

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

Plan: Plan #1 (Guttersen C28-725/Guttersen C28-725)
Created By: Keith Noack Date: 10:52, October 04 2018

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-725

Guttersen C28-725

Plan: Plan #1

Standard Planning Report

04 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4746.00ft
Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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	C Section 33				
Site Position:		Northing:	1,339,901.69 usft	Latitude:	40.2626140
From:	Lat/Long	Easting:	3,262,275.97 usft	Longitude:	-104.5601770
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.61 °

Well	Guttersen C28-725					
Well Position	+N-S	23.14 ft	Northing:	1,339,924.83 usft	Latitude:	40.2626160
	+E-W	2,106.33 ft	Easting:	3,264,382.30 usft	Longitude:	-104.5526290
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,716.00 ft

Wellbore	Guttersen C28-725				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2018	7.95	66.74	52,196.08209785

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	3.54

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	
3,005.33	16.11	144.59	2,994.76	-91.65	65.15	2.00	2.00	0.00	144.59	
6,185.53	16.11	144.59	6,050.13	-810.76	576.31	0.00	0.00	0.00	0.00	
7,331.54	90.00	359.56	6,821.00	-189.84	699.09	9.00	6.45	-12.66	-143.95	
7,411.54	90.00	359.56	6,821.00	-109.84	698.47	0.00	0.00	0.00	0.00	Guttersen C28-725
11,287.41	90.00	359.56	6,821.00	3,765.91	668.59	0.00	0.00	0.00	0.00	
11,387.41	92.00	359.56	6,819.26	3,865.88	667.82	2.00	2.00	0.00	0.00	Guttersen C28-725
14,296.16	92.00	359.56	6,717.75	6,772.78	645.41	0.00	0.00	0.00	0.00	
14,396.16	90.00	359.56	6,716.00	6,872.75	644.64	2.00	-2.00	0.00	180.00	
17,552.47	90.00	359.56	6,716.00	10,028.97	620.31	0.00	0.00	0.00	0.00	Guttersen C28-725

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Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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
463.00	0.00	0.00	463.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
596.00	0.00	0.00	596.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
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
1,516.00	0.00	0.00	1,516.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
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	144.59	2,299.98	-1.42	1.01	-1.36	2.00	2.00	0.00
2,400.00	4.00	144.59	2,399.84	-5.69	4.04	-5.43	2.00	2.00	0.00
2,500.00	6.00	144.59	2,499.45	-12.79	9.09	-12.21	2.00	2.00	0.00
2,600.00	8.00	144.59	2,598.70	-22.72	16.15	-21.68	2.00	2.00	0.00
2,700.00	10.00	144.59	2,697.47	-35.47	25.22	-33.85	2.00	2.00	0.00
2,800.00	12.00	144.59	2,795.62	-51.03	36.27	-48.69	2.00	2.00	0.00
2,900.00	14.00	144.59	2,893.06	-69.36	49.30	-66.18	2.00	2.00	0.00
3,005.33	16.11	144.59	2,994.76	-91.65	65.15	-87.46	2.00	2.00	0.00
Hold: 16.11° Inc, 144.59° Azm									
3,100.00	16.11	144.59	3,085.72	-113.06	80.37	-107.88	0.00	0.00	0.00
3,200.00	16.11	144.59	3,181.79	-135.67	96.44	-129.46	0.00	0.00	0.00
3,300.00	16.11	144.59	3,277.87	-158.29	112.51	-151.04	0.00	0.00	0.00
3,400.00	16.11	144.59	3,373.94	-180.90	128.59	-172.61	0.00	0.00	0.00
3,500.00	16.11	144.59	3,470.02	-203.51	144.66	-194.19	0.00	0.00	0.00
3,600.00	16.11	144.59	3,566.09	-226.12	160.73	-215.77	0.00	0.00	0.00
3,630.09	16.11	144.59	3,595.00	-232.92	165.57	-222.26	0.00	0.00	0.00
Parkman									
3,700.00	16.11	144.59	3,662.17	-248.73	176.81	-237.34	0.00	0.00	0.00
3,800.00	16.11	144.59	3,758.24	-271.34	192.88	-258.92	0.00	0.00	0.00
3,900.00	16.11	144.59	3,854.32	-293.96	208.95	-280.50	0.00	0.00	0.00
4,000.00	16.11	144.59	3,950.39	-316.57	225.03	-302.07	0.00	0.00	0.00
4,051.63	16.11	144.59	4,000.00	-328.24	233.32	-313.21	0.00	0.00	0.00
Sussex									

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Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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)
4,100.00	16.11	144.59	4,046.47	-339.18	241.10	-323.65	0.00	0.00	0.00
4,200.00	16.11	144.59	4,142.54	-361.79	257.17	-345.23	0.00	0.00	0.00
4,300.00	16.11	144.59	4,238.62	-384.40	273.24	-366.80	0.00	0.00	0.00
4,400.00	16.11	144.59	4,334.69	-407.02	289.32	-388.38	0.00	0.00	0.00
4,500.00	16.11	144.59	4,430.77	-429.63	305.39	-409.95	0.00	0.00	0.00
4,600.00	16.11	144.59	4,526.84	-452.24	321.46	-431.53	0.00	0.00	0.00
4,626.19	16.11	144.59	4,552.00	-458.16	325.67	-437.18	0.00	0.00	0.00
Shannon									
4,700.00	16.11	144.59	4,622.92	-474.85	337.54	-453.11	0.00	0.00	0.00
4,800.00	16.11	144.59	4,718.99	-497.46	353.61	-474.68	0.00	0.00	0.00
4,900.00	16.11	144.59	4,815.06	-520.07	369.68	-496.26	0.00	0.00	0.00
5,000.00	16.11	144.59	4,911.14	-542.69	385.76	-517.84	0.00	0.00	0.00
5,100.00	16.11	144.59	5,007.21	-565.30	401.83	-539.41	0.00	0.00	0.00
5,200.00	16.11	144.59	5,103.29	-587.91	417.90	-560.99	0.00	0.00	0.00
5,300.00	16.11	144.59	5,199.36	-610.52	433.98	-582.57	0.00	0.00	0.00
5,400.00	16.11	144.59	5,295.44	-633.13	450.05	-604.14	0.00	0.00	0.00
5,500.00	16.11	144.59	5,391.51	-655.74	466.12	-625.72	0.00	0.00	0.00
5,600.00	16.11	144.59	5,487.59	-678.36	482.19	-647.30	0.00	0.00	0.00
5,700.00	16.11	144.59	5,583.66	-700.97	498.27	-668.87	0.00	0.00	0.00
5,800.00	16.11	144.59	5,679.74	-723.58	514.34	-690.45	0.00	0.00	0.00
5,900.00	16.11	144.59	5,775.81	-746.19	530.41	-712.02	0.00	0.00	0.00
6,000.00	16.11	144.59	5,871.89	-768.80	546.49	-733.60	0.00	0.00	0.00
6,062.57	16.11	144.59	5,932.00	-782.95	556.54	-747.10	0.00	0.00	0.00
Teepee Buttes									
6,100.00	16.11	144.59	5,967.96	-791.42	562.56	-755.18	0.00	0.00	0.00
6,185.53	16.11	144.59	6,050.13	-810.76	576.31	-773.63	0.00	0.00	0.00
KOP: Build 9°/100' @ 6185.53' MD									
6,200.00	15.07	141.64	6,064.07	-813.87	578.64	-776.59	9.00	-7.15	-20.37
6,250.00	11.90	127.83	6,112.70	-822.13	586.75	-784.34	9.00	-6.34	-27.64
6,300.00	9.81	106.45	6,161.82	-826.50	594.91	-788.20	9.00	-4.18	-42.75
6,350.00	9.54	79.48	6,211.14	-826.95	603.08	-788.15	9.00	-0.54	-53.94
6,400.00	11.22	56.08	6,260.34	-823.48	611.19	-784.18	9.00	3.36	-46.80
6,450.00	14.17	40.49	6,309.12	-816.11	619.21	-776.32	9.00	5.91	-31.19
6,500.00	17.78	30.63	6,357.19	-804.88	627.08	-764.63	9.00	7.21	-19.73
6,550.00	21.71	24.12	6,404.25	-789.86	634.75	-749.17	9.00	7.86	-13.02
6,600.00	25.82	19.56	6,450.00	-771.15	642.17	-730.03	9.00	8.22	-9.12
6,650.00	30.04	16.19	6,494.17	-748.86	649.31	-707.34	9.00	8.43	-6.74
6,700.00	34.32	13.59	6,536.48	-723.12	656.12	-681.24	9.00	8.56	-5.20
6,750.00	38.65	11.50	6,576.68	-694.11	662.54	-651.88	9.00	8.65	-4.17
6,800.00	43.00	9.78	6,614.51	-661.99	668.55	-619.45	9.00	8.71	-3.45
6,814.50	44.27	9.33	6,625.00	-652.12	670.22	-609.50	9.00	8.74	-3.09
Sharon Springs									
6,850.00	47.38	8.32	6,649.73	-626.96	674.11	-584.15	9.00	8.76	-2.86
6,853.36	47.68	8.23	6,652.00	-624.51	674.47	-581.69	9.00	8.78	-2.70
Top A Chalk									
6,876.07	49.67	7.63	6,667.00	-607.62	676.82	-564.68	9.00	8.78	-2.61
Top A Marl									
6,900.00	51.78	7.05	6,682.15	-589.25	679.19	-546.20	9.00	8.80	-2.45
6,903.01	52.04	6.98	6,684.00	-586.90	679.48	-543.84	9.00	8.80	-2.37
Top B Chalk									
6,950.00	56.18	5.92	6,711.54	-549.08	683.74	-505.82	9.00	8.82	-2.24
6,973.00	58.22	5.44	6,724.00	-529.84	685.66	-486.50	9.00	8.83	-2.08
Top B Marl									

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Project:	Mustang	MD Reference:	Well @ 4746.00ft
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Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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	60.60	4.91	6,737.74	-506.69	687.75	-463.27	9.00	8.84	-1.98
7,050.00	65.02	3.98	6,760.58	-462.36	691.19	-418.81	9.00	8.85	-1.86
7,100.00	69.45	3.11	6,779.92	-416.36	694.03	-372.72	9.00	8.86	-1.73
7,100.23	69.45	3.11	6,780.00	-416.14	694.05	-372.50	0.00	0.00	0.00
Top C Chalk									
7,150.00	73.89	2.30	6,795.64	-368.96	696.27	-325.27	9.04	8.91	-1.64
7,200.00	78.32	1.52	6,807.64	-320.46	697.88	-276.77	9.00	8.87	-1.56
7,206.87	78.93	1.41	6,809.00	-313.72	698.06	-270.03	9.00	8.87	-1.53
Top C Marl									
7,250.00	82.76	0.76	6,815.86	-271.16	698.86	-227.50	9.00	8.88	-1.51
7,300.00	87.20	0.02	6,820.23	-221.37	699.20	-177.78	9.00	8.88	-1.48
7,331.54	90.00	359.56	6,821.00	-189.84	699.09	-146.32	9.00	8.88	-1.47
LP: 7331.54' MD, 90.00° Inc, 359.56° Azm									
7,400.00	90.00	359.56	6,821.00	-121.38	698.56	-78.03	0.00	0.00	0.00
7,411.54	90.00	359.56	6,821.00	-109.84	698.47	-66.51	0.00	0.00	0.00
TPZ: 7411.54' MD, 90.00° Inc, 359.56° Azm									
7,500.00	90.00	359.56	6,821.00	-21.39	697.79	21.73	0.00	0.00	0.00
7,600.00	90.00	359.56	6,821.00	78.61	697.02	121.49	0.00	0.00	0.00
7,700.00	90.00	359.56	6,821.00	178.61	696.25	221.25	0.00	0.00	0.00
7,800.00	90.00	359.56	6,821.00	278.61	695.48	321.01	0.00	0.00	0.00
7,900.00	90.00	359.56	6,821.00	378.60	694.71	420.77	0.00	0.00	0.00
8,000.00	90.00	359.56	6,821.00	478.60	693.93	520.53	0.00	0.00	0.00
8,100.00	90.00	359.56	6,821.00	578.60	693.16	620.28	0.00	0.00	0.00
8,200.00	90.00	359.56	6,821.00	678.59	692.39	720.04	0.00	0.00	0.00
8,300.00	90.00	359.56	6,821.00	778.59	691.62	819.80	0.00	0.00	0.00
8,400.00	90.00	359.56	6,821.00	878.59	690.85	919.56	0.00	0.00	0.00
8,500.00	90.00	359.56	6,821.00	978.58	690.08	1,019.32	0.00	0.00	0.00
8,600.00	90.00	359.56	6,821.00	1,078.58	689.31	1,119.08	0.00	0.00	0.00
8,700.00	90.00	359.56	6,821.00	1,178.58	688.54	1,218.84	0.00	0.00	0.00
8,800.00	90.00	359.56	6,821.00	1,278.58	687.77	1,318.60	0.00	0.00	0.00
8,900.00	90.00	359.56	6,821.00	1,378.57	687.00	1,418.35	0.00	0.00	0.00
9,000.00	90.00	359.56	6,821.00	1,478.57	686.23	1,518.11	0.00	0.00	0.00
9,100.00	90.00	359.56	6,821.00	1,578.57	685.46	1,617.87	0.00	0.00	0.00
9,200.00	90.00	359.56	6,821.00	1,678.56	684.68	1,717.63	0.00	0.00	0.00
9,300.00	90.00	359.56	6,821.00	1,778.56	683.91	1,817.39	0.00	0.00	0.00
9,400.00	90.00	359.56	6,821.00	1,878.56	683.14	1,917.15	0.00	0.00	0.00
9,500.00	90.00	359.56	6,821.00	1,978.55	682.37	2,016.91	0.00	0.00	0.00
9,600.00	90.00	359.56	6,821.00	2,078.55	681.60	2,116.67	0.00	0.00	0.00
9,700.00	90.00	359.56	6,821.00	2,178.55	680.83	2,216.42	0.00	0.00	0.00
9,800.00	90.00	359.56	6,821.00	2,278.55	680.06	2,316.18	0.00	0.00	0.00
9,900.00	90.00	359.56	6,821.00	2,378.54	679.29	2,415.94	0.00	0.00	0.00
10,000.00	90.00	359.56	6,821.00	2,478.54	678.52	2,515.70	0.00	0.00	0.00
10,100.00	90.00	359.56	6,821.00	2,578.54	677.75	2,615.46	0.00	0.00	0.00
10,200.00	90.00	359.56	6,821.00	2,678.53	676.98	2,715.22	0.00	0.00	0.00
10,300.00	90.00	359.56	6,821.00	2,778.53	676.20	2,814.98	0.00	0.00	0.00
10,400.00	90.00	359.56	6,821.00	2,878.53	675.43	2,914.73	0.00	0.00	0.00
10,500.00	90.00	359.56	6,821.00	2,978.52	674.66	3,014.49	0.00	0.00	0.00
10,600.00	90.00	359.56	6,821.00	3,078.52	673.89	3,114.25	0.00	0.00	0.00
10,700.00	90.00	359.56	6,821.00	3,178.52	673.12	3,214.01	0.00	0.00	0.00
10,800.00	90.00	359.56	6,821.00	3,278.52	672.35	3,313.77	0.00	0.00	0.00
10,900.00	90.00	359.56	6,821.00	3,378.51	671.58	3,413.53	0.00	0.00	0.00
11,000.00	90.00	359.56	6,821.00	3,478.51	670.81	3,513.29	0.00	0.00	0.00
11,100.00	90.00	359.56	6,821.00	3,578.51	670.04	3,613.05	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4746.00ft
Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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)
11,200.00	90.00	359.56	6,821.00	3,678.50	669.27	3,712.80	0.00	0.00	0.00
11,287.41	90.00	359.56	6,821.00	3,765.91	668.59	3,800.00	0.00	0.00	0.00
Build: 2°/100'									
11,300.00	90.25	359.56	6,820.98	3,778.50	668.50	3,812.56	2.00	2.00	0.00
11,387.41	92.00	359.56	6,819.26	3,865.88	667.82	3,899.74	2.00	2.00	0.00
Hold: 92.00° Inc, 359.56° Azm									
11,400.00	92.00	359.56	6,818.82	3,878.47	667.73	3,912.29	0.00	0.00	0.00
11,500.00	92.00	359.56	6,815.33	3,978.41	666.96	4,011.99	0.00	0.00	0.00
11,600.00	92.00	359.56	6,811.84	4,078.34	666.18	4,111.69	0.00	0.00	0.00
11,700.00	92.00	359.56	6,808.35	4,178.28	665.41	4,211.39	0.00	0.00	0.00
11,800.00	92.00	359.56	6,804.86	4,278.21	664.64	4,311.09	0.00	0.00	0.00
11,900.00	92.00	359.56	6,801.37	4,378.15	663.87	4,410.78	0.00	0.00	0.00
12,000.00	92.00	359.56	6,797.88	4,478.09	663.10	4,510.48	0.00	0.00	0.00
12,100.00	92.00	359.56	6,794.39	4,578.02	662.33	4,610.18	0.00	0.00	0.00
12,200.00	92.00	359.56	6,790.90	4,677.96	661.56	4,709.88	0.00	0.00	0.00
12,300.00	92.00	359.56	6,787.41	4,777.90	660.79	4,809.58	0.00	0.00	0.00
12,400.00	92.00	359.56	6,783.92	4,877.83	660.02	4,909.27	0.00	0.00	0.00
12,500.00	92.00	359.56	6,780.43	4,977.77	659.25	5,008.97	0.00	0.00	0.00
12,600.00	92.00	359.56	6,776.94	5,077.70	658.48	5,108.67	0.00	0.00	0.00
12,700.00	92.00	359.56	6,773.45	5,177.64	657.71	5,208.37	0.00	0.00	0.00
12,800.00	92.00	359.56	6,769.96	5,277.58	656.94	5,308.07	0.00	0.00	0.00
12,900.00	92.00	359.56	6,766.47	5,377.51	656.17	5,407.76	0.00	0.00	0.00
13,000.00	92.00	359.56	6,762.98	5,477.45	655.40	5,507.46	0.00	0.00	0.00
13,100.00	92.00	359.56	6,759.49	5,577.38	654.63	5,607.16	0.00	0.00	0.00
13,200.00	92.00	359.56	6,756.00	5,677.32	653.86	5,706.86	0.00	0.00	0.00
13,300.00	92.00	359.56	6,752.51	5,777.26	653.09	5,806.55	0.00	0.00	0.00
13,400.00	92.00	359.56	6,749.02	5,877.19	652.32	5,906.25	0.00	0.00	0.00
13,500.00	92.00	359.56	6,745.53	5,977.13	651.55	6,005.95	0.00	0.00	0.00
13,600.00	92.00	359.56	6,742.04	6,077.06	650.78	6,105.65	0.00	0.00	0.00
13,700.00	92.00	359.56	6,738.55	6,177.00	650.01	6,205.35	0.00	0.00	0.00
13,800.00	92.00	359.56	6,735.06	6,276.94	649.24	6,305.04	0.00	0.00	0.00
13,900.00	92.00	359.56	6,731.57	6,376.87	648.47	6,404.74	0.00	0.00	0.00
14,000.00	92.00	359.56	6,728.08	6,476.81	647.70	6,504.44	0.00	0.00	0.00
14,100.00	92.00	359.56	6,724.59	6,576.75	646.93	6,604.14	0.00	0.00	0.00
14,200.00	92.00	359.56	6,721.10	6,676.68	646.15	6,703.84	0.00	0.00	0.00
14,296.16	92.00	359.56	6,717.75	6,772.78	645.41	6,799.70	0.00	0.00	0.00
Drop: 2°/100'									
14,300.00	91.92	359.56	6,717.61	6,776.62	645.38	6,803.53	2.00	-2.00	0.00
14,396.16	90.00	359.56	6,716.00	6,872.75	644.64	6,899.44	2.00	-2.00	0.00
Hold: 90.00° Inc, 359.56° Azm									
14,400.00	90.00	359.56	6,716.00	6,876.60	644.61	6,903.28	0.00	0.00	0.00
14,500.00	90.00	359.56	6,716.00	6,976.59	643.84	7,003.03	0.00	0.00	0.00
14,600.00	90.00	359.56	6,716.00	7,076.59	643.07	7,102.79	0.00	0.00	0.00
14,700.00	90.00	359.56	6,716.00	7,176.59	642.30	7,202.55	0.00	0.00	0.00
14,800.00	90.00	359.56	6,716.00	7,276.58	641.53	7,302.31	0.00	0.00	0.00
14,900.00	90.00	359.56	6,716.00	7,376.58	640.76	7,402.07	0.00	0.00	0.00
15,000.00	90.00	359.56	6,716.00	7,476.58	639.99	7,501.83	0.00	0.00	0.00
15,100.00	90.00	359.56	6,716.00	7,576.58	639.22	7,601.59	0.00	0.00	0.00
15,200.00	90.00	359.56	6,716.00	7,676.57	638.45	7,701.34	0.00	0.00	0.00
15,300.00	90.00	359.56	6,716.00	7,776.57	637.68	7,801.10	0.00	0.00	0.00
15,400.00	90.00	359.56	6,716.00	7,876.57	636.91	7,900.86	0.00	0.00	0.00
15,500.00	90.00	359.56	6,716.00	7,976.56	636.13	8,000.62	0.00	0.00	0.00
15,600.00	90.00	359.56	6,716.00	8,076.56	635.36	8,100.38	0.00	0.00	0.00
15,700.00	90.00	359.56	6,716.00	8,176.56	634.59	8,200.14	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4746.00ft
Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
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)
15,800.00	90.00	359.56	6,716.00	8,276.56	633.82	8,299.90	0.00	0.00	0.00
15,900.00	90.00	359.56	6,716.00	8,376.55	633.05	8,399.66	0.00	0.00	0.00
16,000.00	90.00	359.56	6,716.00	8,476.55	632.28	8,499.41	0.00	0.00	0.00
16,100.00	90.00	359.56	6,716.00	8,576.55	631.51	8,599.17	0.00	0.00	0.00
16,200.00	90.00	359.56	6,716.00	8,676.54	630.74	8,698.93	0.00	0.00	0.00
16,300.00	90.00	359.56	6,716.00	8,776.54	629.97	8,798.69	0.00	0.00	0.00
16,400.00	90.00	359.56	6,716.00	8,876.54	629.20	8,898.45	0.00	0.00	0.00
16,500.00	90.00	359.56	6,716.00	8,976.53	628.43	8,998.21	0.00	0.00	0.00
16,600.00	90.00	359.56	6,716.00	9,076.53	627.65	9,097.97	0.00	0.00	0.00
16,700.00	90.00	359.56	6,716.00	9,176.53	626.88	9,197.73	0.00	0.00	0.00
16,800.00	90.00	359.56	6,716.00	9,276.53	626.11	9,297.48	0.00	0.00	0.00
16,900.00	90.00	359.56	6,716.00	9,376.52	625.34	9,397.24	0.00	0.00	0.00
17,000.00	90.00	359.56	6,716.00	9,476.52	624.57	9,497.00	0.00	0.00	0.00
17,100.00	90.00	359.56	6,716.00	9,576.52	623.80	9,596.76	0.00	0.00	0.00
17,200.00	90.00	359.56	6,716.00	9,676.51	623.03	9,696.52	0.00	0.00	0.00
17,300.00	90.00	359.56	6,716.00	9,776.51	622.26	9,796.28	0.00	0.00	0.00
17,400.00	90.00	359.56	6,716.00	9,876.51	621.49	9,896.04	0.00	0.00	0.00
17,500.00	90.00	359.56	6,716.00	9,976.50	620.72	9,995.80	0.00	0.00	0.00
17,552.47	90.00	359.56	6,716.00	10,028.97	620.31	10,048.14	0.00	0.00	0.00
TD @ 17552.47' MD/6716.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen C28-725-SI - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,339,924.83	3,264,382.30	40.2626160	-104.5526290
Guttersen C28-725-KI - plan hits target center - Point	0.00	0.00	6,050.13	-810.76	576.31	1,339,114.07	3,264,958.61	40.2603736	-104.5505951
Guttersen C28-725-BI - plan hits target center - Point	0.00	0.00	6,716.00	10,028.97	620.31	1,349,953.78	3,265,002.61	40.2901265	-104.5500214
Guttersen C28-725-TI - plan hits target center - Point	0.00	0.00	6,821.00	-109.84	698.47	1,339,814.99	3,265,080.77	40.2622940	-104.5501305

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4746.00ft
Project:	Mustang	MD Reference:	Well @ 4746.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-725		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
463.00	463.00	Pierre				
596.00	596.00	Upper Pierre Aquifer Top				
1,516.00	1,516.00	Upper Pierre Aquifer Base				
3,630.09	3,595.00	Parkman				
4,051.63	4,000.00	Sussex				
4,626.19	4,552.00	Shannon				
6,062.57	5,932.00	Teepee Buttes				
6,814.50	6,625.00	Sharon Springs				
6,853.36	6,652.00	Top A Chalk				
6,876.07	6,667.00	Top A Marl				
6,903.01	6,684.00	Top B Chalk				
6,973.00	6,724.00	Top B Marl				
7,100.23	6,780.00	Top C Chalk				
7,206.87	6,809.00	Top C Marl				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
3,005.33	2,994.76	-91.65	65.15	Hold: 16.11° Inc, 144.59° Azm	
6,185.53	6,050.13	-810.76	576.31	KOP: Build 9°/100' @ 6185.53' MD	
7,331.54	6,821.00	-189.84	699.09	LP: 7331.54' MD, 90.00° Inc, 359.56° Azm	
7,411.54	6,821.00	-109.84	698.47	TPZ: 7411.54' MD, 90.00° Inc, 359.56° Azm	
11,287.41	6,821.00	3,765.91	668.59	Build: 2°/100'	
11,387.41	6,819.26	3,865.88	667.82	Hold: 92.00° Inc, 359.56° Azm	
14,296.16	6,717.75	6,772.78	645.41	Drop: 2°/100'	
14,396.16	6,716.00	6,872.75	644.64	Hold: 90.00° Inc, 359.56° Azm	
17,552.47	6,716.00	10,028.97	620.31	TD @ 17552.47' MD/6716.00' TVD	

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-725

Guttersen C28-725

Plan #1

Anticollision Summary Report

04 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	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	10/4/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,552.47	Plan #1 (Guttersen C28-725)	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
C Section 21						
Hanscome C21-79HN - Original Drilling - Original Drilling	17,552.47	6,581.51	4,379.75	4,268.77	39.466	CC, ES, SF
NOVACEK C #28-27D - NOVACEK C #28-27D OH - As-	17,552.47	6,781.21	347.86	234.50	3.069	CC, ES, SF
C Section 27						
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,305.80	7,078.48	934.02	815.26	7.865	CC, ES, SF
C Section 28						
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,583.16	6,880.79	901.27	825.04	11.823	CC, ES
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,600.00	6,880.36	901.43	825.12	11.813	SF
HANSCOME #28-4 - Wellbore #1 - No Surveys	16,927.94	6,755.00	3,710.55	3,357.34	10.505	CC, ES
HANSCOME #28-4 - Wellbore #1 - No Surveys	17,200.00	6,755.00	3,720.51	3,365.51	10.480	SF
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,787.45	6,720.00	2,284.76	1,941.86	6.663	CC
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,800.00	6,720.00	2,284.79	1,941.81	6.661	ES
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,900.00	6,720.00	2,287.53	1,943.93	6.658	SF
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,433.96	6,703.00	1,700.23	1,352.97	4.896	CC, ES
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,500.00	6,703.00	1,701.52	1,353.87	4.894	SF
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,509.19	6,733.00	3,013.59	2,664.54	8.634	CC, ES
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,700.00	6,733.00	3,019.63	2,669.36	8.621	SF
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,203.40	6,734.00	2,947.61	2,608.67	8.696	CC, ES
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,400.00	6,734.00	2,954.16	2,613.97	8.684	SF
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,250.96	6,718.00	1,750.61	1,411.93	5.169	CC, ES
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,300.00	6,718.00	1,751.29	1,412.32	5.167	SF
HANSCOME C #28-28D - HANSCOME C #28-28D OH -	17,552.47	6,748.36	1,536.05	1,423.70	13.672	CC, ES, SF
HANSCOME C #28-29D - HANSCOME C #28-29D OH -	17,552.47	6,974.82	2,904.61	2,791.06	25.579	CC, ES, SF
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,772.73	6,756.00	3,601.52	3,257.29	10.463	CC
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,800.00	6,756.00	3,601.62	3,257.20	10.457	ES
HANSCOME, C #2 - Wellbore #1 - No Surveys	16,000.00	6,756.00	3,608.68	3,262.95	10.438	SF
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,083.23	6,715.00	2,286.02	1,933.19	6.479	CC
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,100.00	6,715.00	2,286.08	1,933.13	6.477	ES
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,200.00	6,715.00	2,289.00	1,935.45	6.474	SF
NIX #1 - Wellbore #1 - No Surveys	16,960.87	6,650.00	309.04	-40.24	0.885	Level 1, CC, ES, SF
NIX #28-814 - Wellbore #1 - No Surveys	15,599.10	6,673.00	533.54	193.98	1.571	CC
NIX #28-814 - Wellbore #1 - No Surveys	15,600.00	6,673.00	533.54	193.97	1.571	ES, SF
NOVACEK #1 - Wellbore #1 - No Surveys	17,084.58	6,684.00	960.65	609.04	2.732	CC, ES
NOVACEK #1 - Wellbore #1 - No Surveys	17,100.00	6,684.00	960.77	609.08	2.732	SF
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,433.97	6,680.00	464.93	118.59	1.342	Level 3, CC, ES, SF
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,602.14	6,703.00	883.71	542.93	2.593	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 Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
C Section 28						
THOMPSON #1 - Wellbore #1 - As-Drilled	14,429.01	6,683.11	342.11	253.18	3.847	CC, ES, SF
THOMPSON #2 - Wellbore #1 - No Surveys	14,468.61	6,723.00	2,322.77	1,989.89	6.978	CC, ES
THOMPSON #2 - Wellbore #1 - No Surveys	14,600.00	6,723.00	2,326.48	1,992.80	6.972	SF
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,461.44	6,724.00	1,042.15	709.28	3.131	CC, ES, SF
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,417.45	6,748.00	3,642.28	3,308.79	10.922	CC, ES
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,700.00	6,748.00	3,653.23	3,317.91	10.895	SF
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,134.53	6,768.29	2,341.21	2,016.58	7.212	CC, ES
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,200.00	6,766.00	2,342.12	2,017.16	7.207	SF
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,138.84	6,760.14	342.89	18.55	1.057	Level 2, CC, ES, SF
THOMPSON #3 - Wellbore #1 - No Surveys	13,134.43	6,763.29	3,638.62	3,314.19	11.215	CC, ES
THOMPSON #3 - Wellbore #1 - No Surveys	13,300.00	6,757.51	3,642.38	3,317.08	11.197	SF
THOMPSON #4 - Wellbore #1 - No Surveys	13,072.95	6,770.43	968.28	644.02	2.986	CC, ES, SF
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,428.52	6,944.37	4,349.86	4,275.30	58.339	CC, ES
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	13,400.00	6,904.28	4,456.89	4,377.23	55.950	SF
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,950.07	6,703.00	270.50	-65.25	0.806	Level 1, CC, ES, SF
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,873.54	6,731.49	317.22	-11.47	0.965	Level 1, CC, ES, SF
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,683.60	6,754.12	1,556.01	1,227.84	4.741	CC, ES
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,700.00	6,753.55	1,556.09	1,227.84	4.741	SF
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,799.82	6,757.07	2,948.59	2,619.42	8.958	CC
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,800.00	6,757.06	2,948.59	2,619.42	8.958	ES
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,900.00	6,753.57	2,950.29	2,620.60	8.949	SF
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,610.93	10,283.02	4,166.14	4,012.75	27.160	CC
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,700.00	10,323.13	4,166.45	4,011.68	26.920	ES
Thompson C28-79HN - Thompson C28-79HN OH - Origi	17,552.47	10,884.02	4,204.29	4,033.64	24.637	SF
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,553.16	10,344.13	73.28	-2.41	0.968	Level 1, CC
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,600.00	10,342.92	86.96	-17.38	0.833	Level 1, ES, SF
C Section 32						
Becker #1 - Wellbore #1 - Plan #1	1,900.00	1,999.00	8,264.70	8,251.18	611.711	CC
Becker #1 - Wellbore #1 - Plan #1	2,100.00	2,137.28	8,265.44	8,250.75	562.618	ES
Becker #1 - Wellbore #1 - Plan #1	17,552.47	17,647.88	9,183.82	9,004.52	51.220	SF
Becker #2 - Wellbore #1 - Plan #1	2,651.44	3,523.18	8,197.07	8,175.83	385.819	CC
Becker #2 - Wellbore #1 - Plan #1	2,700.00	3,571.38	8,197.31	8,175.73	379.795	ES
Becker #2 - Wellbore #1 - Plan #1	17,552.47	17,664.97	8,531.17	8,351.88	47.582	SF
Becker #3 - Wellbore #1 - Plan #1	5,654.32	7,350.00	7,790.77	7,743.90	166.234	CC
Becker #3 - Wellbore #1 - Plan #1	17,552.47	17,776.56	7,878.55	7,699.42	43.981	ES, SF
Becker #4 - Wellbore #1 - Plan #1	5,780.73	7,700.00	7,154.77	7,105.77	146.011	CC
Becker #4 - Wellbore #1 - Plan #1	17,552.47	18,007.80	7,225.98	7,046.65	40.294	ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
C Section 33						
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	700.00	757.59	3,963.15	3,959.54	1,098.074	CC, ES
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	12,300.00	7,026.20	4,504.40	4,421.79	54.526	SF
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	2,200.00	2,218.00	3,983.38	3,889.32	42.352	CC
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,700.00	6,839.00	4,047.38	3,743.14	13.303	ES
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	10,000.00	6,839.00	4,059.79	3,754.01	13.277	SF
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	2,435.11	2,786.02	3,852.36	3,832.87	197.628	CC, ES
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	9,400.00	7,011.00	4,441.62	4,380.56	72.734	SF
Guttersen C28-715 - Guttersen C28-715 - Plan #1	2,200.00	2,202.00	22.33	7.02	1.458	Level 3, CC
Guttersen C28-715 - Guttersen C28-715 - Plan #1	2,300.00	2,301.33	22.82	6.83	1.427	Level 3, ES, SF
Guttersen C28-735 - Guttersen C28-735 - Plan #1	2,200.00	2,199.00	22.61	14.95	2.954	CC, ES
Guttersen C28-735 - Guttersen C28-735 - Plan #1	2,300.00	2,299.06	23.48	15.49	2.937	SF
Guttersen C28-745 - Guttersen C28-745 - Plan #1	2,200.00	2,198.00	45.21	29.91	2.955	CC, ES
Guttersen C28-745 - Guttersen C28-745 - Plan #1	2,300.00	2,297.17	47.08	31.10	2.947	SF
Guttersen C28-750 - Guttersen C28-750 - Plan #1	2,200.00	2,198.00	67.54	52.24	4.415	CC, ES
Guttersen C28-750 - Guttersen C28-750 - Plan #1	2,300.00	2,296.40	69.68	53.70	4.362	SF
Guttersen C28-755 - Guttersen C28-755 - Plan #1	6,275.54	6,623.73	1,930.85	1,883.91	41.132	CC
Guttersen C28-755 - Guttersen C28-755 - Plan #1	17,552.47	17,569.46	1,950.06	1,769.71	10.812	ES, SF
Guttersen C28-765 - Guttersen C28-765 - Plan #1	2,202.77	2,210.89	2,038.92	2,023.57	132.801	CC
Guttersen C28-765 - Guttersen C28-765 - Plan #1	2,300.00	2,319.29	2,039.60	2,023.55	127.079	ES
Guttersen C28-765 - Guttersen C28-765 - Plan #1	17,550.09	17,331.95	2,596.38	2,416.71	14.451	SF
Guttersen C28-770 - Guttersen C28-770 - Plan #1	2,200.00	2,207.00	2,061.53	2,046.20	134.461	CC, ES
Guttersen C28-770 - Guttersen C28-770 - Plan #1	17,552.47	17,510.06	2,927.83	2,747.76	16.259	SF
Guttersen C28-775 - Guttersen C28-775 - Plan #1	2,200.00	2,208.00	2,083.86	2,068.52	135.885	CC, ES
Guttersen C28-775 - Guttersen C28-775 - Plan #1	17,550.39	17,442.74	3,247.09	3,067.51	18.082	SF
Guttersen C28-785 - Guttersen C28-785 - Plan #1	2,200.00	2,208.00	2,106.46	2,091.12	137.359	CC, ES
Guttersen C28-785 - Guttersen C28-785 - Plan #1	17,552.47	17,489.30	3,894.58	3,715.58	21.757	SF
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,200.00	2,168.00	1,612.56	1,520.19	17.457	CC
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,400.00	2,367.84	1,617.66	1,516.63	16.011	ES
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,900.00	6,789.00	2,276.01	1,980.63	7.705	SF
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	2,237.95	2,215.90	446.62	431.26	29.092	CC, ES
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	7,900.00	6,795.79	1,012.34	962.94	20.493	SF
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,507.05	6,804.00	2,291.71	1,983.85	7.444	CC, ES
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,600.00	6,804.00	2,293.60	1,985.23	7.438	SF
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,518.25	6,804.00	960.71	652.78	3.120	CC, ES, SF
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,192.24	6,781.00	959.57	659.91	3.202	CC, ES
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,200.00	6,781.00	959.60	659.91	3.202	SF
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,188.34	6,404.00	2,285.08	2,000.52	8.030	CC
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,200.00	6,404.00	2,285.11	2,000.50	8.029	ES
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,300.00	6,404.00	2,287.81	2,002.76	8.026	SF
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,826.06	6,786.95	2,295.55	1,979.63	7.266	CC, ES
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,900.00	6,784.37	2,296.74	1,980.47	7.262	SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,800.00	6,809.14	981.68	665.03	3.100	ES, SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,826.27	6,789.94	981.33	665.29	3.105	CC
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,862.23	6,801.69	3,657.31	3,340.55	11.546	CC, ES
LINDSAY #C33-10 - Wellbore #1 - No Surveys	12,100.00	6,806.61	3,665.02	3,346.56	11.509	SF
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,576.90	6,859.09	3,696.97	3,634.88	59.547	CC
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,600.00	6,859.74	3,697.04	3,634.81	59.415	ES
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	11,500.00	6,872.97	3,810.49	3,743.57	56.935	SF
LINDSAY #C33-12 - Wellbore #1 - No Surveys	2,200.00	2,186.00	3,341.39	3,248.29	35.893	CC
LINDSAY #C33-12 - Wellbore #1 - No Surveys	2,300.00	2,285.98	3,342.97	3,245.53	34.310	ES
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,400.00	6,807.00	3,602.88	3,301.24	11.944	SF
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	0.00	0.00	2,904.39			
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	2,100.00	2,071.97	2,911.02	2,896.66	202.673	ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	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						
C Section 33						
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	8,700.00	6,770.75	3,731.68	3,680.20	72.486	SF
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,820.01	6,789.16	336.26	20.30	1.064	Level 2, CC, ES, SF
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,505.03	6,808.00	341.90	34.10	1.111	Level 2, CC, ES, SF
LINDSAY #C33-16 - Wellbore #1 - No Surveys	7,913.83	6,779.00	341.91	46.90	1.159	Level 2, CC, ES, SF
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,232.56	6,774.00	340.72	41.14	1.137	Level 2, CC, ES, SF
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,163.38	6,805.00	481.01	168.90	1.541	CC, ES, SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,168.65	6,901.19	1,654.85	1,520.65	12.332	CC
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,200.00	6,901.27	1,655.14	1,520.51	12.293	ES
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,400.00	6,899.54	1,670.92	1,533.74	12.181	SF
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,109.60	6,813.00	3,044.07	2,732.00	9.754	CC, ES
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,287.41	6,813.00	3,049.26	2,736.14	9.738	SF
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,658.19	6,809.00	2,942.22	2,639.09	9.706	CC, ES
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,800.00	6,809.00	2,945.64	2,641.80	9.695	SF
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,679.51	6,808.00	1,625.72	1,322.51	5.362	CC, ES
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,700.00	6,808.00	1,625.85	1,322.54	5.360	SF
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,691.39	6,789.00	322.30	19.78	1.065	Level 2, CC, ES, SF
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,516.47	6,778.00	346.41	49.69	1.167	Level 2, CC, ES, SF
LINDSAY C #33-24 - Wellbore #1 - No Surveys	2,200.00	2,168.00	1,369.42	1,277.05	14.825	CC
LINDSAY C #33-24 - Wellbore #1 - No Surveys	2,300.00	2,267.98	1,371.14	1,274.43	14.177	ES
LINDSAY C #33-24 - Wellbore #1 - No Surveys	8,507.88	6,789.00	1,652.97	1,355.84	5.563	SF
LINDSAY C #33-25 - Wellbore #1 - No Surveys	2,200.00	2,180.00	2,373.04	2,280.19	25.557	CC
LINDSAY C #33-25 - Wellbore #1 - No Surveys	2,300.00	2,279.98	2,374.51	2,277.32	24.431	ES
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,500.00	6,801.00	2,889.71	2,592.14	9.711	SF
C Section 34						
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	8,375.84	10,570.00	1,551.43	1,492.59	26.370	CC
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	8,400.00	10,570.00	1,551.62	1,491.84	25.959	ES
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	9,400.00	10,570.00	1,858.99	1,756.07	18.064	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 04						
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,330.86	6,191.96	1,999.22	1,954.99	45.195	CC, ES
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,500.00	6,350.18	2,021.64	1,976.29	44.586	SF
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,360.11	6,192.38	1,588.49	1,544.37	36.005	CC, ES
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,500.00	6,333.18	1,603.21	1,558.17	35.595	SF
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,360.70	6,291.17	3,451.90	3,404.36	72.607	CC, ES
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,550.00	6,487.12	3,478.57	3,429.92	71.505	SF
Guttersen D04-30D - Plan B - Plan B	1,087.55	1,101.58	3,316.29	3,310.04	530.496	CC
Guttersen D04-30D - Plan B - Plan B	1,100.00	1,112.67	3,316.29	3,309.95	523.447	ES
Guttersen D04-30D - Plan B - Plan B	8,400.00	6,876.70	4,472.48	4,421.77	88.200	SF
Guttersen D04-31D - Plan B - Plan B	902.99	917.00	3,321.50	3,316.59	676.839	CC, ES
Guttersen D04-31D - Plan B - Plan B	6,850.00	6,989.45	4,426.64	4,373.89	83.918	SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,250.00	10,451.78	40.80	-53.59	0.432	Level 1, ES, SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,278.08	10,453.42	30.26	-11.30	0.728	Level 1, CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,201.28	6,107.73	812.56	768.66	18.509	CC, ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,400.00	6,286.25	825.37	780.09	18.226	SF
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,284.63	6,143.43	1,831.65	1,787.46	41.458	CC, ES
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,500.00	6,354.70	1,863.16	1,817.52	40.828	SF
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,324.27	6,173.38	886.65	842.47	20.068	CC, ES
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,400.00	6,244.70	891.16	846.45	19.931	SF
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,348.83	6,181.88	2,786.70	2,742.59	63.183	CC
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,350.00	6,183.10	2,786.70	2,742.58	63.171	ES
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,550.00	6,351.11	2,818.63	2,773.30	62.188	SF
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,307.34	6,162.58	3,033.42	2,989.26	68.681	CC, ES
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,550.00	6,393.52	3,077.90	3,032.17	67.307	SF
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,306.09	6,112.39	4,191.30	4,147.35	95.360	CC, ES
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,600.00	6,357.25	4,258.08	4,212.38	93.183	SF
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,349.43	6,228.41	4,058.96	4,014.69	91.681	CC
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,350.00	6,228.89	4,058.96	4,014.68	91.674	ES
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,650.00	6,478.88	4,130.07	4,084.07	89.791	SF
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,331.92	6,201.30	3,448.60	3,404.37	77.958	CC, ES
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,600.00	6,425.54	3,505.72	3,459.89	76.497	SF
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,869.56	11,395.00	747.70	639.21	6.892	CC, ES
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,900.00	11,395.00	748.65	639.82	6.879	SF
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,747.83	11,120.00	220.90	158.18	3.522	CC
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,750.00	11,120.00	220.91	158.09	3.517	ES, SF
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,317.71	6,181.67	4,720.73	4,678.76	112.470	CC, ES
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,650.00	6,539.60	4,802.55	4,758.44	108.875	SF
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,736.16	11,217.00	658.51	595.24	10.408	CC, ES
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,750.00	11,217.00	658.69	595.33	10.395	SF
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,393.29	6,213.65	242.66	198.40	5.483	CC
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,400.00	6,220.31	242.69	198.39	5.478	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 Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4746.00ft

Offset Depths are relative to Offset Datum

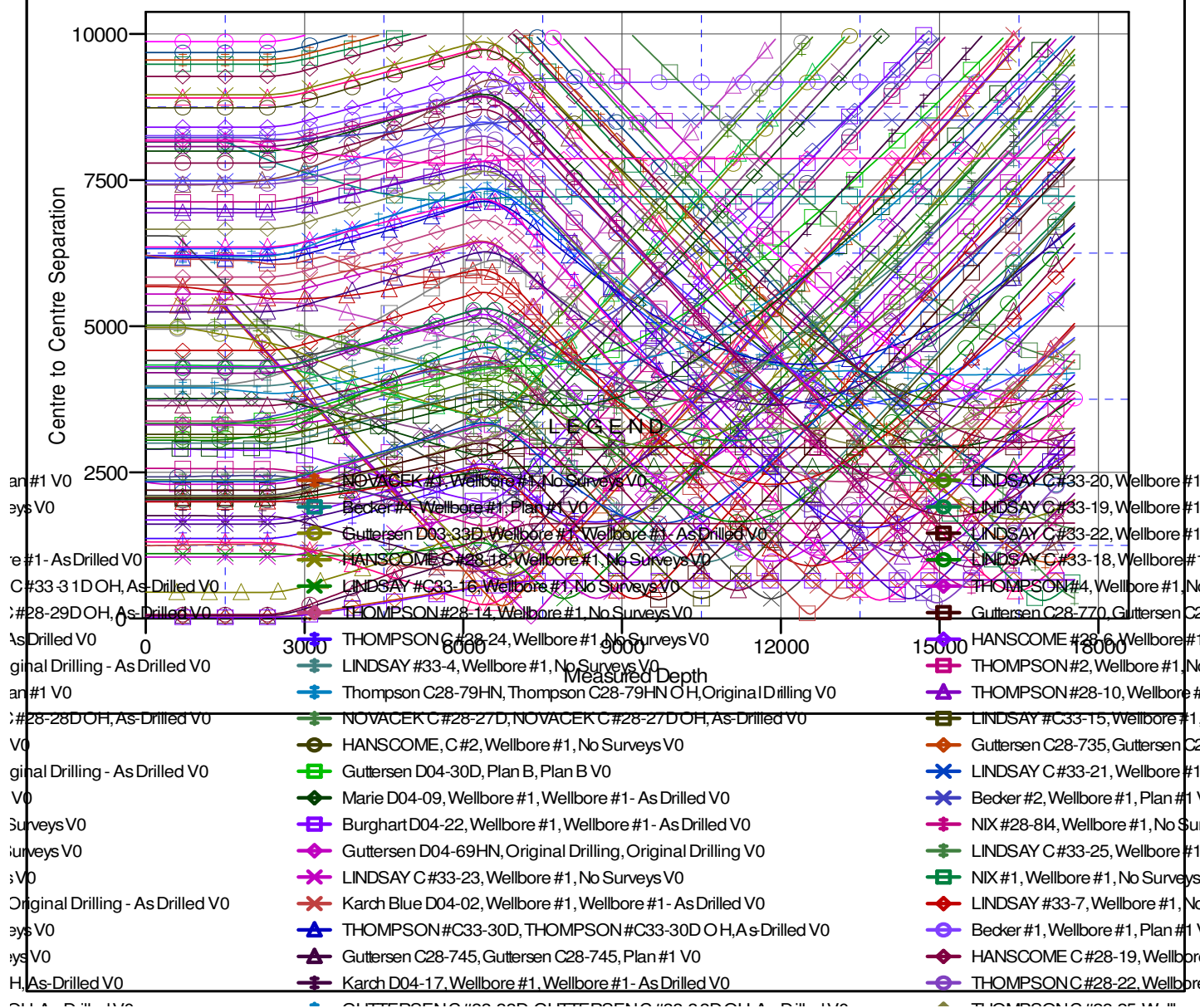
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-725

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°

Ladder Plot



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

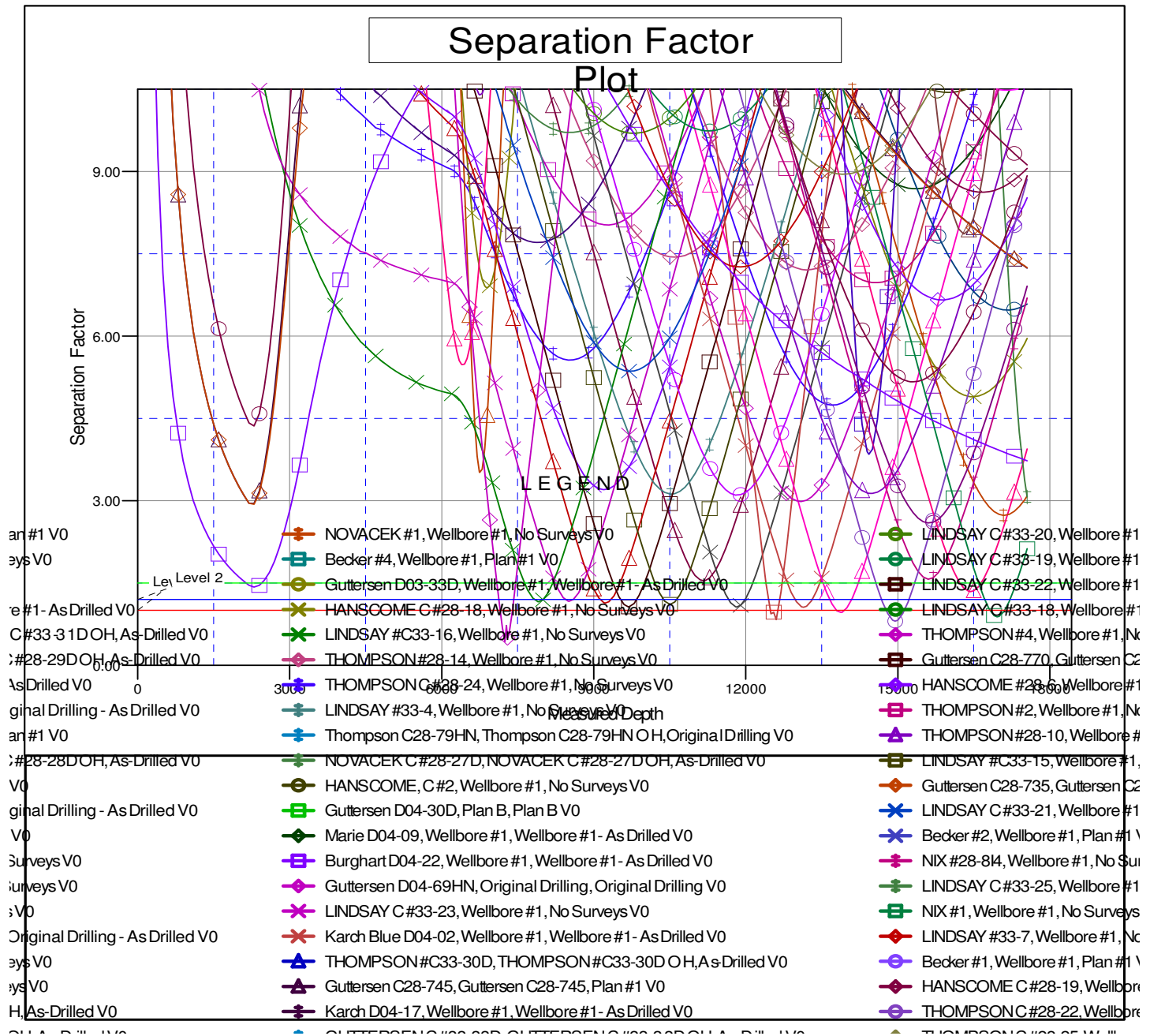
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-725
Project:	Mustang	TVD Reference:	Well @ 4746.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4746.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4746.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-725
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°



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