

Project: Mustang
 Site: C Section 33
 Well: Gutteresen C28-735
 Wellbore: Gutteresen C28-735
 Design: Plan #1

Northern Region - DJ Basin

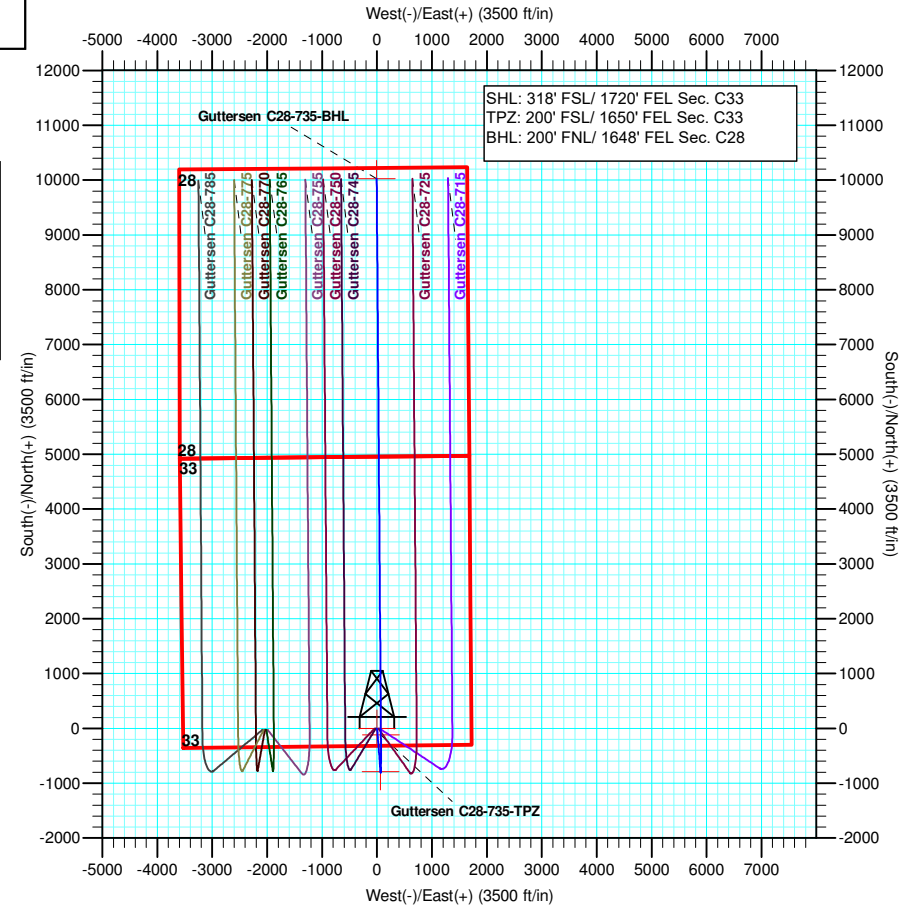
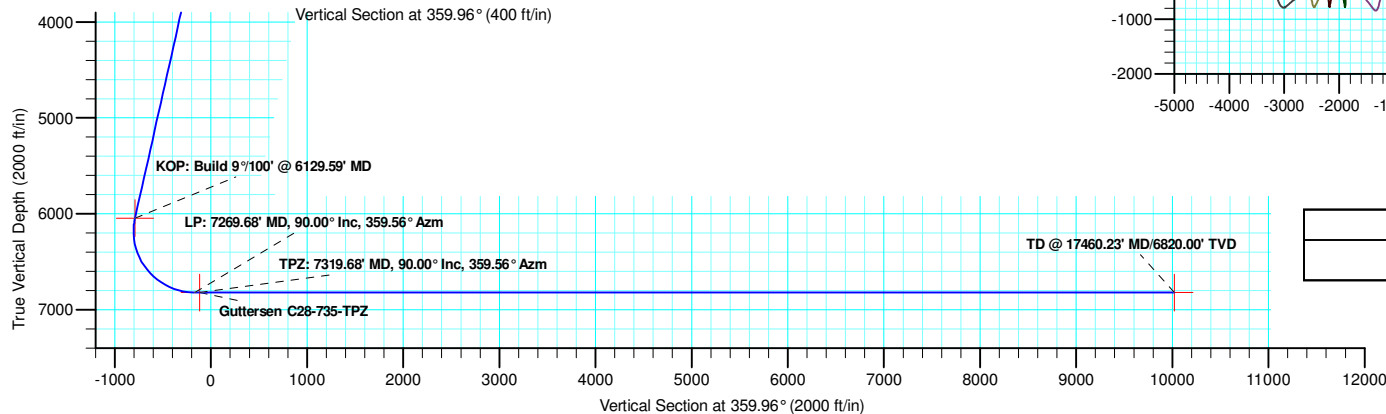
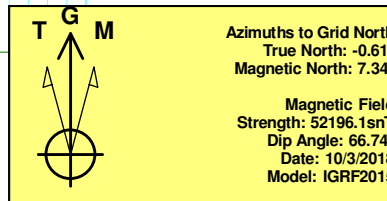
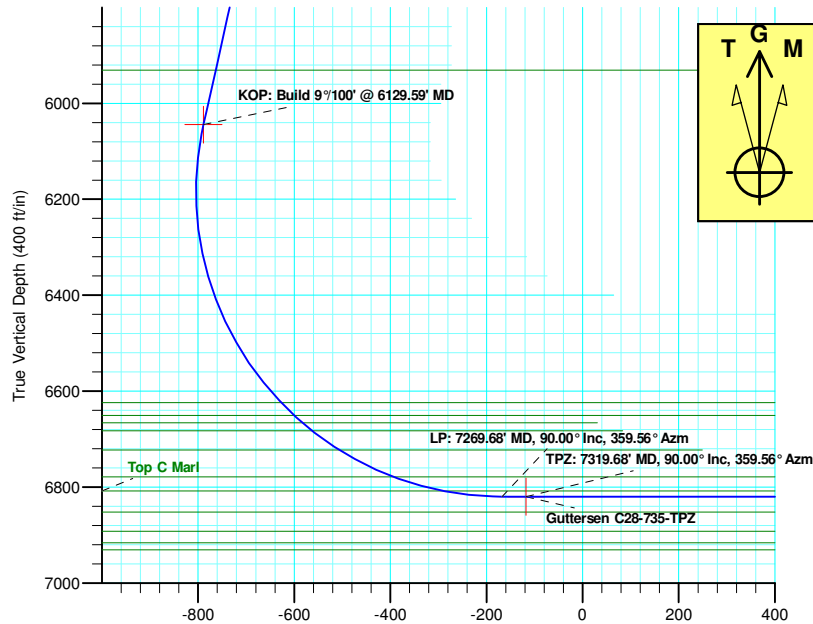
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2832.12	12.64	175.40	2827.00	-69.23	5.57	2.00	175.40	-69.24	
4	6129.59	12.64	175.40	6044.52	-788.60	63.47	0.00	0.00	-788.64	
5	7269.68	90.00	359.56	6820.00	-167.26	71.38	9.00	-175.73	-167.30	
6	7319.68	90.00	359.56	6820.00	-117.26	71.00	0.00	0.00	-117.30	Gutteresen C28-735-TPZ
7	17460.23	90.00	359.56	6820.00	10023.00	-6.13	0.00	0.00	10023.00	Gutteresen C28-735-BHL

WELL DETAILS: Gutteresen C28-735

+N/-S	+E/-W	Northing	Ground Level: Easting	4715.00 Latitude	Longitude	Slot
0.00	0.00	1339924.95	3264359.69	40.2626170	-104.5527100	



Plan: Plan #1 (Gutteresen C28-735/Gutteresen C28-735)

Created By: Keith Noack Date: 11:04, October 04 2018

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-735

Guttersen C28-735

Plan: Plan #1

Standard Planning Report

04 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-735
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4745.00ft
Project:	Mustang	MD Reference:	Well @ 4745.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
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 C28-735					
Well Position	+N/-S	23.26 ft	Northing:	1,339,924.95 usft	Latitude:	40.2626170
	+E/-W	2,083.73 ft	Easting:	3,264,359.69 usft	Longitude:	-104.5527100
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,715.00 ft

Wellbore	Guttersen C28-735				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2018	7.95	66.74	52,196.08228041

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	359.96

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	
2,832.12	12.64	175.40	2,827.00	-69.23	5.57	2.00	2.00	0.00	175.40	
6,129.59	12.64	175.40	6,044.52	-788.60	63.47	0.00	0.00	0.00	0.00	
7,269.68	90.00	359.56	6,820.00	-167.26	71.38	9.00	6.79	-15.42	-175.73	
7,319.68	90.00	359.56	6,820.00	-117.26	71.00	0.00	0.00	0.00	0.00	Guttersen C28-735
17,460.23	90.00	359.56	6,820.00	10,023.00	-6.13	0.00	0.00	0.00	0.00	Guttersen C28-735

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-735
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4745.00ft
Project:	Mustang	MD Reference:	Well @ 4745.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
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
462.00	0.00	0.00	462.00	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
595.00	0.00	0.00	595.00	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
1,515.00	0.00	0.00	1,515.00	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	175.40	2,299.98	-1.74	0.14	-1.74	2.00	2.00	0.00
2,400.00	4.00	175.40	2,399.84	-6.96	0.56	-6.96	2.00	2.00	0.00
2,500.00	6.00	175.40	2,499.45	-15.64	1.26	-15.64	2.00	2.00	0.00
2,600.00	8.00	175.40	2,598.70	-27.79	2.24	-27.79	2.00	2.00	0.00
2,700.00	10.00	175.40	2,697.47	-43.38	3.49	-43.38	2.00	2.00	0.00
2,800.00	12.00	175.40	2,795.62	-62.40	5.02	-62.40	2.00	2.00	0.00
2,832.12	12.64	175.40	2,827.00	-69.23	5.57	-69.24	2.00	2.00	0.00
Hold: 12.64° Inc, 175.40° Azm									
2,900.00	12.64	175.40	2,893.24	-84.04	6.76	-84.05	0.00	0.00	0.00
3,000.00	12.64	175.40	2,990.81	-105.86	8.52	-105.86	0.00	0.00	0.00
3,100.00	12.64	175.40	3,088.39	-127.67	10.28	-127.68	0.00	0.00	0.00
3,200.00	12.64	175.40	3,185.96	-149.49	12.03	-149.50	0.00	0.00	0.00
3,300.00	12.64	175.40	3,283.54	-171.31	13.79	-171.31	0.00	0.00	0.00
3,400.00	12.64	175.40	3,381.12	-193.12	15.54	-193.13	0.00	0.00	0.00
3,500.00	12.64	175.40	3,478.69	-214.94	17.30	-214.95	0.00	0.00	0.00
3,600.00	12.64	175.40	3,576.27	-236.75	19.06	-236.76	0.00	0.00	0.00
3,618.17	12.64	175.40	3,594.00	-240.72	19.37	-240.73	0.00	0.00	0.00
Parkman									
3,700.00	12.64	175.40	3,673.84	-258.57	20.81	-258.58	0.00	0.00	0.00
3,800.00	12.64	175.40	3,771.42	-280.38	22.57	-280.40	0.00	0.00	0.00
3,900.00	12.64	175.40	3,868.99	-302.20	24.32	-302.22	0.00	0.00	0.00
4,000.00	12.64	175.40	3,966.57	-324.02	26.08	-324.03	0.00	0.00	0.00
4,033.24	12.64	175.40	3,999.00	-331.27	26.66	-331.28	0.00	0.00	0.00

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Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
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)
Sussex									
4,100.00	12.64	175.40	4,064.14	-345.83	27.83	-345.85	0.00	0.00	0.00
4,200.00	12.64	175.40	4,161.72	-367.65	29.59	-367.67	0.00	0.00	0.00
4,300.00	12.64	175.40	4,259.29	-389.46	31.35	-389.48	0.00	0.00	0.00
4,400.00	12.64	175.40	4,356.87	-411.28	33.10	-411.30	0.00	0.00	0.00
4,500.00	12.64	175.40	4,454.45	-433.10	34.86	-433.12	0.00	0.00	0.00
4,598.95	12.64	175.40	4,551.00	-454.68	36.60	-454.71	0.00	0.00	0.00
Shannon									
4,600.00	12.64	175.40	4,552.02	-454.91	36.61	-454.93	0.00	0.00	0.00
4,700.00	12.64	175.40	4,649.60	-476.73	38.37	-476.75	0.00	0.00	0.00
4,800.00	12.64	175.40	4,747.17	-498.54	40.13	-498.57	0.00	0.00	0.00
4,900.00	12.64	175.40	4,844.75	-520.36	41.88	-520.39	0.00	0.00	0.00
5,000.00	12.64	175.40	4,942.32	-542.18	43.64	-542.20	0.00	0.00	0.00
5,100.00	12.64	175.40	5,039.90	-563.99	45.39	-564.02	0.00	0.00	0.00
5,200.00	12.64	175.40	5,137.47	-585.81	47.15	-585.84	0.00	0.00	0.00
5,300.00	12.64	175.40	5,235.05	-607.62	48.90	-607.65	0.00	0.00	0.00
5,400.00	12.64	175.40	5,332.63	-629.44	50.66	-629.47	0.00	0.00	0.00
5,500.00	12.64	175.40	5,430.20	-651.26	52.42	-651.29	0.00	0.00	0.00
5,600.00	12.64	175.40	5,527.78	-673.07	54.17	-673.10	0.00	0.00	0.00
5,700.00	12.64	175.40	5,625.35	-694.89	55.93	-694.92	0.00	0.00	0.00
5,800.00	12.64	175.40	5,722.93	-716.70	57.68	-716.74	0.00	0.00	0.00
5,900.00	12.64	175.40	5,820.50	-738.52	59.44	-738.55	0.00	0.00	0.00
6,000.00	12.64	175.40	5,918.08	-760.33	61.20	-760.37	0.00	0.00	0.00
6,013.24	12.64	175.40	5,931.00	-763.22	61.43	-763.26	0.00	0.00	0.00
Teepee Buttes									
6,100.00	12.64	175.40	6,015.65	-782.15	62.95	-782.19	0.00	0.00	0.00
6,129.59	12.64	175.40	6,044.52	-788.60	63.47	-788.64	0.00	0.00	0.00
KOP: Build 9°/100' @ 6129.59' MD									
6,150.00	10.81	174.67	6,064.51	-792.74	63.83	-792.78	9.00	-8.97	-3.57
6,200.00	6.34	171.13	6,113.94	-800.14	64.69	-800.18	9.00	-8.94	-7.08
6,250.00	2.00	151.78	6,163.80	-803.64	65.53	-803.68	9.00	-8.68	-38.70
6,300.00	2.88	18.43	6,213.78	-803.21	66.34	-803.25	9.00	1.76	-266.69
6,350.00	7.29	6.88	6,263.57	-798.87	67.12	-798.91	9.00	8.81	-23.10
6,400.00	11.77	4.05	6,312.87	-790.63	67.86	-790.67	9.00	8.95	-5.66
6,450.00	16.26	2.77	6,361.37	-778.55	68.56	-778.59	9.00	8.98	-2.57
6,500.00	20.75	2.03	6,408.77	-762.70	69.21	-762.74	9.00	8.99	-1.48
6,550.00	25.25	1.54	6,454.78	-743.18	69.81	-743.22	9.00	8.99	-0.97
6,600.00	29.74	1.20	6,499.13	-720.11	70.36	-720.15	9.00	8.99	-0.69
6,650.00	34.24	0.94	6,541.52	-693.63	70.85	-693.68	9.00	9.00	-0.52
6,700.00	38.74	0.73	6,581.71	-663.91	71.28	-663.95	9.00	9.00	-0.42
6,750.00	43.24	0.56	6,619.44	-631.13	71.64	-631.17	9.00	9.00	-0.34
6,756.29	43.80	0.54	6,624.00	-626.80	71.68	-626.84	9.00	9.00	-0.31
Sharon Springs									
6,794.84	47.27	0.43	6,651.00	-599.29	71.91	-599.33	9.00	9.00	-0.29
Top A Chalk									
6,800.00	47.74	0.41	6,654.49	-595.48	71.94	-595.53	9.00	9.00	-0.27
6,817.38	49.30	0.37	6,666.00	-582.46	72.03	-582.50	9.00	9.00	-0.26
Top A Marl									
6,844.11	51.71	0.30	6,683.00	-561.84	72.15	-561.88	9.00	9.00	-0.25
Top B Chalk									
6,850.00	52.23	0.29	6,686.63	-557.20	72.17	-557.24	9.00	9.00	-0.24
6,900.00	56.73	0.18	6,715.67	-516.51	72.34	-516.56	9.00	9.00	-0.22
6,913.59	57.96	0.15	6,723.00	-505.07	72.37	-505.11	9.00	9.00	-0.21

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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)
Top B Marl									
6,950.00	61.23	0.08	6,741.42	-473.67	72.43	-473.72	9.00	9.00	-0.20
7,000.00	65.73	359.99	6,763.74	-428.94	72.45	-428.99	9.00	9.00	-0.18
7,039.93	69.33	359.92	6,779.00	-392.05	72.42	-392.10	9.00	9.00	-0.17
Top C Chalk									
7,050.00	70.23	359.90	6,782.48	-382.60	72.41	-382.65	9.00	9.00	-0.17
7,100.00	74.73	359.82	6,797.53	-334.93	72.29	-334.98	9.00	9.00	-0.16
7,145.85	78.86	359.75	6,808.00	-290.31	72.12	-290.35	9.00	9.00	-0.15
Top C Marl									
7,150.00	79.23	359.74	6,808.79	-286.23	72.10	-286.28	9.00	9.00	-0.15
7,200.00	83.73	359.67	6,816.20	-236.80	71.85	-236.84	9.00	9.00	-0.15
7,250.00	88.23	359.59	6,819.70	-186.93	71.53	-186.98	9.00	9.00	-0.15
7,269.68	90.00	359.56	6,820.00	-167.26	71.38	-167.30	9.00	9.00	-0.15
LP: 7269.68' MD, 90.00° Inc, 359.56° Azm									
7,300.00	90.00	359.56	6,820.00	-136.94	71.15	-136.98	0.00	0.00	0.00
7,319.68	90.00	359.56	6,820.00	-117.26	71.00	-117.30	0.00	0.00	0.00
TPZ: 7319.68' MD, 90.00° Inc, 359.56° Azm									
7,400.00	90.00	359.56	6,820.00	-36.94	70.39	-36.98	0.00	0.00	0.00
7,500.00	90.00	359.56	6,820.00	63.06	69.63	63.01	0.00	0.00	0.00
7,600.00	90.00	359.56	6,820.00	163.05	68.87	163.01	0.00	0.00	0.00
7,700.00	90.00	359.56	6,820.00	263.05	68.11	263.01	0.00	0.00	0.00
7,800.00	90.00	359.56	6,820.00	363.05	67.35	363.01	0.00	0.00	0.00
7,900.00	90.00	359.56	6,820.00	463.04	66.59	463.00	0.00	0.00	0.00
8,000.00	90.00	359.56	6,820.00	563.04	65.83	563.00	0.00	0.00	0.00
8,100.00	90.00	359.56	6,820.00	663.04	65.06	663.00	0.00	0.00	0.00
8,200.00	90.00	359.56	6,820.00	763.04	64.30	763.00	0.00	0.00	0.00
8,300.00	90.00	359.56	6,820.00	863.03	63.54	862.99	0.00	0.00	0.00
8,400.00	90.00	359.56	6,820.00	963.03	62.78	962.99	0.00	0.00	0.00
8,500.00	90.00	359.56	6,820.00	1,063.03	62.02	1,062.99	0.00	0.00	0.00
8,600.00	90.00	359.56	6,820.00	1,163.02	61.26	1,162.99	0.00	0.00	0.00
8,700.00	90.00	359.56	6,820.00	1,263.02	60.50	1,262.98	0.00	0.00	0.00
8,800.00	90.00	359.56	6,820.00	1,363.02	59.74	1,362.98	0.00	0.00	0.00
8,900.00	90.00	359.56	6,820.00	1,463.02	58.98	1,462.98	0.00	0.00	0.00
9,000.00	90.00	359.56	6,820.00	1,563.01	58.22	1,562.98	0.00	0.00	0.00
9,100.00	90.00	359.56	6,820.00	1,663.01	57.46	1,662.97	0.00	0.00	0.00
9,200.00	90.00	359.56	6,820.00	1,763.01	56.70	1,762.97	0.00	0.00	0.00
9,300.00	90.00	359.56	6,820.00	1,863.00	55.94	1,862.97	0.00	0.00	0.00
9,400.00	90.00	359.56	6,820.00	1,963.00	55.18	1,962.97	0.00	0.00	0.00
9,500.00	90.00	359.56	6,820.00	2,063.00	54.42	2,062.96	0.00	0.00	0.00
9,600.00	90.00	359.56	6,820.00	2,163.00	53.66	2,162.96	0.00	0.00	0.00
9,700.00	90.00	359.56	6,820.00	2,262.99	52.89	2,262.96	0.00	0.00	0.00
9,800.00	90.00	359.56	6,820.00	2,362.99	52.13	2,362.96	0.00	0.00	0.00
9,900.00	90.00	359.56	6,820.00	2,462.99	51.37	2,462.95	0.00	0.00	0.00
10,000.00	90.00	359.56	6,820.00	2,562.98	50.61	2,562.95	0.00	0.00	0.00
10,100.00	90.00	359.56	6,820.00	2,662.98	49.85	2,662.95	0.00	0.00	0.00
10,200.00	90.00	359.56	6,820.00	2,762.98	49.09	2,762.95	0.00	0.00	0.00
10,300.00	90.00	359.56	6,820.00	2,862.97	48.33	2,862.94	0.00	0.00	0.00
10,400.00	90.00	359.56	6,820.00	2,962.97	47.57	2,962.94	0.00	0.00	0.00
10,500.00	90.00	359.56	6,820.00	3,062.97	46.81	3,062.94	0.00	0.00	0.00
10,600.00	90.00	359.56	6,820.00	3,162.97	46.05	3,162.94	0.00	0.00	0.00
10,700.00	90.00	359.56	6,820.00	3,262.96	45.29	3,262.94	0.00	0.00	0.00
10,800.00	90.00	359.56	6,820.00	3,362.96	44.53	3,362.93	0.00	0.00	0.00
10,900.00	90.00	359.56	6,820.00	3,462.96	43.77	3,462.93	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-735
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4745.00ft
Project:	Mustang	MD Reference:	Well @ 4745.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
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)
11,000.00	90.00	359.56	6,820.00	3,562.95	43.01	3,562.93	0.00	0.00	0.00
11,100.00	90.00	359.56	6,820.00	3,662.95	42.25	3,662.93	0.00	0.00	0.00
11,200.00	90.00	359.56	6,820.00	3,762.95	41.49	3,762.92	0.00	0.00	0.00
11,300.00	90.00	359.56	6,820.00	3,862.95	40.72	3,862.92	0.00	0.00	0.00
11,400.00	90.00	359.56	6,820.00	3,962.94	39.96	3,962.92	0.00	0.00	0.00
11,500.00	90.00	359.56	6,820.00	4,062.94	39.20	4,062.92	0.00	0.00	0.00
11,600.00	90.00	359.56	6,820.00	4,162.94	38.44	4,162.91	0.00	0.00	0.00
11,700.00	90.00	359.56	6,820.00	4,262.93	37.68	4,262.91	0.00	0.00	0.00
11,800.00	90.00	359.56	6,820.00	4,362.93	36.92	4,362.91	0.00	0.00	0.00
11,900.00	90.00	359.56	6,820.00	4,462.93	36.16	4,462.91	0.00	0.00	0.00
12,000.00	90.00	359.56	6,820.00	4,562.93	35.40	4,562.90	0.00	0.00	0.00
12,100.00	90.00	359.56	6,820.00	4,662.92	34.64	4,662.90	0.00	0.00	0.00
12,200.00	90.00	359.56	6,820.00	4,762.92	33.88	4,762.90	0.00	0.00	0.00
12,300.00	90.00	359.56	6,820.00	4,862.92	33.12	4,862.90	0.00	0.00	0.00
12,400.00	90.00	359.56	6,820.00	4,962.91	32.36	4,962.89	0.00	0.00	0.00
12,500.00	90.00	359.56	6,820.00	5,062.91	31.60	5,062.89	0.00	0.00	0.00
12,600.00	90.00	359.56	6,820.00	5,162.91	30.84	5,162.89	0.00	0.00	0.00
12,700.00	90.00	359.56	6,820.00	5,262.91	30.08	5,262.89	0.00	0.00	0.00
12,800.00	90.00	359.56	6,820.00	5,362.90	29.32	5,362.88	0.00	0.00	0.00
12,900.00	90.00	359.56	6,820.00	5,462.90	28.55	5,462.88	0.00	0.00	0.00
13,000.00	90.00	359.56	6,820.00	5,562.90	27.79	5,562.88	0.00	0.00	0.00
13,100.00	90.00	359.56	6,820.00	5,662.89	27.03	5,662.88	0.00	0.00	0.00
13,200.00	90.00	359.56	6,820.00	5,762.89	26.27	5,762.87	0.00	0.00	0.00
13,300.00	90.00	359.56	6,820.00	5,862.89	25.51	5,862.87	0.00	0.00	0.00
13,400.00	90.00	359.56	6,820.00	5,962.89	24.75	5,962.87	0.00	0.00	0.00
13,500.00	90.00	359.56	6,820.00	6,062.88	23.99	6,062.87	0.00	0.00	0.00
13,600.00	90.00	359.56	6,820.00	6,162.88	23.23	6,162.86	0.00	0.00	0.00
13,700.00	90.00	359.56	6,820.00	6,262.88	22.47	6,262.86	0.00	0.00	0.00
13,800.00	90.00	359.56	6,820.00	6,362.87	21.71	6,362.86	0.00	0.00	0.00
13,900.00	90.00	359.56	6,820.00	6,462.87	20.95	6,462.86	0.00	0.00	0.00
14,000.00	90.00	359.56	6,820.00	6,562.87	20.19	6,562.85	0.00	0.00	0.00
14,100.00	90.00	359.56	6,820.00	6,662.87	19.43	6,662.85	0.00	0.00	0.00
14,200.00	90.00	359.56	6,820.00	6,762.86	18.67	6,762.85	0.00	0.00	0.00
14,300.00	90.00	359.56	6,820.00	6,862.86	17.91	6,862.85	0.00	0.00	0.00
14,400.00	90.00	359.56	6,820.00	6,962.86	17.15	6,962.84	0.00	0.00	0.00
14,500.00	90.00	359.56	6,820.00	7,062.85	16.38	7,062.84	0.00	0.00	0.00
14,600.00	90.00	359.56	6,820.00	7,162.85	15.62	7,162.84	0.00	0.00	0.00
14,700.00	90.00	359.56	6,820.00	7,262.85	14.86	7,262.84	0.00	0.00	0.00
14,800.00	90.00	359.56	6,820.00	7,362.84	14.10	7,362.83	0.00	0.00	0.00
14,900.00	90.00	359.56	6,820.00	7,462.84	13.34	7,462.83	0.00	0.00	0.00
15,000.00	90.00	359.56	6,820.00	7,562.84	12.58	7,562.83	0.00	0.00	0.00
15,100.00	90.00	359.56	6,820.00	7,662.84	11.82	7,662.83	0.00	0.00	0.00
15,200.00	90.00	359.56	6,820.00	7,762.83	11.06	7,762.83	0.00	0.00	0.00
15,300.00	90.00	359.56	6,820.00	7,862.83	10.30	7,862.82	0.00	0.00	0.00
15,400.00	90.00	359.56	6,820.00	7,962.83	9.54	7,962.82	0.00	0.00	0.00
15,500.00	90.00	359.56	6,820.00	8,062.82	8.78	8,062.82	0.00	0.00	0.00
15,600.00	90.00	359.56	6,820.00	8,162.82	8.02	8,162.82	0.00	0.00	0.00
15,700.00	90.00	359.56	6,820.00	8,262.82	7.26	8,262.81	0.00	0.00	0.00
15,800.00	90.00	359.56	6,820.00	8,362.82	6.50	8,362.81	0.00	0.00	0.00
15,900.00	90.00	359.56	6,820.00	8,462.81	5.74	8,462.81	0.00	0.00	0.00
16,000.00	90.00	359.56	6,820.00	8,562.81	4.98	8,562.81	0.00	0.00	0.00
16,100.00	90.00	359.56	6,820.00	8,662.81	4.21	8,662.80	0.00	0.00	0.00
16,200.00	90.00	359.56	6,820.00	8,762.80	3.45	8,762.80	0.00	0.00	0.00
16,300.00	90.00	359.56	6,820.00	8,862.80	2.69	8,862.80	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-735
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4745.00ft
Project:	Mustang	MD Reference:	Well @ 4745.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
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)
16,400.00	90.00	359.56	6,820.00	8,962.80	1.93	8,962.80	0.00	0.00	0.00
16,500.00	90.00	359.56	6,820.00	9,062.80	1.17	9,062.79	0.00	0.00	0.00
16,600.00	90.00	359.56	6,820.00	9,162.79	0.41	9,162.79	0.00	0.00	0.00
16,700.00	90.00	359.56	6,820.00	9,262.79	-0.35	9,262.79	0.00	0.00	0.00
16,800.00	90.00	359.56	6,820.00	9,362.79	-1.11	9,362.79	0.00	0.00	0.00
16,900.00	90.00	359.56	6,820.00	9,462.78	-1.87	9,462.78	0.00	0.00	0.00
17,000.00	90.00	359.56	6,820.00	9,562.78	-2.63	9,562.78	0.00	0.00	0.00
17,100.00	90.00	359.56	6,820.00	9,662.78	-3.39	9,662.78	0.00	0.00	0.00
17,200.00	90.00	359.56	6,820.00	9,762.78	-4.15	9,762.78	0.00	0.00	0.00
17,300.00	90.00	359.56	6,820.00	9,862.77	-4.91	9,862.77	0.00	0.00	0.00
17,400.00	90.00	359.56	6,820.00	9,962.77	-5.67	9,962.77	0.00	0.00	0.00
17,460.23	90.00	359.56	6,820.00	10,023.00	-6.13	10,023.00	0.00	0.00	0.00
TD @ 17460.23' MD/6820.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen C28-735-SI - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,339,924.95	3,264,359.69	40.2626170	-104.5527100
Guttersen C28-735-KI - plan hits target center - Point	0.00	0.00	6,044.53	-788.61	63.47	1,339,136.35	3,264,423.16	40.2604505	-104.5525128
Guttersen C28-735-TI - plan hits target center - Point	0.00	0.00	6,820.00	-117.26	71.00	1,339,807.69	3,264,430.69	40.2622931	-104.5524601
Guttersen C28-735-BI - plan hits target center - Point	0.00	0.00	6,820.00	10,023.00	-6.13	1,349,947.93	3,264,353.56	40.2901295	-104.5523481

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-735
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4745.00ft
Project:	Mustang	MD Reference:	Well @ 4745.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-735		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
462.00	462.00	Pierre				
595.00	595.00	Upper Pierre Aquifer Top				
1,515.00	1,515.00	Upper Pierre Aquifer Base				
3,618.17	3,594.00	Parkman				
4,033.24	3,999.00	Sussex				
4,598.95	4,551.00	Shannon				
6,013.24	5,931.00	Teepee Buttes				
6,756.29	6,624.00	Sharon Springs				
6,794.84	6,651.00	Top A Chalk				
6,817.38	6,666.00	Top A Marl				
6,844.11	6,683.00	Top B Chalk				
6,913.59	6,723.00	Top B Marl				
7,039.93	6,779.00	Top C Chalk				
7,145.85	6,808.00	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'	
2,832.12	2,827.00	-69.23	5.57	Hold: 12.64° Inc, 175.40° Azm	
6,129.59	6,044.52	-788.60	63.47	KOP: Build 9°/100' @ 6129.59' MD	
7,269.68	6,820.00	-167.26	71.38	LP: 7269.68' MD, 90.00° Inc, 359.56° Azm	
7,319.68	6,820.00	-117.26	71.00	TPZ: 7319.68' MD, 90.00° Inc, 359.56° Azm	
17,460.23	6,820.00	10,023.00	-6.13	TD @ 17460.23' MD/6820.00' TVD	

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-735

Guttersen C28-735

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 C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	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	17,460.23	Plan #1 (Guttersen C28-735)	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	17,460.23	6,609.02	3,752.85	3,642.28	33.941	CC, ES, SF
NOVACEK C #28-27D - NOVACEK C #28-27D OH - As-	17,460.23	6,885.82	341.58	231.09	3.091	CC, ES, SF
C Section 27						
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,216.33	7,201.63	1,582.53	1,463.43	13.287	CC, ES, SF
C Section 28						
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,493.78	6,930.45	1,550.41	1,474.01	20.293	CC
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,500.00	6,930.51	1,550.42	1,473.99	20.284	ES
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,600.00	6,931.53	1,554.04	1,477.18	20.218	SF
HANSCOME #28-4 - Wellbore #1 - No Surveys	16,836.24	6,860.00	3,061.41	2,703.96	8.565	CC, ES
HANSCOME #28-4 - Wellbore #1 - No Surveys	17,000.00	6,860.00	3,065.78	2,707.16	8.549	SF
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,695.90	6,825.00	1,635.50	1,288.39	4.712	CC
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,700.00	6,825.00	1,635.51	1,288.37	4.711	ES, SF
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,342.46	6,808.00	1,051.04	699.55	2.990	CC, ES, SF
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,417.56	6,838.00	2,364.41	2,011.13	6.693	CC, ES
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,500.00	6,838.00	2,365.84	2,011.97	6.686	SF
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,111.77	6,839.00	2,298.29	1,955.16	6.698	CC, ES
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,200.00	6,839.00	2,299.99	1,956.23	6.691	SF
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,159.45	6,823.00	1,101.29	758.43	3.212	CC, ES
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,200.00	6,823.00	1,102.04	758.92	3.212	SF
HANSCOME C #28-28D - HANSCOME C #28-28D OH -	17,460.23	6,848.04	891.13	779.27	7.966	CC, ES, SF
HANSCOME C #28-29D - HANSCOME C #28-29D OH -	17,460.23	7,050.58	2,256.69	2,143.41	19.921	CC, ES, SF
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,681.03	6,861.00	2,952.26	2,603.83	8.473	CC
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,700.00	6,861.00	2,952.32	2,603.74	8.470	ES
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,800.00	6,861.00	2,954.65	2,605.36	8.459	SF
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	16,991.67	6,820.00	1,636.90	1,279.82	4.584	CC
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,000.00	6,820.00	1,636.92	1,279.77	4.583	ES, SF
NIX #1 - Wellbore #1 - No Surveys	16,869.58	6,755.00	958.17	604.66	2.710	CC, ES
NIX #1 - Wellbore #1 - No Surveys	16,900.00	6,755.00	958.66	604.94	2.710	SF
NIX #28-814 - Wellbore #1 - No Surveys	15,507.83	6,778.00	1,182.82	839.06	3.441	CC, ES, SF
NOVACEK #1 - Wellbore #1 - No Surveys	16,993.15	6,789.00	311.52	-44.33	0.875	Level 1, CC, ES, SF
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,342.60	6,785.00	184.26	-166.30	0.526	Level 1, CC, ES, SF
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,510.72	6,802.00	234.43	-110.31	0.680	Level 1, CC, ES, SF
THOMPSON #1 - Wellbore #1 - As-Drilled	14,336.37	6,774.21	993.60	904.50	11.152	CC, ES
THOMPSON #1 - Wellbore #1 - As-Drilled	14,400.00	6,773.27	995.63	906.15	11.126	SF
THOMPSON #2 - Wellbore #1 - No Surveys	14,377.05	6,828.00	1,673.37	1,336.34	4.965	CC

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 C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	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 #2 - Wellbore #1 - No Surveys	14,400.00	6,828.00	1,673.53	1,336.33	4.963	ES, SF
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,370.01	6,829.00	392.75	55.73	1.165	Level 2, CC, ES, SF
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,325.75	6,853.00	2,992.88	2,655.24	8.864	CC, ES
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,500.00	6,853.00	2,997.95	2,659.08	8.847	SF
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,043.69	6,831.00	1,691.68	1,364.57	5.172	CC, ES
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,100.00	6,831.00	1,692.62	1,365.12	5.168	SF
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,048.28	6,823.00	992.42	665.60	3.037	CC, ES, SF
THOMPSON #3 - Wellbore #1 - No Surveys	13,043.46	6,826.00	2,989.09	2,662.19	9.144	CC, ES
THOMPSON #3 - Wellbore #1 - No Surveys	13,200.00	6,826.00	2,993.19	2,665.19	9.126	SF
THOMPSON #4 - Wellbore #1 - No Surveys	12,982.30	6,831.00	318.75	-7.91	0.976	Level 1, CC, ES, SF
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,340.65	6,975.96	3,699.69	3,625.12	49.619	CC, ES
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	13,100.00	6,980.74	3,776.81	3,698.01	47.929	SF
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,858.72	6,802.00	378.84	39.15	1.115	Level 2, CC, ES, SF
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,782.46	6,820.00	332.23	0.04	1.000	Level 2, CC, ES, SF
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,592.51	6,836.00	906.53	575.13	2.735	CC
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,600.00	6,836.00	906.56	575.11	2.735	ES, SF
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,708.52	6,843.00	2,299.12	1,966.57	6.913	CC, ES
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,800.00	6,843.00	2,300.94	1,967.74	6.906	SF
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,560.97	10,311.14	3,518.49	3,364.27	22.815	CC
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,900.00	16,900.00	3,528.40	3,259.07	13.101	ES, SF
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,469.49	9,696.95	103.07	33.16	1.474	Level 3, CC
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,500.00	9,696.44	107.49	28.49	1.361	Level 3, ES, SF
C Section 32						
Becker #1 - Wellbore #1 - Plan #1	1,900.00	2,000.00	8,242.09	8,228.57	609.876	CC
Becker #1 - Wellbore #1 - Plan #1	2,100.00	2,138.09	8,242.84	8,228.15	560.980	ES
Becker #1 - Wellbore #1 - Plan #1	17,460.23	17,647.88	8,532.81	8,353.57	47.604	SF
Becker #2 - Wellbore #1 - Plan #1	7,301.96	7,536.24	7,869.62	7,819.32	156.453	CC
Becker #2 - Wellbore #1 - Plan #1	17,460.23	17,664.97	7,880.02	7,700.85	43.980	ES, SF
Becker #3 - Wellbore #1 - Plan #1	7,312.76	7,656.97	7,216.84	7,165.83	141.456	CC
Becker #3 - Wellbore #1 - Plan #1	17,460.23	17,776.56	7,227.24	7,048.29	40.388	ES, SF
Becker #4 - Wellbore #1 - Plan #1	7,294.91	7,864.59	6,564.59	6,512.55	126.128	CC
Becker #4 - Wellbore #1 - Plan #1	17,460.23	18,007.80	6,574.47	6,395.41	36.716	ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutteresen C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutteresen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen C28-735	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
C Section 33						
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,068.90	7,043.76	3,707.96	3,632.06	48.848	CC
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,100.00	7,044.47	3,708.10	3,631.95	48.697	ES
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,900.00	7,053.88	3,799.95	3,718.74	46.794	SF
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,592.43	6,839.00	3,397.46	3,093.48	11.177	CC
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,600.00	6,839.00	3,397.46	3,093.45	11.175	ES
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,800.00	6,839.00	3,403.79	3,098.69	11.156	SF
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	8,429.40	7,020.25	3,703.45	3,645.18	63.552	CC, ES
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	9,100.00	7,012.59	3,763.67	3,703.53	62.578	SF
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	2,200.00	2,203.00	44.94	29.62	2.934	CC, ES
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	2,300.00	2,301.64	46.32	30.33	2.897	SF
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	2,200.00	2,201.00	22.61	7.30	1.477	Level 3, CC, ES
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	2,300.00	2,300.53	23.50	7.51	1.470	Level 3, SF
Gutteresen C28-745 - Gutteresen C28-745 - Plan #1	2,200.00	2,199.00	22.60	7.30	1.477	Level 3, CC, ES, SF
Gutteresen C28-750 - Gutteresen C28-750 - Plan #1	2,200.00	2,199.00	44.93	29.63	2.936	CC, ES
Gutteresen C28-750 - Gutteresen C28-750 - Plan #1	2,300.00	2,297.93	46.23	30.25	2.893	SF
Gutteresen C28-755 - Gutteresen C28-755 - Plan #1	17,460.23	17,568.41	1,298.16	1,118.38	7.221	CC, ES, SF
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	17,456.40	17,329.39	1,949.13	1,769.61	10.857	CC
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	17,460.23	17,329.85	1,949.13	1,769.57	10.855	ES, SF
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,200.00	2,208.00	2,038.92	2,023.59	132.955	CC
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,300.00	2,295.33	2,039.38	2,023.41	127.702	ES
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	17,460.23	17,510.06	2,273.85	2,094.04	12.646	SF
Gutteresen C28-775 - Gutteresen C28-775 - Plan #1	2,200.00	2,209.00	2,061.25	2,045.91	134.380	CC, ES
Gutteresen C28-775 - Gutteresen C28-775 - Plan #1	17,460.23	17,438.88	2,596.32	2,416.78	14.461	SF
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	2,200.00	2,209.00	2,083.86	2,068.52	135.853	CC, ES
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	17,460.23	17,488.05	3,246.25	3,067.03	18.112	SF
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,200.00	2,169.00	1,590.39	1,497.97	17.209	CC
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,768.97	6,789.00	1,625.56	1,330.70	5.513	ES
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,800.00	6,789.00	1,625.86	1,330.92	5.513	SF
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	7,774.22	6,794.39	361.62	312.74	7.397	CC, ES, SF
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,417.31	6,804.00	1,641.91	1,334.14	5.335	CC, ES
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,500.00	6,804.00	1,643.99	1,335.74	5.333	SF
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,428.64	6,804.00	310.91	3.07	1.010	Level 2, CC, ES, SF
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,102.63	6,781.00	309.64	10.21	1.034	Level 2, CC, ES, SF
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,098.60	6,404.00	1,635.15	1,350.82	5.751	CC
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,100.00	6,404.00	1,635.15	1,350.81	5.751	ES, SF
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,736.03	6,804.00	1,645.89	1,329.31	5.199	CC, ES
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,800.00	6,804.00	1,647.13	1,330.13	5.196	SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,736.37	6,807.00	331.67	14.96	1.047	Level 2, CC, ES, SF
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,772.03	6,820.00	3,007.65	2,690.18	9.474	CC
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,800.00	6,820.00	3,007.78	2,690.12	9.468	ES
LINDSAY #C33-10 - Wellbore #1 - No Surveys	12,000.00	6,820.00	3,016.28	2,697.31	9.456	SF
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,486.81	6,850.52	3,047.22	2,985.30	49.215	CC
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,500.00	6,850.87	3,047.24	2,985.24	49.148	ES
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	11,200.00	6,866.69	3,129.52	3,063.68	47.528	SF
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,098.33	6,807.00	2,946.72	2,646.27	9.808	CC
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,100.00	6,807.00	2,946.72	2,646.26	9.807	ES
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,200.00	6,807.00	2,948.47	2,647.53	9.798	SF
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	0.00	0.00	2,881.89			
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	2,100.00	2,073.10	2,888.53	2,874.16	201.052	ES
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	8,300.00	6,779.65	3,033.13	2,982.85	60.321	SF
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,730.25	6,806.00	985.92	669.31	3.114	CC, ES, SF
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,415.55	6,808.00	991.70	683.98	3.223	CC, ES, SF
LINDSAY #C33-16 - Wellbore #1 - No Surveys	7,824.36	6,779.00	991.97	697.38	3.367	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 C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	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 33						
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,143.08	6,774.00	990.65	691.30	3.309	CC, ES, SF
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,073.82	6,805.00	168.72	-143.35	0.541	Level 1, CC, ES, SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,078.99	6,907.01	1,005.14	870.87	7.486	CC
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,100.00	6,907.05	1,005.36	870.66	7.464	ES
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,200.00	6,907.28	1,012.40	875.86	7.414	SF
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,019.77	6,813.00	2,394.34	2,082.30	7.673	CC, ES
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,100.00	6,813.00	2,395.68	2,083.13	7.665	SF
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,568.38	6,809.00	2,292.34	1,989.37	7.566	CC, ES
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,700.00	6,809.00	2,296.11	1,992.45	7.561	SF
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,589.84	6,808.00	975.83	672.79	3.220	CC
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,600.00	6,808.00	975.89	672.79	3.220	ES, SF
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,601.85	6,789.00	327.58	25.24	1.083	Level 2, CC, ES, SF
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,426.92	6,778.00	303.59	7.19	1.024	Level 2, CC, ES, SF
LINDSAY C #33-24 - Wellbore #1 - No Surveys	8,418.20	6,789.00	1,002.97	706.16	3.379	CC, ES, SF
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,347.44	6,801.00	2,239.02	1,941.99	7.538	CC, ES
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,400.00	6,801.00	2,239.63	1,942.42	7.535	SF
C Section 34						
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	8,286.48	10,570.00	2,199.69	2,141.48	37.789	CC
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	8,400.00	10,570.00	2,202.61	2,141.03	35.765	ES
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	9,800.00	10,570.00	2,670.09	2,565.03	25.415	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	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
D Section 04						
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,282.23	6,198.99	2,046.85	2,003.28	46.981	CC, ES
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,450.00	6,356.11	2,068.58	2,023.96	46.359	SF
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,277.42	6,158.96	1,828.22	1,784.72	42.026	CC, ES
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,450.00	6,334.96	1,847.83	1,803.21	41.414	SF
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,275.43	6,258.95	3,662.36	3,614.84	77.060	CC, ES
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,500.00	6,485.14	3,698.14	3,649.33	75.761	SF
Guttersen D04-30D - Plan B - Plan B	1,086.86	1,101.89	3,294.10	3,287.85	527.065	CC
Guttersen D04-30D - Plan B - Plan B	1,100.00	1,113.60	3,294.11	3,287.77	519.673	ES
Guttersen D04-30D - Plan B - Plan B	7,900.00	6,876.34	3,746.48	3,697.26	76.110	SF
Guttersen D04-31D - Plan B - Plan B	901.99	917.00	3,299.35	3,294.44	672.817	CC, ES
Guttersen D04-31D - Plan B - Plan B	6,800.00	6,977.45	3,832.70	3,781.04	74.193	SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,150.00	9,802.36	55.36	-40.67	0.576	Level 1, ES, SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,197.24	9,802.40	30.68	-5.88	0.839	Level 1, CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,303.87	6,211.71	361.73	317.95	8.263	CC, ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,350.00	6,256.52	363.15	319.06	8.237	SF
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,275.87	6,177.87	1,655.88	1,612.39	38.068	CC, ES
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,450.00	6,349.83	1,679.00	1,634.38	37.631	SF
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,287.06	6,182.94	952.11	908.57	21.871	CC, ES
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,400.00	6,293.27	961.50	917.23	21.721	SF
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,272.03	6,147.08	2,950.13	2,906.73	67.962	CC, ES
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,500.00	6,352.03	2,988.43	2,943.64	66.730	SF
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,272.62	6,177.46	2,961.72	2,918.25	68.136	CC, ES
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,500.00	6,397.43	3,001.93	2,957.05	66.888	SF
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,264.43	6,119.49	4,141.54	4,098.29	95.747	CC, ES
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,600.00	6,410.07	4,229.26	4,184.10	93.657	SF
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,279.77	6,211.18	4,177.54	4,133.92	95.790	CC, ES
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,600.00	6,480.83	4,256.00	4,210.60	93.739	SF
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,277.46	6,200.01	3,487.02	3,443.46	80.047	CC, ES
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,550.00	6,430.44	3,545.71	3,500.59	78.570	SF
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,754.01	11,395.00	1,354.24	1,244.59	12.350	CC, ES
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,850.00	11,395.00	1,359.24	1,248.64	12.290	SF
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,690.75	11,120.00	561.70	458.07	5.420	CC
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,700.00	11,120.00	561.80	458.05	5.415	ES, SF
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,269.48	6,197.60	4,716.41	4,675.09	114.139	CC, ES
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,600.00	6,540.34	4,798.45	4,755.12	110.731	SF
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,722.65	11,217.00	265.89	219.41	5.720	CC, ES
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,750.00	11,217.00	267.88	220.88	5.699	SF
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,294.84	6,166.53	724.82	680.97	16.528	CC
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,300.00	6,171.84	724.83	680.94	16.515	ES
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,500.00	6,373.33	735.45	690.29	16.287	SF

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

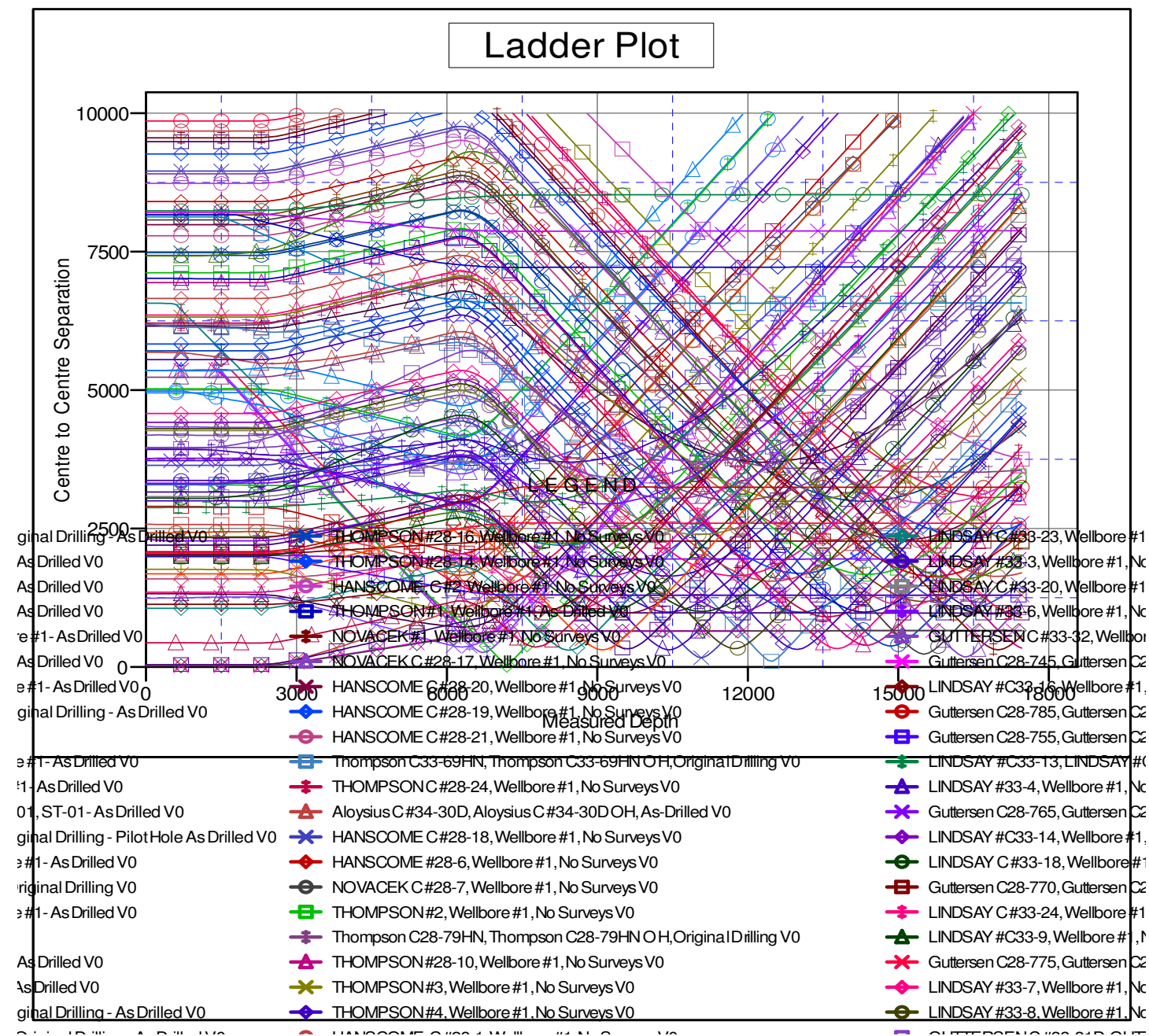
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Gutteresen C28-735

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.61°



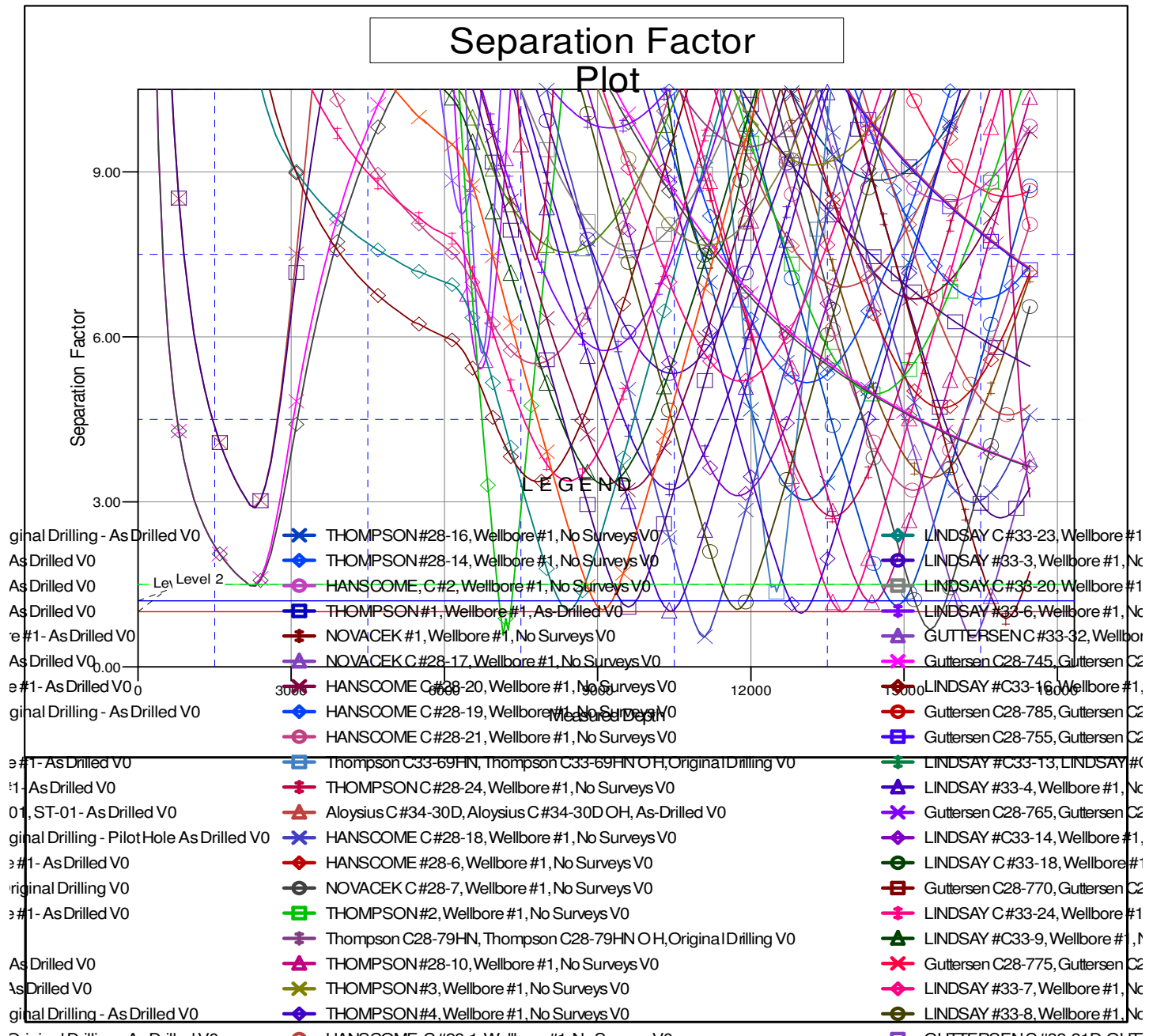
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-735
Project:	Mustang	TVD Reference:	Well @ 4745.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4745.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-735	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4745.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-735
 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