

Project: Mustang  
Site: D Section 23  
Well: Gutttersen State D23-771  
Wellbore: Wellbore #1  
Design: Plan #1

# Northern Region - DJ Basin

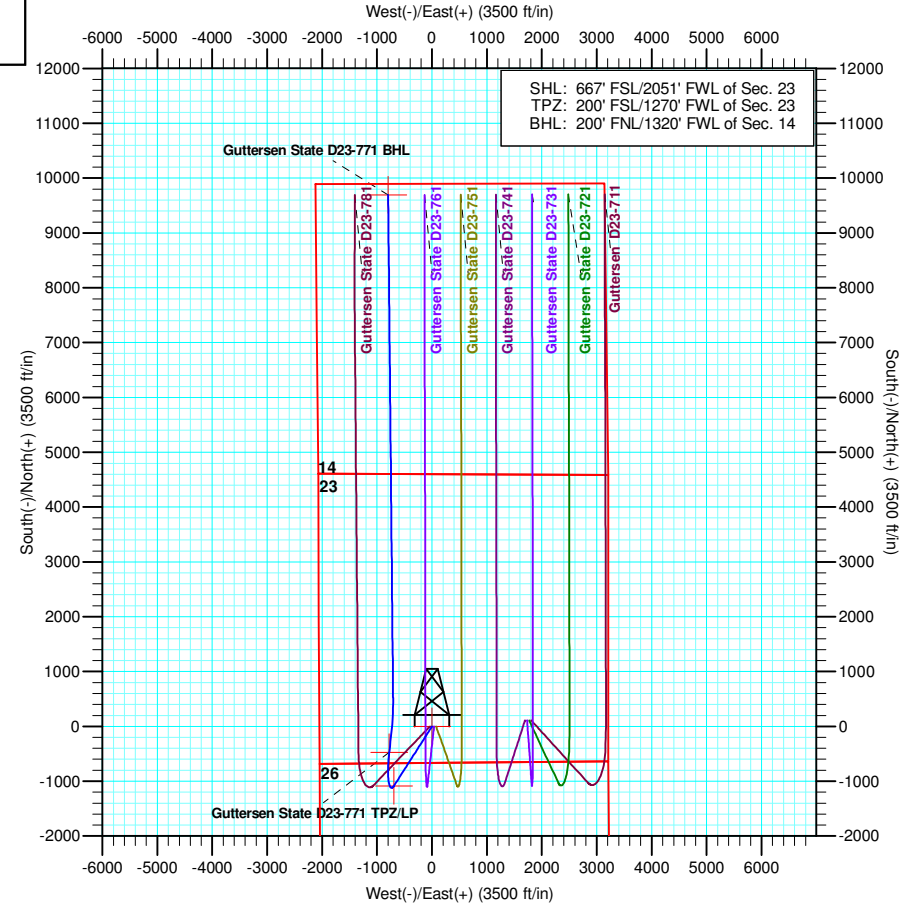
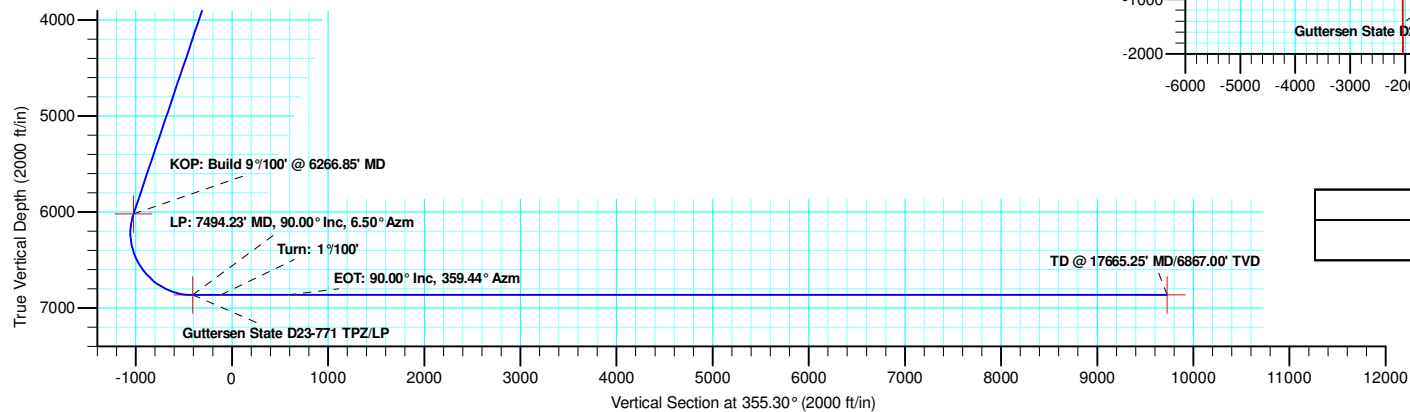
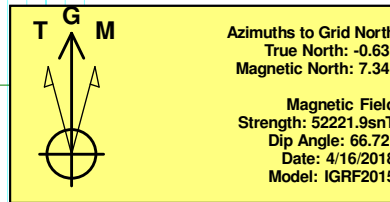
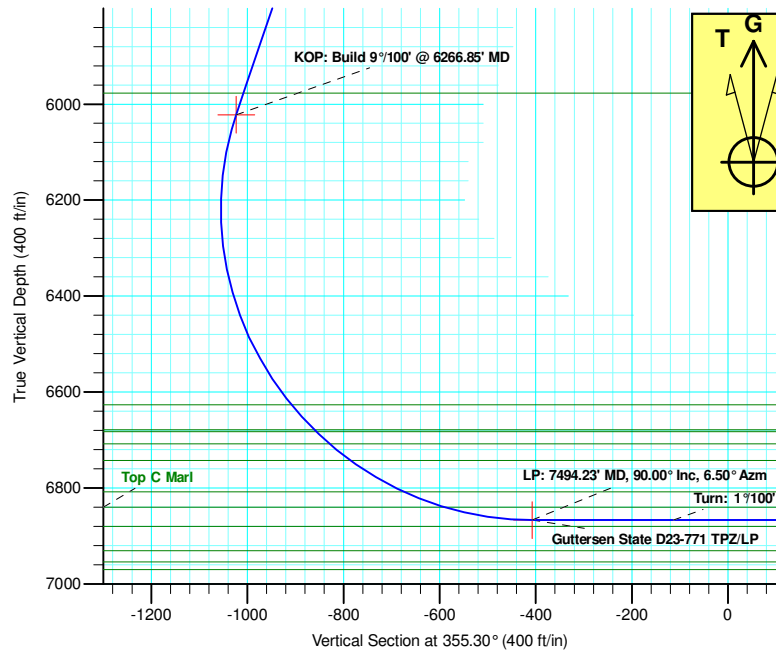
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	0.00	
3	3544.74	22.89	212.52	3514.52	-190.30	-121.32	2.00	212.52	-179.72	
4	6266.85	22.89	212.52	6022.18	-1083.28	-690.62	0.00	0.00	-1023.02	
5	7494.23	90.00	6.50	6867.00	-472.95	-778.60	9.00	152.08	-407.53	Gutttersen State D23-771 TPZ/LP
6	7794.23	90.00	6.50	6867.00	-174.88	-744.64	0.00	0.00	-113.25	
7	8500.05	90.00	359.44	6867.00	529.55	-708.08	1.00	-90.00	585.82	
8	17665.25	90.00	359.44	6867.00	9694.32	-797.38	0.00	0.00	9727.06	Gutttersen State D23-771 BHL

WELL DETAILS: Gutttersen State D23-771

+N/-S	+E/-W	Northing	Ground Level: Easting	4827.00 Latitude	Longitude	Slot
0.00	0.00	1319195.54	3273540.07	40.2054422	-104.5206366	



Plan: Plan #1 (Gutttersen State D23-771/Wellbore #1)

Created By: Keith Noack Date: 16:06, August 15 2018

# **Northern Region - DJ Basin**

**Mustang**

**D Section 23**

**Guttersen State D23-771**

**Wellbore #1**

**Plan: Plan #1**

## **Standard Planning Report**

**15 August, 2018**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State D23-771
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site:</b>	D Section 23	<b>North Reference:</b>	Grid
<b>Well:</b>	Gutttersen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

<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		D Section 23				
Site Position:		Northing:	1,319,071.18 usft	Latitude:	40.2050590	
From:	Lat/Long	Easting:	3,274,917.86 usft	Longitude:	-104.5157090	
Position Uncertainty:		0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.64 °

Well	Guttersen State D23-771					
Well Position	+N/-S	124.36 ft	Northing:	1,319,195.54 usft	Latitude:	40.2054423
	+E/-W	-1,377.79 ft	Easting:	3,273,540.07 usft	Longitude:	-104.5206366
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,827.00 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	4/16/2018	7.98	66.72	52,221.89364239

<b>Design</b>	Plan #1			
<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	355.30

<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	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,544.74	22.89	212.52	3,514.52	-190.30	-121.32	2.00	2.00	0.00	212.52	
6,266.85	22.89	212.52	6,022.18	-1,083.28	-690.62	0.00	0.00	0.00	0.00	
7,494.23	90.00	6.50	6,867.00	-472.95	-778.60	9.00	5.47	12.55	152.08	Gutttersen State D2
7,794.23	90.00	6.50	6,867.00	-174.88	-744.64	0.00	0.00	0.00	0.00	
8,500.05	90.00	359.44	6,867.00	529.55	-708.08	1.00	0.00	-1.00	-90.00	
17,665.25	90.00	359.44	6,867.00	9,694.32	-797.38	0.00	0.00	0.00	0.00	Gutttersen State D2

# Noble Energy, Inc.

## Planning Report

**Database:** EDMP  
**Company:** Northern Region - DJ Basin  
**Project:** Mustang  
**Site:** D Section 23  
**Well:** Gutttersen State D23-771  
**Wellbore:** Wellbore #1  
**Design:** Plan #1

**Local Co-ordinate Reference:** Well Gutttersen State D23-771  
**TVD Reference:** KB @ 4857.00ft  
**MD Reference:** KB @ 4857.00ft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

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
577.00	0.00	0.00	577.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Pierre</b>									
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
779.00	0.00	0.00	779.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer Top</b>									
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
1,667.00	0.00	0.00	1,667.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Upper Pierre Aquifer Base</b>									
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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Build: 2°/100'</b>									
2,500.00	2.00	212.52	2,499.98	-1.47	-0.94	-1.39	2.00	2.00	0.00
2,600.00	4.00	212.52	2,599.84	-5.88	-3.75	-5.56	2.00	2.00	0.00
2,700.00	6.00	212.52	2,699.45	-13.23	-8.44	-12.50	2.00	2.00	0.00
2,800.00	8.00	212.52	2,798.70	-23.51	-14.99	-22.20	2.00	2.00	0.00
2,900.00	10.00	212.52	2,897.47	-36.70	-23.40	-34.66	2.00	2.00	0.00
3,000.00	12.00	212.52	2,995.62	-52.79	-33.65	-49.85	2.00	2.00	0.00
3,100.00	14.00	212.52	3,093.06	-71.75	-45.75	-67.76	2.00	2.00	0.00
3,200.00	16.00	212.52	3,189.64	-93.58	-59.66	-88.37	2.00	2.00	0.00
3,300.00	18.00	212.52	3,285.27	-118.23	-75.37	-111.65	2.00	2.00	0.00
3,400.00	20.00	212.52	3,379.82	-145.68	-92.88	-137.58	2.00	2.00	0.00
3,500.00	22.00	212.52	3,473.17	-175.90	-112.14	-166.11	2.00	2.00	0.00
3,544.74	22.89	212.52	3,514.52	-190.30	-121.32	-179.72	2.00	2.00	0.00
<b>Hold: 22.89° Inc, 212.52° Azm</b>									
3,600.00	22.89	212.52	3,565.43	-208.43	-132.88	-196.84	0.00	0.00	0.00
3,700.00	22.89	212.52	3,657.55	-241.23	-153.79	-227.82	0.00	0.00	0.00
3,800.00	22.89	212.52	3,749.67	-274.04	-174.71	-258.79	0.00	0.00	0.00
3,814.47	22.89	212.52	3,763.00	-278.79	-177.73	-263.28	0.00	0.00	0.00
<b>Parkman</b>									
3,900.00	22.89	212.52	3,841.79	-306.84	-195.62	-289.77	0.00	0.00	0.00
4,000.00	22.89	212.52	3,933.91	-339.65	-216.54	-320.75	0.00	0.00	0.00
4,100.00	22.89	212.52	4,026.04	-372.45	-237.45	-351.73	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State D23-771
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site:</b>	D Section 23	<b>North Reference:</b>	Grid
<b>Well:</b>	Gutttersen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

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	22.89	212.52	4,118.16	-405.26	-258.36	-382.71	0.00	0.00	0.00
4,246.51	22.89	212.52	4,161.00	-420.51	-268.09	-397.12	0.00	0.00	0.00
<b>Sussex</b>									
4,300.00	22.89	212.52	4,210.28	-438.06	-279.28	-413.69	0.00	0.00	0.00
4,400.00	22.89	212.52	4,302.40	-470.87	-300.19	-444.67	0.00	0.00	0.00
4,500.00	22.89	212.52	4,394.52	-503.67	-321.10	-475.65	0.00	0.00	0.00
4,600.00	22.89	212.52	4,486.65	-536.48	-342.02	-506.63	0.00	0.00	0.00
4,700.00	22.89	212.52	4,578.77	-569.28	-362.93	-537.61	0.00	0.00	0.00
4,800.00	22.89	212.52	4,670.89	-602.08	-383.85	-568.59	0.00	0.00	0.00
4,900.00	22.89	212.52	4,763.01	-634.89	-404.76	-599.57	0.00	0.00	0.00
5,000.00	22.89	212.52	4,855.13	-667.69	-425.67	-630.55	0.00	0.00	0.00
5,059.56	22.89	212.52	4,910.00	-687.23	-438.13	-649.00	0.00	0.00	0.00
<b>Shannon</b>									
5,100.00	22.89	212.52	4,947.26	-700.50	-446.59	-661.53	0.00	0.00	0.00
5,200.00	22.89	212.52	5,039.38	-733.30	-467.50	-692.51	0.00	0.00	0.00
5,300.00	22.89	212.52	5,131.50	-766.11	-488.42	-723.49	0.00	0.00	0.00
5,400.00	22.89	212.52	5,223.62	-798.91	-509.33	-754.47	0.00	0.00	0.00
5,500.00	22.89	212.52	5,315.74	-831.72	-530.24	-785.45	0.00	0.00	0.00
5,600.00	22.89	212.52	5,407.87	-864.52	-551.16	-816.43	0.00	0.00	0.00
5,700.00	22.89	212.52	5,499.99	-897.33	-572.07	-847.41	0.00	0.00	0.00
5,800.00	22.89	212.52	5,592.11	-930.13	-592.99	-878.39	0.00	0.00	0.00
5,900.00	22.89	212.52	5,684.23	-962.93	-613.90	-909.37	0.00	0.00	0.00
6,000.00	22.89	212.52	5,776.35	-995.74	-634.81	-940.35	0.00	0.00	0.00
6,100.00	22.89	212.52	5,868.48	-1,028.54	-655.73	-971.33	0.00	0.00	0.00
6,200.00	22.89	212.52	5,960.60	-1,061.35	-676.64	-1,002.31	0.00	0.00	0.00
6,217.80	22.89	212.52	5,977.00	-1,067.19	-680.36	-1,007.82	0.00	0.00	0.00
<b>Teepee Buttes</b>									
6,266.85	22.89	212.52	6,022.18	-1,083.28	-690.62	-1,023.02	0.00	0.00	0.00
<b>KOP: Build 9°/100' @ 6266.85' MD</b>									
6,300.00	20.30	216.55	6,053.00	-1,093.34	-697.51	-1,032.48	9.00	-7.82	12.15
6,350.00	16.64	224.82	6,100.43	-1,105.39	-707.73	-1,043.65	9.00	-7.34	16.54
6,400.00	13.46	237.20	6,148.72	-1,113.63	-717.67	-1,051.05	9.00	-6.34	24.76
6,450.00	11.22	255.59	6,197.58	-1,117.99	-727.28	-1,054.61	9.00	-4.49	36.79
6,500.00	10.51	279.35	6,246.71	-1,118.46	-736.49	-1,054.32	9.00	-1.42	47.51
6,550.00	11.62	302.24	6,295.80	-1,115.03	-745.26	-1,050.19	9.00	2.23	45.79
6,600.00	14.13	319.13	6,344.56	-1,107.72	-753.51	-1,042.23	9.00	5.02	33.78
6,650.00	17.45	330.39	6,392.67	-1,096.58	-761.22	-1,030.49	9.00	6.63	22.51
6,700.00	21.20	337.96	6,439.86	-1,081.68	-768.32	-1,015.06	9.00	7.49	15.15
6,750.00	25.18	343.29	6,485.81	-1,063.10	-774.77	-996.01	9.00	7.97	10.66
6,800.00	29.31	347.23	6,530.26	-1,040.97	-780.53	-973.48	9.00	8.25	7.87
6,850.00	33.52	350.26	6,572.93	-1,015.42	-785.58	-947.60	9.00	8.43	6.06
6,900.00	37.80	352.68	6,613.54	-986.60	-789.87	-918.53	9.00	8.55	4.84
6,917.20	39.28	353.41	6,627.00	-975.96	-791.16	-907.82	9.00	8.61	4.23
<b>Sharon Springs</b>									
6,950.00	42.11	354.67	6,651.87	-954.69	-793.38	-886.44	9.00	8.64	3.86
6,987.56	45.37	355.96	6,679.00	-928.82	-795.49	-860.48	9.00	8.68	3.43
<b>Top A Chalk</b>									
6,993.28	45.87	356.15	6,683.00	-924.74	-795.77	-856.39	9.00	8.70	3.21
<b>Top A Marl</b>									
7,000.00	46.45	356.36	6,687.65	-919.90	-796.08	-851.55	9.00	8.71	3.15
7,030.28	49.09	357.26	6,708.00	-897.52	-797.33	-829.14	9.00	8.72	2.99
<b>Top B Chalk</b>									
7,050.00	50.82	357.82	6,720.69	-882.43	-797.98	-814.05	9.00	8.74	2.80

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
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<b>Well:</b>	Guttarsen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

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)
7,086.59	54.02	358.77	6,743.00	-853.45	-798.83	-785.10	9.00	8.76	2.61
<b>Top B Marl</b>									
7,100.00	55.20	359.10	6,750.77	-842.52	-799.04	-774.19	9.00	8.77	2.47
7,150.00	59.59	0.26	6,777.70	-800.41	-799.26	-732.20	9.00	8.79	2.31
7,200.00	64.00	1.32	6,801.33	-756.37	-798.65	-688.35	9.00	8.81	2.11
7,215.60	65.37	1.63	6,808.00	-742.27	-798.28	-674.33	9.00	8.82	2.01
<b>Top C Chalk</b>									
7,250.00	68.41	2.30	6,821.50	-710.65	-797.20	-642.91	9.00	8.82	1.94
7,300.00	72.82	3.22	6,838.09	-663.55	-794.93	-596.16	9.00	8.83	1.84
7,306.57	73.40	3.33	6,840.00	-657.28	-794.57	-589.94	9.00	8.84	1.79
<b>Top C Marl</b>									
7,350.00	77.24	4.10	6,851.00	-615.36	-791.84	-548.38	9.00	8.84	1.75
7,400.00	81.66	4.94	6,860.16	-566.37	-787.97	-499.87	9.00	8.84	1.70
7,450.00	86.09	5.77	6,865.49	-516.89	-783.33	-450.94	9.00	8.85	1.66
7,494.23	90.00	6.50	6,867.00	-472.95	-778.60	-407.53	9.00	8.85	1.64
<b>LP: 7494.23' MD, 90.00° Inc, 6.50° Azm</b>									
7,500.00	90.00	6.50	6,867.00	-467.21	-777.95	-401.87	0.00	0.00	0.00
7,600.00	90.00	6.50	6,867.00	-367.86	-766.63	-303.77	0.00	0.00	0.00
7,700.00	90.00	6.50	6,867.00	-268.50	-755.31	-205.68	0.00	0.00	0.00
7,794.23	90.00	6.50	6,867.00	-174.88	-744.64	-113.25	0.00	0.00	0.00
<b>Turn: 1°/100'</b>									
7,800.00	90.00	6.44	6,867.00	-169.14	-743.99	-107.58	1.00	0.00	-1.00
7,900.00	90.00	5.44	6,867.00	-69.68	-733.64	-9.31	1.00	0.00	-1.00
8,000.00	90.00	4.44	6,867.00	29.95	-725.02	89.28	1.00	0.00	-1.00
8,100.00	90.00	3.44	6,867.00	129.71	-718.15	188.14	1.00	0.00	-1.00
8,200.00	90.00	2.44	6,867.00	229.58	-713.01	287.25	1.00	0.00	-1.00
8,300.00	90.00	1.44	6,867.00	329.52	-709.62	386.58	1.00	0.00	-1.00
8,400.00	90.00	0.44	6,867.00	429.50	-707.98	486.09	1.00	0.00	-1.00
8,500.05	90.00	359.44	6,867.00	529.55	-708.08	585.82	1.00	0.00	-1.00
<b>EOT: 90.00° Inc, 359.44° Azm</b>									
8,600.00	90.00	359.44	6,867.00	629.50	-709.05	685.50	0.00	0.00	0.00
8,700.00	90.00	359.44	6,867.00	729.49	-710.03	785.24	0.00	0.00	0.00
8,800.00	90.00	359.44	6,867.00	829.49	-711.00	884.98	0.00	0.00	0.00
8,900.00	90.00	359.44	6,867.00	929.48	-711.98	984.72	0.00	0.00	0.00
9,000.00	90.00	359.44	6,867.00	1,029.48	-712.95	1,084.46	0.00	0.00	0.00
9,100.00	90.00	359.44	6,867.00	1,129.47	-713.93	1,184.20	0.00	0.00	0.00
9,200.00	90.00	359.44	6,867.00	1,229.47	-714.90	1,283.93	0.00	0.00	0.00
9,300.00	90.00	359.44	6,867.00	1,329.46	-715.88	1,383.67	0.00	0.00	0.00
9,400.00	90.00	359.44	6,867.00	1,429.46	-716.85	1,483.41	0.00	0.00	0.00
9,500.00	90.00	359.44	6,867.00	1,529.45	-717.82	1,583.15	0.00	0.00	0.00
9,600.00	90.00	359.44	6,867.00	1,629.45	-718.80	1,682.89	0.00	0.00	0.00
9,700.00	90.00	359.44	6,867.00	1,729.44	-719.77	1,782.63	0.00	0.00	0.00
9,800.00	90.00	359.44	6,867.00	1,829.44	-720.75	1,882.37	0.00	0.00	0.00
9,900.00	90.00	359.44	6,867.00	1,929.43	-721.72	1,982.10	0.00	0.00	0.00
10,000.00	90.00	359.44	6,867.00	2,029.43	-722.70	2,081.84	0.00	0.00	0.00
10,100.00	90.00	359.44	6,867.00	2,129.42	-723.67	2,181.58	0.00	0.00	0.00
10,200.00	90.00	359.44	6,867.00	2,229.42	-724.64	2,281.32	0.00	0.00	0.00
10,300.00	90.00	359.44	6,867.00	2,329.41	-725.62	2,381.06	0.00	0.00	0.00
10,400.00	90.00	359.44	6,867.00	2,429.41	-726.59	2,480.80	0.00	0.00	0.00
10,500.00	90.00	359.44	6,867.00	2,529.41	-727.57	2,580.54	0.00	0.00	0.00
10,600.00	90.00	359.44	6,867.00	2,629.40	-728.54	2,680.27	0.00	0.00	0.00
10,700.00	90.00	359.44	6,867.00	2,729.40	-729.52	2,780.01	0.00	0.00	0.00
10,800.00	90.00	359.44	6,867.00	2,829.39	-730.49	2,879.75	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site:</b>	D Section 23	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

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)
10,900.00	90.00	359.44	6,867.00	2,929.39	-731.46	2,979.49	0.00	0.00	0.00
11,000.00	90.00	359.44	6,867.00	3,029.38	-732.44	3,079.23	0.00	0.00	0.00
11,100.00	90.00	359.44	6,867.00	3,129.38	-733.41	3,178.97	0.00	0.00	0.00
11,200.00	90.00	359.44	6,867.00	3,229.37	-734.39	3,278.71	0.00	0.00	0.00
11,300.00	90.00	359.44	6,867.00	3,329.37	-735.36	3,378.44	0.00	0.00	0.00
11,400.00	90.00	359.44	6,867.00	3,429.36	-736.34	3,478.18	0.00	0.00	0.00
11,500.00	90.00	359.44	6,867.00	3,529.36	-737.31	3,577.92	0.00	0.00	0.00
11,600.00	90.00	359.44	6,867.00	3,629.35	-738.29	3,677.66	0.00	0.00	0.00
11,700.00	90.00	359.44	6,867.00	3,729.35	-739.26	3,777.40	0.00	0.00	0.00
11,800.00	90.00	359.44	6,867.00	3,829.34	-740.23	3,877.14	0.00	0.00	0.00
11,900.00	90.00	359.44	6,867.00	3,929.34	-741.21	3,976.88	0.00	0.00	0.00
12,000.00	90.00	359.44	6,867.00	4,029.33	-742.18	4,076.61	0.00	0.00	0.00
12,100.00	90.00	359.44	6,867.00	4,129.33	-743.16	4,176.35	0.00	0.00	0.00
12,200.00	90.00	359.44	6,867.00	4,229.32	-744.13	4,276.09	0.00	0.00	0.00
12,300.00	90.00	359.44	6,867.00	4,329.32	-745.11	4,375.83	0.00	0.00	0.00
12,400.00	90.00	359.44	6,867.00	4,429.32	-746.08	4,475.57	0.00	0.00	0.00
12,500.00	90.00	359.44	6,867.00	4,529.31	-747.05	4,575.31	0.00	0.00	0.00
12,600.00	90.00	359.44	6,867.00	4,629.31	-748.03	4,675.05	0.00	0.00	0.00
12,700.00	90.00	359.44	6,867.00	4,729.30	-749.00	4,774.78	0.00	0.00	0.00
12,800.00	90.00	359.44	6,867.00	4,829.30	-749.98	4,874.52	0.00	0.00	0.00
12,900.00	90.00	359.44	6,867.00	4,929.29	-750.95	4,974.26	0.00	0.00	0.00
13,000.00	90.00	359.44	6,867.00	5,029.29	-751.93	5,074.00	0.00	0.00	0.00
13,100.00	90.00	359.44	6,867.00	5,129.28	-752.90	5,173.74	0.00	0.00	0.00
13,200.00	90.00	359.44	6,867.00	5,229.28	-753.87	5,273.48	0.00	0.00	0.00
13,300.00	90.00	359.44	6,867.00	5,329.27	-754.85	5,373.22	0.00	0.00	0.00
13,400.00	90.00	359.44	6,867.00	5,429.27	-755.82	5,472.95	0.00	0.00	0.00
13,500.00	90.00	359.44	6,867.00	5,529.26	-756.80	5,572.69	0.00	0.00	0.00
13,600.00	90.00	359.44	6,867.00	5,629.26	-757.77	5,672.43	0.00	0.00	0.00
13,700.00	90.00	359.44	6,867.00	5,729.25	-758.75	5,772.17	0.00	0.00	0.00
13,800.00	90.00	359.44	6,867.00	5,829.25	-759.72	5,871.91	0.00	0.00	0.00
13,900.00	90.00	359.44	6,867.00	5,929.24	-760.70	5,971.65	0.00	0.00	0.00
14,000.00	90.00	359.44	6,867.00	6,029.24	-761.67	6,071.39	0.00	0.00	0.00
14,100.00	90.00	359.44	6,867.00	6,129.23	-762.64	6,171.12	0.00	0.00	0.00
14,200.00	90.00	359.44	6,867.00	6,229.23	-763.62	6,270.86	0.00	0.00	0.00
14,300.00	90.00	359.44	6,867.00	6,329.23	-764.59	6,370.60	0.00	0.00	0.00
14,400.00	90.00	359.44	6,867.00	6,429.22	-765.57	6,470.34	0.00	0.00	0.00
14,500.00	90.00	359.44	6,867.00	6,529.22	-766.54	6,570.08	0.00	0.00	0.00
14,600.00	90.00	359.44	6,867.00	6,629.21	-767.52	6,669.82	0.00	0.00	0.00
14,700.00	90.00	359.44	6,867.00	6,729.21	-768.49	6,769.56	0.00	0.00	0.00
14,800.00	90.00	359.44	6,867.00	6,829.20	-769.46	6,869.29	0.00	0.00	0.00
14,900.00	90.00	359.44	6,867.00	6,929.20	-770.44	6,969.03	0.00	0.00	0.00
15,000.00	90.00	359.44	6,867.00	7,029.19	-771.41	7,068.77	0.00	0.00	0.00
15,100.00	90.00	359.44	6,867.00	7,129.19	-772.39	7,168.51	0.00	0.00	0.00
15,200.00	90.00	359.44	6,867.00	7,229.18	-773.36	7,268.25	0.00	0.00	0.00
15,300.00	90.00	359.44	6,867.00	7,329.18	-774.34	7,367.99	0.00	0.00	0.00
15,400.00	90.00	359.44	6,867.00	7,429.17	-775.31	7,467.73	0.00	0.00	0.00
15,500.00	90.00	359.44	6,867.00	7,529.17	-776.28	7,567.46	0.00	0.00	0.00
15,600.00	90.00	359.44	6,867.00	7,629.16	-777.26	7,667.20	0.00	0.00	0.00
15,700.00	90.00	359.44	6,867.00	7,729.16	-778.23	7,766.94	0.00	0.00	0.00
15,800.00	90.00	359.44	6,867.00	7,829.15	-779.21	7,866.68	0.00	0.00	0.00
15,900.00	90.00	359.44	6,867.00	7,929.15	-780.18	7,966.42	0.00	0.00	0.00
16,000.00	90.00	359.44	6,867.00	8,029.14	-781.16	8,066.16	0.00	0.00	0.00
16,100.00	90.00	359.44	6,867.00	8,129.14	-782.13	8,165.90	0.00	0.00	0.00
16,200.00	90.00	359.44	6,867.00	8,229.14	-783.10	8,265.63	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site:</b>	D Section 23	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

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)	
16,300.00	90.00	359.44	6,867.00	8,329.13	-784.08	8,365.37	0.00	0.00	0.00	
16,400.00	90.00	359.44	6,867.00	8,429.13	-785.05	8,465.11	0.00	0.00	0.00	
16,500.00	90.00	359.44	6,867.00	8,529.12	-786.03	8,564.85	0.00	0.00	0.00	
16,600.00	90.00	359.44	6,867.00	8,629.12	-787.00	8,664.59	0.00	0.00	0.00	
16,700.00	90.00	359.44	6,867.00	8,729.11	-787.98	8,764.33	0.00	0.00	0.00	
16,800.00	90.00	359.44	6,867.00	8,829.11	-788.95	8,864.07	0.00	0.00	0.00	
16,900.00	90.00	359.44	6,867.00	8,929.10	-789.93	8,963.80	0.00	0.00	0.00	
17,000.00	90.00	359.44	6,867.00	9,029.10	-790.90	9,063.54	0.00	0.00	0.00	
17,100.00	90.00	359.44	6,867.00	9,129.09	-791.87	9,163.28	0.00	0.00	0.00	
17,200.00	90.00	359.44	6,867.00	9,229.09	-792.85	9,263.02	0.00	0.00	0.00	
17,300.00	90.00	359.44	6,867.00	9,329.08	-793.82	9,362.76	0.00	0.00	0.00	
17,400.00	90.00	359.44	6,867.00	9,429.08	-794.80	9,462.50	0.00	0.00	0.00	
17,500.00	90.00	359.44	6,867.00	9,529.07	-795.77	9,562.24	0.00	0.00	0.00	
17,600.00	90.00	359.44	6,867.00	9,629.07	-796.75	9,661.97	0.00	0.00	0.00	
17,665.25	90.00	359.44	6,867.00	9,694.32	-797.38	9,727.06	0.00	0.00	0.00	
TD @ 17665.25' MD/6867.00' TVD										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Guttersen State D23- - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,319,195.54	3,273,540.07	40.2054423	-104.5206366	
Guttersen State D23- - plan hits target center - Point	0.00	0.00	6,022.18	-1,083.28	-690.62	1,318,112.26	3,272,849.45	40.2024896	-104.5231517	
Guttersen State D23- - plan hits target center - Point	0.00	0.00	6,867.00	9,694.32	-797.38	1,328,889.84	3,272,742.69	40.2320767	-104.5231089	
Guttersen State D23- - plan hits target center - Point	0.00	0.00	6,867.00	-472.95	-778.60	1,318,722.59	3,272,761.47	40.2041676	-104.5234426	



# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site:</b>	D Section 23	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State D23-771	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
577.00	577.00	Pierre				
779.00	779.00	Upper Pierre Aquifer Top				
1,667.00	1,667.00	Upper Pierre Aquifer Base				
3,814.47	3,763.00	Parkman				
4,246.51	4,161.00	Sussex				
5,059.56	4,910.00	Shannon				
6,217.80	5,977.00	Teepee Buttes				
6,917.20	6,627.00	Sharon Springs				
6,987.56	6,679.00	Top A Chalk				
6,993.28	6,683.00	Top A Marl				
7,030.28	6,708.00	Top B Chalk				
7,086.59	6,743.00	Top B Marl				
7,215.60	6,808.00	Top C Chalk				
7,306.57	6,840.00	Top C Marl				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,400.00	2,400.00	0.00	0.00	Build: 2°/100'	
3,544.74	3,514.52	-190.30	-121.32	Hold: 22.89° Inc, 212.52° Azm	
6,266.85	6,022.18	-1,083.28	-690.62	KOP: Build 9°/100' @ 6266.85' MD	
7,494.23	6,867.00	-472.95	-778.60	LP: 7494.23' MD, 90.00° Inc, 6.50° Azm	
7,794.23	6,867.00	-174.88	-744.64	Turn: 1°/100'	
8,500.05	6,867.00	529.55	-708.08	EOT: 90.00° Inc, 359.44° Azm	
17,665.25	6,867.00	9,694.32	-797.38	TD @ 17665.25' MD/6867.00' TVD	

# **Northern Region - DJ Basin**

**Mustang**

**D Section 23**

**Guttersen State D23-771**

**Wellbore #1**

**Plan #1**

## **Anticollision Summary Report**

**15 August, 2018**

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State D23-771	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #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 10,000.00 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	7/31/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,665.25	Plan #1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 14						
Spike D 14-09 (SI) - Wellbore #1 - Gyro Surveys	14,723.12	6,778.38	3,461.50	3,372.58	38.927	CC, ES
Spike D 14-09 (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,778.69	3,509.24	3,416.93	38.014	SF
Spike State D 14-13 (SI) - Wellbore #1 - Gyro Surveys	13,139.56	6,858.67	698.41	620.90	9.010	CC, ES
Spike State D 14-13 (SI) - Wellbore #1 - Gyro Surveys	13,200.00	6,858.56	701.02	623.14	9.001	SF
Dalbey D 14-1 (SI) - Wellbore #1 - Gyro Surveys	17,147.63	6,743.20	3,191.88	3,084.26	29.659	CC, ES
Dalbey D 14-1 (SI) - Wellbore #1 - Gyro Surveys	17,600.00	6,742.21	3,223.78	3,113.58	29.254	SF
Dalbey D 14-2 (SI) - Wellbore #1 - Gyro Surveys	16,908.38	6,733.85	2,274.97	2,169.29	21.527	CC, ES
Dalbey D 14-2 (SI) - Wellbore #1 - Gyro Surveys	17,100.00	6,735.22	2,283.02	2,176.20	21.373	SF
Dalbey D 14-3 (SI) - Wellbore #1 - Gyro Surveys	17,134.72	6,760.94	842.18	734.66	7.833	CC, ES, SF
Dalbey D 14-6 (SI) - Wellbore #1 - Gyro Surveys	15,971.60	6,807.72	625.77	527.10	6.342	CC, ES, SF
Dalbey D 14-7 (SI) - Wellbore #1 - Gyro Surveys	15,830.55	6,741.06	1,883.31	1,786.00	19.355	CC, ES
Dalbey D 14-7 (SI) - Wellbore #1 - Gyro Surveys	16,000.00	6,741.59	1,890.92	1,792.67	19.246	SF
Dalbey D 14-8 (SI) - Wellbore #1 - Gyro Surveys	15,861.76	6,723.76	3,135.69	3,038.18	32.159	CC
Dalbey D 14-8 (SI) - Wellbore #1 - Gyro Surveys	15,900.00	6,723.90	3,135.92	3,038.14	32.070	ES
Dalbey D 14-8 (SI) - Wellbore #1 - Gyro Surveys	16,300.00	6,725.37	3,166.16	3,066.08	31.635	SF
Guttersen State D 14-23 (SI) - Wellbore #1 - Gyro Survey	13,789.81	6,656.45	2,666.18	2,584.87	32.790	CC
Guttersen State D 14-23 (SI) - Wellbore #1 - Gyro Survey	13,800.00	6,656.32	2,666.20	2,584.82	32.761	ES
Guttersen State D 14-23 (SI) - Wellbore #1 - Gyro Survey	14,200.00	6,651.14	2,697.54	2,613.91	32.254	SF
Guttersen State D 14-24 (PR) - Wellbore #1 - Gyro Surve	13,913.34	6,823.93	1,205.57	1,122.46	14.505	CC, ES
Guttersen State D 14-24 (PR) - Wellbore #1 - Gyro Surve	14,000.00	6,823.32	1,208.68	1,125.13	14.467	SF
Guttersen State D 14-33 (PR) - Wellbore #1 - Gyro Surve	13,998.17	6,856.17	1,053.55	969.80	12.580	CC
Guttersen State D 14-33 (PR) - Wellbore #1 - Gyro Surve	14,000.00	6,856.17	1,053.55	969.79	12.578	ES
Guttersen State D 14-33 (PR) - Wellbore #1 - Gyro Surve	14,100.00	6,855.83	1,058.46	974.09	12.546	SF
HSR-Guttersen State 4-14 (PA) - Wellbore #1 - Gyro Sur	17,117.33	6,799.28	632.07	525.11	5.910	CC, ES, SF
HSR-Guttersen State 5-14 (PA) - Wellbore #1 - Gyro Sur	15,921.19	6,801.80	610.97	513.53	6.270	CC, ES, SF
Spike D 14-16 (SI) - Wellbore #1 - Gyro Surveys	13,091.07	6,732.17	3,396.13	3,319.44	44.282	CC
Spike D 14-16 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,732.15	3,396.14	3,319.39	44.247	ES
Spike D 14-16 (SI) - Wellbore #1 - Gyro Surveys	13,700.00	6,730.53	3,450.29	3,370.05	43.002	SF
Spike State D 14-11 (PR) - Wellbore #1 - Gyro Surveys	14,744.58	6,816.62	843.43	754.15	9.447	CC, ES
Spike State D 14-11 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	6,815.95	845.25	755.75	9.445	SF
Spike State D 14-12 (PR) - Wellbore #1 - Gyro Surveys	14,716.27	6,808.86	686.65	597.54	7.706	CC, ES, SF
Spike State D 14-14 (SI) - Wellbore #1 - Gyro Surveys	13,051.51	6,830.92	796.78	719.91	10.365	CC, ES
Spike State D 14-14 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,831.15	798.26	721.17	10.356	SF
Spike State D 14-15 (SI) - Wellbore #1 - Gyro Surveys	13,152.19	6,714.01	2,121.18	2,044.33	27.600	CC, ES
Spike State D 14-15 (SI) - Wellbore #1 - Gyro Surveys	13,400.00	6,709.57	2,135.61	2,057.35	27.291	SF
Spike State D14-13J (SI) - Wellbore #1 - Gyro Surveys	13,925.12	6,842.52	238.45	155.08	2.860	CC, ES, SF
Spike State GWS D 14-10 (SI) - Wellbore #1 - Gyro Surv	14,393.40	6,769.00	2,019.44	1,932.95	23.350	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 Guttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State D23-771	<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 #1	<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 14						
Spike State GWS D 14-10 (SI) - Wellbore #1 - Gyro Surv	14,400.00	6,768.83	2,019.45	1,932.92	23.338	ES
Spike State GWS D 14-10 (SI) - Wellbore #1 - Gyro Surv	14,600.00	6,763.53	2,029.98	1,942.36	23.170	SF

# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gutttersen State D23-771	<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 #1	<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
D Section 15						
Cally Blue D 15-12 (PR) - Wellbore #1 - Gyro Surveys	14,717.07	6,800.00	6,058.11	5,969.03	68.005	CC
Cally Blue D 15-12 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	6,800.00	6,058.68	5,968.96	67.527	ES
Cally Blue D 15-12 (PR) - Wellbore #1 - Gyro Surveys	16,500.00	6,790.34	6,315.01	6,214.69	62.945	SF
Cally Blue D 15-14 (PR) - Wellbore #1 - Gyro Surveys	13,125.20	6,817.22	4,528.11	4,450.76	58.542	CC, ES
Cally Blue D 15-14 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,818.78	4,678.03	4,593.36	55.252	SF
Cally Blue D15-04J - Wellbore #1 - Wellbore #1- As Drille	13,604.17	6,843.88	2,296.67	2,215.79	28.397	CC, ES
Cally Blue D15-04J - Wellbore #1 - Wellbore #1- As Drille	13,900.00	6,841.42	2,315.64	2,232.84	27.965	SF
Cally Blue D15-09 - Wellbore #1 - Wellbore #1- As Drille	14,481.27	6,850.31	2,085.03	1,997.63	23.855	CC
Cally Blue D15-09 - Wellbore #1 - Wellbore #1- As Drille	14,500.00	6,850.25	2,085.11	1,997.56	23.815	ES
Cally Blue D15-09 - Wellbore #1 - Wellbore #1- As Drille	14,700.00	6,849.63	2,096.47	2,007.60	23.589	SF
Cally Blue D15-10 - Wellbore #1 - Wellbore #1- As Drille	14,607.75	6,831.83	3,330.88	3,242.53	37.702	CC, ES
Cally Blue D15-10 - Wellbore #1 - Wellbore #1- As Drille	15,200.00	6,833.95	3,383.12	3,290.97	36.713	SF
Cally Blue D15-11 (PA) - Wellbore #1 - Gyro Surveys	14,753.38	6,841.28	4,541.44	4,451.97	50.759	CC
Cally Blue D15-11 (PA) - Wellbore #1 - Gyro Surveys	14,800.00	6,841.06	4,541.68	4,451.84	50.557	ES
Cally Blue D15-11 (PA) - Wellbore #1 - Gyro Surveys	15,800.00	6,836.30	4,660.48	4,564.36	48.486	SF
Cally Blue D15-15 - Wellbore #1 - Wellbore #1- As Drille	13,303.51	6,806.62	3,297.96	3,219.32	41.934	CC, ES
Cally Blue D15-15 - Wellbore #1 - Wellbore #1- As Drille	14,000.00	6,812.18	3,370.70	3,287.73	40.625	SF
Cally D15-02 - Wellbore #1 - Wellbore #1-As Drilled	17,240.48	6,812.15	3,244.11	3,135.52	29.875	CC, ES
Cally D15-02 - Wellbore #1 - Wellbore #1-As Drilled	17,665.25	6,809.78	3,271.80	3,160.36	29.361	SF
Cally White D15-01 - Wellbore #1 - Wellbore #1- As Drille	17,176.86	6,819.62	1,940.67	1,832.57	17.952	CC
Cally White D15-01 - Wellbore #1 - Wellbore #1- As Drille	17,200.00	6,819.41	1,940.81	1,832.52	17.922	ES
Cally White D15-01 - Wellbore #1 - Wellbore #1- As Drille	17,400.00	6,817.60	1,953.46	1,843.96	17.840	SF
Cally White D15-07 - Wellbore #1 - Wellbore #1- As Drille	15,930.80	6,848.63	3,394.06	3,295.58	34.465	CC, ES
Cally White D15-07 - Wellbore #1 - Wellbore #1- As Drille	16,500.00	6,842.27	3,441.45	3,339.31	33.694	SF
Cally White D15-08 - Wellbore #1 - Wellbore #1- As Drille	15,896.72	6,829.74	1,919.70	1,821.53	19.555	CC
Cally White D15-08 - Wellbore #1 - Wellbore #1- As Drille	15,900.00	6,829.72	1,919.70	1,821.51	19.550	ES
Cally White D15-08 - Wellbore #1 - Wellbore #1- As Drille	16,100.00	6,828.92	1,930.43	1,830.93	19.401	SF
Chandler State D15-72-1HN - Original Drilling - Original I	14,164.83	10,142.94	1,639.39	1,543.72	17.137	CC
Chandler State D15-72-1HN - Original Drilling - Original I	14,200.00	10,130.00	1,639.55	1,543.70	17.105	ES
Chandler State D15-72-1HN - Original Drilling - Original I	17,665.25	6,679.79	1,674.42	1,564.54	15.238	SF
Chandler State D15-73-1HN - Original Drilling - Original I	12,662.23	11,629.00	2,204.57	2,109.09	23.089	CC, ES
Chandler State D15-73-1HN - Original Drilling - Original I	17,665.25	6,740.61	2,313.41	2,203.01	20.954	SF
Chandler State D15-74-1HN - Original Drilling - Original I	13,500.00	13,500.00	2,948.14	2,774.66	16.994	ES
Chandler State D15-74-1HN - Original Drilling - Original I	14,300.00	14,300.00	2,969.68	2,778.52	15.935	SF
Chandler State D15-74-1HN - Original Drilling - Original I	17,665.25	6,197.92	2,899.69	2,788.91	26.174	CC
Chandler State D23-79HN - Original Drilling - Original Dr	7,700.00	12,200.02	1,239.96	1,121.08	10.430	ES
Chandler State D23-79HN - Original Drilling - Original Dr	7,794.23	12,200.02	1,244.94	1,125.05	10.384	SF
Chandler State D23-79HN - Original Drilling - Original Dr	12,795.35	7,235.42	1,211.57	1,137.58	16.375	CC
Duff D15-5 (PR) - Wellbore #1 - Gyro Surveys	15,907.50	6,985.89	5,981.80	5,883.74	61.002	CC
Duff D15-5 (PR) - Wellbore #1 - Gyro Surveys	16,000.00	6,983.44	5,982.52	5,883.73	60.560	ES
Duff D15-5 (PR) - Wellbore #1 - Gyro Surveys	17,500.00	6,943.66	6,190.01	6,081.77	57.187	SF
Gutttersen D 15-21 (PR) - Wellbore #1 - Gyro Surveys	15,161.00	6,837.93	3,873.17	3,780.68	41.878	CC
Gutttersen D 15-21 (PR) - Wellbore #1 - Gyro Surveys	15,200.00	6,838.14	3,873.37	3,780.57	41.742	ES
Gutttersen D 15-21 (PR) - Wellbore #1 - Gyro Surveys	15,900.00	6,841.98	3,943.04	3,845.78	40.543	SF
Gutttersen D 15-24 (PR) - Wellbore #1 - Gyro Surveys	13,942.12	6,826.41	3,982.77	3,899.45	47.799	CC
Gutttersen D 15-24 (PR) - Wellbore #1 - Gyro Surveys	14,000.00	6,826.57	3,983.19	3,899.42	47.552	ES
Gutttersen D 15-24 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	6,828.70	4,074.11	3,985.33	45.888	SF
Gutttersen D 15-29 (SI) - Wellbore #1 - Gyro Surveys	17,665.25	6,771.21	5,256.10	5,144.30	47.013	CC, ES, SF
Gutttersen D 22-28 (PR) - Wellbore #1 - Gyro Surveys	12,728.39	6,838.09	4,082.03	4,007.46	54.746	CC, ES
Gutttersen D 22-28 (PR) - Wellbore #1 - Gyro Surveys	13,800.00	6,837.67	4,220.34	4,139.27	52.054	SF
Gutttersen D14-32 - Wellbore #1 - Wellbore #1- As Drille	15,341.59	6,829.18	1,467.53	1,373.67	15.635	CC, ES
Gutttersen D14-32 - Wellbore #1 - Wellbore #1- As Drille	15,500.00	6,831.17	1,476.06	1,381.21	15.563	SF
Gutttersen D15-17 - Wellbore #1 - Wellbore #1- As Drille	16,629.13	6,838.98	2,624.17	2,520.30	25.263	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State D23-771	<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 #1	<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 15						
Guttersen D15-17 - Wellbore #1 - Wellbore #1- As Drillec	17,000.00	6,843.00	2,650.25	2,544.02	24.949	SF
Guttersen D15-18 (SI) - Wellbore #1 - Gyro Surveys	16,774.04	6,852.49	3,777.73	3,672.66	35.954	CC
Guttersen D15-18 (SI) - Wellbore #1 - Gyro Surveys	16,800.00	6,852.36	3,777.82	3,672.54	35.884	ES
Guttersen D15-18 (SI) - Wellbore #1 - Gyro Surveys	17,400.00	6,850.59	3,829.24	3,720.10	35.084	SF
Guttersen D15-20 (PR) - Wellbore #1 - Gyro Surveys	15,335.07	6,850.44	5,343.29	5,249.37	56.894	CC
Guttersen D15-20 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,850.44	5,343.68	5,249.26	56.592	ES
Guttersen D15-20 (PR) - Wellbore #1 - Gyro Surveys	16,700.00	6,850.58	5,514.87	5,412.28	53.759	SF
Guttersen D15-22 - Wellbore #1 - Wellbore #1- As Drillec	15,035.22	6,852.18	2,645.61	2,553.99	28.876	CC, ES
Guttersen D15-22 - Wellbore #1 - Wellbore #1- As Drillec	15,400.00	6,854.35	2,670.64	2,576.64	28.412	SF
Guttersen D15-28 (SI) - Wellbore #1 - Gyro Surveys	17,665.25	6,851.81	3,957.46	3,845.51	35.351	CC, ES, SF
Guttersen D15-30 (SI) - Wellbore #1 - Gyro Surveys	17,531.69	6,780.89	6,295.89	6,185.11	56.829	CC
Guttersen D15-30 (SI) - Wellbore #1 - Gyro Surveys	17,600.00	6,781.33	6,296.27	6,184.93	56.552	ES
Guttersen D15-30 (SI) - Wellbore #1 - Gyro Surveys	17,665.25	6,781.75	6,297.31	6,185.46	56.301	SF
Guttersen D22-27 - Wellbore #1 - Wellbore #1- As Drillec	12,808.15	6,848.40	2,693.55	2,618.39	35.836	CC, ES
Guttersen D22-27 - Wellbore #1 - Wellbore #1- As Drillec	13,300.00	6,846.32	2,738.09	2,659.91	35.020	SF
Guttersen D23-69HN - Plan A - Plan A	12,484.23	8,029.82	34.21	-27.28	0.556	Level 1, CC
Guttersen D23-69HN - Plan A - Plan A	12,500.00	8,029.31	37.66	-33.33	0.531	Level 1, ES, SF
HSR Guttersen 03-15 (SI) - Wellbore #1 - Gyro Surveys	17,229.39	6,822.66	4,614.63	4,506.10	42.519	CC
HSR Guttersen 03-15 (SI) - Wellbore #1 - Gyro Surveys	17,300.00	6,823.12	4,615.17	4,506.07	42.303	ES
HSR Guttersen 03-15 (SI) - Wellbore #1 - Gyro Surveys	17,665.25	6,825.50	4,635.17	4,523.43	41.482	SF
HSR Guttersen 6-15 (SI) - Wellbore #1 - Gyro Surveys	15,774.07	6,854.09	4,451.77	4,354.46	45.749	CC
HSR Guttersen 6-15 (SI) - Wellbore #1 - Gyro Surveys	15,800.00	6,854.03	4,451.84	4,354.33	45.653	ES
HSR Guttersen 6-15 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,852.06	4,547.04	4,443.77	44.031	SF
Mills UPRC D 15-04 (SI) - Wellbore #1 - Gyro Surveys	16,934.30	6,799.38	5,587.42	5,481.26	52.630	CC
Mills UPRC D 15-04 (SI) - Wellbore #1 - Gyro Surveys	17,000.00	6,799.44	5,587.81	5,481.12	52.375	ES
Mills UPRC D 15-04 (SI) - Wellbore #1 - Gyro Surveys	17,665.25	6,800.03	5,635.03	5,523.62	50.578	SF
Two E Ranch 1-15B (SI) - Wellbore #1 - Gyro Surveys	13,579.84	6,777.88	5,618.19	5,537.91	69.982	CC
Two E Ranch 1-15B (SI) - Wellbore #1 - Gyro Surveys	13,600.00	6,777.87	5,618.22	5,537.79	69.850	ES
Two E Ranch 1-15B (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,776.90	5,875.63	5,784.66	64.593	SF



# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gutttersen State D23-771	<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 #1	<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
D Section 23						
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	10,074.57	6,858.16	40.15	-17.49	0.697	Level 1, CC, ES, SF
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	10,574.45	6,747.30	2,118.13	2,058.23	35.360	CC, ES
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	10,900.00	6,745.88	2,143.00	2,081.47	34.826	SF
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	11,877.31	6,693.51	3,283.35	3,215.38	48.302	CC
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	11,900.00	6,693.19	3,283.43	3,215.31	48.199	ES
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,683.79	3,361.93	3,290.02	46.752	SF
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	11,872.25	6,811.62	1,942.95	1,874.53	28.400	CC, ES
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	12,100.00	6,808.76	1,956.25	1,886.61	28.091	SF
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	10,540.13	6,775.27	3,250.92	3,191.04	54.291	CC, ES
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,767.38	3,338.54	3,274.82	52.398	SF
Gutttersen D23-711 - Wellbore #1 - Plan #1	2,400.00	2,383.00	1,809.74	1,793.06	108.500	CC, ES
Gutttersen D23-711 - Wellbore #1 - Plan #1	17,665.25	17,722.61	3,940.60	3,764.18	22.337	SF
Gutttersen D35-720 - Wellbore #1 - Plan #1	2,200.00	2,184.00	1,788.31	1,773.06	117.271	CC, ES
Gutttersen D35-720 - Wellbore #1 - Plan #1	7,350.00	7,350.00	3,317.82	3,266.34	64.450	SF
Gutttersen D35-730 - Wellbore #1 - Plan #1	2,400.00	2,382.00	1,751.17	1,734.50	105.011	CC, ES
Gutttersen D35-730 - Wellbore #1 - Plan #1	6,900.00	7,319.21	2,685.53	2,634.62	52.750	SF
Gutttersen D35-740 - Wellbore #1 - Plan #1	2,910.30	3,089.62	1,678.51	1,657.92	81.515	CC, ES
Gutttersen D35-740 - Wellbore #1 - Plan #1	6,850.00	7,492.18	2,018.25	1,966.44	38.956	SF
Gutttersen D35-750 - Wellbore #1 - Plan #1	2,443.88	2,449.73	166.05	149.04	9.760	CC, ES
Gutttersen D35-750 - Wellbore #1 - Plan #1	2,600.00	2,605.92	170.49	152.43	9.442	SF
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,400.00	2,402.00	154.75	138.00	9.240	CC
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,700.00	2,717.56	155.80	137.09	8.326	ES
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,900.00	2,917.47	162.53	142.50	8.113	SF
Gutttersen D35-770 - Wellbore #1 - Plan #1	7,284.49	7,117.11	51.33	1.54	1.031	Level 2, CC, ES, SF
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,421.79	2,424.77	153.76	136.89	9.117	CC, ES
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,700.00	2,701.73	163.27	144.54	8.716	SF
Gutttersen State D23-721 - Wellbore #1 - Plan #1	2,400.00	2,382.00	1,772.30	1,755.62	106.278	CC, ES
Gutttersen State D23-721 - Wellbore #1 - Plan #1	17,665.25	17,568.70	3,281.09	3,104.55	18.586	SF
Gutttersen State D23-731 - Wellbore #1 - Plan #1	2,400.00	2,382.00	1,734.85	1,718.17	104.032	CC, ES
Gutttersen State D23-731 - Wellbore #1 - Plan #1	17,665.25	17,565.48	2,620.15	2,443.29	14.815	SF
Gutttersen State D23-741 - Wellbore #1 - Plan #1	2,400.00	2,383.00	1,697.41	1,680.73	101.765	CC, ES
Gutttersen State D23-741 - Wellbore #1 - Plan #1	17,665.25	17,660.80	1,960.12	1,783.65	11.108	SF
Gutttersen State D23-751 - Wellbore #1 - Plan #1	2,200.00	2,202.00	75.00	59.69	4.898	CC
Gutttersen State D23-751 - Wellbore #1 - Plan #1	2,300.00	2,301.09	75.61	59.60	4.723	ES
Gutttersen State D23-751 - Wellbore #1 - Plan #1	2,400.00	2,399.96	77.59	60.91	4.651	SF
Gutttersen State D23-761 - Wellbore #1 - Plan #1	2,400.00	2,401.00	37.50	20.76	2.240	CC, ES
Gutttersen State D23-761 - Wellbore #1 - Plan #1	2,500.00	2,500.98	38.47	21.03	2.206	SF
Gutttersen State D23-781 - Wellbore #1 - Plan #1	2,200.00	2,201.00	37.50	22.19	2.449	CC, ES
Gutttersen State D23-781 - Wellbore #1 - Plan #1	2,300.00	2,300.05	38.75	22.74	2.421	SF
Gutttersen State D35-790 - Wellbore #1 - Plan #1	2,200.00	2,186.00	1,825.45	1,810.19	119.650	CC, ES
Gutttersen State D35-790 - Wellbore #1 - Plan #1	8,900.00	5,709.86	3,874.49	3,827.58	82.592	SF
Gutttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surveys	11,223.32	6,795.50	2,532.90	2,468.74	39.480	CC, ES
Gutttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surveys	11,700.00	6,793.02	2,577.36	2,510.73	38.683	SF
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	2,316.17	2,237.70	2,994.14	2,978.41	190.298	CC
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,310.41	2,994.32	2,978.04	183.841	ES
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	9,800.00	6,780.35	3,616.73	3,561.38	65.347	SF
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	2,445.02	2,422.68	1,945.93	1,929.12	115.711	CC, ES
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	9,400.00	6,814.96	2,263.94	2,209.92	41.914	SF
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	9,499.97	6,844.66	772.50	717.76	14.113	CC
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	9,500.00	6,844.66	772.50	717.76	14.113	ES, SF
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	8,290.74	6,847.42	767.63	717.12	15.195	CC, ES
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	8,300.00	6,847.40	767.68	717.15	15.192	SF
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	2,405.76	2,377.30	261.70	245.18	15.845	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Gutttersen State D23-771	<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 #1	<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 23						
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	8,249.34	6,834.21	733.52	683.18	14.571	SF
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	100.00	44.20	1,383.23	1,383.02	6,787.876	CC
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	2,500.00	2,456.46	1,385.28	1,368.16	80.913	ES
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	8,100.00	6,823.97	2,049.72	1,999.76	41.025	SF
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	9,336.00	6,858.39	243.22	185.87	4.241	CC, ES, SF
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	10,551.67	6,860.38	682.03	621.67	11.301	CC, ES
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	10,600.00	6,860.55	683.74	623.12	11.279	SF
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	10,909.79	6,863.00	147.40	84.62	2.348	CC, ES, SF
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	11,891.87	6,855.61	633.51	564.66	9.200	CC, ES
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	11,900.00	6,855.74	633.57	564.67	9.196	SF
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	11,810.12	6,848.23	700.79	632.50	10.261	CC, ES, SF
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	2,481.46	2,477.46	2,351.69	2,334.54	137.193	CC
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	2,500.00	2,499.28	2,351.71	2,334.43	136.089	ES
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	9,000.00	6,805.26	3,062.45	3,010.07	58.465	SF



## Anticollision Summary Report

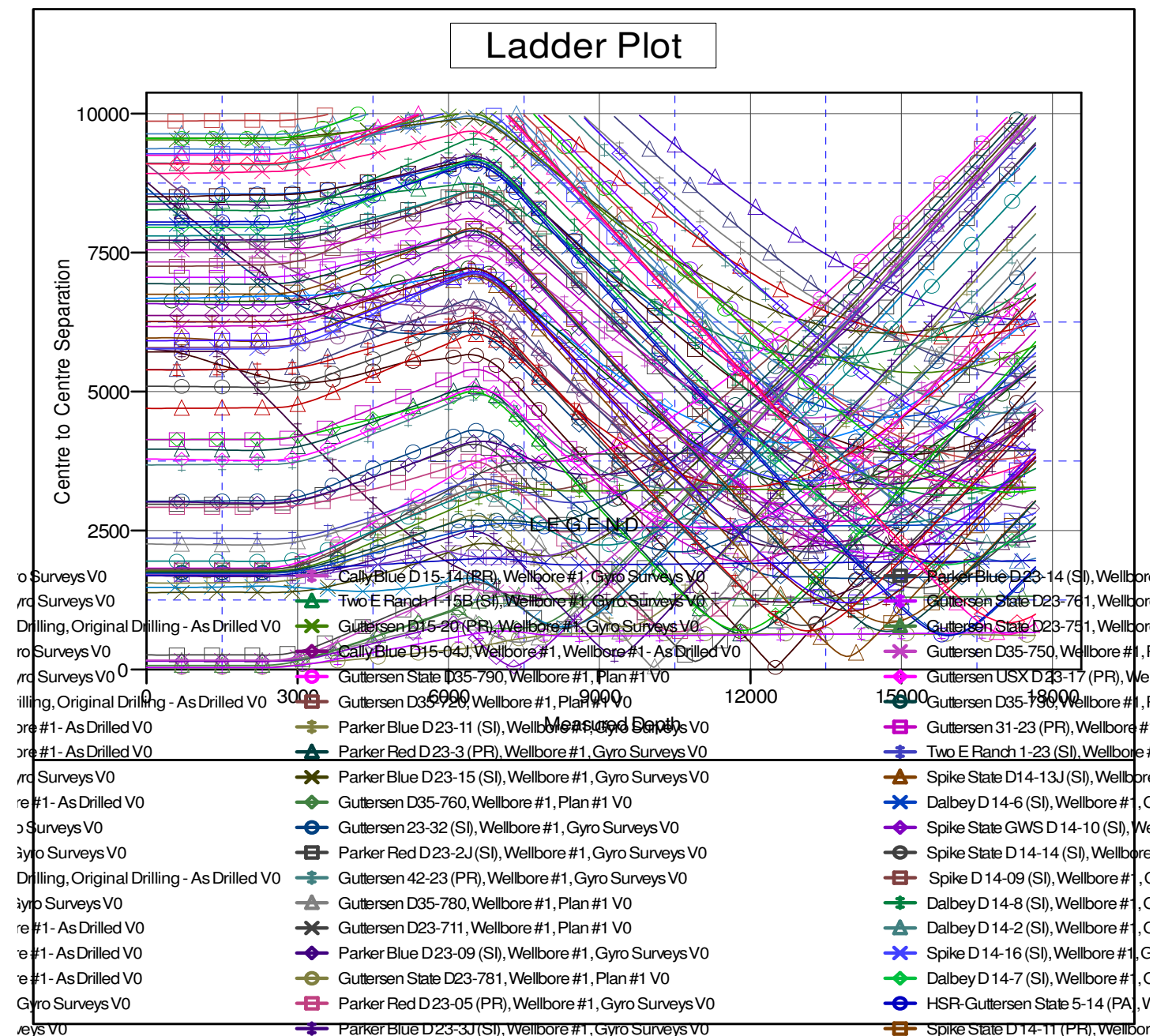
<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State D23-771	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Depths are relative to Offset Datum

Central Meridian is -105.5000000

Coordinate System is US State Plane 1983 Colorado Northern Zone

Grid Convergence at Surface is: 0.63°



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

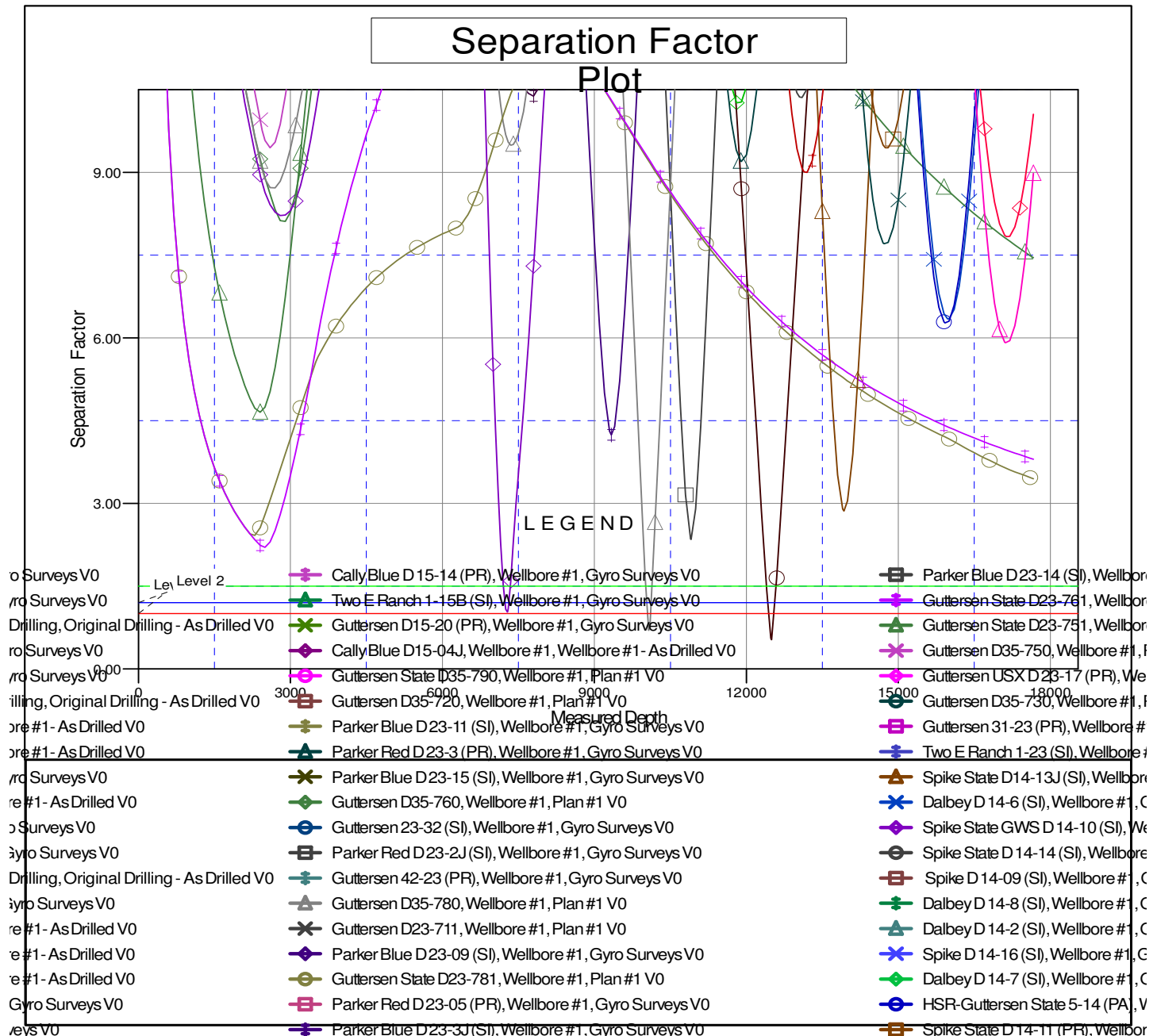
# Noble Energy, Inc.

## Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State D23-771
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4857.00ft
<b>Reference Site:</b>	D Section 23	<b>MD Reference:</b>	KB @ 4857.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State D23-771	<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 #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB @ 4857.00ft  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen State D23-771  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.63°



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