

Project: Mustang
 Site: D Section 23
 Well: Gutteresen D35-770
 Wellbore: Wellbore #1
 Design: Plan #1

Northern Region - DJ Basin

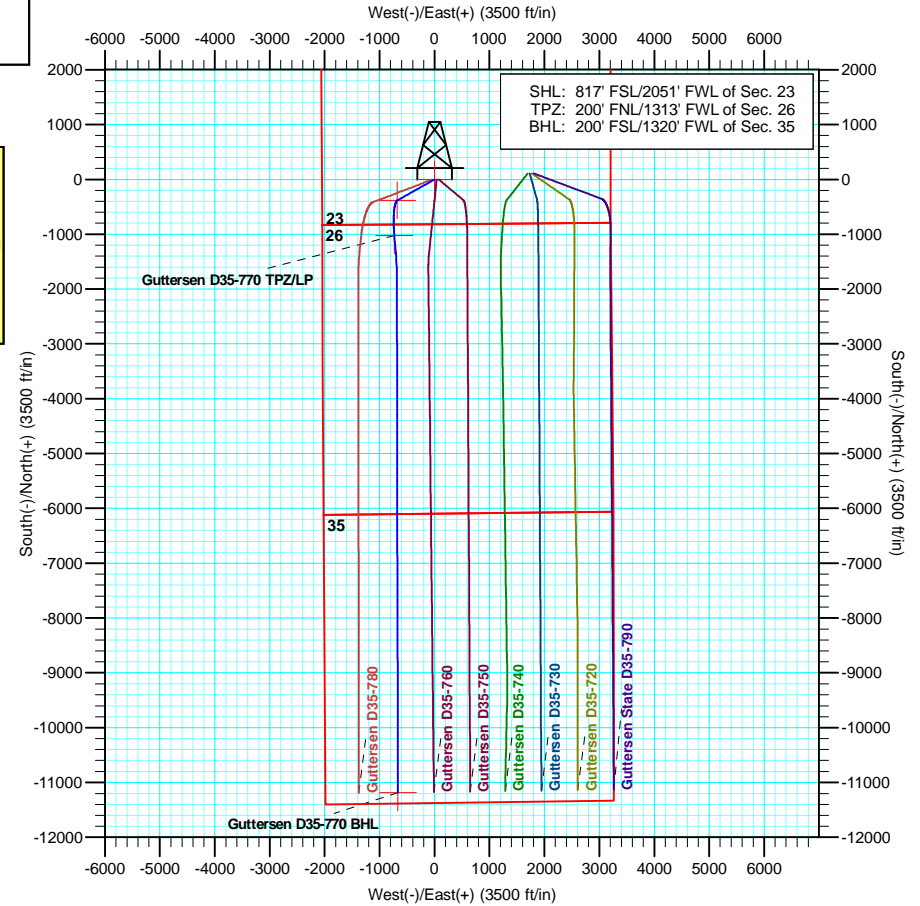
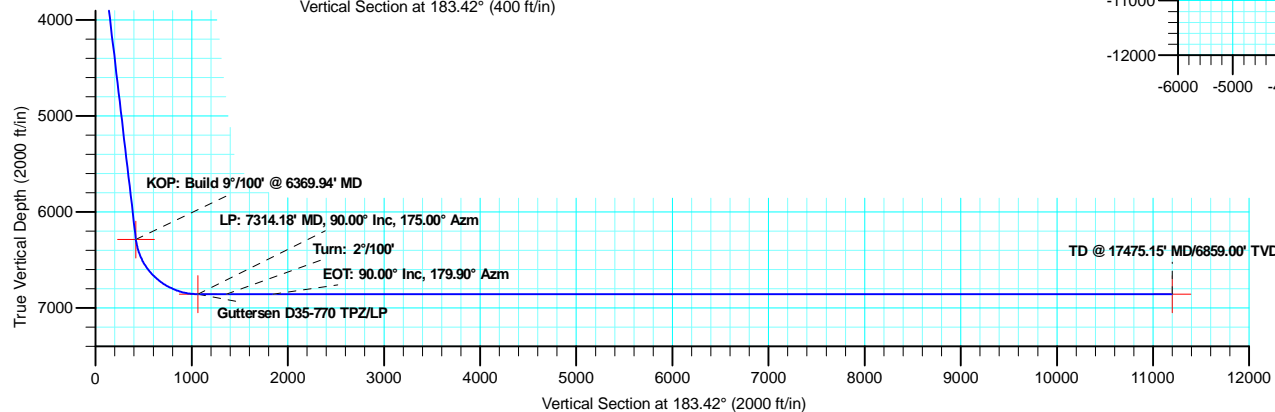
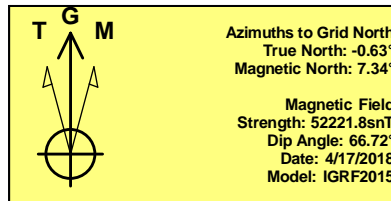
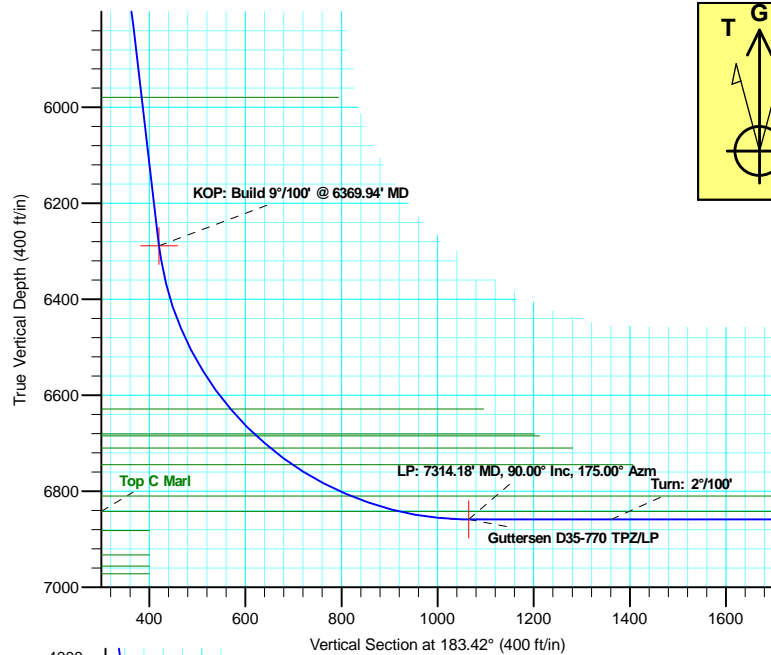
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	3011.57	12.23	240.61	3006.93	-31.91	-56.66	2.00	240.61	35.24	
4	6369.94	12.23	240.61	6289.07	-381.03	-676.62	0.00	0.00	420.75	
5	7314.18	90.00	175.00	6859.00	-1022.61	-733.45	9.00	-66.11	1064.57	Gutteresen D35-770 TPZ/LP
6	7614.18	90.00	175.00	6859.00	-1321.46	-707.30	0.00	0.00	1361.33	
7	8103.92	90.00	179.90	6859.00	-1810.57	-685.51	1.00	90.00	1848.26	
8	17475.15	90.00	179.90	6859.00	-11181.78	-668.73	0.00	0.00	11201.76	Gutteresen D35-770 BHL

WELL DETAILS: Gutteresen D35-770

+N/-S	+E/-W	Northing	Ground Level: Easting	4829.00 Latitude	Longitude	Slot
0.00	0.00	1319345.54	3273539.84	40.2058540	-104.5206315	



Plan: Plan #1 (Gutteresen D35-770/Wellbore #1)

Created By: Keith Noack Date: 14:25, August 15 2018

Northern Region - DJ Basin

Mustang

D Section 23

Guttersen D35-770

Wellbore #1

Plan: Plan #1

Standard Planning Report

15 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Mustang, Weld County Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	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 D35-770					
Well Position	+N/-S	274.36 ft	Northing:	1,319,345.54 usft	Latitude:	40.2058540
	+E/-W	-1,378.02 ft	Easting:	3,273,539.84 usft	Longitude:	-104.5206315
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,829.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/17/2018	7.98	66.72	52,221.77770885

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	183.42

Plan Sections										
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	
3,011.57	12.23	240.61	3,006.93	-31.91	-56.66	2.00	2.00	0.00	240.61	
6,369.94	12.23	240.61	6,289.07	-381.03	-676.62	0.00	0.00	0.00	0.00	
7,314.18	90.00	175.00	6,859.00	-1,022.61	-733.45	9.00	8.24	-6.95	-66.11	Guttersen D35-770
7,614.18	90.00	175.00	6,859.00	-1,321.46	-707.30	0.00	0.00	0.00	0.00	
8,103.92	90.00	179.90	6,859.00	-1,810.57	-685.51	1.00	0.00	1.00	90.00	
17,475.15	90.00	179.90	6,859.00	-11,181.78	-668.73	0.00	0.00	0.00	0.00	Guttersen D35-770

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
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
579.00	0.00	0.00	579.00	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
781.00	0.00	0.00	781.00	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
1,669.00	0.00	0.00	1,669.00	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
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
Build: 2°/100'									
2,500.00	2.00	240.61	2,499.98	-0.86	-1.52	0.95	2.00	2.00	0.00
2,600.00	4.00	240.61	2,599.84	-3.42	-6.08	3.78	2.00	2.00	0.00
2,700.00	6.00	240.61	2,699.45	-7.70	-13.67	8.50	2.00	2.00	0.00
2,800.00	8.00	240.61	2,798.70	-13.68	-24.29	15.11	2.00	2.00	0.00
2,900.00	10.00	240.61	2,897.47	-21.36	-37.92	23.58	2.00	2.00	0.00
3,000.00	12.00	240.61	2,995.62	-30.72	-54.55	33.92	2.00	2.00	0.00
3,011.57	12.23	240.61	3,006.93	-31.91	-56.66	35.24	2.00	2.00	0.00
Hold: 12.23° Inc, 240.61° Azm									
3,100.00	12.23	240.61	3,093.36	-41.10	-72.99	45.39	0.00	0.00	0.00
3,200.00	12.23	240.61	3,191.09	-51.50	-91.45	56.87	0.00	0.00	0.00
3,300.00	12.23	240.61	3,288.82	-61.89	-109.91	68.34	0.00	0.00	0.00
3,400.00	12.23	240.61	3,386.55	-72.29	-128.37	79.82	0.00	0.00	0.00
3,500.00	12.23	240.61	3,484.28	-82.68	-146.83	91.30	0.00	0.00	0.00
3,600.00	12.23	240.61	3,582.01	-93.08	-165.29	102.78	0.00	0.00	0.00
3,700.00	12.23	240.61	3,679.74	-103.48	-183.75	114.26	0.00	0.00	0.00
3,787.24	12.23	240.61	3,765.00	-112.55	-199.85	124.28	0.00	0.00	0.00
Parkman									
3,800.00	12.23	240.61	3,777.47	-113.87	-202.21	125.74	0.00	0.00	0.00
3,900.00	12.23	240.61	3,875.20	-124.27	-220.67	137.22	0.00	0.00	0.00
4,000.00	12.23	240.61	3,972.93	-134.66	-239.13	148.70	0.00	0.00	0.00
4,100.00	12.23	240.61	4,070.66	-145.06	-257.59	160.18	0.00	0.00	0.00

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Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
4,194.49	12.23	240.61	4,163.00	-154.88	-275.03	171.02	0.00	0.00	0.00
Sussex									
4,200.00	12.23	240.61	4,168.39	-155.45	-276.05	171.66	0.00	0.00	0.00
4,300.00	12.23	240.61	4,266.12	-165.85	-294.51	183.14	0.00	0.00	0.00
4,400.00	12.23	240.61	4,363.85	-176.24	-312.97	194.61	0.00	0.00	0.00
4,500.00	12.23	240.61	4,461.58	-186.64	-331.43	206.09	0.00	0.00	0.00
4,600.00	12.23	240.61	4,559.31	-197.04	-349.89	217.57	0.00	0.00	0.00
4,700.00	12.23	240.61	4,657.04	-207.43	-368.35	229.05	0.00	0.00	0.00
4,800.00	12.23	240.61	4,754.77	-217.83	-386.81	240.53	0.00	0.00	0.00
4,900.00	12.23	240.61	4,852.50	-228.22	-405.27	252.01	0.00	0.00	0.00
4,960.88	12.23	240.61	4,912.00	-234.55	-416.51	259.00	0.00	0.00	0.00
Shannon									
5,000.00	12.23	240.61	4,950.23	-238.62	-423.73	263.49	0.00	0.00	0.00
5,100.00	12.23	240.61	5,047.96	-249.01	-442.19	274.97	0.00	0.00	0.00
5,200.00	12.23	240.61	5,145.69	-259.41	-460.65	286.45	0.00	0.00	0.00
5,300.00	12.23	240.61	5,243.42	-269.81	-479.11	297.93	0.00	0.00	0.00
5,400.00	12.23	240.61	5,341.15	-280.20	-497.57	309.41	0.00	0.00	0.00
5,500.00	12.23	240.61	5,438.88	-290.60	-516.03	320.88	0.00	0.00	0.00
5,600.00	12.23	240.61	5,536.61	-300.99	-534.49	332.36	0.00	0.00	0.00
5,700.00	12.23	240.61	5,634.34	-311.39	-552.95	343.84	0.00	0.00	0.00
5,800.00	12.23	240.61	5,732.07	-321.78	-571.41	355.32	0.00	0.00	0.00
5,900.00	12.23	240.61	5,829.80	-332.18	-589.87	366.80	0.00	0.00	0.00
6,000.00	12.23	240.61	5,927.53	-342.57	-608.33	378.28	0.00	0.00	0.00
6,052.67	12.23	240.61	5,979.00	-348.05	-618.05	384.33	0.00	0.00	0.00
Teepee Buttes									
6,100.00	12.23	240.61	6,025.26	-352.97	-626.79	389.76	0.00	0.00	0.00
6,200.00	12.23	240.61	6,122.99	-363.37	-645.25	401.24	0.00	0.00	0.00
6,300.00	12.23	240.61	6,220.72	-373.76	-663.71	412.72	0.00	0.00	0.00
6,369.94	12.23	240.61	6,289.07	-381.03	-676.62	420.75	0.00	0.00	0.00
KOP: Build 9°/100' @ 6369.94' MD									
6,400.00	13.55	230.00	6,318.38	-384.86	-682.10	424.89	9.00	4.39	-35.31
6,450.00	16.50	216.80	6,366.68	-394.31	-690.84	434.85	9.00	5.90	-26.40
6,500.00	20.02	207.81	6,414.16	-407.58	-699.09	448.59	9.00	7.04	-17.98
6,550.00	23.86	201.51	6,460.54	-424.57	-706.80	466.00	9.00	7.68	-12.60
6,600.00	27.89	196.90	6,505.52	-445.18	-713.91	487.00	9.00	8.06	-9.21
6,650.00	32.04	193.39	6,548.83	-469.28	-720.39	511.45	9.00	8.29	-7.02
6,700.00	36.26	190.62	6,590.20	-496.73	-726.18	539.19	9.00	8.45	-5.55
6,749.50	40.49	188.37	6,629.00	-527.03	-731.22	569.74	9.00	8.55	-4.54
Sharon Springs									
6,750.00	40.53	188.35	6,629.38	-527.35	-731.27	570.07	9.00	8.59	-4.13
6,800.00	44.85	186.45	6,666.12	-560.96	-735.61	603.88	9.00	8.62	-3.80
6,821.33	46.69	185.72	6,681.00	-576.16	-737.23	619.14	9.00	8.66	-3.40
Top A Chalk									
6,827.19	47.20	185.53	6,685.00	-580.42	-737.65	623.42	9.00	8.68	-3.26
Top A Marl									
6,850.00	49.19	184.82	6,700.21	-597.36	-739.18	640.42	9.00	8.69	-3.14
6,865.19	50.51	184.36	6,710.00	-608.93	-740.11	652.02	9.00	8.71	-2.98
Top B Chalk									
6,900.00	53.55	183.39	6,731.42	-636.30	-741.96	679.46	9.00	8.72	-2.81
6,923.43	55.59	182.77	6,745.00	-655.37	-742.99	698.55	9.00	8.74	-2.63
Top B Marl									
6,950.00	57.92	182.11	6,759.56	-677.57	-743.93	720.77	9.00	8.76	-2.49
7,000.00	62.31	180.95	6,784.47	-720.89	-745.08	764.08	9.00	8.77	-2.32

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
7,050.00	66.70	179.88	6,805.99	-766.01	-745.39	809.14	9.00	8.79	-2.14
7,060.33	67.61	179.67	6,810.00	-775.52	-745.36	818.63	9.00	8.80	-2.05
Top C Chalk									
7,100.00	71.10	178.88	6,823.99	-812.64	-744.88	855.66	9.00	8.80	-1.99
7,150.00	75.51	177.92	6,838.35	-860.50	-743.54	903.35	9.00	8.81	-1.90
7,165.31	76.86	177.64	6,842.00	-875.35	-742.96	918.14	9.00	8.82	-1.85
Top C Marl									
7,200.00	79.92	177.01	6,848.98	-909.30	-741.38	951.93	9.00	8.82	-1.82
7,250.00	84.33	176.12	6,855.83	-958.72	-738.41	1,001.09	9.00	8.83	-1.78
7,300.00	88.75	175.25	6,858.85	-1,008.48	-734.66	1,050.54	9.00	8.83	-1.75
7,314.18	90.00	175.00	6,859.00	-1,022.61	-733.45	1,064.57	9.00	8.83	-1.74
LP: 7314.18' MD, 90.00° Inc, 175.00° Azm									
7,400.00	90.00	175.00	6,859.00	-1,108.10	-725.97	1,149.46	0.00	0.00	0.00
7,500.00	90.00	175.00	6,859.00	-1,207.72	-717.26	1,248.38	0.00	0.00	0.00
7,600.00	90.00	175.00	6,859.00	-1,307.34	-708.54	1,347.30	0.00	0.00	0.00
7,614.18	90.00	175.00	6,859.00	-1,321.46	-707.30	1,361.33	0.00	0.00	0.00
Turn: 2°/100'									
7,700.00	90.00	175.86	6,859.00	-1,407.01	-700.46	1,446.32	1.00	0.00	1.00
7,800.00	90.00	176.86	6,859.00	-1,506.81	-694.11	1,545.56	1.00	0.00	1.00
7,900.00	90.00	177.86	6,859.00	-1,606.70	-689.50	1,645.00	1.00	0.00	1.00
8,000.00	90.00	178.86	6,859.00	-1,706.66	-686.64	1,744.60	1.00	0.00	1.00
8,103.92	90.00	179.90	6,859.00	-1,810.57	-685.51	1,848.26	1.00	0.00	1.00
EOT: 90.00° Inc, 179.90° Azm									
8,200.00	90.00	179.90	6,859.00	-1,906.65	-685.34	1,944.16	0.00	0.00	0.00
8,300.00	90.00	179.90	6,859.00	-2,006.65	-685.16	2,043.97	0.00	0.00	0.00
8,400.00	90.00	179.90	6,859.00	-2,106.65	-684.98	2,143.78	0.00	0.00	0.00
8,500.00	90.00	179.90	6,859.00	-2,206.65	-684.80	2,243.59	0.00	0.00	0.00
8,600.00	90.00	179.90	6,859.00	-2,306.65	-684.62	2,343.40	0.00	0.00	0.00
8,700.00	90.00	179.90	6,859.00	-2,406.65	-684.44	2,443.22	0.00	0.00	0.00
8,800.00	90.00	179.90	6,859.00	-2,506.65	-684.26	2,543.03	0.00	0.00	0.00
8,900.00	90.00	179.90	6,859.00	-2,606.65	-684.08	2,642.84	0.00	0.00	0.00
9,000.00	90.00	179.90	6,859.00	-2,706.65	-683.91	2,742.65	0.00	0.00	0.00
9,100.00	90.00	179.90	6,859.00	-2,806.65	-683.73	2,842.46	0.00	0.00	0.00
9,200.00	90.00	179.90	6,859.00	-2,906.65	-683.55	2,942.27	0.00	0.00	0.00
9,300.00	90.00	179.90	6,859.00	-3,006.65	-683.37	3,042.08	0.00	0.00	0.00
9,400.00	90.00	179.90	6,859.00	-3,106.65	-683.19	3,141.89	0.00	0.00	0.00
9,500.00	90.00	179.90	6,859.00	-3,206.65	-683.01	3,241.70	0.00	0.00	0.00
9,600.00	90.00	179.90	6,859.00	-3,306.65	-682.83	3,341.51	0.00	0.00	0.00
9,700.00	90.00	179.90	6,859.00	-3,406.65	-682.65	3,441.32	0.00	0.00	0.00
9,800.00	90.00	179.90	6,859.00	-3,506.65	-682.47	3,541.13	0.00	0.00	0.00
9,900.00	90.00	179.90	6,859.00	-3,606.65	-682.29	3,640.94	0.00	0.00	0.00
10,000.00	90.00	179.90	6,859.00	-3,706.65	-682.11	3,740.76	0.00	0.00	0.00
10,100.00	90.00	179.90	6,859.00	-3,806.65	-681.94	3,840.57	0.00	0.00	0.00
10,200.00	90.00	179.90	6,859.00	-3,906.65	-681.76	3,940.38	0.00	0.00	0.00
10,300.00	90.00	179.90	6,859.00	-4,006.64	-681.58	4,040.19	0.00	0.00	0.00
10,400.00	90.00	179.90	6,859.00	-4,106.64	-681.40	4,140.00	0.00	0.00	0.00
10,500.00	90.00	179.90	6,859.00	-4,206.64	-681.22	4,239.81	0.00	0.00	0.00
10,600.00	90.00	179.90	6,859.00	-4,306.64	-681.04	4,339.62	0.00	0.00	0.00
10,700.00	90.00	179.90	6,859.00	-4,406.64	-680.86	4,439.43	0.00	0.00	0.00
10,800.00	90.00	179.90	6,859.00	-4,506.64	-680.68	4,539.24	0.00	0.00	0.00
10,900.00	90.00	179.90	6,859.00	-4,606.64	-680.50	4,639.05	0.00	0.00	0.00
11,000.00	90.00	179.90	6,859.00	-4,706.64	-680.32	4,738.86	0.00	0.00	0.00
11,100.00	90.00	179.90	6,859.00	-4,806.64	-680.15	4,838.67	0.00	0.00	0.00
11,200.00	90.00	179.90	6,859.00	-4,906.64	-679.97	4,938.49	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
11,300.00	90.00	179.90	6,859.00	-5,006.64	-679.79	5,038.30	0.00	0.00	0.00
11,400.00	90.00	179.90	6,859.00	-5,106.64	-679.61	5,138.11	0.00	0.00	0.00
11,500.00	90.00	179.90	6,859.00	-5,206.64	-679.43	5,237.92	0.00	0.00	0.00
11,600.00	90.00	179.90	6,859.00	-5,306.64	-679.25	5,337.73	0.00	0.00	0.00
11,700.00	90.00	179.90	6,859.00	-5,406.64	-679.07	5,437.54	0.00	0.00	0.00
11,800.00	90.00	179.90	6,859.00	-5,506.64	-678.89	5,537.35	0.00	0.00	0.00
11,900.00	90.00	179.90	6,859.00	-5,606.64	-678.71	5,637.16	0.00	0.00	0.00
12,000.00	90.00	179.90	6,859.00	-5,706.64	-678.53	5,736.97	0.00	0.00	0.00
12,100.00	90.00	179.90	6,859.00	-5,806.64	-678.35	5,836.78	0.00	0.00	0.00
12,200.00	90.00	179.90	6,859.00	-5,906.64	-678.18	5,936.59	0.00	0.00	0.00
12,300.00	90.00	179.90	6,859.00	-6,006.64	-678.00	6,036.40	0.00	0.00	0.00
12,400.00	90.00	179.90	6,859.00	-6,106.64	-677.82	6,136.21	0.00	0.00	0.00
12,500.00	90.00	179.90	6,859.00	-6,206.64	-677.64	6,236.03	0.00	0.00	0.00
12,600.00	90.00	179.90	6,859.00	-6,306.64	-677.46	6,335.84	0.00	0.00	0.00
12,700.00	90.00	179.90	6,859.00	-6,406.64	-677.28	6,435.65	0.00	0.00	0.00
12,800.00	90.00	179.90	6,859.00	-6,506.64	-677.10	6,535.46	0.00	0.00	0.00
12,900.00	90.00	179.90	6,859.00	-6,606.64	-676.92	6,635.27	0.00	0.00	0.00
13,000.00	90.00	179.90	6,859.00	-6,706.64	-676.74	6,735.08	0.00	0.00	0.00
13,100.00	90.00	179.90	6,859.00	-6,806.64	-676.56	6,834.89	0.00	0.00	0.00
13,200.00	90.00	179.90	6,859.00	-6,906.64	-676.38	6,934.70	0.00	0.00	0.00
13,300.00	90.00	179.90	6,859.00	-7,006.64	-676.21	7,034.51	0.00	0.00	0.00
13,400.00	90.00	179.90	6,859.00	-7,106.64	-676.03	7,134.32	0.00	0.00	0.00
13,500.00	90.00	179.90	6,859.00	-7,206.64	-675.85	7,234.13	0.00	0.00	0.00
13,600.00	90.00	179.90	6,859.00	-7,306.64	-675.67	7,333.94	0.00	0.00	0.00
13,700.00	90.00	179.90	6,859.00	-7,406.64	-675.49	7,433.76	0.00	0.00	0.00
13,800.00	90.00	179.90	6,859.00	-7,506.64	-675.31	7,533.57	0.00	0.00	0.00
13,900.00	90.00	179.90	6,859.00	-7,606.64	-675.13	7,633.38	0.00	0.00	0.00
14,000.00	90.00	179.90	6,859.00	-7,706.64	-674.95	7,733.19	0.00	0.00	0.00
14,100.00	90.00	179.90	6,859.00	-7,806.64	-674.77	7,833.00	0.00	0.00	0.00
14,200.00	90.00	179.90	6,859.00	-7,906.64	-674.59	7,932.81	0.00	0.00	0.00
14,300.00	90.00	179.90	6,859.00	-8,006.64	-674.41	8,032.62	0.00	0.00	0.00
14,400.00	90.00	179.90	6,859.00	-8,106.64	-674.24	8,132.43	0.00	0.00	0.00
14,500.00	90.00	179.90	6,859.00	-8,206.64	-674.06	8,232.24	0.00	0.00	0.00
14,600.00	90.00	179.90	6,859.00	-8,306.64	-673.88	8,332.05	0.00	0.00	0.00
14,700.00	90.00	179.90	6,859.00	-8,406.64	-673.70	8,431.86	0.00	0.00	0.00
14,800.00	90.00	179.90	6,859.00	-8,506.64	-673.52	8,531.67	0.00	0.00	0.00
14,900.00	90.00	179.90	6,859.00	-8,606.64	-673.34	8,631.48	0.00	0.00	0.00
15,000.00	90.00	179.90	6,859.00	-8,706.64	-673.16	8,731.30	0.00	0.00	0.00
15,100.00	90.00	179.90	6,859.00	-8,806.64	-672.98	8,831.11	0.00	0.00	0.00
15,200.00	90.00	179.90	6,859.00	-8,906.64	-672.80	8,930.92	0.00	0.00	0.00
15,300.00	90.00	179.90	6,859.00	-9,006.64	-672.62	9,030.73	0.00	0.00	0.00
15,400.00	90.00	179.90	6,859.00	-9,106.64	-672.45	9,130.54	0.00	0.00	0.00
15,500.00	90.00	179.90	6,859.00	-9,206.64	-672.27	9,230.35	0.00	0.00	0.00
15,600.00	90.00	179.90	6,859.00	-9,306.64	-672.09	9,330.16	0.00	0.00	0.00
15,700.00	90.00	179.90	6,859.00	-9,406.64	-671.91	9,429.97	0.00	0.00	0.00
15,800.00	90.00	179.90	6,859.00	-9,506.64	-671.73	9,529.78	0.00	0.00	0.00
15,900.00	90.00	179.90	6,859.00	-9,606.64	-671.55	9,629.59	0.00	0.00	0.00
16,000.00	90.00	179.90	6,859.00	-9,706.64	-671.37	9,729.40	0.00	0.00	0.00
16,100.00	90.00	179.90	6,859.00	-9,806.64	-671.19	9,829.21	0.00	0.00	0.00
16,200.00	90.00	179.90	6,859.00	-9,906.64	-671.01	9,929.03	0.00	0.00	0.00
16,300.00	90.00	179.90	6,859.00	-10,006.64	-670.83	10,028.84	0.00	0.00	0.00
16,400.00	90.00	179.90	6,859.00	-10,106.64	-670.65	10,128.65	0.00	0.00	0.00
16,500.00	90.00	179.90	6,859.00	-10,206.64	-670.48	10,228.46	0.00	0.00	0.00
16,600.00	90.00	179.90	6,859.00	-10,306.64	-670.30	10,328.27	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	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)
16,700.00	90.00	179.90	6,859.00	-10,406.63	-670.12	10,428.08	0.00	0.00	0.00
16,800.00	90.00	179.90	6,859.00	-10,506.63	-669.94	10,527.89	0.00	0.00	0.00
16,900.00	90.00	179.90	6,859.00	-10,606.63	-669.76	10,627.70	0.00	0.00	0.00
17,000.00	90.00	179.90	6,859.00	-10,706.63	-669.58	10,727.51	0.00	0.00	0.00
17,100.00	90.00	179.90	6,859.00	-10,806.63	-669.40	10,827.32	0.00	0.00	0.00
17,200.00	90.00	179.90	6,859.00	-10,906.63	-669.22	10,927.13	0.00	0.00	0.00
17,300.00	90.00	179.90	6,859.00	-11,006.63	-669.04	11,026.94	0.00	0.00	0.00
17,400.00	90.00	179.90	6,859.00	-11,106.63	-668.86	11,126.75	0.00	0.00	0.00
17,475.15	90.00	179.90	6,859.00	-11,181.78	-668.73	11,201.76	0.00	0.00	0.00
TD @ 17475.15' MD/6859.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Guttersen D35-770 SI - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,319,345.54	3,273,539.84	40.2058540	-104.5206315
Guttersen D35-770 KI - plan hits target center - Point	0.00	0.00	6,289.07	-381.03	-676.62	1,318,964.51	3,272,863.22	40.2048286	-104.5230688
Guttersen D35-770 TI - plan hits target center - Point	0.00	0.00	6,859.00	-1,022.61	-733.45	1,318,322.94	3,272,806.39	40.2030692	-104.5232976
Guttersen D35-770 BI - plan hits target center - Point	0.00	0.00	6,859.00	-11,181.78	-668.73	1,308,163.78	3,272,871.12	40.1751808	-104.5234664

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
579.00	579.00	Pierre				
781.00	781.00	Upper Pierre Aquifer Top				
1,669.00	1,669.00	Upper Pierre Aquifer Base				
3,787.24	3,765.00	Parkman				
4,194.49	4,163.00	Sussex				
4,960.88	4,912.00	Shannon				
6,052.67	5,979.00	Teepee Buttes				
6,749.50	6,629.00	Sharon Springs				
6,821.33	6,681.00	Top A Chalk				
6,827.19	6,685.00	Top A Marl				
6,865.19	6,710.00	Top B Chalk				
6,923.43	6,745.00	Top B Marl				
7,060.33	6,810.00	Top C Chalk				
7,165.31	6,842.00	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-770
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4859.00ft
Project:	Mustang	MD Reference:	KB @ 4859.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,400.00	2,400.00	0.00	0.00	Build: 2°/100'	
3,011.57	3,006.93	-31.91	-56.66	Hold: 12.23° Inc, 240.61° Azm	
6,369.94	6,289.07	-381.03	-676.62	KOP: Build 9°/100' @ 6369.94' MD	
7,314.18	6,859.00	-1,022.61	-733.45	LP: 7314.18' MD, 90.00° Inc, 175.00° Azm	
7,614.18	6,859.00	-1,321.46	-707.30	Turn: 2°/100'	
8,103.92	6,859.00	-1,810.57	-685.51	EOT: 90.00° Inc, 179.90° Azm	
17,475.15	6,859.00	-11,181.78	-668.73	TD @ 17475.15' MD/6859.00' TVD	

Northern Region - DJ Basin

Mustang

D Section 23

Guttersen D35-770

Wellbore #1

Plan #1

Anticollision Summary Report

15 August, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	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	17,475.15	Plan #1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

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						
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	1,989.82	1,976.99	2,101.12	2,087.46	153.918	CC
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	2,100.00	2,074.76	2,101.52	2,087.13	146.088	ES
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,492.02	2,383.52	2,337.47	51.759	SF
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	100.00	25.12	2,898.14	2,897.97	10,000.000	CC
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,317.93	2,905.65	2,889.34	178.209	ES
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,456.53	3,596.41	3,550.61	78.522	SF
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	100.00	12.09	4,574.45	4,574.30	10,000.000	CC
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	2,440.04	2,410.43	4,583.04	4,566.28	273.333	ES
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,544.60	5,416.11	5,369.56	116.358	SF
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	3,993.01			
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	2,409.01	2,399.32	3,993.59	3,976.98	240.433	ES
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,680.63	4,746.12	4,698.84	100.396	SF
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	100.00	42.62	3,576.54	3,576.34	10,000.000	CC
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	2,500.00	2,518.33	3,585.15	3,567.81	206.800	ES
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,600.95	4,436.80	4,389.95	94.707	SF
Gutttersen D23-711 - Wellbore #1 - Plan #1	2,400.00	2,381.00	1,807.13	1,790.46	108.390	CC, ES
Gutttersen D23-711 - Wellbore #1 - Plan #1	8,800.00	6,400.00	3,860.01	3,806.53	72.171	SF
Gutttersen D35-720 - Wellbore #1 - Plan #1	2,200.00	2,182.00	1,773.04	1,757.79	116.324	CC, ES
Gutttersen D35-720 - Wellbore #1 - Plan #1	17,475.15	17,404.37	3,275.42	3,085.42	17.239	SF
Gutttersen D35-730 - Wellbore #1 - Plan #1	2,400.00	2,380.00	1,735.59	1,718.92	104.121	CC, ES
Gutttersen D35-730 - Wellbore #1 - Plan #1	17,475.15	17,346.12	2,613.44	2,423.15	13.734	SF
Gutttersen D35-740 - Wellbore #1 - Plan #1	2,735.33	2,893.68	1,676.08	1,656.70	86.475	CC, ES
Gutttersen D35-740 - Wellbore #1 - Plan #1	17,475.15	17,381.84	1,956.81	1,767.27	10.324	SF
Gutttersen D35-750 - Wellbore #1 - Plan #1	2,200.00	2,201.00	75.00	59.69	4.899	CC, ES
Gutttersen D35-750 - Wellbore #1 - Plan #1	2,300.00	2,298.99	76.34	60.34	4.771	SF
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,400.00	2,400.00	37.50	20.76	2.240	CC, ES
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,500.00	2,500.09	38.92	21.49	2.233	SF
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,200.00	2,200.00	37.50	22.19	2.450	CC, ES
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,300.00	2,298.75	39.12	23.12	2.445	SF
Gutttersen State D23-721 - Wellbore #1 - Plan #1	2,400.00	2,380.00	1,769.65	1,752.98	106.165	CC, ES
Gutttersen State D23-721 - Wellbore #1 - Plan #1	8,103.92	6,450.00	3,164.73	3,114.23	62.665	SF
Gutttersen State D23-731 - Wellbore #1 - Plan #1	2,400.00	2,380.00	1,732.15	1,715.48	103.915	CC, ES
Gutttersen State D23-731 - Wellbore #1 - Plan #1	7,616.90	6,838.35	2,557.19	2,506.53	50.472	SF
Gutttersen State D23-741 - Wellbore #1 - Plan #1	2,400.00	2,381.00	1,694.67	1,678.00	101.645	CC, ES
Gutttersen State D23-741 - Wellbore #1 - Plan #1	7,400.00	7,200.00	1,925.64	1,874.96	37.994	SF
Gutttersen State D23-751 - Wellbore #1 - Plan #1	2,200.00	2,200.00	167.47	152.16	10.941	CC, ES
Gutttersen State D23-751 - Wellbore #1 - Plan #1	2,400.00	2,388.77	174.01	157.38	10.467	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 23						
Guttersen State D23-761 - Wellbore #1 - Plan #1	2,658.84	2,654.84	152.33	133.82	8.226	CC
Guttersen State D23-761 - Wellbore #1 - Plan #1	2,700.00	2,693.97	152.57	133.79	8.122	ES
Guttersen State D23-761 - Wellbore #1 - Plan #1	2,800.00	2,788.94	155.23	135.82	7.997	SF
Guttersen State D23-771 - Wellbore #1 - Plan #1	7,117.12	7,284.47	51.33	1.54	1.031	Level 2, CC, ES, SF
Guttersen State D23-781 - Wellbore #1 - Plan #1	2,200.00	2,199.00	154.75	139.44	10.112	CC, ES
Guttersen State D23-781 - Wellbore #1 - Plan #1	2,400.00	2,389.81	160.50	143.86	9.646	SF
Guttersen State D35-790 - Wellbore #1 - Plan #1	2,200.00	2,184.00	1,810.48	1,795.23	118.725	CC, ES
Guttersen State D35-790 - Wellbore #1 - Plan #1	17,475.15	17,573.53	3,933.38	3,743.30	20.693	SF
Guttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	2,033.40	1,990.64	3,631.46	3,617.60	262.073	CC
Guttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	2,400.00	2,354.02	3,632.07	3,615.63	220.890	ES
Guttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	6,850.00	6,568.48	4,505.42	4,458.56	96.147	SF
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	2,331.05	2,250.59	2,948.68	2,932.85	186.247	CC
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,310.68	2,948.80	2,932.51	181.037	ES
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,700.93	3,837.46	3,789.73	80.402	SF
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	2,444.13	2,419.79	1,860.45	1,843.64	110.697	CC, ES
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,443.09	2,655.81	2,610.13	58.142	SF
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	650.51	627.52	1,406.97	1,402.85	341.713	CC
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	1,100.00	1,069.37	1,407.94	1,400.67	193.665	ES
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,398.24	1,948.01	1,902.70	42.993	SF
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	6,443.03	6,335.62	975.88	930.72	21.609	CC
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	6,450.00	6,341.77	975.91	930.70	21.586	ES
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,431.27	982.97	937.05	21.406	SF
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	2,417.74	2,387.40	118.99	102.39	7.171	CC, ES
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	2,600.00	2,568.73	124.25	106.41	6.963	SF
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	100.00	42.49	1,404.86	1,404.66	6,997.590	CC
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	2,421.38	2,379.51	1,408.55	1,391.97	84.930	ES
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,746.21	2,092.96	2,044.82	43.478	SF
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	3,942.55	3,903.17	1,524.40	1,497.15	55.946	CC
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	4,000.00	3,955.90	1,524.50	1,496.86	55.150	ES
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,396.77	1,640.26	1,592.21	34.133	SF
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	967.40	960.42	2,787.83	2,781.42	434.365	CC
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	3,400.00	3,390.04	2,789.12	2,765.63	118.745	ES
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	6,600.00	6,486.36	2,951.35	2,905.05	63.744	SF
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	690.89	677.90	2,827.14	2,822.70	637.090	CC
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	2,100.00	2,065.25	2,830.05	2,815.72	197.444	ES
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,436.97	3,211.08	3,165.30	70.136	SF
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	1,984.31	1,948.65	3,793.52	3,779.98	280.262	CC
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	2,000.00	1,957.43	3,793.53	3,779.91	278.475	ES
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,655.12	4,323.21	4,276.07	91.707	SF
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	478.39	452.40	3,999.70	3,996.81	1,384.820	CC
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	1,800.00	1,743.59	4,003.51	3,991.37	329.921	ES
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,517.29	4,211.91	4,165.35	90.463	SF
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	2,450.99	2,437.46	2,328.60	2,311.70	137.794	CC
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	2,500.00	2,495.30	2,328.89	2,311.62	134.853	ES
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,701.80	3,199.13	3,151.39	67.017	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 26						
Adam Red D 26-11 (PR) - Wellbore #1 - Gyro Surveys	10,393.07	6,852.72	463.01	398.11	7.134	CC, ES, SF
Adam Red D 26-12 (PR) - Wellbore #1 - Gyro Surveys	10,389.42	6,862.70	740.06	667.77	10.236	CC
Adam Red D 26-12 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,862.65	740.14	667.72	10.221	ES
Adam Red D 26-12 (PR) - Wellbore #1 - Gyro Surveys	10,500.00	6,862.16	748.28	675.01	10.213	SF
Adam Red D 26-13 (PR) - Wellbore #1 - Gyro Surveys	11,534.85	6,882.46	556.27	483.21	7.614	CC, ES
Adam Red D 26-13 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,880.28	560.07	486.32	7.595	SF
Adam Red D 26-14 (PR) - Wellbore #1 - Gyro Surveys	11,544.19	6,860.85	808.22	730.53	10.403	CC, ES, SF
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Survey	11,207.98	6,001.00	4,053.71	3,989.34	62.977	CC, ES
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Survey	12,200.00	6,001.00	4,173.33	4,104.14	60.324	SF
Heyde 1-26 (PR) - Wellbore #1 - Gyro Surveys	158.06	110.31	2,854.05	2,853.52	5,404.325	CC
Heyde 1-26 (PR) - Wellbore #1 - Gyro Surveys	2,100.00	2,029.44	2,858.15	2,843.94	201.156	ES
Heyde 1-26 (PR) - Wellbore #1 - Gyro Surveys	8,600.00	6,881.54	2,986.78	2,932.97	55.508	SF
Heyde 26ND (PR) - Wellbore #1 - MWD Surveys	8,427.00	6,966.16	1,374.96	1,319.10	24.615	CC, ES
Heyde 26ND (PR) - Wellbore #1 - MWD Surveys	8,600.00	6,965.88	1,385.80	1,328.79	24.308	SF
Heyde 26RD (PR) - Wellbore #1 - MWD Surveys	3,461.51	3,764.10	2,373.97	2,347.84	90.856	CC
Heyde 26RD (PR) - Wellbore #1 - MWD Surveys	4,000.00	4,307.42	2,376.74	2,346.14	77.670	ES
Heyde 26RD (PR) - Wellbore #1 - MWD Surveys	7,700.00	6,868.46	2,706.78	2,654.09	51.376	SF
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	100.00	54.21	2,683.24	2,683.02	10,000.000	CC
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	500.00	441.39	2,684.46	2,682.11	1,140.084	ES
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	9,800.00	7,044.21	4,087.95	4,024.01	63.928	SF
Heyde 31-26 (PR) - Wellbore #1 - No Surveys	7,852.88	6,815.62	1,685.64	1,634.70	33.096	CC, ES
Heyde 31-26 (PR) - Wellbore #1 - No Surveys	8,000.00	6,815.70	1,693.92	1,642.64	33.028	SF
Heyde 32-26 (SI) - Wellbore #1 - Gyro Surveys	9,074.21	6,798.46	1,846.30	1,789.69	32.615	CC, ES
Heyde 32-26 (SI) - Wellbore #1 - Gyro Surveys	9,300.00	6,800.47	1,860.06	1,802.64	32.399	SF
Heyde 41-26 (PR) - Wellbore #1 - Gyro Surveys	2,433.46	2,405.02	2,981.35	2,964.63	178.308	CC, ES
Heyde 41-26 (PR) - Wellbore #1 - Gyro Surveys	8,300.00	6,836.92	3,392.27	3,339.88	64.741	SF
Heyde 42-26 (PR) - Wellbore #1 - Gyro Surveys	9,020.27	6,847.82	3,246.66	3,190.01	57.306	CC, ES
Heyde 42-26 (PR) - Wellbore #1 - Gyro Surveys	9,700.00	6,845.68	3,317.05	3,257.51	55.710	SF
HSR-Waste Services 10-26 (SI) - Wellbore #1 - No Surve	10,599.24	6,846.00	2,170.55	1,990.99	12.089	CC
HSR-Waste Services 10-26 (SI) - Wellbore #1 - No Surve	10,600.00	6,846.00	2,170.55	1,990.99	12.088	ES
HSR-Waste Services 10-26 (SI) - Wellbore #1 - No Surve	10,700.00	6,846.00	2,172.88	1,992.85	12.069	SF
HSR-Waste Services 15-26 (SI) - Wellbore #1 - No Surve	11,596.05	6,862.00	1,925.59	1,738.79	10.308	CC
HSR-Waste Services 15-26 (SI) - Wellbore #1 - No Surve	11,600.00	6,862.00	1,925.60	1,738.77	10.307	ES
HSR-Waste Services 15-26 (SI) - Wellbore #1 - No Surve	11,700.00	6,862.00	1,928.40	1,741.11	10.297	SF
HSR-Waste Services 16-26 (SI) - Wellbore #1 - Gyro Su	11,602.49	6,892.67	3,176.06	3,102.59	43.226	CC, ES
HSR-Waste Services 16-26 (SI) - Wellbore #1 - Gyro Su	12,100.00	6,890.26	3,214.79	3,138.83	42.322	SF
HSR-Waste Services 9-26 (PA) - Wellbore #1 - Gyro Sur	10,346.75	6,805.21	3,348.40	3,283.90	51.915	CC, ES
HSR-Waste Services 9-26 (PA) - Wellbore #1 - Gyro Sur	11,000.00	6,808.56	3,411.52	3,343.89	50.439	SF
Waste Management 11-26 (PR) - Wellbore #1 - Gyro Sur	7,845.83	6,828.29	744.00	692.93	14.568	CC, ES
Waste Management 11-26 (PR) - Wellbore #1 - Gyro Sur	7,900.00	6,829.62	745.71	694.32	14.510	SF
Waste Management 12-26 (PR) - Wellbore #1 - Gyro Sur	9,178.80	6,852.78	795.86	738.28	13.820	CC, ES
Waste Management 12-26 (PR) - Wellbore #1 - Gyro Sur	9,300.00	6,852.84	805.02	746.51	13.758	SF
Waste Management 12-26A (PR) - Wellbore #1 - Gyro S	8,617.27	6,851.73	154.39	99.88	2.832	CC, ES, SF
Waste Management 21-26 (PR) - Wellbore #1 - Gyro Sur	7,706.38	6,830.02	737.69	687.45	14.681	CC, ES, SF
Waste Management 22-26 (PR) - Wellbore #1 - Gyro Sur	9,112.42	6,841.34	610.70	553.82	10.736	CC, ES, SF
Waste Management 26FD (PR) - Wellbore #1 - MWD Su	8,461.40	6,990.96	1,293.67	1,238.75	23.557	CC, ES
Waste Management 26FD (PR) - Wellbore #1 - MWD Su	8,700.00	6,988.37	1,315.48	1,259.15	23.350	SF
Waste Management 26KD (PR) - Wellbore #1 - MWD Su	9,715.30	6,998.20	59.93	-7.83	0.884	Level 1, CC, ES, SF
Waste Management D 26-25 (SI) - Wellbore #1 - Gyro S	11,059.49	6,869.85	139.75	70.31	2.012	CC, ES, SF
Waste Mangement 26JD (PR) - Wellbore #1 - MWD Surv	7,175.99	6,930.85	20.44	-32.23	0.388	Level 1, CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 35						
UPRR 1 (DA) - Wellbore #1 - No Surveys	13,067.19	6,905.00	684.82	486.35	3.450	CC, ES
UPRR 1 (DA) - Wellbore #1 - No Surveys	13,100.00	6,905.00	685.60	486.74	3.448	SF
Waste Management 22-35 (SI) - Wellbore #1 - Gyro Surv	14,450.51	6,901.91	712.45	617.55	7.507	CC, ES, SF
Waste Management 31-35 (SI) - Wellbore #1 - Gyro Surv	12,925.35	6,887.52	1,722.21	1,639.27	20.765	CC, ES
Waste Management 31-35 (SI) - Wellbore #1 - Gyro Surv	13,000.00	6,887.00	1,723.83	1,640.56	20.702	SF
Waste Management 41-35 (SI) - Wellbore #1 - Gyro Surv	13,029.78	6,870.74	3,291.81	3,207.82	39.192	CC, ES
Waste Management 41-35 (SI) - Wellbore #1 - Gyro Surv	13,500.00	6,868.06	3,325.22	3,238.83	38.488	SF
Waste Management D 35-15 (PR) - Wellbore #1 - Gyro S	17,112.15	6,875.45	1,891.32	1,775.75	16.365	CC, ES
Waste Management D 35-15 (PR) - Wellbore #1 - Gyro S	17,200.00	6,874.19	1,893.36	1,777.40	16.328	SF
Waste Management USX D 35-11 (SI) - Wellbore #1 - Gy	15,782.04	6,894.74	620.25	515.09	5.898	CC, ES, SF
Waste Management USX D 35-14 (SI) - Wellbore #1 - Nc	16,823.47	6,893.00	736.86	509.54	3.241	CC, ES, SF
Waste Management USX D 35-7 (PR) - Wellbore #1 - Gy	14,285.32	6,864.76	1,917.70	1,824.27	20.524	CC
Waste Management USX D 35-7 (PR) - Wellbore #1 - Gy	14,300.00	6,864.62	1,917.76	1,824.25	20.508	ES
Waste Management USX D 35-7 (PR) - Wellbore #1 - Gy	14,400.00	6,863.64	1,921.13	1,827.18	20.450	SF
Waste Management USX D 35-9 (SI) - Wellbore #1 - No	15,748.49	7,559.00	3,838.12	3,632.70	18.683	CC, ES
Waste Management USX D 35-9 (SI) - Wellbore #1 - No	16,200.00	7,559.00	3,864.59	3,656.47	18.569	SF
Waste Services 21-35 (PR) - Wellbore #1 - Gyro Surveys	12,859.99	6,885.37	758.06	675.35	9.165	CC, ES, SF

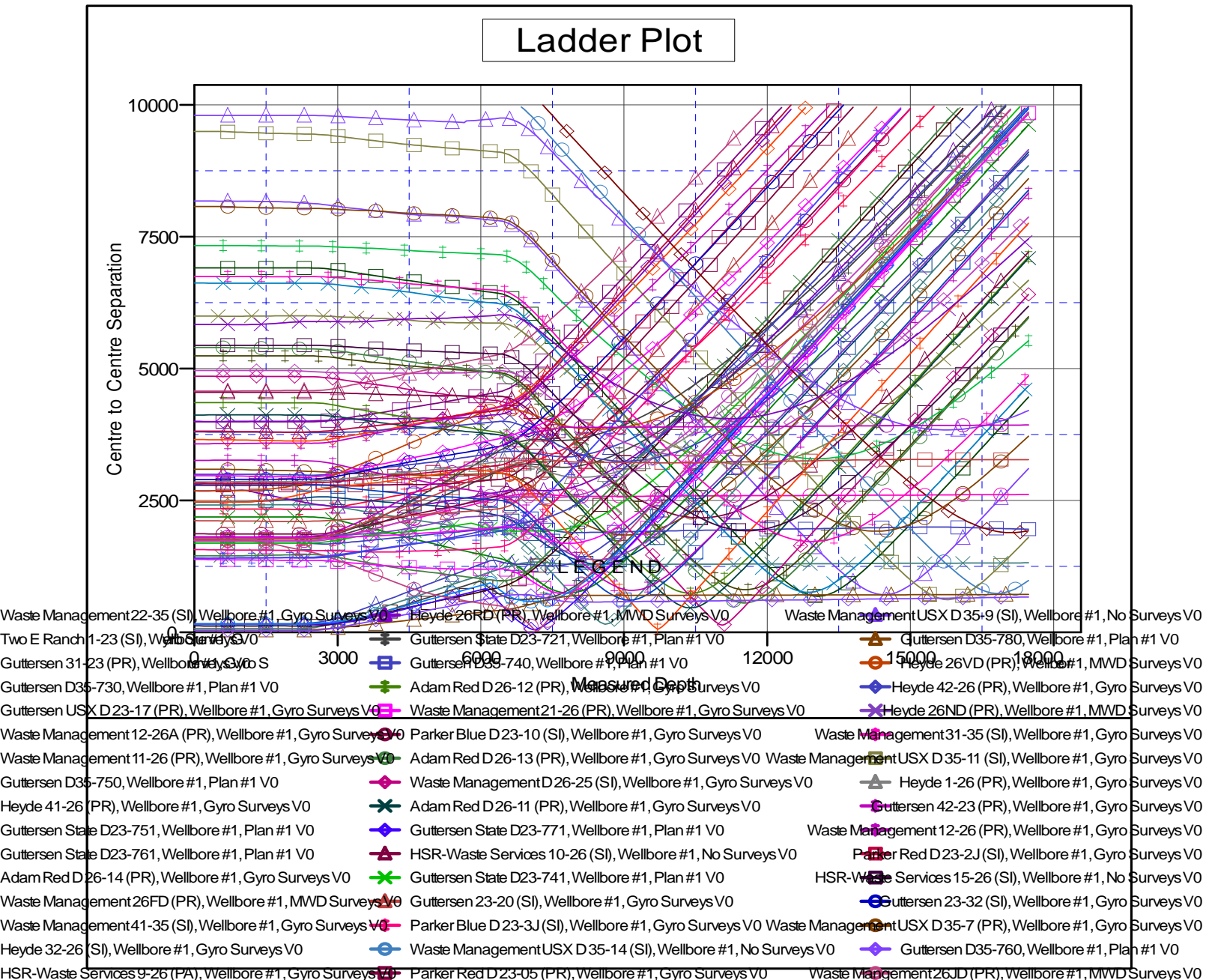
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4859.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen D35-770
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.63°



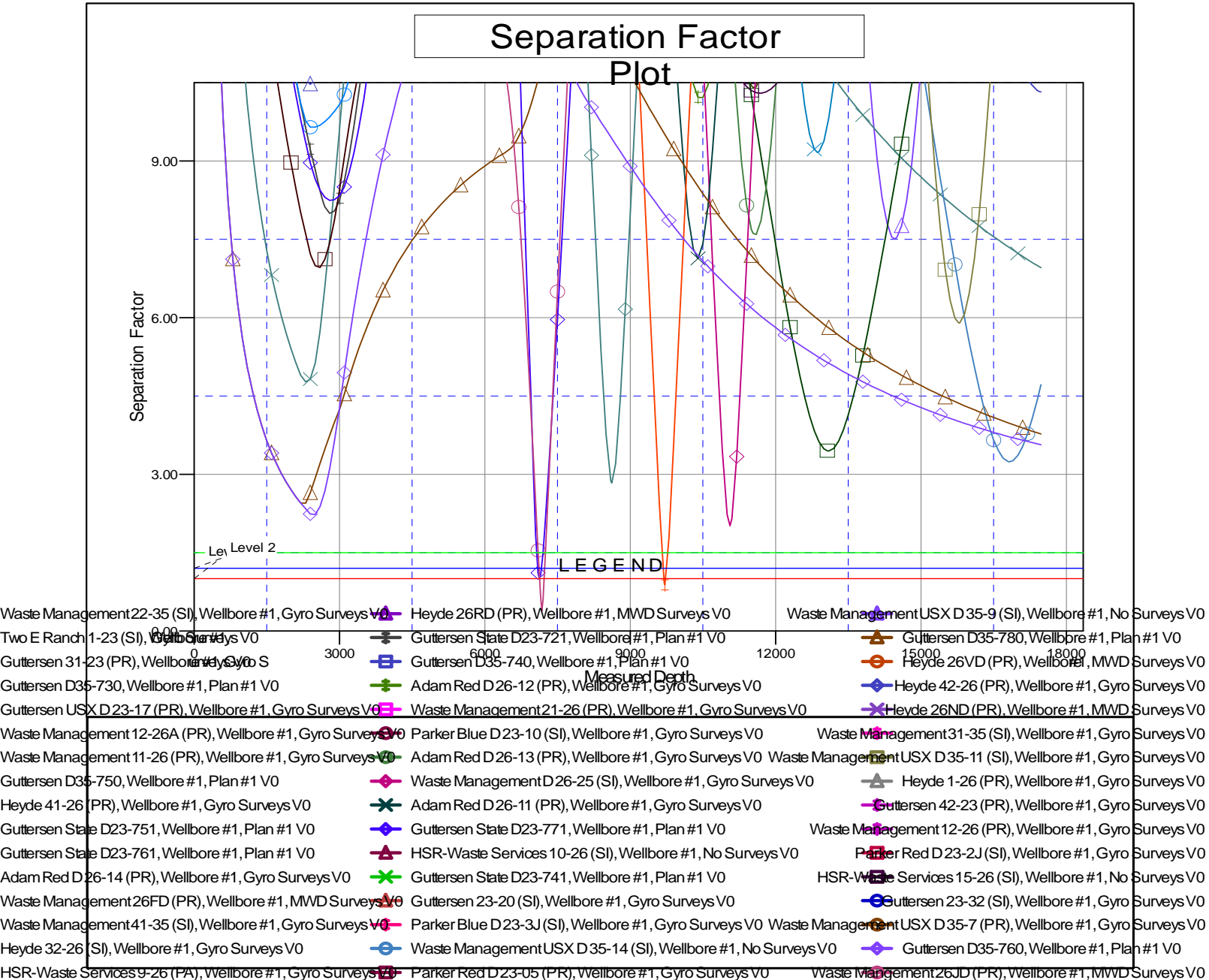
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen D35-770
Project:	Mustang	TVD Reference:	KB @ 4859.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4859.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen D35-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4859.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen D35-770
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