

Project: Mustang
 Site: C Section 33
 Well: Gutteresen C28-775
 Wellbore: Gutteresen C28-775
 Design: Plan #1

Northern Region - DJ Basin

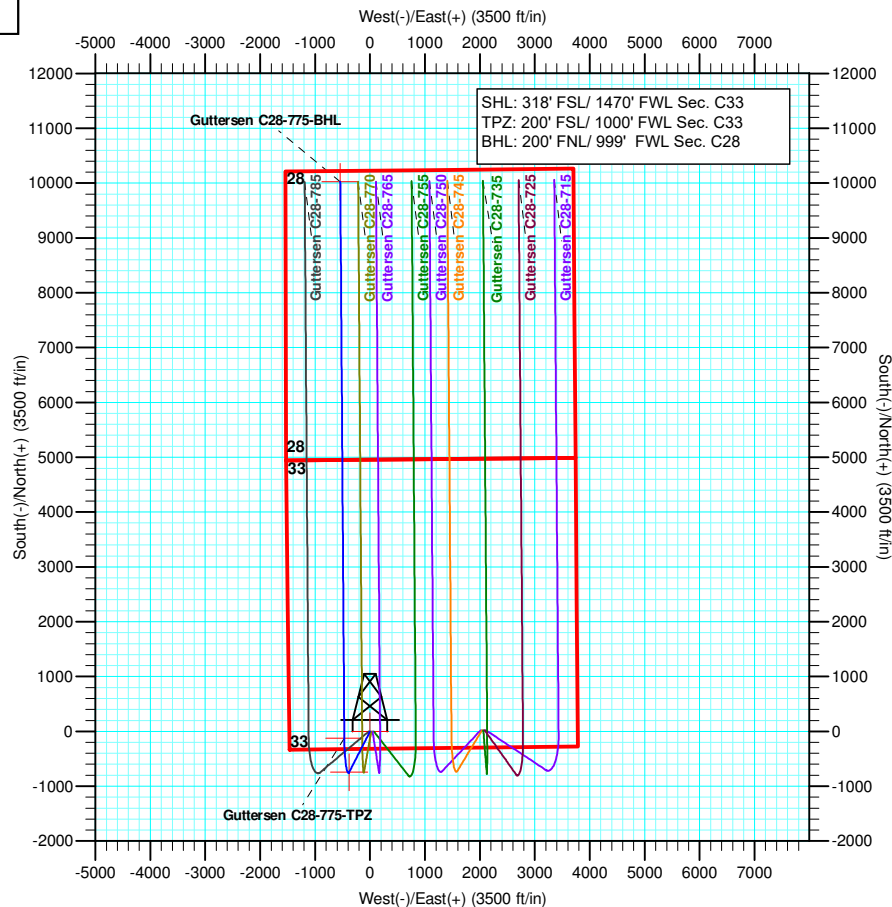
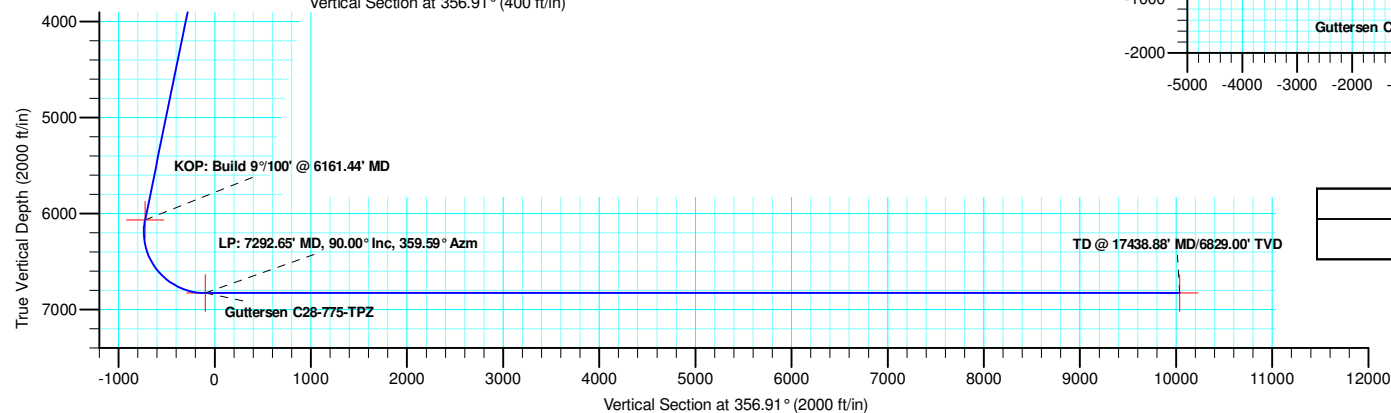
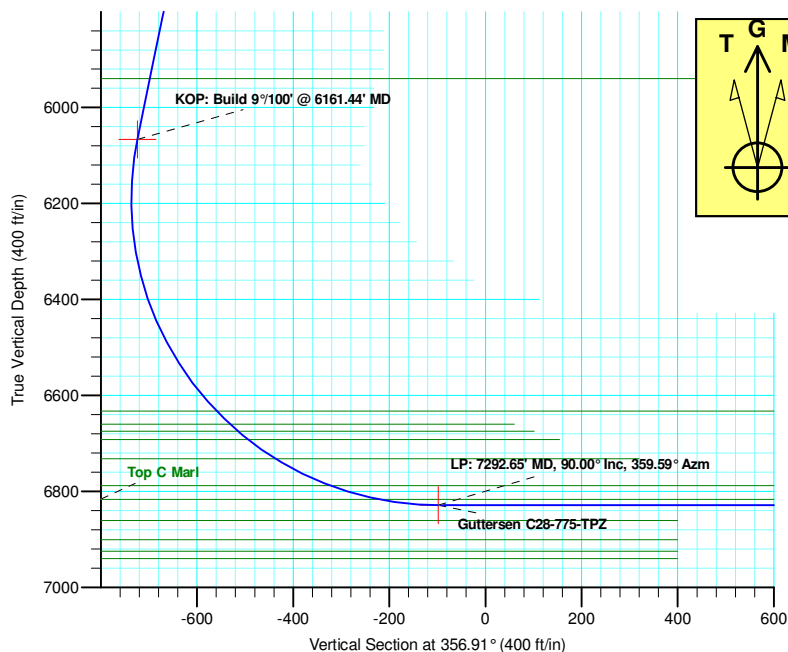
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2866.63	13.33	207.03	2860.63	-68.78	-35.09	2.00	207.03	-66.78	
4	6161.44	13.33	207.03	6066.64	-745.56	-380.44	0.00	0.00	-723.96	
5	7292.65	90.00	359.59	6829.00	-123.03	-468.20	9.09	151.91	-97.60	Gutteresen C28-775-TPZ
6	17438.88	90.00	359.59	6829.00	10022.94	-541.22	0.00	0.00	10037.54	Gutteresen C28-775-BHL

WELL DETAILS: Gutteresen C28-775

+N/-S	+E/-W	Northing	Ground Level: Easting	4724.00 Latitude	Longitude	Slot
0.00	0.00	1339901.56	3262298.58	40.2626130	-104.5600960	



Plan: Plan #1 (Gutteresen C28-775/Gutteresen C28-775)

Created By: Keith Noack Date: 13:19, October 04 2018

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-775

Guttersen C28-775

Plan: Plan #1

Standard Planning Report

04 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
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 C28-775					
Well Position	+N/-S	-0.13 ft	Northing:	1,339,901.56 usft	Latitude:	40.2626130
	+E/-W	22.61 ft	Easting:	3,262,298.58 usft	Longitude:	-104.5600960
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,724.00 ft

Wellbore	Guttersen C28-775				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2018	7.95	66.74	52,195.24371603

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	356.91

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	
2,866.63	13.33	207.03	2,860.63	-68.78	-35.09	2.00	2.00	0.00	207.03	
6,161.44	13.33	207.03	6,066.64	-745.56	-380.44	0.00	0.00	0.00	0.00	
7,292.65	90.00	359.59	6,829.00	-123.03	-468.20	9.00	6.78	13.49	151.91	Guttersen C28-775
17,438.88	90.00	359.59	6,829.00	10,022.94	-541.22	0.00	0.00	0.00	0.00	Guttersen C28-775

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
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
471.00	0.00	0.00	471.00	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
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
604.00	0.00	0.00	604.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
1,524.00	0.00	0.00	1,524.00	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	207.03	2,299.98	-1.55	-0.79	-1.51	2.00	2.00	0.00
2,400.00	4.00	207.03	2,399.84	-6.22	-3.17	-6.04	2.00	2.00	0.00
2,500.00	6.00	207.03	2,499.45	-13.98	-7.13	-13.57	2.00	2.00	0.00
2,600.00	8.00	207.03	2,598.70	-24.83	-12.67	-24.11	2.00	2.00	0.00
2,700.00	10.00	207.03	2,697.47	-38.77	-19.78	-37.64	2.00	2.00	0.00
2,800.00	12.00	207.03	2,795.62	-55.76	-28.45	-54.15	2.00	2.00	0.00
2,866.63	13.33	207.03	2,860.63	-68.78	-35.09	-66.78	2.00	2.00	0.00
Hold: 13.33° Inc, 207.03° Azm									
2,900.00	13.33	207.03	2,893.10	-75.63	-38.59	-73.44	0.00	0.00	0.00
3,000.00	13.33	207.03	2,990.41	-96.17	-49.07	-93.39	0.00	0.00	0.00
3,100.00	13.33	207.03	3,087.71	-116.71	-59.55	-113.33	0.00	0.00	0.00
3,200.00	13.33	207.03	3,185.02	-137.25	-70.04	-133.28	0.00	0.00	0.00
3,300.00	13.33	207.03	3,282.32	-157.79	-80.52	-153.22	0.00	0.00	0.00
3,400.00	13.33	207.03	3,379.62	-178.33	-91.00	-173.17	0.00	0.00	0.00
3,500.00	13.33	207.03	3,476.93	-198.88	-101.48	-193.11	0.00	0.00	0.00
3,600.00	13.33	207.03	3,574.23	-219.42	-111.96	-213.06	0.00	0.00	0.00
3,629.56	13.33	207.03	3,603.00	-225.49	-115.06	-218.96	0.00	0.00	0.00
Parkman									
3,700.00	13.33	207.03	3,671.54	-239.96	-122.44	-233.01	0.00	0.00	0.00
3,800.00	13.33	207.03	3,768.84	-260.50	-132.92	-252.95	0.00	0.00	0.00
3,900.00	13.33	207.03	3,866.15	-281.04	-143.41	-272.90	0.00	0.00	0.00
4,000.00	13.33	207.03	3,963.45	-301.58	-153.89	-292.84	0.00	0.00	0.00
4,045.78	13.33	207.03	4,008.00	-310.98	-158.69	-301.97	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
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	13.33	207.03	4,060.76	-322.12	-164.37	-312.79	0.00	0.00	0.00
4,200.00	13.33	207.03	4,158.06	-342.66	-174.85	-332.73	0.00	0.00	0.00
4,300.00	13.33	207.03	4,255.37	-363.20	-185.33	-352.68	0.00	0.00	0.00
4,400.00	13.33	207.03	4,352.67	-383.74	-195.81	-372.63	0.00	0.00	0.00
4,500.00	13.33	207.03	4,449.98	-404.28	-206.29	-392.57	0.00	0.00	0.00
4,600.00	13.33	207.03	4,547.28	-424.82	-216.78	-412.52	0.00	0.00	0.00
4,613.07	13.33	207.03	4,560.00	-427.51	-218.15	-415.13	0.00	0.00	0.00
Shannon									
4,700.00	13.33	207.03	4,644.59	-445.37	-227.26	-432.46	0.00	0.00	0.00
4,800.00	13.33	207.03	4,741.89	-465.91	-237.74	-452.41	0.00	0.00	0.00
4,900.00	13.33	207.03	4,839.20	-486.45	-248.22	-472.36	0.00	0.00	0.00
5,000.00	13.33	207.03	4,936.50	-506.99	-258.70	-492.30	0.00	0.00	0.00
5,100.00	13.33	207.03	5,033.81	-527.53	-269.18	-512.25	0.00	0.00	0.00
5,200.00	13.33	207.03	5,131.11	-548.07	-279.66	-532.19	0.00	0.00	0.00
5,300.00	13.33	207.03	5,228.41	-568.61	-290.15	-552.14	0.00	0.00	0.00
5,400.00	13.33	207.03	5,325.72	-589.15	-300.63	-572.08	0.00	0.00	0.00
5,500.00	13.33	207.03	5,423.02	-609.69	-311.11	-592.03	0.00	0.00	0.00
5,600.00	13.33	207.03	5,520.33	-630.23	-321.59	-611.98	0.00	0.00	0.00
5,700.00	13.33	207.03	5,617.63	-650.77	-332.07	-631.92	0.00	0.00	0.00
5,800.00	13.33	207.03	5,714.94	-671.31	-342.55	-651.87	0.00	0.00	0.00
5,900.00	13.33	207.03	5,812.24	-691.86	-353.03	-671.81	0.00	0.00	0.00
6,000.00	13.33	207.03	5,909.55	-712.40	-363.52	-691.76	0.00	0.00	0.00
6,031.30	13.33	207.03	5,940.00	-718.82	-366.80	-698.00	0.00	0.00	0.00
Teepee Buttes									
6,100.00	13.33	207.03	6,006.85	-732.94	-374.00	-711.71	0.00	0.00	0.00
6,161.44	13.33	207.03	6,066.64	-745.56	-380.44	-723.96	0.00	0.00	0.00
KOP: Build 9°/100' @ 6161.44' MD									
6,200.00	10.40	216.12	6,104.37	-752.33	-384.51	-730.50	9.00	-7.61	23.57
6,250.00	7.32	237.88	6,153.78	-757.67	-389.87	-735.55	9.00	-6.16	43.51
6,300.00	6.27	275.66	6,203.46	-759.10	-395.29	-736.68	9.00	-2.10	75.56
6,350.00	8.09	309.34	6,253.08	-756.60	-400.72	-733.89	9.00	3.64	67.37
6,400.00	11.48	327.06	6,302.36	-750.19	-406.15	-727.20	9.00	6.79	35.43
6,450.00	15.45	336.30	6,350.98	-739.91	-411.54	-716.64	9.00	7.93	18.49
6,500.00	19.64	341.76	6,398.65	-725.82	-416.85	-702.29	9.00	8.39	10.92
6,550.00	23.94	345.35	6,445.07	-708.02	-422.05	-684.23	9.00	8.60	7.16
6,600.00	28.30	347.88	6,489.95	-686.60	-427.10	-662.58	9.00	8.72	5.08
6,650.00	32.70	349.79	6,533.02	-661.71	-431.99	-637.46	9.00	8.79	3.81
6,700.00	37.11	351.29	6,574.02	-633.49	-436.67	-609.03	9.00	8.84	3.00
6,750.00	41.55	352.51	6,612.68	-602.13	-441.12	-577.47	9.00	8.87	2.44
6,777.68	44.01	353.09	6,633.00	-583.48	-443.47	-558.72	9.00	8.88	2.12
Sharon Springs									
6,800.00	45.99	353.53	6,648.78	-567.80	-445.31	-542.97	9.00	8.89	1.96
6,816.36	47.45	353.83	6,660.00	-555.96	-446.62	-531.07	9.00	8.90	1.84
Top A Chalk									
6,838.98	49.46	354.23	6,675.00	-539.13	-448.38	-514.17	9.00	8.90	1.75
Top A Marl									
6,850.00	50.44	354.41	6,682.09	-530.74	-449.21	-505.74	9.00	8.91	1.67
6,865.80	51.85	354.67	6,692.00	-518.49	-450.38	-493.45	9.00	8.91	1.61
Top B Chalk									
6,900.00	54.90	355.18	6,712.40	-491.15	-452.81	-466.02	9.00	8.92	1.52
6,935.50	58.07	355.68	6,732.00	-461.65	-455.16	-436.43	9.00	8.92	1.41
Top B Marl									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
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)
6,950.00	59.36	355.88	6,739.53	-449.29	-456.07	-424.05	9.00	8.93	1.34
7,000.00	63.83	356.51	6,763.31	-405.42	-458.99	-380.08	9.00	8.93	1.26
7,050.00	68.30	357.10	6,783.59	-359.80	-461.53	-334.39	9.00	8.94	1.17
7,062.22	69.39	357.23	6,788.00	-348.42	-462.10	-322.99	9.00	8.94	1.12
Top C Chalk									
7,100.00	72.77	357.65	6,800.25	-312.72	-463.69	-287.27	9.00	8.94	1.09
7,150.00	77.24	358.17	6,813.18	-264.47	-465.45	-238.99	9.00	8.94	1.05
7,168.46	78.89	358.36	6,817.00	-246.42	-466.00	-220.94	9.00	8.94	1.02
Top C Marl									
7,200.00	81.71	358.68	6,822.31	-215.34	-466.80	-189.86	9.00	8.95	1.01
7,250.00	86.18	359.17	6,827.58	-165.64	-467.74	-140.18	9.00	8.95	0.99
7,292.65	90.00	359.59	6,829.00	-123.03	-468.20	-97.60	9.00	8.95	0.98
LP: 7292.65' MD, 90.00° Inc, 359.59° Azm									
7,300.00	90.00	359.59	6,829.00	-115.68	-468.25	-90.26	0.00	0.00	0.00
7,400.00	90.00	359.59	6,829.00	-15.68	-468.97	9.63	0.00	0.00	0.00
7,500.00	90.00	359.59	6,829.00	84.32	-469.69	109.52	0.00	0.00	0.00
7,600.00	90.00	359.59	6,829.00	184.32	-470.41	209.41	0.00	0.00	0.00
7,700.00	90.00	359.59	6,829.00	284.31	-471.13	309.30	0.00	0.00	0.00
7,800.00	90.00	359.59	6,829.00	384.31	-471.85	409.19	0.00	0.00	0.00
7,900.00	90.00	359.59	6,829.00	484.31	-472.57	509.08	0.00	0.00	0.00
8,000.00	90.00	359.59	6,829.00	584.30	-473.29	608.97	0.00	0.00	0.00
8,100.00	90.00	359.59	6,829.00	684.30	-474.01	708.87	0.00	0.00	0.00
8,200.00	90.00	359.59	6,829.00	784.30	-474.73	808.76	0.00	0.00	0.00
8,300.00	90.00	359.59	6,829.00	884.30	-475.45	908.65	0.00	0.00	0.00
8,400.00	90.00	359.59	6,829.00	984.29	-476.17	1,008.54	0.00	0.00	0.00
8,500.00	90.00	359.59	6,829.00	1,084.29	-476.89	1,108.43	0.00	0.00	0.00
8,600.00	90.00	359.59	6,829.00	1,184.29	-477.61	1,208.32	0.00	0.00	0.00
8,700.00	90.00	359.59	6,829.00	1,284.29	-478.33	1,308.21	0.00	0.00	0.00
8,800.00	90.00	359.59	6,829.00	1,384.28	-479.05	1,408.10	0.00	0.00	0.00
8,900.00	90.00	359.59	6,829.00	1,484.28	-479.77	1,507.99	0.00	0.00	0.00
9,000.00	90.00	359.59	6,829.00	1,584.28	-480.49	1,607.88	0.00	0.00	0.00
9,100.00	90.00	359.59	6,829.00	1,684.28	-481.21	1,707.77	0.00	0.00	0.00
9,200.00	90.00	359.59	6,829.00	1,784.27	-481.92	1,807.66	0.00	0.00	0.00
9,300.00	90.00	359.59	6,829.00	1,884.27	-482.64	1,907.55	0.00	0.00	0.00
9,400.00	90.00	359.59	6,829.00	1,984.27	-483.36	2,007.45	0.00	0.00	0.00
9,500.00	90.00	359.59	6,829.00	2,084.27	-484.08	2,107.34	0.00	0.00	0.00
9,600.00	90.00	359.59	6,829.00	2,184.26	-484.80	2,207.23	0.00	0.00	0.00
9,700.00	90.00	359.59	6,829.00	2,284.26	-485.52	2,307.12	0.00	0.00	0.00
9,800.00	90.00	359.59	6,829.00	2,384.26	-486.24	2,407.01	0.00	0.00	0.00
9,900.00	90.00	359.59	6,829.00	2,484.26	-486.96	2,506.90	0.00	0.00	0.00
10,000.00	90.00	359.59	6,829.00	2,584.25	-487.68	2,606.79	0.00	0.00	0.00
10,100.00	90.00	359.59	6,829.00	2,684.25	-488.40	2,706.68	0.00	0.00	0.00
10,200.00	90.00	359.59	6,829.00	2,784.25	-489.12	2,806.57	0.00	0.00	0.00
10,300.00	90.00	359.59	6,829.00	2,884.25	-489.84	2,906.46	0.00	0.00	0.00
10,400.00	90.00	359.59	6,829.00	2,984.24	-490.56	3,006.35	0.00	0.00	0.00
10,500.00	90.00	359.59	6,829.00	3,084.24	-491.28	3,106.24	0.00	0.00	0.00
10,600.00	90.00	359.59	6,829.00	3,184.24	-492.00	3,206.13	0.00	0.00	0.00
10,700.00	90.00	359.59	6,829.00	3,284.24	-492.72	3,306.02	0.00	0.00	0.00
10,800.00	90.00	359.59	6,829.00	3,384.23	-493.44	3,405.92	0.00	0.00	0.00
10,900.00	90.00	359.59	6,829.00	3,484.23	-494.16	3,505.81	0.00	0.00	0.00
11,000.00	90.00	359.59	6,829.00	3,584.23	-494.88	3,605.70	0.00	0.00	0.00
11,100.00	90.00	359.59	6,829.00	3,684.22	-495.60	3,705.59	0.00	0.00	0.00
11,200.00	90.00	359.59	6,829.00	3,784.22	-496.32	3,805.48	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,300.00	90.00	359.59	6,829.00	3,884.22	-497.04	3,905.37	0.00	0.00	0.00
11,400.00	90.00	359.59	6,829.00	3,984.22	-497.76	4,005.26	0.00	0.00	0.00
11,500.00	90.00	359.59	6,829.00	4,084.21	-498.48	4,105.15	0.00	0.00	0.00
11,600.00	90.00	359.59	6,829.00	4,184.21	-499.20	4,205.04	0.00	0.00	0.00
11,700.00	90.00	359.59	6,829.00	4,284.21	-499.92	4,304.93	0.00	0.00	0.00
11,800.00	90.00	359.59	6,829.00	4,384.21	-500.64	4,404.82	0.00	0.00	0.00
11,900.00	90.00	359.59	6,829.00	4,484.20	-501.36	4,504.71	0.00	0.00	0.00
12,000.00	90.00	359.59	6,829.00	4,584.20	-502.08	4,604.60	0.00	0.00	0.00
12,100.00	90.00	359.59	6,829.00	4,684.20	-502.80	4,704.50	0.00	0.00	0.00
12,200.00	90.00	359.59	6,829.00	4,784.20	-503.52	4,804.39	0.00	0.00	0.00
12,300.00	90.00	359.59	6,829.00	4,884.19	-504.24	4,904.28	0.00	0.00	0.00
12,400.00	90.00	359.59	6,829.00	4,984.19	-504.96	5,004.17	0.00	0.00	0.00
12,500.00	90.00	359.59	6,829.00	5,084.19	-505.68	5,104.06	0.00	0.00	0.00
12,600.00	90.00	359.59	6,829.00	5,184.19	-506.40	5,203.95	0.00	0.00	0.00
12,700.00	90.00	359.59	6,829.00	5,284.18	-507.12	5,303.84	0.00	0.00	0.00
12,800.00	90.00	359.59	6,829.00	5,384.18	-507.84	5,403.73	0.00	0.00	0.00
12,900.00	90.00	359.59	6,829.00	5,484.18	-508.56	5,503.62	0.00	0.00	0.00
13,000.00	90.00	359.59	6,829.00	5,584.18	-509.27	5,603.51	0.00	0.00	0.00
13,100.00	90.00	359.59	6,829.00	5,684.17	-509.99	5,703.40	0.00	0.00	0.00
13,200.00	90.00	359.59	6,829.00	5,784.17	-510.71	5,803.29	0.00	0.00	0.00
13,300.00	90.00	359.59	6,829.00	5,884.17	-511.43	5,903.18	0.00	0.00	0.00
13,400.00	90.00	359.59	6,829.00	5,984.17	-512.15	6,003.08	0.00	0.00	0.00
13,500.00	90.00	359.59	6,829.00	6,084.16	-512.87	6,102.97	0.00	0.00	0.00
13,600.00	90.00	359.59	6,829.00	6,184.16	-513.59	6,202.86	0.00	0.00	0.00
13,700.00	90.00	359.59	6,829.00	6,284.16	-514.31	6,302.75	0.00	0.00	0.00
13,800.00	90.00	359.59	6,829.00	6,384.15	-515.03	6,402.64	0.00	0.00	0.00
13,900.00	90.00	359.59	6,829.00	6,484.15	-515.75	6,502.53	0.00	0.00	0.00
14,000.00	90.00	359.59	6,829.00	6,584.15	-516.47	6,602.42	0.00	0.00	0.00
14,100.00	90.00	359.59	6,829.00	6,684.15	-517.19	6,702.31	0.00	0.00	0.00
14,200.00	90.00	359.59	6,829.00	6,784.14	-517.91	6,802.20	0.00	0.00	0.00
14,300.00	90.00	359.59	6,829.00	6,884.14	-518.63	6,902.09	0.00	0.00	0.00
14,400.00	90.00	359.59	6,829.00	6,984.14	-519.35	7,001.98	0.00	0.00	0.00
14,500.00	90.00	359.59	6,829.00	7,084.14	-520.07	7,101.87	0.00	0.00	0.00
14,600.00	90.00	359.59	6,829.00	7,184.13	-520.79	7,201.76	0.00	0.00	0.00
14,700.00	90.00	359.59	6,829.00	7,284.13	-521.51	7,301.65	0.00	0.00	0.00
14,800.00	90.00	359.59	6,829.00	7,384.13	-522.23	7,401.55	0.00	0.00	0.00
14,900.00	90.00	359.59	6,829.00	7,484.13	-522.95	7,501.44	0.00	0.00	0.00
15,000.00	90.00	359.59	6,829.00	7,584.12	-523.67	7,601.33	0.00	0.00	0.00
15,100.00	90.00	359.59	6,829.00	7,684.12	-524.39	7,701.22	0.00	0.00	0.00
15,200.00	90.00	359.59	6,829.00	7,784.12	-525.11	7,801.11	0.00	0.00	0.00
15,300.00	90.00	359.59	6,829.00	7,884.12	-525.83	7,901.00	0.00	0.00	0.00
15,400.00	90.00	359.59	6,829.00	7,984.11	-526.55	8,000.89	0.00	0.00	0.00
15,500.00	90.00	359.59	6,829.00	8,084.11	-527.27	8,100.78	0.00	0.00	0.00
15,600.00	90.00	359.59	6,829.00	8,184.11	-527.99	8,200.67	0.00	0.00	0.00
15,700.00	90.00	359.59	6,829.00	8,284.11	-528.71	8,300.56	0.00	0.00	0.00
15,800.00	90.00	359.59	6,829.00	8,384.10	-529.43	8,400.45	0.00	0.00	0.00
15,900.00	90.00	359.59	6,829.00	8,484.10	-530.15	8,500.34	0.00	0.00	0.00
16,000.00	90.00	359.59	6,829.00	8,584.10	-530.87	8,600.23	0.00	0.00	0.00
16,100.00	90.00	359.59	6,829.00	8,684.10	-531.59	8,700.13	0.00	0.00	0.00
16,200.00	90.00	359.59	6,829.00	8,784.09	-532.31	8,800.02	0.00	0.00	0.00
16,300.00	90.00	359.59	6,829.00	8,884.09	-533.03	8,899.91	0.00	0.00	0.00
16,400.00	90.00	359.59	6,829.00	8,984.09	-533.75	8,999.80	0.00	0.00	0.00
16,500.00	90.00	359.59	6,829.00	9,084.09	-534.47	9,099.69	0.00	0.00	0.00
16,600.00	90.00	359.59	6,829.00	9,184.08	-535.19	9,199.58	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,700.00	90.00	359.59	6,829.00	9,284.08	-535.91	9,299.47	0.00	0.00	0.00
16,800.00	90.00	359.59	6,829.00	9,384.08	-536.62	9,399.36	0.00	0.00	0.00
16,900.00	90.00	359.59	6,829.00	9,484.07	-537.34	9,499.25	0.00	0.00	0.00
17,000.00	90.00	359.59	6,829.00	9,584.07	-538.06	9,599.14	0.00	0.00	0.00
17,100.00	90.00	359.59	6,829.00	9,684.07	-538.78	9,699.03	0.00	0.00	0.00
17,200.00	90.00	359.59	6,829.00	9,784.07	-539.50	9,798.92	0.00	0.00	0.00
17,300.00	90.00	359.59	6,829.00	9,884.06	-540.22	9,898.81	0.00	0.00	0.00
17,400.00	90.00	359.59	6,829.00	9,984.06	-540.94	9,998.71	0.00	0.00	0.00
17,438.88	90.00	359.59	6,829.00	10,022.94	-541.22	10,037.54	0.00	0.00	0.00
TD @ 17438.88' MD/6829.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Guttersen C28-775-SI - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,339,901.56	3,262,298.58	40.2626130	-104.5600960
Guttersen C28-775-KI - plan hits target center - Point	0.00	0.00	6,066.64	-745.56	-380.44	1,339,156.00	3,261,918.14	40.2605776	-104.5614874
Guttersen C28-775-TI - plan hits target center - Point	0.00	0.00	6,829.00	-123.03	-468.20	1,339,778.53	3,261,830.38	40.2622889	-104.5617782
Guttersen C28-775-BI - plan hits target center - Point	0.00	0.00	6,829.00	10,022.94	-541.22	1,349,924.48	3,261,757.36	40.2901409	-104.5616552

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
471.00	471.00	Pierre				
604.00	604.00	Upper Pierre Aquifer Top				
1,524.00	1,524.00	Upper Pierre Aquifer Base				
3,629.56	3,603.00	Parkman				
4,045.78	4,008.00	Sussex				
4,613.07	4,560.00	Shannon				
6,031.30	5,940.00	Teepee Buttes				
6,777.68	6,633.00	Sharon Springs				
6,816.36	6,660.00	Top A Chalk				
6,838.98	6,675.00	Top A Marl				
6,865.80	6,692.00	Top B Chalk				
6,935.50	6,732.00	Top B Marl				
7,062.22	6,788.00	Top C Chalk				
7,168.46	6,817.00	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-775
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4754.00ft
Project:	Mustang	MD Reference:	Well @ 4754.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-775		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
2,866.63	2,860.63	-68.78	-35.09	Hold: 13.33° Inc, 207.03° Azm	
6,161.44	6,066.64	-745.56	-380.44	KOP: Build 9°/100' @ 6161.44' MD	
7,292.65	6,829.00	-123.03	-468.20	LP: 7292.65' MD, 90.00° Inc, 359.59° Azm	
17,438.88	6,829.00	10,022.94	-541.22	TD @ 17438.88' MD/6829.00' TVD	

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-775

Guttersen C28-775

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 C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-775	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	17,438.88	Plan #1 (Guttersen C28-775)	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	17,438.88	6,553.01	1,355.22	1,256.44	13.719	CC, ES, SF
NOVACEK C #28-27D - NOVACEK C #28-27D OH - As-	17,438.88	6,880.71	2,919.75	2,803.66	25.152	CC, ES, SF
C Section 27						
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,202.37	7,281.73	4,178.93	4,059.90	35.107	CC
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,500.00	16,500.00	4,189.46	4,046.98	29.404	ES
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,700.00	16,700.00	4,208.43	4,064.69	29.277	SF
C Section 28						
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,478.07	6,954.52	4,148.64	4,072.44	54.448	CC
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,500.00	6,954.73	4,148.69	4,072.36	54.352	ES
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	13,400.00	6,963.41	4,249.83	4,168.91	52.518	SF
HANSCOME #28-4 - Wellbore #1 - No Surveys	16,818.40	6,860.00	464.84	107.79	1.302	Level 3, CC, ES, SF
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,678.64	6,825.00	961.53	614.81	2.773	CC, ES
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,700.00	6,825.00	961.77	614.92	2.773	SF
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,325.44	6,808.00	1,545.73	1,194.63	4.403	CC, ES
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,400.00	6,808.00	1,547.52	1,195.98	4.402	SF
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,400.00	6,838.00	232.33	-120.55	0.658	Level 1, CC
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,400.00	6,838.00	232.33	-120.55	0.658	Level 1, ES, SF
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,094.24	6,839.00	298.98	-43.77	0.872	Level 1, CC, ES, SF
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,142.41	6,823.00	1,495.96	1,153.48	4.368	CC, ES
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,200.00	6,823.00	1,497.07	1,154.23	4.367	SF
HANSCOME C #28-28D - HANSCOME C #28-28D OH -	17,438.88	6,825.80	1,723.07	1,610.99	15.374	CC, ES, SF
HANSCOME C #28-29D - HANSCOME C #28-29D OH -	17,438.88	6,992.62	444.59	342.52	4.356	CC, ES, SF
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,663.24	6,861.00	355.22	7.17	1.021	Level 2, CC, ES, SF
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	16,974.42	6,820.00	959.61	602.92	2.690	CC, ES
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,000.00	6,820.00	959.95	603.12	2.690	SF
NIX #1 - Wellbore #1 - No Surveys	16,853.38	6,755.00	3,554.73	3,201.60	10.066	CC
NIX #1 - Wellbore #1 - No Surveys	16,900.00	6,755.00	3,555.03	3,201.56	10.057	ES
NIX #1 - Wellbore #1 - No Surveys	17,100.00	6,755.00	3,563.27	3,208.47	10.043	SF
NIX #28-814 - Wellbore #1 - No Surveys	15,491.73	6,778.00	3,779.93	3,436.54	11.008	CC
NIX #28-814 - Wellbore #1 - No Surveys	15,500.00	6,778.00	3,779.94	3,436.49	11.006	ES
NIX #28-814 - Wellbore #1 - No Surveys	15,800.00	6,778.00	3,792.48	3,447.01	10.978	SF
NOVACEK #1 - Wellbore #1 - No Surveys	16,976.44	6,789.00	2,284.98	1,929.52	6.428	CC
NOVACEK #1 - Wellbore #1 - No Surveys	17,000.00	6,789.00	2,285.10	1,929.47	6.426	ES
NOVACEK #1 - Wellbore #1 - No Surveys	17,100.00	6,789.00	2,288.32	1,932.07	6.423	SF
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,326.09	6,785.00	2,781.03	2,430.85	7.942	CC, ES

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten C28-775	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 28						
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,500.00	6,785.00	2,786.47	2,435.14	7.931	SF
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,494.04	6,802.00	2,362.67	2,018.30	6.861	CC
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,500.00	6,802.00	2,362.68	2,018.27	6.860	ES
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,600.00	6,802.00	2,365.05	2,019.98	6.854	SF
THOMPSON #1 - Wellbore #1 - As-Drilled	14,321.01	6,718.66	3,590.59	3,502.18	40.612	CC, ES
THOMPSON #1 - Wellbore #1 - As-Drilled	15,000.00	6,708.62	3,654.22	3,561.88	39.577	SF
THOMPSON #2 - Wellbore #1 - No Surveys	14,359.78	6,828.00	924.20	587.53	2.745	CC, ES, SF
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,353.26	6,829.00	2,204.82	1,868.16	6.549	CC, ES
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,400.00	6,829.00	2,205.32	1,868.34	6.544	SF
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,307.94	6,853.00	395.29	58.02	1.172	Level 2, CC, ES, SF
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,026.41	6,831.00	906.44	579.68	2.774	CC, ES, SF
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,032.09	6,823.00	3,590.53	3,264.05	10.998	CC, ES
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,300.00	6,823.00	3,600.51	3,272.25	10.969	SF
THOMPSON #3 - Wellbore #1 - No Surveys	13,025.65	6,826.00	390.97	64.42	1.197	Level 2, CC, ES, SF
THOMPSON #4 - Wellbore #1 - No Surveys	12,965.58	6,831.00	2,279.40	1,953.08	6.985	CC, ES
THOMPSON #4 - Wellbore #1 - No Surveys	13,100.00	6,831.00	2,283.36	1,956.20	6.979	SF
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,322.34	6,925.74	1,101.67	1,027.66	14.887	CC, ES
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,400.00	6,926.06	1,104.40	1,030.00	14.843	SF
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,842.28	6,802.00	2,976.22	2,636.89	8.771	CC, ES
THOMPSON C #28-22 - Wellbore #1 - No Surveys	15,000.00	6,802.00	2,980.39	2,640.00	8.756	SF
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,766.00	6,820.00	2,930.05	2,598.20	8.830	CC
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,800.00	6,820.00	2,930.24	2,598.16	8.824	ES
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,900.00	6,820.00	2,933.11	2,600.36	8.815	SF
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,575.55	6,836.00	1,691.36	1,360.31	5.109	CC, ES
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,600.00	6,836.00	1,691.54	1,360.32	5.107	SF
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,690.99	6,843.00	298.72	-33.48	0.899	Level 1, CC, ES, SF
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,527.39	10,309.28	926.20	772.42	6.023	CC
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,600.00	10,357.27	927.16	771.93	5.973	ES
Thompson C28-79HN - Thompson C28-79HN OH - Origi	17,200.00	10,884.02	954.29	785.72	5.661	SF
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,445.15	7,111.82	125.36	67.13	2.153	CC, ES, SF
C Section 32						
Becker #1 - Wellbore #1 - Plan #1	6,996.97	6,876.39	5,924.66	5,875.64	120.866	CC
Becker #1 - Wellbore #1 - Plan #1	17,438.88	17,647.88	5,936.89	5,758.16	33.217	ES, SF
Becker #2 - Wellbore #1 - Plan #1	7,288.85	7,538.81	5,269.62	5,219.29	104.690	CC
Becker #2 - Wellbore #1 - Plan #1	17,438.88	17,664.97	5,284.18	5,105.49	29.573	ES, SF
Becker #3 - Wellbore #1 - Plan #1	7,292.65	7,656.77	4,616.96	4,565.90	90.415	CC
Becker #3 - Wellbore #1 - Plan #1	17,438.88	17,776.56	4,631.51	4,453.02	25.948	ES, SF
Becker #4 - Wellbore #1 - Plan #1	7,286.34	7,869.83	3,964.89	3,912.74	76.034	CC
Becker #4 - Wellbore #1 - Plan #1	17,438.88	18,007.80	3,978.90	3,800.24	22.270	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 Gutteresen C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutteresen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen C28-775	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						
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,051.05	7,058.36	1,109.11	1,033.42	14.654	CC, ES
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,200.00	7,060.59	1,119.06	1,042.16	14.552	SF
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,574.45	6,839.00	797.93	494.15	2.627	CC, ES, SF
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	8,411.33	7,015.40	1,103.45	1,045.28	18.969	CC, ES, SF
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	2,200.00	2,194.00	2,106.18	2,090.90	137.792	CC, ES
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	17,438.88	17,593.45	3,894.47	3,715.80	21.797	SF
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	2,200.00	2,192.00	2,083.86	2,068.58	136.395	CC, ES
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	17,438.88	17,548.18	3,247.09	3,067.56	18.087	SF
Gutteresen C28-735 - Gutteresen C28-735 - Plan #1	2,200.00	2,191.00	2,061.25	2,045.98	134.947	CC, ES
Gutteresen C28-735 - Gutteresen C28-735 - Plan #1	17,438.88	17,456.53	2,596.31	2,416.80	14.463	SF
Gutteresen C28-745 - Gutteresen C28-745 - Plan #1	6,298.76	6,525.95	1,939.00	1,893.06	42.201	CC
Gutteresen C28-745 - Gutteresen C28-745 - Plan #1	17,438.88	17,344.60	1,949.36	1,770.81	10.918	ES, SF
Gutteresen C28-750 - Gutteresen C28-750 - Plan #1	17,438.88	17,560.35	1,624.72	1,445.41	9.061	CC, ES, SF
Gutteresen C28-755 - Gutteresen C28-755 - Plan #1	2,200.00	2,199.00	67.26	51.96	4.395	CC, ES
Gutteresen C28-755 - Gutteresen C28-755 - Plan #1	2,300.00	2,297.55	69.09	53.12	4.324	SF
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	2,200.00	2,199.00	44.93	29.63	2.936	CC, ES
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	2,300.00	2,298.75	45.99	30.01	2.878	SF
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,200.00	2,199.00	22.33	7.03	1.459	Level 3, CC
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,300.00	2,299.13	22.82	6.84	1.428	Level 3, ES, SF
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	2,200.00	2,200.00	22.61	7.30	1.477	Level 3, CC
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	2,300.00	2,299.40	23.15	7.16	1.448	Level 3, ES, SF
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,200.00	2,160.00	609.00	516.94	6.616	CC
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,300.00	2,259.98	610.53	514.14	6.334	ES
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,751.72	6,789.00	974.71	679.84	3.306	SF
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	1,131.86	1,095.89	1,829.44	1,821.95	244.311	CC
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	2,200.00	2,158.39	1,833.10	1,818.09	122.074	ES
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	8,000.00	6,788.66	2,251.74	2,202.32	45.565	SF
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,400.05	6,804.00	957.28	649.76	3.113	CC, ES, SF
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,411.93	6,804.00	2,288.27	1,980.68	7.439	CC, ES
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,500.00	6,804.00	2,289.97	1,981.87	7.433	SF
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,085.91	6,781.00	2,290.09	1,990.81	7.652	CC
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,100.00	6,781.00	2,290.14	1,990.79	7.651	ES
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,200.00	6,781.00	2,292.93	1,993.14	7.648	SF
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,081.34	6,404.00	964.58	680.41	3.394	CC, ES
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,100.00	6,404.00	964.76	680.51	3.394	SF
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,718.76	6,804.00	952.76	636.50	3.013	CC, ES, SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,719.65	6,807.00	2,266.99	1,950.59	7.165	CC, ES
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,800.00	6,807.00	2,268.41	1,951.51	7.158	SF
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,754.21	6,820.00	409.01	91.86	1.290	Level 3, CC, ES, SF
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,468.34	6,821.14	448.19	386.69	7.287	CC, ES
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,500.00	6,821.79	449.31	387.60	7.281	SF
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,080.53	6,807.00	346.99	46.70	1.156	Level 2, CC, ES, SF
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	7,763.23	6,808.14	388.29	339.27	7.922	CC, ES, SF
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,714.06	6,806.00	3,584.58	3,268.26	11.332	CC, ES
LINDSAY #C33-14 - Wellbore #1 - No Surveys	12,000.00	6,806.00	3,595.96	3,277.83	11.303	SF
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,399.37	6,808.00	3,590.89	3,283.42	11.679	CC
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,400.00	6,808.00	3,590.89	3,283.41	11.679	ES
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,600.00	6,808.00	3,596.49	3,287.84	11.652	SF
LINDSAY #C33-16 - Wellbore #1 - No Surveys	2,200.00	2,150.00	3,148.14	3,056.49	34.348	CC
LINDSAY #C33-16 - Wellbore #1 - No Surveys	2,400.00	2,349.84	3,152.11	3,051.80	31.423	ES
LINDSAY #C33-16 - Wellbore #1 - No Surveys	7,900.00	6,779.00	3,593.39	3,298.59	12.189	SF
LINDSAY #C33-9 - Wellbore #1 - No Surveys	2,200.00	2,145.00	3,561.22	3,469.76	38.940	CC
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,126.90	6,774.00	3,590.36	3,291.16	12.000	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 C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-775	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 #C33-9 - Wellbore #1 - No Surveys	9,300.00	6,774.00	3,594.53	3,294.52	11.981	SF
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,057.30	6,805.00	2,767.65	2,455.85	8.876	CC, ES
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,200.00	6,805.00	2,771.32	2,458.66	8.864	SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,000.00	6,929.71	1,594.88	1,460.43	11.862	SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,062.03	6,929.83	1,593.68	1,459.37	11.866	CC, ES
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,002.21	6,813.00	204.61	107.14	0.656	Level 1, CC, ES, SF
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,550.85	6,809.00	307.20	4.43	1.015	Level 2, CC, ES, SF
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,572.85	6,808.00	1,623.70	1,320.85	5.361	CC, ES
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,600.00	6,808.00	1,623.92	1,320.94	5.360	SF
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,585.39	6,789.00	2,927.11	2,624.95	9.688	CC
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,600.00	6,789.00	2,927.14	2,624.92	9.685	ES
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,700.00	6,789.00	2,929.35	2,626.61	9.676	SF
LINDSAY C #33-23 - Wellbore #1 - No Surveys	2,200.00	2,149.00	2,631.20	2,539.59	28.721	CC
LINDSAY C #33-23 - Wellbore #1 - No Surveys	2,400.00	2,348.84	2,636.53	2,536.26	26.294	ES
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,500.00	6,778.00	2,904.97	2,608.34	9.793	SF
LINDSAY C #33-24 - Wellbore #1 - No Surveys	2,200.00	2,160.00	1,500.08	1,408.02	16.296	CC
LINDSAY C #33-24 - Wellbore #1 - No Surveys	8,401.20	6,789.00	1,597.04	1,300.32	5.382	ES, SF
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,329.94	6,801.00	361.02	64.06	1.216	Level 3, CC, ES, SF
C Section 34						
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	8,270.79	10,570.00	4,797.48	4,739.34	82.520	CC
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	8,300.00	10,570.00	4,797.57	4,739.01	81.929	ES
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	11,800.00	10,570.00	5,955.76	5,840.03	51.461	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 04						
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,210.39	6,117.96	3,530.39	3,486.83	81.043	CC, ES
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,650.00	6,519.04	3,617.53	3,571.26	78.174	SF
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	5,477.83	5,350.61	3,801.41	3,763.36	99.913	CC
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	5,900.00	5,757.87	3,803.45	3,762.35	92.523	ES
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,750.00	6,554.00	3,924.44	3,877.81	84.166	SF
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,201.17	6,096.14	5,227.57	5,179.10	107.861	CC, ES
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,600.00	6,513.00	5,304.24	5,253.37	104.283	SF
Guttersen D04-30D - Plan B - Plan B	7,173.74	6,868.53	1,075.75	1,027.82	22.446	CC, ES
Guttersen D04-30D - Plan B - Plan B	7,200.00	6,873.00	1,076.12	1,028.12	22.421	SF
Guttersen D04-31D - Plan B - Plan B	924.25	929.21	1,328.95	1,323.93	264.421	CC, ES
Guttersen D04-31D - Plan B - Plan B	6,500.00	6,611.84	1,480.88	1,433.75	31.420	SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,150.00	7,204.25	38.51	0.81	1.021	Level 2, ES, SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,169.82	7,203.83	33.33	9.23	1.383	Level 3, CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	3,707.52	3,639.54	2,102.93	2,077.55	82.850	CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	3,800.00	3,719.27	2,103.26	2,077.26	80.890	ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,750.00	6,470.03	2,414.03	2,367.64	52.038	SF
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,195.50	6,034.99	2,720.71	2,677.48	62.929	CC
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,200.00	6,039.40	2,720.72	2,677.46	62.881	ES
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,550.00	6,379.79	2,780.27	2,734.69	60.996	SF
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	3,515.39	3,411.73	2,959.35	2,935.47	123.927	CC
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	4,700.00	4,604.60	2,960.74	2,928.27	91.200	ES
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,750.00	6,596.70	3,104.62	3,057.81	66.333	SF
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,196.71	6,008.22	4,493.70	4,450.57	104.189	CC
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,200.00	6,011.22	4,493.70	4,450.55	104.133	ES
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,750.00	6,614.04	4,636.04	4,589.25	99.091	SF
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,240.02	6,105.48	3,750.09	3,706.52	86.080	CC
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,250.00	6,116.82	3,750.15	3,706.51	85.931	ES
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,600.00	6,465.40	3,828.68	3,782.80	83.449	SF
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,250.64	6,080.64	4,723.52	4,680.07	108.713	CC, ES
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,650.00	6,450.47	4,831.99	4,786.13	105.370	SF
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,240.34	6,142.33	5,378.04	5,334.31	122.998	CC
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,250.00	6,151.09	5,378.09	5,334.30	122.811	ES
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,700.00	6,522.88	5,502.19	5,455.86	118.762	SF
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,245.30	6,161.64	4,530.88	4,487.08	103.446	CC
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,250.00	6,164.55	4,530.90	4,487.07	103.379	ES
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,650.00	6,491.45	4,630.74	4,584.62	100.416	SF
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,465.31	11,395.00	3,898.07	3,789.90	36.034	CC
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,500.00	11,395.00	3,898.26	3,789.85	35.959	ES
Marie D04-72-1HN - Original Drilling - Original Drilling - A	7,000.00	11,395.00	3,938.37	3,827.33	35.467	SF
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,452.34	11,120.00	3,083.83	2,976.56	28.750	CC, ES
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,700.00	11,120.00	3,095.28	2,986.73	28.515	SF
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,252.37	6,135.84	5,386.09	5,344.67	130.031	CC, ES
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,750.00	6,639.41	5,546.00	5,501.60	124.888	SF
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,548.42	11,217.00	2,584.39	2,520.38	40.375	CC
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,550.00	11,217.00	2,584.39	2,520.37	40.371	ES
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,750.00	11,217.00	2,593.99	2,529.38	40.147	SF
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	1,808.63	1,758.70	2,986.90	2,974.68	244.282	CC
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	2,200.00	2,137.57	2,988.13	2,973.18	199.848	ES
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	7,050.00	6,747.85	3,338.48	3,290.68	69.844	SF

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

Noble Energy, Inc.

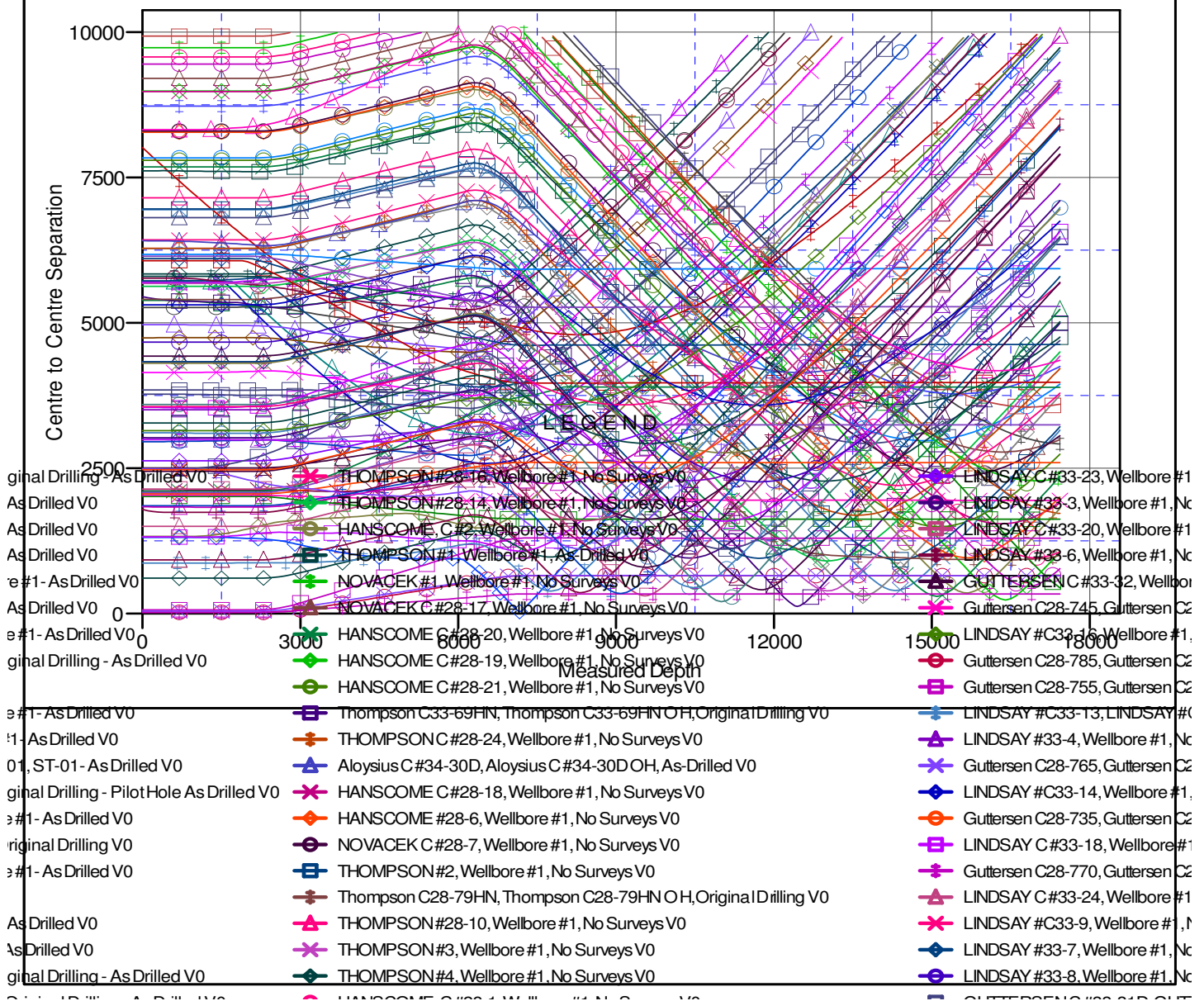
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4754.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-775
 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

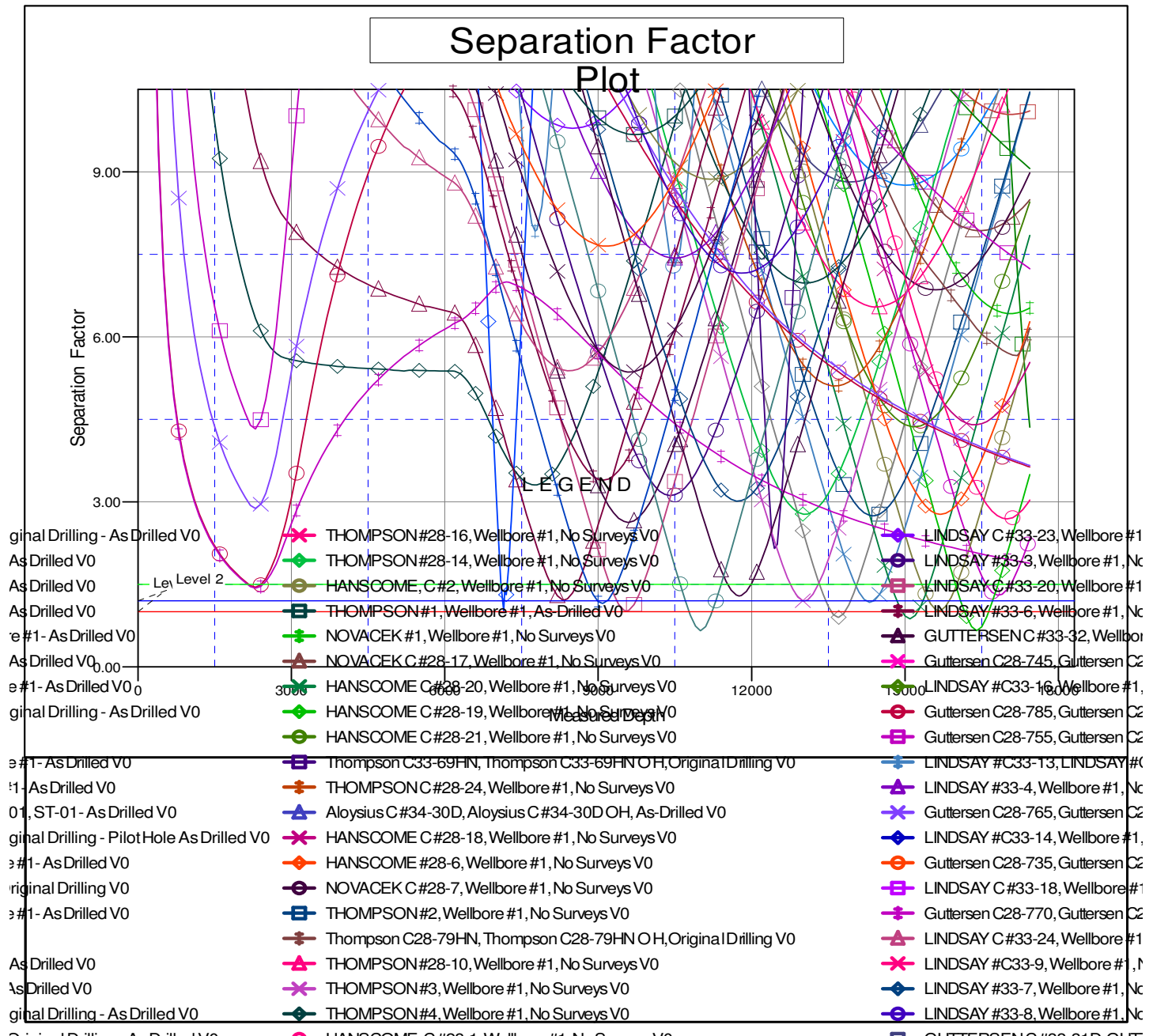
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-775
Project:	Mustang	TVD Reference:	Well @ 4754.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4754.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4754.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-775
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