900.00	7,041.91	2,695.60	2,620.01	35.661	SF
Cannon H35-03D - Original Drilling - Original Drilling - As	10,977.25	6,851.19	5,092.22	5,024.72	75.449	CC
Cannon H35-03D - Original Drilling - Original Drilling - As	11,000.00	6,851.62	5,092.27	5,024.58	75.232	ES
Cannon H35-03D - Original Drilling - Original Drilling - As	11,943.61	6,868.79	5,183.05	5,107.99	69.052	SF
Cannon H35-09 - Original Drilling - Original Drilling - As D	10,482.63	6,932.11	2,301.95	2,235.09	34.429	CC
Cannon H35-09 - Original Drilling - Original Drilling - As D	10,500.00	6,931.74	2,302.02	2,235.03	34.366	ES
Cannon H35-09 - Original Drilling - Original Drilling - As D	10,900.00	6,923.32	2,339.46	2,270.15	33.754	SF
Cannon H35-10 - Original Drilling - Original Drilling - As D	10,629.14	7,038.37	3,539.51	3,474.44	54.390	CC, ES
Cannon H35-10 - Original Drilling - Original Drilling - As D	11,600.00	7,041.44	3,670.25	3,598.66	51.273	SF
Cannon H35-11 - Original Drilling - Original Drilling - As D	10,544.16	6,871.21	4,609.48	4,545.83	72.421	CC
Cannon H35-11 - Original Drilling - Original Drilling - As D	10,600.00	6,871.66	4,609.82	4,545.71	71.902	ES
Cannon H35-11 - Original Drilling - Original Drilling - As D	11,943.61	6,883.34	4,817.22	4,743.64	65.462	SF
Cannon H35-12 - Original Drilling - Original Drilling - As D	10,694.98	7,029.65	6,073.33	6,007.69	92.533	CC
Cannon H35-12 - Original Drilling - Original Drilling - As D	10,700.00	7,029.69	6,073.33	6,007.65	92.472	ES
Cannon H35-12 - Original Drilling - Original Drilling - As D	11,943.61	7,039.14	6,200.34	6,124.80	82.073	SF
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,887.14	7,037.43	6,097.74	6,021.09	79.554	CC
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,942.99	7,035.77	6,098.00	6,020.87	79.060	ES
Cannon H35-13 - Wellbore #1 - Wellbore #1 - As Drilled	11,943.61	7,035.75	6,098.00	6,020.87	79.055	SF
Cannon H35-14 - Original Drilling - Original Drilling - As D	11,877.70	6,994.35	4,704.02	4,621.28	56.853	CC
Cannon H35-14 - Original Drilling - Original Drilling - As D	11,900.00	6,994.21	4,704.07	4,621.14	56.725	ES
Cannon H35-14 - Original Drilling - Original Drilling - As D	11,943.61	6,993.94	4,704.48	4,621.19	56.481	SF
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	11,875.63	6,984.00	3,487.11	3,295.32	18.182	CC
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	11,900.00	6,984.00	3,487.20	3,295.20	18.163	ES
Cannon H35-15 (PA) - Original Drilling - Original Drilling -	11,943.61	6,984.00	3,487.77	3,295.42	18.132	SF
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,072.99	6,851.34	5,488.55	5,429.14	92.384	CC
Cannon H35-20 - Original Drilling - Original Drilling - As D	10,100.00	6,851.53	5,488.61	5,428.98	92.039	ES
Cannon H35-20 - Original Drilling - Original Drilling - As D	11,943.61	6,865.70	5,798.54	5,725.56	79.463	SF
Cannon H35-21 - Original Drilling - Original Drilling - As D	10,113.03	7,025.42	4,070.32	4,009.92	67.389	CC, ES
Cannon H35-21 - Original Drilling - Original Drilling - As D	11,500.00	7,030.58	4,300.13	4,230.42	61.688	SF
Cannon H35-22 - Original Drilling - Original Drilling - As D	10,000.01	7,029.16	3,142.25	3,082.78	52.832	CC, ES
Cannon H35-22 - Original Drilling - Original Drilling - As D	11,200.00	11,200.00	3,363.55	3,282.65	41.575	SF
Cannon H35-24 - Original Drilling - Original Drilling - As D	11,303.22	6,829.68	4,232.20	4,161.82	60.135	CC, ES
Cannon H35-24 - Original Drilling - Original Drilling - As D	11,943.61	6,837.27	4,280.36	4,205.04	56.824	SF
Cannon X02-27 - Original Drilling - Original Drilling - As D	11,943.61	6,986.38	3,077.66	3,000.69	39.982	CC, ES, SF
Cannon X02-28 - Original Drilling - Original Drilling - As D	11,943.61	6,909.01	4,245.57	4,168.81	55.308	CC, ES, SF
Cannon X02-29 - Original Drilling - Original Drilling - As D	11,943.61	7,151.26	5,572.87	5,494.85	71.422	CC, ES, SF
Foster 18-35 - Original Drilling - Original Drilling - As Drill	663.53	652.54	5,521.68	5,518.23	1,600.276	CC
Foster 18-35 - Original Drilling - Original Drilling - As Drill	1,200.00	1,153.47	5,524.08	5,517.67	862.476	ES
Foster 18-35 - Original Drilling - Original Drilling - As Drill	11,500.00	6,920.41	6,454.29	6,388.33	97.861	SF
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,200.00	2,209.01	3,363.91	3,315.01	68.783	CC
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	2,300.00	2,308.99	3,365.60	3,314.48	65.846	ES
Foster UPRR 31-35 #1 (PA) - Original Drilling - Original D	8,200.00	6,996.01	3,586.64	3,426.62	22.414	SF
Foster UPRR 32-35 - Original Drilling - Original Drilling - A	9,109.82	7,003.43	3,651.53	3,599.76	70.538	CC, ES
Foster UPRR 32-35 - Original Drilling - Original Drilling - A	10,400.00	7,008.27	3,872.75	3,812.68	64.469	SF
Foster UPRR 41-35 - Original Drilling - Original Drilling - A	7,952.40	6,987.23	2,227.09	2,174.55	42.389	CC, ES
Foster UPRR 41-35 - Original Drilling - Original Drilling - A	8,400.00	6,989.66	2,271.63	2,216.78	41.419	SF
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	9,047.76	7,059.11	2,238.49	2,186.99	43.460	CC, ES
Foster UPRR 42-35 #2 - Original Drilling - Original Drilling	9,500.00	7,069.94	2,283.69	2,229.42	42.077	SF
HSR Foster 03-35 - Original Drilling - Original Drilling - As	0.00	0.00	4,653.19			
HSR Foster 03-35 - Original Drilling - Original Drilling - As	1,900.00	1,866.09	4,663.47	4,653.00	445.280	ES
HSR Foster 03-35 - Original Drilling - Original Drilling - As	11,100.00	11,100.00	5,695.02	5,619.22	75.126	SF
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	165.50	144.51	6,140.75	6,140.19	10,000.000	CC

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



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 35						
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	1,200.00	1,149.88	6,143.00	6,136.61	960.693	ES
HSR Foster 04-35 - Wellbore #1 - Wellbore #1 - As Drille	11,942.99	6,721.71	7,692.48	7,625.67	115.139	SF
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	9,357.56	6,678.52	6,207.90	6,155.33	118.083	CC
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	9,400.00	6,678.64	6,208.05	6,155.14	117.340	ES
HSR Foster 05-35 - Wellbore #1 - Wellbore #1 - As Drille	11,943.61	6,685.23	6,725.00	6,654.05	94.784	SF
HSR Foster 06-35 - Original Drilling - Original Drilling - As	9,209.03	6,960.21	4,848.37	4,795.97	92.533	CC, ES
HSR Foster 06-35 - Original Drilling - Original Drilling - As	11,300.00	6,977.54	5,280.01	5,213.62	79.525	SF
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	8,555.33	6,977.69	2,764.31	2,716.96	58.387	CC, ES
UPRR 53 Pan Am Unit P1 - Original Drilling - Original Dri	9,400.00	6,975.58	2,890.48	2,838.20	55.289	SF
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	0.00	0.00	5,118.77			
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	1,700.00	1,662.33	5,120.27	5,110.97	550.294	ES
UPRR 53 Pan Am UT P2 - Original Drilling - Original Drill	11,100.00	6,824.98	5,969.80	5,907.39	95.658	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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 Dr	9,328.32	6,927.84	1,448.95	1,395.64	27.178	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As Dr	9,600.00	6,928.97	1,474.20	1,418.45	26.442	SF
Dechant 13N-1HZ - Production Hole - Production Hole - A	11,943.61	6,739.00	1,214.38	1,144.68	17.422	CC, ES, SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	562.83	542.86	5,494.69	5,491.84	1,930.138	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	600.00	574.06	5,494.71	5,491.67	1,808.207	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	11,943.61	600.00	6,377.58	6,336.32	154.560	SF
Dechant 14C-1HZ - Production Hole - Production Hole - A	11,943.61	6,777.15	556.62	500.43	9.906	CC, ES, SF
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	250.18	233.19	5,498.15	5,497.08	5,147.686	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	612.00	595.02	5,498.55	5,495.41	1,751.038	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	11,943.61	610.00	6,368.12	6,326.83	154.233	SF
Dechant 15-36 - Original Drilling - Original Drilling - As Dr	11,780.75	6,957.11	1,514.87	1,422.27	16.359	CC
Dechant 15-36 - Original Drilling - Original Drilling - As Dr	11,800.00	6,957.19	1,514.99	1,422.17	16.322	ES
Dechant 15-36 - Original Drilling - Original Drilling - As Dr	11,943.61	6,957.78	1,523.60	1,429.39	16.172	SF
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	9,641.92	7,073.41	2,148.55	2,090.11	36.764	CC
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	9,700.00	7,073.44	2,149.34	2,090.09	36.280	ES
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	10,400.00	7,073.80	2,278.37	2,210.83	33.737	SF
Dechant 35N-E1HZ - Production Hole - Production Hole -	11,943.61	6,729.23	512.02	465.42	10.989	CC, ES, SF
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	575.24	557.24	5,497.25	5,494.33	1,882.149	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	600.00	578.21	5,497.26	5,494.21	1,802.666	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	11,943.61	612.00	6,365.69	6,324.41	154.200	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	11,943.61	6,691.35	700.99	643.46	12.184	CC, ES, SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	11,943.61	6,700.01	850.03	781.38	12.383	CC, ES, SF
Dechant 37N-E1HZ - Production Hole - Production Hole -	11,600.00	11,600.00	2,842.52	2,762.25	35.416	SF
Dechant 37N-E1HZ - Production Hole - Production Hole -	11,943.61	6,780.06	2,774.21	2,698.42	36.607	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	100.00	79.53	5,634.32	5,634.10	10,000.000	CC
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	600.00	547.93	5,636.63	5,633.68	1,913.849	ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	11,943.61	648.00	6,431.04	6,388.70	151.891	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	11,943.61	7,210.76	2,051.51	1,974.44	26.621	CC, ES, SF
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	0.00	0.00	5,660.06			
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	700.00	655.00	5,660.37	5,656.83	1,599.266	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	11,943.61	655.00	6,428.98	6,386.61	151.741	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,522.61	7,025.29	1,564.42	1,525.36	40.048	CC, ES
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	11,943.61	11,457.64	1,658.08	1,550.17	15.365	SF
Dechant State 16C-1HZ - Original Drilling - Original Drillin	7,330.21	6,979.23	2,747.75	2,707.24	67.825	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drillin	11,943.61	11,783.21	2,929.77	2,788.46	20.732	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	8,176.35	7,570.71	1,201.59	1,157.06	26.978	CC
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	8,200.00	7,587.99	1,201.66	1,156.88	26.833	ES
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	11,943.61	11,272.00	1,306.27	1,198.74	12.148	SF
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	7,476.82	7,045.00	2,520.22	2,481.11	64.436	CC
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	7,500.00	7,045.00	2,520.33	2,481.11	64.257	ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	11,943.61	11,466.00	2,655.90	2,546.88	24.361	SF
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	677.52	663.53	1,802.12	1,798.72	530.635	CC
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	800.00	776.57	1,802.46	1,798.58	465.182	ES
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	11,943.61	11,490.10	2,115.79	2,006.48	19.356	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,625.94	7,166.00	3,241.94	3,202.03	81.229	CC
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,700.00	7,208.00	3,242.34	3,201.92	80.215	ES
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	11,943.61	11,374.51	3,387.42	3,278.66	31.145	SF
Dechant State H36-11D - Original Drilling - Original Drillin	10,553.14	6,956.31	319.83	255.72	4.988	CC, ES, SF
Dechant State H36-18D - Dechant State H36-18D Gyros	8,485.48	7,140.36	812.83	763.97	16.636	CC
Dechant State H36-18D - Dechant State H36-18D Gyros	8,500.00	7,140.96	812.96	763.53	16.449	ES
Dechant State H36-18D - Dechant State H36-18D Gyros	9,000.00	7,161.76	961.76	888.91	13.202	SF
Dechant State H36-18D - Dechant State H36-18D OH - A	8,485.45	7,153.36	812.86	764.01	16.637	CC
Dechant State H36-18D - Dechant State H36-18D OH - A	8,500.00	7,153.96	812.99	763.57	16.449	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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
<b>H Section 36</b>						
Dechant State H36-18D - Dechant State H36-18D OH - A	9,000.00	7,174.76	961.81	888.96	13.203	SF
Dechant State H36-19 - Original Drilling - Original Drilling	8,181.15	6,921.29	580.24	535.86	13.075	CC, ES
Dechant State H36-19 - Original Drilling - Original Drilling	8,200.00	6,921.72	580.54	536.11	13.067	SF
Dechant State H36-20D - Dechant State H36-20D Gyros	9,959.37	7,071.16	329.09	265.52	5.177	CC, ES
Dechant State H36-20D - Dechant State H36-20D Gyros	10,000.00	7,071.91	331.59	266.03	5.058	SF
Dechant State H36-20D - Dechant State H36-20D OH - A	9,959.39	7,084.16	329.09	265.52	5.177	CC, ES
Dechant State H36-20D - Dechant State H36-20D OH - A	10,000.00	7,084.91	331.58	266.03	5.058	SF
Dechant State H36-21D - Dechant State H36-21D Gyros	9,910.53	7,032.64	880.90	815.94	13.561	CC, ES, SF
Dechant State H36-21D - Dechant State H36-21D OH - A	9,910.55	7,045.64	880.88	815.92	13.560	CC, ES, SF
Dechant State H36-24 - Original Drilling - Original Drilling	11,106.41	7,131.63	981.15	910.36	13.861	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	11,200.00	7,130.82	985.60	913.69	13.705	SF
Dechant State H36-31D - Dechant State H36-31D OH - A	1,086.43	1,071.63	1,532.21	1,527.51	325.759	CC
Dechant State H36-31D - Dechant State H36-31D OH - A	1,100.00	1,079.01	1,532.22	1,527.46	321.962	ES
Dechant State H36-31D - Dechant State H36-31D OH - A	9,000.00	7,137.17	1,637.13	1,585.51	31.718	SF
Dechant State H36-32D - Dechant State H36-32D Gyros	9,817.80	6,950.00	1,561.72	1,498.61	24.745	CC, ES
Dechant State H36-32D - Dechant State H36-32D Gyros	9,900.00	6,950.00	1,563.89	1,500.63	24.724	SF
Dechant State H36-32D - Dechant State H36-32D OH - A	9,818.98	7,040.32	1,560.09	1,496.75	24.628	CC, ES
Dechant State H36-32D - Dechant State H36-32D OH - A	9,900.00	7,042.28	1,562.19	1,498.71	24.607	SF
Dechant State H36-33 - Dechant State H36-33D Gyros -	11,033.03	7,082.56	1,473.50	1,404.95	21.493	CC, ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	11,600.00	7,080.78	1,578.82	1,503.00	20.823	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	11,033.05	7,095.56	1,473.49	1,404.94	21.493	CC, ES
Dechant State H36-33 - Dechant State H36-33D OH - As	11,600.00	7,093.78	1,578.80	1,502.98	20.823	SF
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	7,548.15	6,916.04	3,062.97	3,021.95	74.669	CC, ES
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	8,900.00	6,922.05	3,348.02	3,298.39	67.463	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	7,578.46	6,926.79	1,346.45	1,305.31	32.724	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	7,900.00	6,933.45	1,384.30	1,341.17	32.100	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origina	8,750.92	6,949.00	1,970.39	1,806.78	12.043	CC, ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origina	9,000.00	6,949.00	1,986.07	1,820.30	11.980	SF
Spike State GWS H36-03 - Original Drilling - Original Dril	7,752.82	6,952.37	431.89	389.79	10.259	CC, ES
Spike State GWS H36-03 - Original Drilling - Original Dril	7,800.00	6,954.83	434.45	391.94	10.219	SF
Spike State GWS H36-04 - Original Drilling - Original Dril	7,640.37	6,938.61	1,073.45	1,024.11	21.754	CC, ES
Spike State GWS H36-04 - Original Drilling - Original Dril	7,700.00	6,938.21	1,075.11	1,025.58	21.706	SF
Spike State GWS H36-13 - Original Drilling - Original Dril	11,826.92	7,252.08	978.27	901.47	12.738	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dril	11,900.00	7,230.26	980.75	903.48	12.693	SF
Spike State GWS H36-14 - Original Drilling - Original Dril	11,901.30	6,962.34	619.84	543.29	8.097	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dril	11,943.61	6,960.14	621.28	544.22	8.063	SF
Spike State H36-02J - Original Drilling - Original Drilling -	8,833.60	6,957.08	88.77	6.50	1.079	Level 2, CC, ES, SF
Spike State H36-05 - Original Drilling - Original Drilling - A	9,042.29	6,935.88	1,088.05	1,037.14	21.370	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - A	9,100.00	6,935.90	1,089.58	1,038.37	21.278	SF
Spike State H36-11J - Original Drilling - Original Drilling -	11,175.95	6,968.15	251.41	181.60	3.602	CC, ES, SF
Spike State H36-12 - Original Drilling - Original Drilling - A	10,313.81	6,969.45	1,160.21	1,098.23	18.721	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - A	10,400.00	6,968.45	1,163.40	1,100.98	18.638	SF
<b>X Section 01</b>						
Dechant USX X1-6 - Wellbore #1 - As Drilled	11,943.61	7,097.00	2,065.84	2,023.66	48.987	CC, ES, SF
Dechant USX X1-7 - Wellbore #1 - As Drilled	11,943.61	7,015.64	3,032.00	2,981.99	60.636	CC, ES, SF
Dechant X01-02 - Wellbore #1 - As Drilled	11,943.61	7,047.49	1,945.92	1,877.95	28.631	CC, ES, SF
Dechant X01-03 - Wellbore #1 - Wellbore #1	11,943.61	6,975.34	1,299.86	1,252.86	27.659	CC, ES, SF
Dechant X01-04 - Wellbore #1 - As Drilled	11,943.61	6,984.56	1,398.24	1,336.54	22.663	CC, ES, SF
Dechant X01-06 - Wellbore #1 - As Drilled	11,943.61	7,016.02	2,683.10	2,638.98	60.811	CC, ES, SF
Dechant X12-01 - Wellbore #1 - As Drilled	11,943.61	7,069.38	2,605.80	2,553.08	49.430	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Emmy State H36-766
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Reference Site:</b>	H Section 25	<b>MD Reference:</b>	WELL @ 4847.00ft (Original Well Elev)
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Emmy State H36-766	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Wellbore #1	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
X Section 02						
Greenleaf 1C-2HZ - Original Hole - As-Drilled	11,943.61	12,178.00	2,243.30	2,122.32	18.543	CC, ES, SF
Greenleaf 1N-2HZ - Original Hole - As-Drilled	11,943.61	11,854.00	2,794.70	2,668.48	22.143	CC, ES, SF
Greenleaf 26N-2HZ - Original Hole - As-Drilled	11,943.61	11,967.00	2,025.75	1,910.44	17.569	CC, ES, SF
Greenleaf 27N-2HZ - Original Hole - As-Drilled	11,943.61	11,754.00	3,545.22	3,414.25	27.069	CC, ES, SF
Greenleaf 28C-2HZ - Original Hole - Original Hole	11,943.61	12,005.00	4,287.13	4,153.29	32.033	CC, ES, SF
Greenleaf 29C-2HZ - Original Hole - Original Hole	11,943.61	12,733.00	5,404.39	5,263.82	38.444	CC, ES, SF
Greenleaf 29N-2HZ - Original Hole - Original Hole	11,943.61	12,533.00	5,642.58	5,503.00	40.425	CC, ES, SF
Greenleaf 2N-2HZ - Original Hole - Original Hole	11,943.61	12,018.00	4,141.57	4,006.91	30.755	CC, ES, SF
Greenleaf 30N-2HZ - Original Hole - Original Hole	11,943.61	11,541.00	6,747.05	6,614.14	50.767	CC, ES, SF
Greenleaf 3N-2HZR - Original Hole - Original Hole	11,943.61	12,432.00	4,680.65	4,544.09	34.276	CC, ES, SF
Greenleaf 4N-2HZ - Original Hole - Original Hole	11,943.61	12,764.00	5,946.21	5,805.55	42.273	CC, ES, SF
Harkis 11-02 - Original Drilling - Original Drilling - As Drille	11,943.61	6,880.14	6,341.01	6,264.69	83.078	CC, ES, SF
Harkis 31-2 - Original Hole - As-Drilled	11,943.61	7,015.88	3,674.08	3,598.25	48.451	CC, ES, SF
Pioneer 1-2 - Original Hole - As-Drilled	11,943.61	7,220.92	2,339.98	2,237.71	22.882	CC, ES, SF
Pioneer 3-2 - Original Hole - Original Hole	11,943.61	7,262.36	4,896.78	4,778.70	41.468	CC, ES, SF
Pioneer 3-2 - Surface Gyros - Surface Gyros	11,943.61	7,245.36	4,896.85	4,777.15	40.909	CC, ES, SF