

Project: Mustang
 Site: D Section 23
 Well: Guttersen D35-750
 Wellbore: Wellbore #1
 Design: Plan #1

Northern Region - DJ Basin

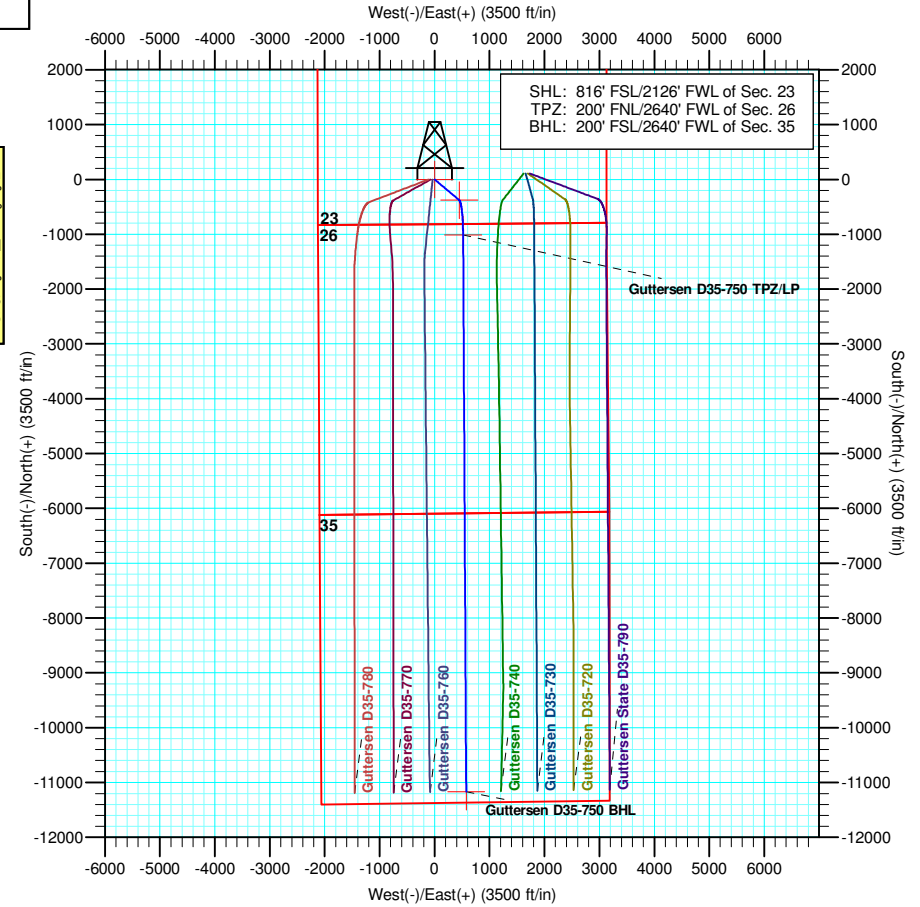
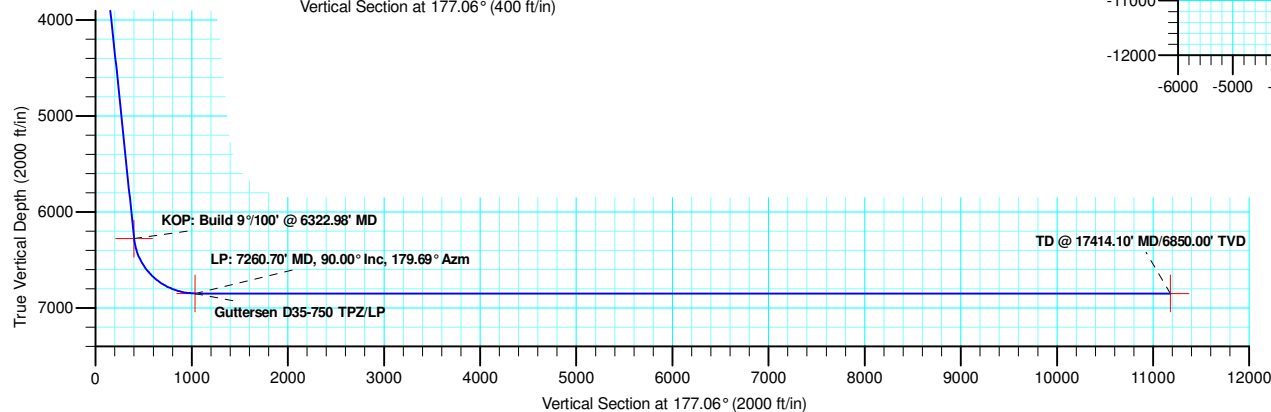
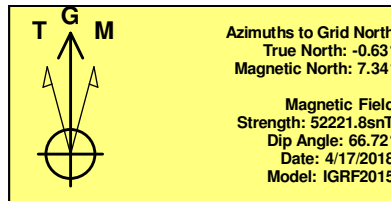
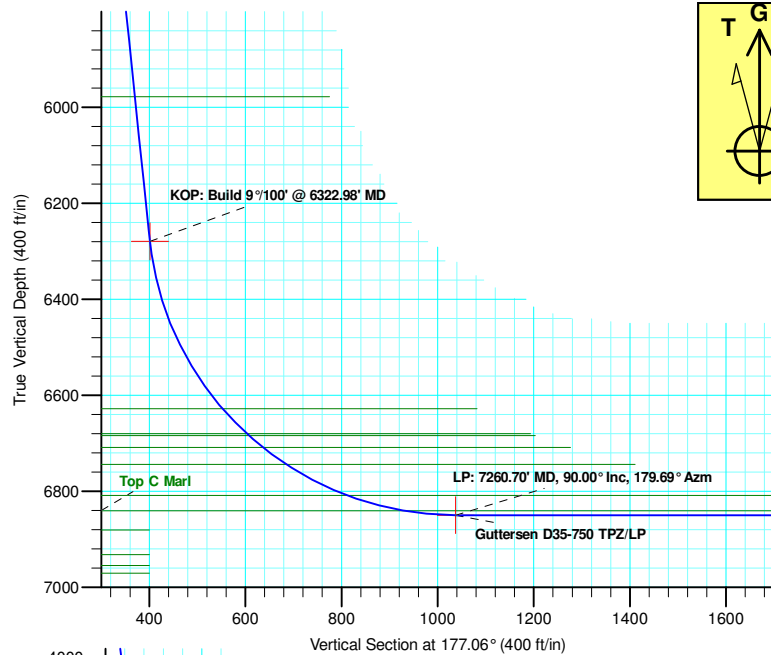
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2632.48	8.65	130.18	2630.84	-21.02	24.89	2.00	130.18	22.27	
4	6322.98	8.65	130.18	6279.36	-379.14	448.92	0.00	0.00	401.69	
5	7260.70	90.00	179.69	6850.00	-1012.34	518.40	9.00	49.83	1037.63	Guttersen D35-750 TPZ/LP
6	17414.10	90.00	179.69	6850.00	-11165.59	574.07	0.00	0.00	11180.34	Guttersen D35-750 BHL

WELL DETAILS: Guttersen D35-750

+N/-S	+E/-W	Northing	Ground Level: Easting	4830.00 Latitude	Longitude	Slot
0.00	0.00	1319345.92	3273614.84	40.2058527	-104.5203630	



Plan: Plan #1 (Guttersen D35-750/Wellbore #1)

Created By: Keith Noack Date: 14:28, August 15 2018

Northern Region - DJ Basin

Mustang

D Section 23

Guttersen D35-750

Wellbore #1

Plan: Plan #1

Standard Planning Report

15 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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 D35-750					
Well Position	+N/-S	274.74 ft	Northing:	1,319,345.92 usft	Latitude:	40.2058528
	+E/-W	-1,303.02 ft	Easting:	3,273,614.84 usft	Longitude:	-104.5203629
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,830.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/17/2018	7.98	66.72	52,221.79682849

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	177.06

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	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,632.48	8.65	130.18	2,630.84	-21.02	24.89	2.00	2.00	0.00	130.18	
6,322.98	8.65	130.18	6,279.36	-379.14	448.92	0.00	0.00	0.00	0.00	
7,260.70	90.00	179.69	6,850.00	-1,012.34	518.40	9.00	8.68	5.28	49.83	Guttersen D35-750
17,414.10	90.00	179.69	6,850.00	-11,165.59	574.07	0.00	0.00	0.00	0.00	Guttersen D35-750

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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
578.00	0.00	0.00	578.00	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
780.00	0.00	0.00	780.00	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
1,668.00	0.00	0.00	1,668.00	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
Build: 2°/100'									
2,300.00	2.00	130.18	2,299.98	-1.13	1.33	1.19	2.00	2.00	0.00
2,400.00	4.00	130.18	2,399.84	-4.50	5.33	4.77	2.00	2.00	0.00
2,500.00	6.00	130.18	2,499.45	-10.13	11.99	10.73	2.00	2.00	0.00
2,600.00	8.00	130.18	2,598.70	-17.99	21.30	19.06	2.00	2.00	0.00
2,632.48	8.65	130.18	2,630.84	-21.02	24.89	22.27	2.00	2.00	0.00
Hold: 8.65° Inc, 130.18° Azm									
2,700.00	8.65	130.18	2,697.59	-27.58	32.65	29.22	0.00	0.00	0.00
2,800.00	8.65	130.18	2,796.45	-37.28	44.14	39.50	0.00	0.00	0.00
2,900.00	8.65	130.18	2,895.32	-46.98	55.63	49.78	0.00	0.00	0.00
3,000.00	8.65	130.18	2,994.18	-56.69	67.12	60.06	0.00	0.00	0.00
3,100.00	8.65	130.18	3,093.04	-66.39	78.61	70.34	0.00	0.00	0.00
3,200.00	8.65	130.18	3,191.90	-76.09	90.10	80.62	0.00	0.00	0.00
3,300.00	8.65	130.18	3,290.77	-85.80	101.59	90.90	0.00	0.00	0.00
3,400.00	8.65	130.18	3,389.63	-95.50	113.08	101.18	0.00	0.00	0.00
3,500.00	8.65	130.18	3,488.49	-105.20	124.57	111.46	0.00	0.00	0.00
3,600.00	8.65	130.18	3,587.36	-114.91	136.06	121.74	0.00	0.00	0.00
3,700.00	8.65	130.18	3,686.22	-124.61	147.55	132.02	0.00	0.00	0.00
3,778.68	8.65	130.18	3,764.00	-132.25	156.59	140.11	0.00	0.00	0.00
Parkman									
3,800.00	8.65	130.18	3,785.08	-134.32	159.04	142.30	0.00	0.00	0.00
3,900.00	8.65	130.18	3,883.94	-144.02	170.53	152.59	0.00	0.00	0.00
4,000.00	8.65	130.18	3,982.81	-153.72	182.02	162.87	0.00	0.00	0.00
4,100.00	8.65	130.18	4,081.67	-163.43	193.51	173.15	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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)
4,181.26	8.65	130.18	4,162.00	-171.31	202.84	181.50	0.00	0.00	0.00
Sussex									
4,200.00	8.65	130.18	4,180.53	-173.13	205.00	183.43	0.00	0.00	0.00
4,300.00	8.65	130.18	4,279.39	-182.83	216.49	193.71	0.00	0.00	0.00
4,400.00	8.65	130.18	4,378.26	-192.54	227.98	203.99	0.00	0.00	0.00
4,500.00	8.65	130.18	4,477.12	-202.24	239.47	214.27	0.00	0.00	0.00
4,600.00	8.65	130.18	4,575.98	-211.95	250.95	224.55	0.00	0.00	0.00
4,700.00	8.65	130.18	4,674.84	-221.65	262.44	234.83	0.00	0.00	0.00
4,800.00	8.65	130.18	4,773.71	-231.35	273.93	245.11	0.00	0.00	0.00
4,900.00	8.65	130.18	4,872.57	-241.06	285.42	255.39	0.00	0.00	0.00
4,938.87	8.65	130.18	4,911.00	-244.83	289.89	259.39	0.00	0.00	0.00
Shannon									
5,000.00	8.65	130.18	4,971.43	-250.76	296.91	265.68	0.00	0.00	0.00
5,100.00	8.65	130.18	5,070.30	-260.46	308.40	275.96	0.00	0.00	0.00
5,200.00	8.65	130.18	5,169.16	-270.17	319.89	286.24	0.00	0.00	0.00
5,300.00	8.65	130.18	5,268.02	-279.87	331.38	296.52	0.00	0.00	0.00
5,400.00	8.65	130.18	5,366.88	-289.58	342.87	306.80	0.00	0.00	0.00
5,500.00	8.65	130.18	5,465.75	-299.28	354.36	317.08	0.00	0.00	0.00
5,600.00	8.65	130.18	5,564.61	-308.98	365.85	327.36	0.00	0.00	0.00
5,700.00	8.65	130.18	5,663.47	-318.69	377.34	337.64	0.00	0.00	0.00
5,800.00	8.65	130.18	5,762.33	-328.39	388.83	347.92	0.00	0.00	0.00
5,900.00	8.65	130.18	5,861.20	-338.09	400.32	358.20	0.00	0.00	0.00
6,000.00	8.65	130.18	5,960.06	-347.80	411.81	368.48	0.00	0.00	0.00
6,018.15	8.65	130.18	5,978.00	-349.56	413.90	370.35	0.00	0.00	0.00
Teepee Buttes									
6,100.00	8.65	130.18	6,058.92	-357.50	423.30	378.76	0.00	0.00	0.00
6,200.00	8.65	130.18	6,157.78	-367.20	434.79	389.05	0.00	0.00	0.00
6,300.00	8.65	130.18	6,256.65	-376.91	446.28	399.33	0.00	0.00	0.00
6,322.98	8.65	130.18	6,279.36	-379.14	448.92	401.69	0.00	0.00	0.00
KOP: Build 9°/100' @ 6322.98' MD									
6,350.00	10.38	140.55	6,306.01	-382.33	452.02	405.04	9.00	6.42	38.35
6,400.00	14.14	152.36	6,354.87	-391.23	457.72	414.21	9.00	7.52	23.62
6,450.00	18.23	159.13	6,402.88	-403.95	463.34	427.21	9.00	8.18	13.54
6,500.00	22.48	163.45	6,449.75	-420.43	468.86	443.95	9.00	8.49	8.64
6,550.00	26.80	166.45	6,495.19	-440.57	474.22	464.34	9.00	8.65	6.00
6,600.00	31.17	168.66	6,538.92	-464.23	479.41	488.23	9.00	8.74	4.43
6,650.00	35.57	170.38	6,580.66	-491.27	484.39	515.49	9.00	8.80	3.43
6,700.00	39.99	171.76	6,620.17	-521.53	489.13	545.95	9.00	8.84	2.76
6,710.29	40.91	172.01	6,628.00	-528.14	490.07	552.60	9.00	8.86	2.46
Sharon Springs									
6,750.00	44.43	172.91	6,657.19	-554.81	493.59	579.42	9.00	8.87	2.25
6,782.76	47.34	173.57	6,680.00	-578.17	496.36	602.89	9.00	8.88	2.01
Top A Chalk									
6,788.70	47.87	173.68	6,684.00	-582.52	496.84	607.26	9.00	8.89	1.90
Top A Marl									
6,800.00	48.87	173.89	6,691.51	-590.92	497.76	615.70	9.00	8.89	1.85
6,827.26	51.30	174.37	6,709.00	-611.72	499.90	636.58	9.00	8.90	1.76
Top B Chalk									
6,850.00	53.32	174.74	6,722.90	-629.63	501.60	654.55	9.00	8.90	1.65
6,886.75	56.60	175.31	6,744.00	-659.60	504.21	684.62	9.00	8.91	1.54
Top B Marl									
6,900.00	57.78	175.50	6,751.18	-670.70	505.10	695.75	9.00	8.92	1.46
6,950.00	62.24	176.19	6,776.17	-713.88	508.23	739.04	9.00	8.92	1.38

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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)
7,000.00	66.70	176.83	6,797.71	-758.90	510.96	784.14	9.00	8.93	1.27
7,030.20	69.40	177.19	6,809.00	-786.88	512.42	812.15	9.00	8.93	1.20
Top C Chalk									
7,050.00	71.17	177.42	6,815.68	-805.49	513.30	830.79	9.00	8.93	1.17
7,100.00	75.63	177.99	6,829.96	-853.36	515.21	878.69	9.00	8.94	1.13
7,150.00	80.10	178.53	6,840.46	-902.21	516.70	927.55	9.00	8.94	1.08
7,153.17	80.39	178.56	6,841.00	-905.33	516.78	930.67	9.00	8.94	1.06
Top C Marl									
7,200.00	84.57	179.06	6,847.13	-951.74	517.74	977.07	9.00	8.94	1.05
7,250.00	89.04	179.58	6,849.91	-1,001.64	518.33	1,026.94	9.00	8.94	1.04
7,260.70	90.00	179.69	6,850.00	-1,012.34	518.40	1,037.63	9.00	8.94	1.03
LP: 7260.70' MD, 90.00° Inc, 179.69° Azm									
7,300.00	90.00	179.69	6,850.00	-1,051.64	518.62	1,076.88	0.00	0.00	0.00
7,400.00	90.00	179.69	6,850.00	-1,151.64	519.17	1,176.78	0.00	0.00	0.00
7,500.00	90.00	179.69	6,850.00	-1,251.64	519.71	1,276.67	0.00	0.00	0.00
7,600.00	90.00	179.69	6,850.00	-1,351.64	520.26	1,376.57	0.00	0.00	0.00
7,700.00	90.00	179.69	6,850.00	-1,451.64	520.81	1,476.46	0.00	0.00	0.00
7,800.00	90.00	179.69	6,850.00	-1,551.63	521.36	1,576.36	0.00	0.00	0.00
7,900.00	90.00	179.69	6,850.00	-1,651.63	521.91	1,676.25	0.00	0.00	0.00
8,000.00	90.00	179.69	6,850.00	-1,751.63	522.46	1,776.15	0.00	0.00	0.00
8,100.00	90.00	179.69	6,850.00	-1,851.63	523.00	1,876.04	0.00	0.00	0.00
8,200.00	90.00	179.69	6,850.00	-1,951.63	523.55	1,975.94	0.00	0.00	0.00
8,300.00	90.00	179.69	6,850.00	-2,051.63	524.10	2,075.83	0.00	0.00	0.00
8,400.00	90.00	179.69	6,850.00	-2,151.63	524.65	2,175.73	0.00	0.00	0.00
8,500.00	90.00	179.69	6,850.00	-2,251.62	525.20	2,275.62	0.00	0.00	0.00
8,600.00	90.00	179.69	6,850.00	-2,351.62	525.75	2,375.52	0.00	0.00	0.00
8,700.00	90.00	179.69	6,850.00	-2,451.62	526.29	2,475.41	0.00	0.00	0.00
8,800.00	90.00	179.69	6,850.00	-2,551.62	526.84	2,575.30	0.00	0.00	0.00
8,900.00	90.00	179.69	6,850.00	-2,651.62	527.39	2,675.20	0.00	0.00	0.00
9,000.00	90.00	179.69	6,850.00	-2,751.62	527.94	2,775.09	0.00	0.00	0.00
9,100.00	90.00	179.69	6,850.00	-2,851.61	528.49	2,874.99	0.00	0.00	0.00
9,200.00	90.00	179.69	6,850.00	-2,951.61	529.04	2,974.88	0.00	0.00	0.00
9,300.00	90.00	179.69	6,850.00	-3,051.61	529.58	3,074.78	0.00	0.00	0.00
9,400.00	90.00	179.69	6,850.00	-3,151.61	530.13	3,174.67	0.00	0.00	0.00
9,500.00	90.00	179.69	6,850.00	-3,251.61	530.68	3,274.57	0.00	0.00	0.00
9,600.00	90.00	179.69	6,850.00	-3,351.61	531.23	3,374.46	0.00	0.00	0.00
9,700.00	90.00	179.69	6,850.00	-3,451.61	531.78	3,474.36	0.00	0.00	0.00
9,800.00	90.00	179.69	6,850.00	-3,551.60	532.32	3,574.25	0.00	0.00	0.00
9,900.00	90.00	179.69	6,850.00	-3,651.60	532.87	3,674.15	0.00	0.00	0.00
10,000.00	90.00	179.69	6,850.00	-3,751.60	533.42	3,774.04	0.00	0.00	0.00
10,100.00	90.00	179.69	6,850.00	-3,851.60	533.97	3,873.94	0.00	0.00	0.00
10,200.00	90.00	179.69	6,850.00	-3,951.60	534.52	3,973.83	0.00	0.00	0.00
10,300.00	90.00	179.69	6,850.00	-4,051.60	535.07	4,073.73	0.00	0.00	0.00
10,400.00	90.00	179.69	6,850.00	-4,151.60	535.61	4,173.62	0.00	0.00	0.00
10,500.00	90.00	179.69	6,850.00	-4,251.59	536.16	4,273.52	0.00	0.00	0.00
10,600.00	90.00	179.69	6,850.00	-4,351.59	536.71	4,373.41	0.00	0.00	0.00
10,700.00	90.00	179.69	6,850.00	-4,451.59	537.26	4,473.30	0.00	0.00	0.00
10,800.00	90.00	179.69	6,850.00	-4,551.59	537.81	4,573.20	0.00	0.00	0.00
10,900.00	90.00	179.69	6,850.00	-4,651.59	538.36	4,673.09	0.00	0.00	0.00
11,000.00	90.00	179.69	6,850.00	-4,751.59	538.90	4,772.99	0.00	0.00	0.00
11,100.00	90.00	179.69	6,850.00	-4,851.58	539.45	4,872.88	0.00	0.00	0.00
11,200.00	90.00	179.69	6,850.00	-4,951.58	540.00	4,972.78	0.00	0.00	0.00
11,300.00	90.00	179.69	6,850.00	-5,051.58	540.55	5,072.67	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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)
11,400.00	90.00	179.69	6,850.00	-5,151.58	541.10	5,172.57	0.00	0.00	0.00
11,500.00	90.00	179.69	6,850.00	-5,251.58	541.64	5,272.46	0.00	0.00	0.00
11,600.00	90.00	179.69	6,850.00	-5,351.58	542.19	5,372.36	0.00	0.00	0.00
11,700.00	90.00	179.69	6,850.00	-5,451.58	542.74	5,472.25	0.00	0.00	0.00
11,800.00	90.00	179.69	6,850.00	-5,551.57	543.29	5,572.15	0.00	0.00	0.00
11,900.00	90.00	179.69	6,850.00	-5,651.57	543.84	5,672.04	0.00	0.00	0.00
12,000.00	90.00	179.69	6,850.00	-5,751.57	544.39	5,771.94	0.00	0.00	0.00
12,100.00	90.00	179.69	6,850.00	-5,851.57	544.93	5,871.83	0.00	0.00	0.00
12,200.00	90.00	179.69	6,850.00	-5,951.57	545.48	5,971.73	0.00	0.00	0.00
12,300.00	90.00	179.69	6,850.00	-6,051.57	546.03	6,071.62	0.00	0.00	0.00
12,400.00	90.00	179.69	6,850.00	-6,151.57	546.58	6,171.52	0.00	0.00	0.00
12,500.00	90.00	179.69	6,850.00	-6,251.56	547.13	6,271.41	0.00	0.00	0.00
12,600.00	90.00	179.69	6,850.00	-6,351.56	547.68	6,371.30	0.00	0.00	0.00
12,700.00	90.00	179.69	6,850.00	-6,451.56	548.22	6,471.20	0.00	0.00	0.00
12,800.00	90.00	179.69	6,850.00	-6,551.56	548.77	6,571.09	0.00	0.00	0.00
12,900.00	90.00	179.69	6,850.00	-6,651.56	549.32	6,670.99	0.00	0.00	0.00
13,000.00	90.00	179.69	6,850.00	-6,751.56	549.87	6,770.88	0.00	0.00	0.00
13,100.00	90.00	179.69	6,850.00	-6,851.55	550.42	6,870.78	0.00	0.00	0.00
13,200.00	90.00	179.69	6,850.00	-6,951.55	550.96	6,970.67	0.00	0.00	0.00
13,300.00	90.00	179.69	6,850.00	-7,051.55	551.51	7,070.57	0.00	0.00	0.00
13,400.00	90.00	179.69	6,850.00	-7,151.55	552.06	7,170.46	0.00	0.00	0.00
13,500.00	90.00	179.69	6,850.00	-7,251.55	552.61	7,270.36	0.00	0.00	0.00
13,600.00	90.00	179.69	6,850.00	-7,351.55	553.16	7,370.25	0.00	0.00	0.00
13,700.00	90.00	179.69	6,850.00	-7,451.55	553.71	7,470.15	0.00	0.00	0.00
13,800.00	90.00	179.69	6,850.00	-7,551.54	554.25	7,570.04	0.00	0.00	0.00
13,900.00	90.00	179.69	6,850.00	-7,651.54	554.80	7,669.94	0.00	0.00	0.00
14,000.00	90.00	179.69	6,850.00	-7,751.54	555.35	7,769.83	0.00	0.00	0.00
14,100.00	90.00	179.69	6,850.00	-7,851.54	555.90	7,869.73	0.00	0.00	0.00
14,200.00	90.00	179.69	6,850.00	-7,951.54	556.45	7,969.62	0.00	0.00	0.00
14,300.00	90.00	179.69	6,850.00	-8,051.54	557.00	8,069.52	0.00	0.00	0.00
14,400.00	90.00	179.69	6,850.00	-8,151.54	557.54	8,169.41	0.00	0.00	0.00
14,500.00	90.00	179.69	6,850.00	-8,251.53	558.09	8,269.31	0.00	0.00	0.00
14,600.00	90.00	179.69	6,850.00	-8,351.53	558.64	8,369.20	0.00	0.00	0.00
14,700.00	90.00	179.69	6,850.00	-8,451.53	559.19	8,469.09	0.00	0.00	0.00
14,800.00	90.00	179.69	6,850.00	-8,551.53	559.74	8,568.99	0.00	0.00	0.00
14,900.00	90.00	179.69	6,850.00	-8,651.53	560.28	8,668.88	0.00	0.00	0.00
15,000.00	90.00	179.69	6,850.00	-8,751.53	560.83	8,768.78	0.00	0.00	0.00
15,100.00	90.00	179.69	6,850.00	-8,851.52	561.38	8,868.67	0.00	0.00	0.00
15,200.00	90.00	179.69	6,850.00	-8,951.52	561.93	8,968.57	0.00	0.00	0.00
15,300.00	90.00	179.69	6,850.00	-9,051.52	562.48	9,068.46	0.00	0.00	0.00
15,400.00	90.00	179.69	6,850.00	-9,151.52	563.03	9,168.36	0.00	0.00	0.00
15,500.00	90.00	179.69	6,850.00	-9,251.52	563.57	9,268.25	0.00	0.00	0.00
15,600.00	90.00	179.69	6,850.00	-9,351.52	564.12	9,368.15	0.00	0.00	0.00
15,700.00	90.00	179.69	6,850.00	-9,451.52	564.67	9,468.04	0.00	0.00	0.00
15,800.00	90.00	179.69	6,850.00	-9,551.51	565.22	9,567.94	0.00	0.00	0.00
15,900.00	90.00	179.69	6,850.00	-9,651.51	565.77	9,667.83	0.00	0.00	0.00
16,000.00	90.00	179.69	6,850.00	-9,751.51	566.32	9,767.73	0.00	0.00	0.00
16,100.00	90.00	179.69	6,850.00	-9,851.51	566.86	9,867.62	0.00	0.00	0.00
16,200.00	90.00	179.69	6,850.00	-9,951.51	567.41	9,967.52	0.00	0.00	0.00
16,300.00	90.00	179.69	6,850.00	-10,051.51	567.96	10,067.41	0.00	0.00	0.00
16,400.00	90.00	179.69	6,850.00	-10,151.51	568.51	10,167.31	0.00	0.00	0.00
16,500.00	90.00	179.69	6,850.00	-10,251.50	569.06	10,267.20	0.00	0.00	0.00
16,600.00	90.00	179.69	6,850.00	-10,351.50	569.61	10,367.09	0.00	0.00	0.00
16,700.00	90.00	179.69	6,850.00	-10,451.50	570.15	10,466.99	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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)
16,800.00	90.00	179.69	6,850.00	-10,551.50	570.70	10,566.88	0.00	0.00	0.00
16,900.00	90.00	179.69	6,850.00	-10,651.50	571.25	10,666.78	0.00	0.00	0.00
17,000.00	90.00	179.69	6,850.00	-10,751.50	571.80	10,766.67	0.00	0.00	0.00
17,100.00	90.00	179.69	6,850.00	-10,851.49	572.35	10,866.57	0.00	0.00	0.00
17,200.00	90.00	179.69	6,850.00	-10,951.49	572.89	10,966.46	0.00	0.00	0.00
17,300.00	90.00	179.69	6,850.00	-11,051.49	573.44	11,066.36	0.00	0.00	0.00
17,400.00	90.00	179.69	6,850.00	-11,151.49	573.99	11,166.25	0.00	0.00	0.00
17,414.10	90.00	179.69	6,850.00	-11,165.59	574.07	11,180.34	0.00	0.00	0.00
TD @ 17414.10' MD/6850.00' 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 D35-750 SI	0.00	0.00	0.00	0.00	0.00	1,319,345.92	3,273,614.84	40.2058528	-104.5203629
- plan hits target center									
- Point									
Guttersen D35-750 KI	0.00	0.00	6,279.37	-379.14	448.92	1,318,966.78	3,274,063.76	40.2047984	-104.5187708
- plan hits target center									
- Point									
Guttersen D35-750 TI	0.00	0.00	6,850.00	-1,012.34	518.40	1,318,333.58	3,274,133.25	40.2030582	-104.5185471
- plan hits target center									
- Point									
Guttersen D35-750 BI	0.00	0.00	6,850.00	-11,165.48	576.19	1,308,180.46	3,274,191.03	40.1751866	-104.5187425
- plan misses target center by 2.12ft at 17414.00ft MD (6850.00 TVD, -11165.49 N, 574.07 E)									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
578.00	578.00	Pierre				
780.00	780.00	Upper Pierre Aquifer Top				
1,668.00	1,668.00	Upper Pierre Aquifer Base				
3,778.68	3,764.00	Parkman				
4,181.26	4,162.00	Sussex				
4,938.87	4,911.00	Shannon				
6,018.15	5,978.00	Teepee Buttes				
6,710.29	6,628.00	Sharon Springs				
6,782.76	6,680.00	Top A Chalk				
6,788.70	6,684.00	Top A Marl				
6,827.26	6,709.00	Top B Chalk				
6,886.75	6,744.00	Top B Marl				
7,030.20	6,809.00	Top C Chalk				
7,153.17	6,841.00	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen D35-750
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4860.00ft
Project:	Mustang	MD Reference:	KB @ 4860.00ft
Site:	D Section 23	North Reference:	Grid
Well:	Guttersen D35-750	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)	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'
2,632.48	2,630.84	-21.02	24.89	Hold: 8.65° Inc, 130.18° Azm
6,322.98	6,279.36	-379.14	448.92	KOP: Build 9°/100' @ 6322.98' MD
7,260.70	6,850.00	-1,012.34	518.40	LP: 7260.70' MD, 90.00° Inc, 179.69° Azm
17,414.10	6,850.00	-11,165.59	574.07	TD @ 17414.10' MD/6850.00' TVD

Northern Region - DJ Basin

Mustang

D Section 23

Guttersen D35-750

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 D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-750	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	17,413.78	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	1,986.60	1,972.77	2,128.76	2,115.13	156.250 CC	
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	2,100.00	2,073.10	2,129.20	2,114.82	148.078 ES	
Gutttersen 23-20 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,538.89	2,734.78	2,689.03	59.774 SF	
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	100.00	24.46	2,861.38	2,861.21	10,000.000 CC	
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,224.47	2,868.82	2,853.21	183.838 ES	
Gutttersen 23-32 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,463.83	3,034.00	2,988.35	66.455 SF	
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	100.00	11.21	4,532.65	4,532.50	10,000.000 CC	
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	2,600.00	2,558.99	4,542.84	4,525.07	255.582 ES	
Gutttersen 23-41 (PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,553.67	4,742.21	4,695.70	101.967 SF	
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	3,970.31			
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,174.13	3,971.06	3,955.98	263.464 ES	
Gutttersen 31-23 (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,704.51	4,373.08	4,325.97	92.828 SF	
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	5,610.78	5,556.13	3,452.37	3,413.31	88.385 CC	
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	5,700.00	5,623.83	3,452.66	3,413.03	87.130 ES	
Gutttersen 42-23 (PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,566.62	3,559.77	3,513.18	76.399 SF	
Gutttersen D23-711 - Wellbore #1 - Plan #1	3,146.00	2,927.31	1,677.73	1,656.81	80.171 CC, ES	
Gutttersen D23-711 - Wellbore #1 - Plan #1	8,000.00	6,476.44	2,455.40	2,402.44	46.368 SF	
Gutttersen D35-720 - Wellbore #1 - Plan #1	2,802.94	2,600.00	1,687.97	1,669.38	90.806 CC, ES	
Gutttersen D35-720 - Wellbore #1 - Plan #1	17,414.10	17,404.37	1,958.41	1,767.62	10.265 SF	
Gutttersen D35-730 - Wellbore #1 - Plan #1	8,368.28	8,309.65	1,294.14	1,234.32	21.632 CC	
Gutttersen D35-730 - Wellbore #1 - Plan #1	17,414.10	17,346.12	1,295.56	1,104.81	6.792 ES, SF	
Gutttersen D35-740 - Wellbore #1 - Plan #1	7,889.69	7,859.81	607.14	551.62	10.936 CC	
Gutttersen D35-740 - Wellbore #1 - Plan #1	17,414.10	17,381.84	644.68	454.67	3.393 ES, SF	
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,200.00	2,201.00	37.50	22.19	2.449 CC, ES	
Gutttersen D35-760 - Wellbore #1 - Plan #1	2,300.00	2,301.02	38.84	22.83	2.426 SF	
Gutttersen D35-770 - Wellbore #1 - Plan #1	2,200.00	2,201.00	75.00	59.69	4.899 CC, ES	
Gutttersen D35-770 - Wellbore #1 - Plan #1	2,300.00	2,301.02	76.34	60.32	4.767 SF	
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,200.00	2,199.00	112.50	97.20	7.352 CC, ES	
Gutttersen D35-780 - Wellbore #1 - Plan #1	2,300.00	2,295.41	115.37	99.40	7.223 SF	
Gutttersen State D23-721 - Wellbore #1 - Plan #1	3,570.89	3,358.10	1,614.70	1,590.87	67.751 CC	
Gutttersen State D23-721 - Wellbore #1 - Plan #1	3,600.00	3,381.10	1,614.76	1,590.75	67.266 ES	
Gutttersen State D23-721 - Wellbore #1 - Plan #1	7,600.00	6,650.00	1,864.94	1,813.94	36.568 SF	
Gutttersen State D23-731 - Wellbore #1 - Plan #1	7,181.75	7,087.46	1,242.75	1,192.26	24.613 CC, ES	
Gutttersen State D23-731 - Wellbore #1 - Plan #1	7,260.70	7,028.50	1,244.01	1,193.37	24.565 SF	
Gutttersen State D23-741 - Wellbore #1 - Plan #1	7,078.35	7,306.46	592.17	541.90	11.781 CC, ES	
Gutttersen State D23-741 - Wellbore #1 - Plan #1	7,100.00	7,290.76	592.38	542.06	11.772 SF	
Gutttersen State D23-751 - Wellbore #1 - Plan #1	7,074.67	7,193.89	51.87	1.44	1.028 Level 2, 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 D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-750	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						
Gutttersen State D23-761 - Wellbore #1 - Plan #1	2,697.58	2,689.13	142.55	123.84	7.617	CC
Gutttersen State D23-761 - Wellbore #1 - Plan #1	2,700.00	2,691.42	142.55	123.82	7.611	ES
Gutttersen State D23-761 - Wellbore #1 - Plan #1	2,800.00	2,786.30	144.74	125.38	7.477	SF
Gutttersen State D23-771 - Wellbore #1 - Plan #1	2,449.73	2,443.88	166.05	149.04	9.760	CC, ES
Gutttersen State D23-771 - Wellbore #1 - Plan #1	2,600.00	2,584.89	169.88	151.93	9.461	SF
Gutttersen State D23-781 - Wellbore #1 - Plan #1	2,200.00	2,198.00	187.82	172.52	12.276	CC, ES
Gutttersen State D23-781 - Wellbore #1 - Plan #1	2,400.00	2,385.46	193.91	177.33	11.697	SF
Gutttersen State D35-790 - Wellbore #1 - Plan #1	2,745.75	2,540.64	1,728.46	1,710.25	94.929	CC, ES
Gutttersen State D35-790 - Wellbore #1 - Plan #1	17,414.10	17,573.53	2,615.44	2,425.00	13.733	SF
Gutttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	2,027.96	1,984.20	3,593.95	3,580.14	260.157	CC
Gutttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	2,300.00	2,259.40	3,595.10	3,579.37	228.437	ES
Gutttersen USX D 23-17 (PR) - Wellbore #1 - Gyro Surve	6,800.00	6,800.00	3,914.13	3,866.51	82.207	SF
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	6,408.00	6,305.84	2,562.77	2,518.14	57.420	CC, ES
Parker Blue D 23-09 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,630.39	2,626.95	2,579.72	55.622	SF
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	5,750.81	5,665.46	1,681.99	1,642.01	42.074	CC
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	5,800.00	5,700.00	1,682.16	1,641.88	41.764	ES
Parker Blue D 23-10 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,398.76	1,711.65	1,666.34	37.780	SF
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	475.28	451.29	1,401.76	1,398.89	487.420	CC
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	1,100.00	1,067.86	1,402.84	1,395.57	193.107	ES
Parker Blue D 23-11 (SI) - Wellbore #1 - Gyro Surveys	6,450.00	6,382.45	1,857.28	1,812.42	41.409	SF
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	100.00	78.07	1,527.08	1,526.82	5,823.635	CC
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	1,300.00	1,266.28	1,531.02	1,522.34	176.398	ES
Parker Blue D 23-13 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,578.13	2,159.58	2,113.18	46.537	SF
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	284.64	252.64	104.92	103.43	70.188	CC
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	2,201.46	2,169.52	107.83	92.76	7.158	ES
Parker Blue D 23-14 (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,367.43	113.39	96.96	6.902	SF
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	6,593.66	6,476.87	768.82	722.95	16.761	CC
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,482.65	768.83	722.92	16.745	ES
Parker Blue D 23-15 (SI) - Wellbore #1 - Gyro Surveys	6,750.00	6,615.87	777.35	730.40	16.556	SF
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	2,114.88	2,100.00	1,602.04	1,587.52	110.305	CC
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,178.89	1,602.21	1,587.10	106.085	ES
Parker Blue D 23-3J (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,490.46	2,239.59	2,191.39	46.466	SF
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	971.15	963.17	2,827.16	2,820.71	438.914	CC
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,179.63	2,829.01	2,813.92	187.478	ES
Parker Red D 23-05 (PR) - Wellbore #1 - Gyro Surveys	6,600.00	6,504.22	3,490.49	3,444.74	76.301	SF
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	683.93	669.93	2,842.16	2,837.78	648.184	CC
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	2,100.00	2,063.16	2,845.37	2,831.04	198.615	ES
Parker Red D 23-2J (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,416.61	3,392.14	3,347.03	75.194	SF
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	1,982.61	1,945.96	3,794.66	3,781.14	280.665	CC
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	2,000.00	1,955.66	3,794.68	3,781.06	278.683	ES
Parker Red D 23-3 (PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,655.21	4,353.73	4,306.95	93.067	SF
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	481.41	454.41	4,028.03	4,025.13	1,386.038	CC
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	1,800.00	1,741.81	4,031.85	4,019.73	332.430	ES
Parker Red D 23-4 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,534.30	4,626.00	4,579.96	100.483	SF
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	6,416.63	6,292.93	1,897.58	1,852.98	42.544	CC, ES
Two E Ranch 1-23 (SI) - Wellbore #1 - Gyro Surveys	6,750.00	6,600.86	1,935.04	1,888.12	41.234	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 Guttersten D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten D35-750	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	10,343.11	6,867.23	828.67	763.48	12.711	CC, ES, SF
Adam Red D 26-12 (PR) - Wellbore #1 - Gyro Surveys	10,335.13	6,844.23	2,031.68	1,959.46	28.133	CC, ES
Adam Red D 26-12 (PR) - Wellbore #1 - Gyro Surveys	10,600.00	6,842.93	2,048.87	1,975.51	27.930	SF
Adam Red D 26-13 (PR) - Wellbore #1 - Gyro Surveys	11,482.08	6,852.75	1,852.00	1,779.00	25.369	CC
Adam Red D 26-13 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,851.97	1,852.09	1,779.00	25.339	ES
Adam Red D 26-13 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,847.55	1,855.75	1,782.21	25.236	SF
Adam Red D 26-14 (PR) - Wellbore #1 - Gyro Surveys	11,495.52	6,862.11	487.79	409.84	6.257	CC, ES, SF
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Survey	11,172.23	6,077.13	2,792.61	2,726.23	42.067	CC
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Survey	11,200.00	6,077.34	2,792.75	2,726.15	41.933	ES
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Survey	11,800.00	6,082.02	2,862.29	2,791.83	40.626	SF
Heyde 1-26 (PR) - Wellbore #1 - Gyro Surveys	8,015.31	6,810.82	1,653.84	1,602.07	31.944	CC, ES
Heyde 1-26 (PR) - Wellbore #1 - Gyro Surveys	8,300.00	6,812.15	1,678.16	1,624.93	31.526	SF
Heyde 26ND (PR) - Wellbore #1 - MWD Surveys	8,380.41	6,978.45	90.51	34.48	1.615	CC, ES
Heyde 26ND (PR) - Wellbore #1 - MWD Surveys	8,400.00	6,978.41	92.60	35.04	1.609	SF
Heyde 26RD (PR) - Wellbore #1 - MWD Surveys	7,136.41	6,853.82	1,357.90	1,306.74	26.542	CC, ES
Heyde 26RD (PR) - Wellbore #1 - MWD Surveys	7,260.70	6,866.58	1,364.81	1,313.05	26.371	SF
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	8,392.88	7,009.76	2,567.80	2,511.70	45.770	CC
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	8,400.00	7,009.85	2,567.81	2,511.65	45.724	ES
Heyde 26VD (PR) - Wellbore #1 - MWD Surveys	9,200.00	7,032.00	2,691.67	2,629.22	43.099	SF
Heyde 31-26 (PR) - Wellbore #1 - No Surveys	7,733.68	6,809.72	396.41	345.71	7.820	CC, ES, SF
Heyde 32-26 (SI) - Wellbore #1 - Gyro Surveys	9,029.55	6,818.96	559.54	502.62	9.830	CC, ES
Heyde 32-26 (SI) - Wellbore #1 - Gyro Surveys	9,100.00	6,819.51	563.96	506.47	9.809	SF
Heyde 41-26 (PR) - Wellbore #1 - Gyro Surveys	7,527.13	6,806.93	2,030.84	1,980.86	40.629	CC, ES
Heyde 41-26 (PR) - Wellbore #1 - Gyro Surveys	7,900.00	6,817.23	2,064.77	2,013.23	40.060	SF
Heyde 42-26 (PR) - Wellbore #1 - Gyro Surveys	8,980.65	6,827.53	1,960.11	1,903.51	34.631	CC
Heyde 42-26 (PR) - Wellbore #1 - Gyro Surveys	9,000.00	6,827.52	1,960.21	1,903.48	34.553	ES
Heyde 42-26 (PR) - Wellbore #1 - Gyro Surveys	9,400.00	6,827.24	2,004.47	1,945.30	33.877	SF
HSR-Waste Services 10-26 (SI) - Wellbore #1 - No Surveys	10,555.60	6,836.00	878.05	698.52	4.891	CC, ES
HSR-Waste Services 10-26 (SI) - Wellbore #1 - No Surveys	10,600.00	6,836.00	879.17	699.22	4.886	SF
HSR-Waste Services 15-26 (SI) - Wellbore #1 - No Surveys	11,551.50	6,852.00	629.41	442.60	3.369	CC, ES, SF
HSR-Waste Services 16-26 (SI) - Wellbore #1 - Gyro Surveys	11,562.69	6,863.03	1,880.15	1,806.60	25.562	CC, ES
HSR-Waste Services 16-26 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	6,861.87	1,895.07	1,819.69	25.140	SF
HSR-Waste Services 9-26 (PA) - Wellbore #1 - Gyro Surveys	10,307.46	6,804.89	2,056.79	1,992.04	31.765	CC, ES
HSR-Waste Services 9-26 (PA) - Wellbore #1 - Gyro Surveys	10,700.00	6,806.92	2,093.91	2,026.45	31.041	SF
Waste Management 11-26 (PR) - Wellbore #1 - Gyro Surveys	7,823.69	6,774.30	2,030.47	1,979.71	39.996	CC, ES
Waste Management 11-26 (PR) - Wellbore #1 - Gyro Surveys	8,100.00	6,780.98	2,049.18	1,997.55	39.689	SF
Waste Management 12-26 (PR) - Wellbore #1 - Gyro Surveys	9,122.66	6,886.37	2,082.70	2,025.12	36.169	CC, ES
Waste Management 12-26 (PR) - Wellbore #1 - Gyro Surveys	9,400.00	6,873.53	2,101.05	2,042.36	35.803	SF
Waste Management 12-26A (PR) - Wellbore #1 - Gyro Surveys	8,564.10	6,840.01	1,439.55	1,385.11	26.441	CC, ES
Waste Management 12-26A (PR) - Wellbore #1 - Gyro Surveys	9,200.00	9,200.00	1,572.49	1,508.34	24.515	SF
Waste Management 21-26 (PR) - Wellbore #1 - Gyro Surveys	7,606.68	6,838.98	559.49	509.31	11.150	CC, ES, SF
Waste Management 22-26 (PR) - Wellbore #1 - Gyro Surveys	9,063.06	6,850.95	676.30	619.24	11.853	CC, ES, SF
Waste Management 26FD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	2,498.42			
Waste Management 26FD (PR) - Wellbore #1 - MWD Surveys	800.00	781.83	2,499.86	2,494.87	501.223	ES
Waste Management 26FD (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,972.67	2,625.27	2,568.63	46.352	SF
Waste Management 26KD (PR) - Wellbore #1 - MWD Surveys	9,663.17	6,979.19	1,349.07	1,281.34	19.920	CC, ES
Waste Management 26KD (PR) - Wellbore #1 - MWD Surveys	9,700.00	6,979.75	1,349.57	1,281.73	19.894	SF
Waste Management D 26-25 (SI) - Wellbore #1 - Gyro Surveys	11,009.62	6,897.27	1,154.20	1,084.26	16.502	CC, ES
Waste Management D 26-25 (SI) - Wellbore #1 - Gyro Surveys	11,100.00	6,902.66	1,157.72	1,087.45	16.475	SF
Waste Management 26JD (PR) - Wellbore #1 - MWD Surveys	4,702.19	4,810.57	1,250.76	1,213.03	33.154	CC, ES
Waste Management 26JD (PR) - Wellbore #1 - MWD Surveys	7,150.00	6,913.45	1,313.81	1,261.49	25.110	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 D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen D35-750	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	13,012.99	6,895.00	1,986.41	1,787.95	10.009	CC, ES
UPRR 1 (DA) - Wellbore #1 - No Surveys	13,100.00	6,895.00	1,988.31	1,789.40	9.996	SF
Waste Management 22-35 (SI) - Wellbore #1 - Gyro Surv	14,401.44	6,887.18	594.21	499.13	6.250	CC, ES, SF
Waste Management 31-35 (SI) - Wellbore #1 - Gyro Surv	12,880.23	6,861.00	421.36	338.37	5.077	CC, ES
Waste Management 31-35 (SI) - Wellbore #1 - Gyro Surv	12,900.00	6,860.86	421.82	338.57	5.067	SF
Waste Management 41-35 (SI) - Wellbore #1 - Gyro Surv	12,990.37	6,854.10	1,990.41	1,906.23	23.646	CC
Waste Management 41-35 (SI) - Wellbore #1 - Gyro Surv	13,000.00	6,854.04	1,990.43	1,906.17	23.621	ES
Waste Management 41-35 (SI) - Wellbore #1 - Gyro Surv	13,300.00	6,852.12	2,014.35	1,927.91	23.304	SF
Waste Management D 35-15 (PR) - Wellbore #1 - Gyro S	17,067.49	6,870.81	574.75	458.82	4.958	CC, ES
Waste Management D 35-15 (PR) - Wellbore #1 - Gyro S	17,100.00	6,870.38	575.67	459.40	4.951	SF
Waste Management USX D 35-11 (SI) - Wellbore #1 - G	15,732.39	6,889.80	691.40	585.94	6.556	CC, ES, SF
Waste Management USX D 35-14 (SI) - Wellbore #1 - Nc	16,774.50	6,883.00	578.61	351.18	2.544	CC, ES, SF
Waste Management USX D 35-7 (PR) - Wellbore #1 - Gy	14,240.77	6,859.39	611.57	517.83	6.524	CC, ES
Waste Management USX D 35-7 (PR) - Wellbore #1 - Gy	14,300.00	6,858.82	614.43	520.17	6.518	SF
Waste Management USX D 35-9 (SI) - Wellbore #1 - No	15,708.89	7,559.00	2,796.20	2,610.88	15.089	CC, ES
Waste Management USX D 35-9 (SI) - Wellbore #1 - No	16,100.00	7,559.00	2,823.42	2,634.69	14.960	SF
Waste Services 21-35 (PR) - Wellbore #1 - Gyro Surveys	12,811.15	6,881.85	542.81	459.84	6.542	CC, ES, SF

Noble Energy, Inc.

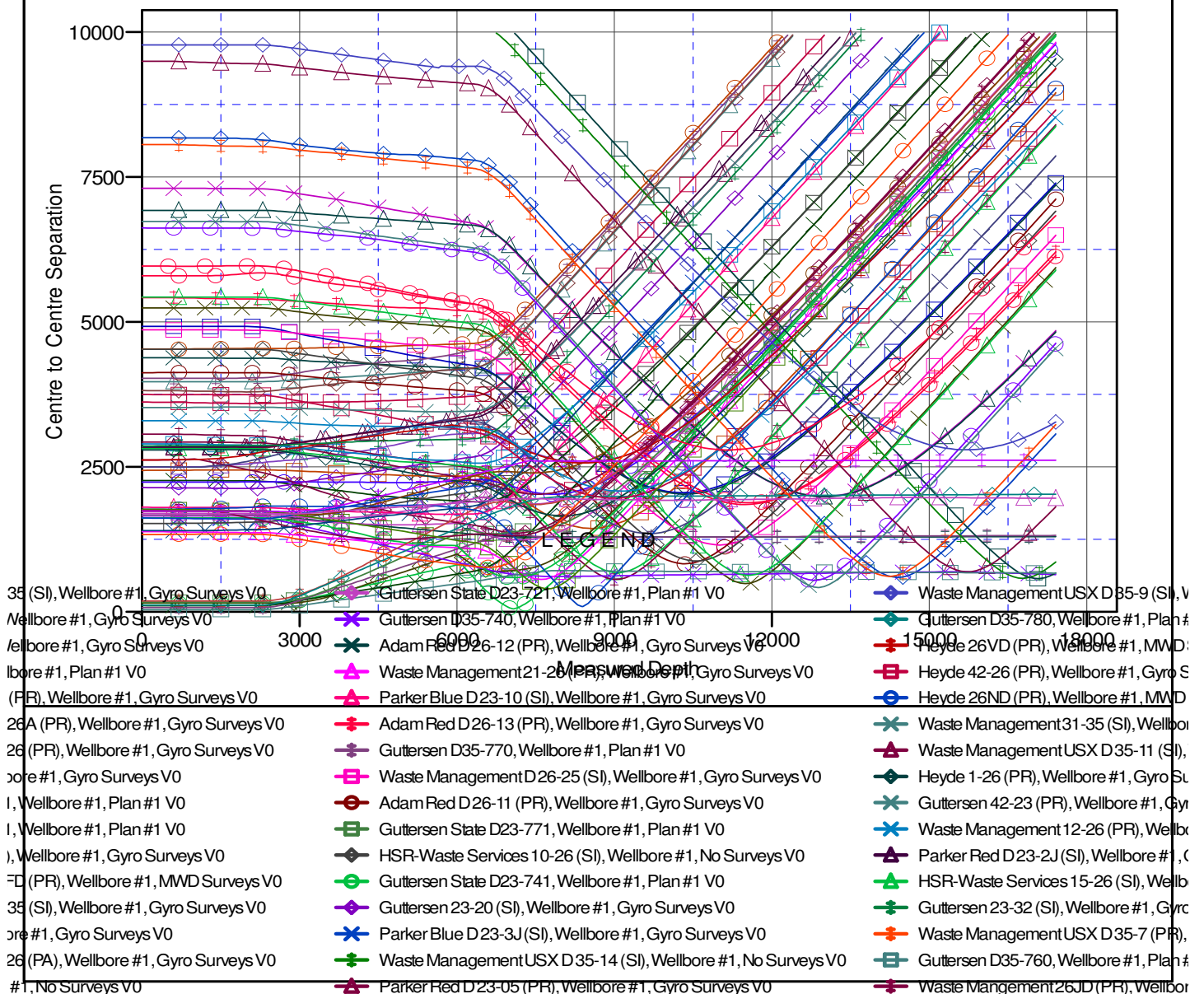
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen D35-750	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 @ 4860.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen D35-750
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.63°

Ladder Plot



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

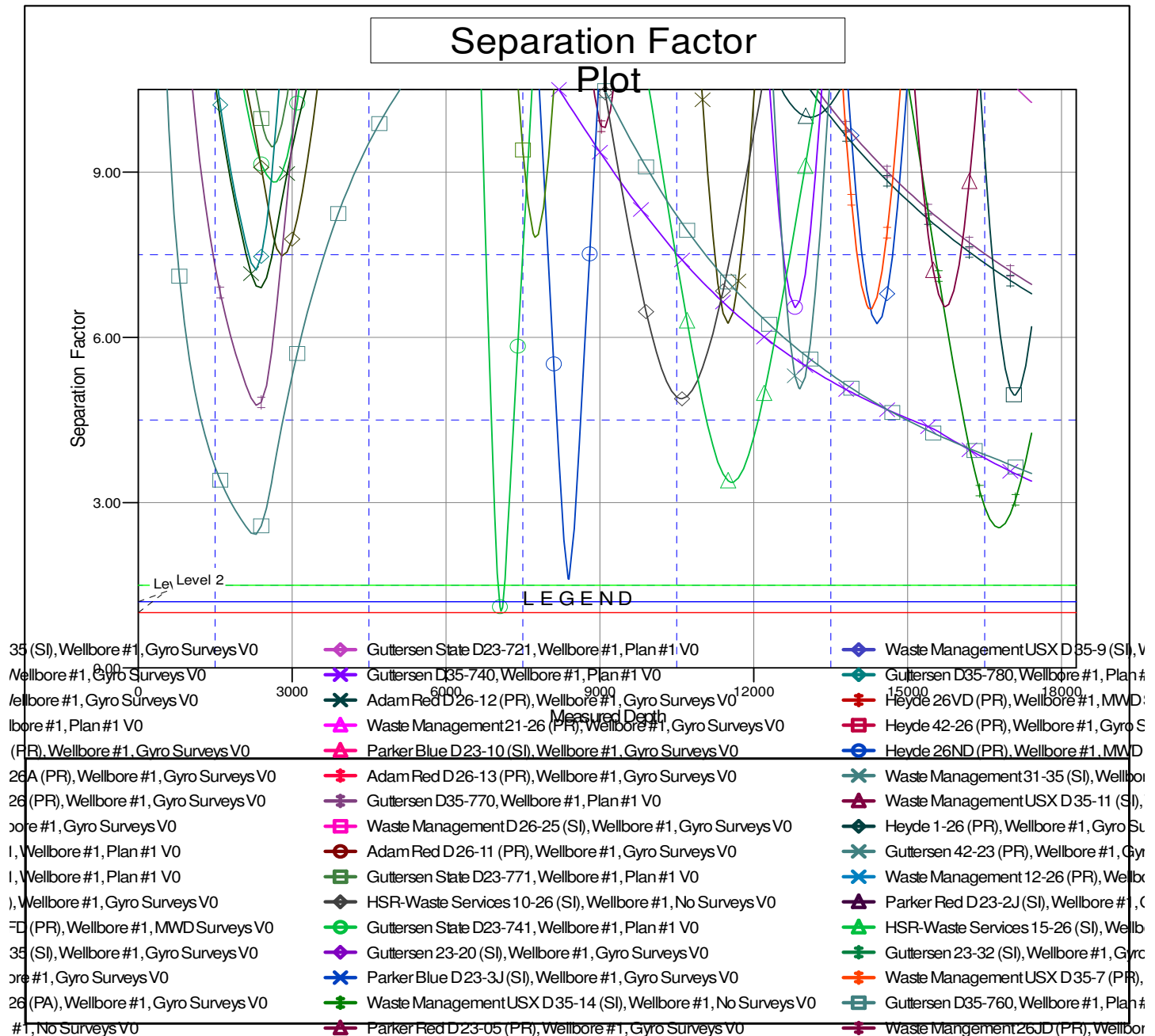
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen D35-750
Project:	Mustang	TVD Reference:	KB @ 4860.00ft
Reference Site:	D Section 23	MD Reference:	KB @ 4860.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen D35-750	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 @ 4860.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen D35-750
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