

Project: Mustang
 Site: C Section 33
 Well: Guttersen C28-785
 Wellbore: Guttersen C28-785
 Design: Plan #1

Northern Region - DJ Basin

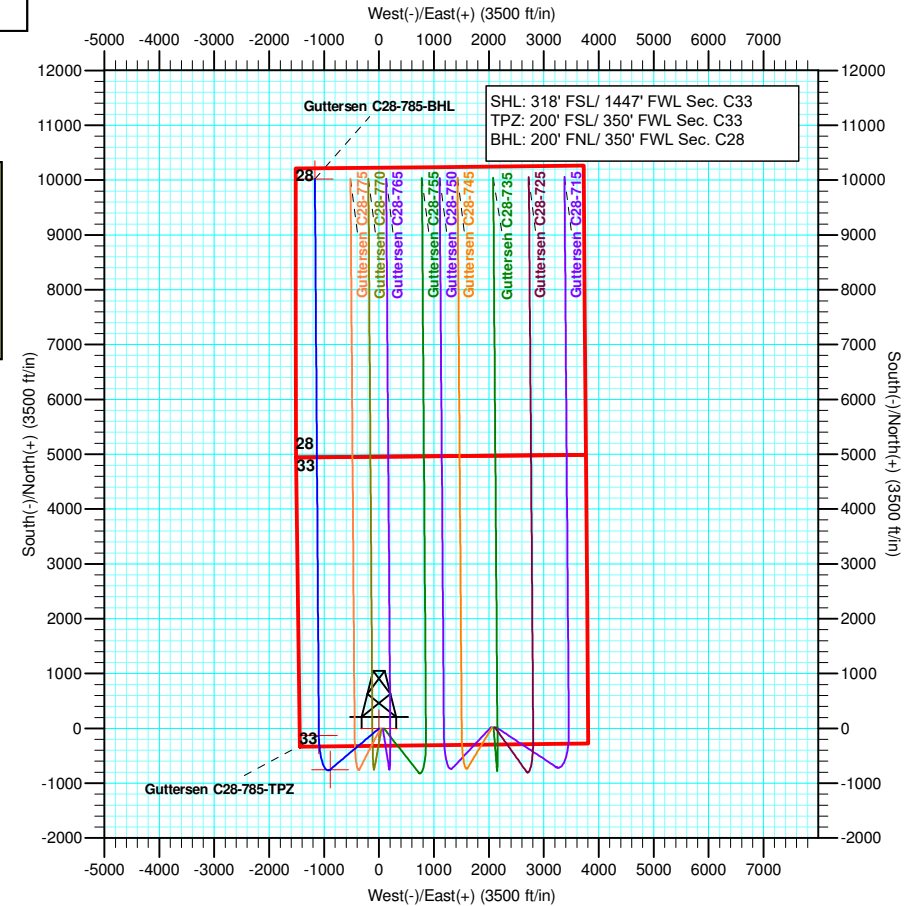
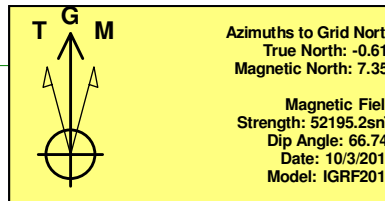
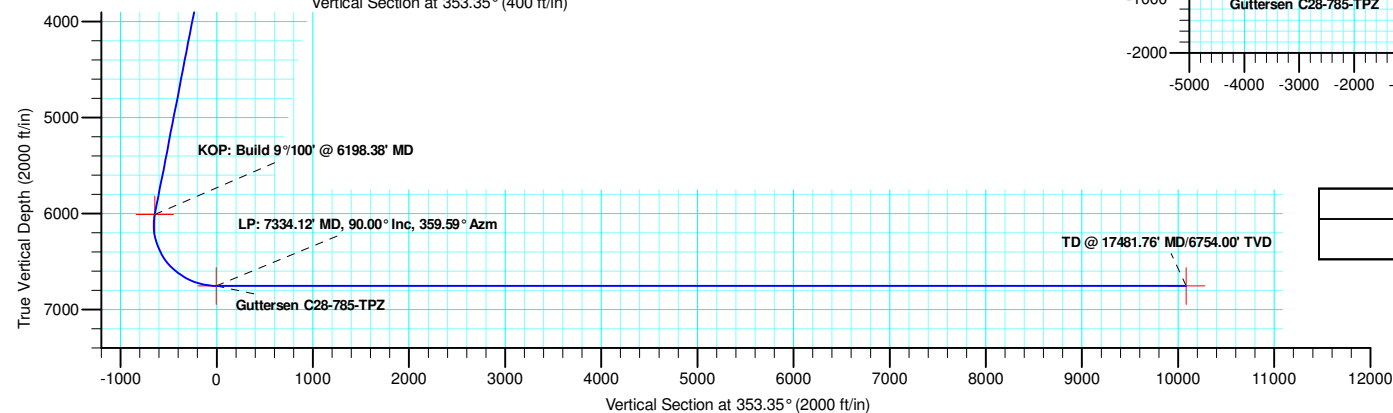
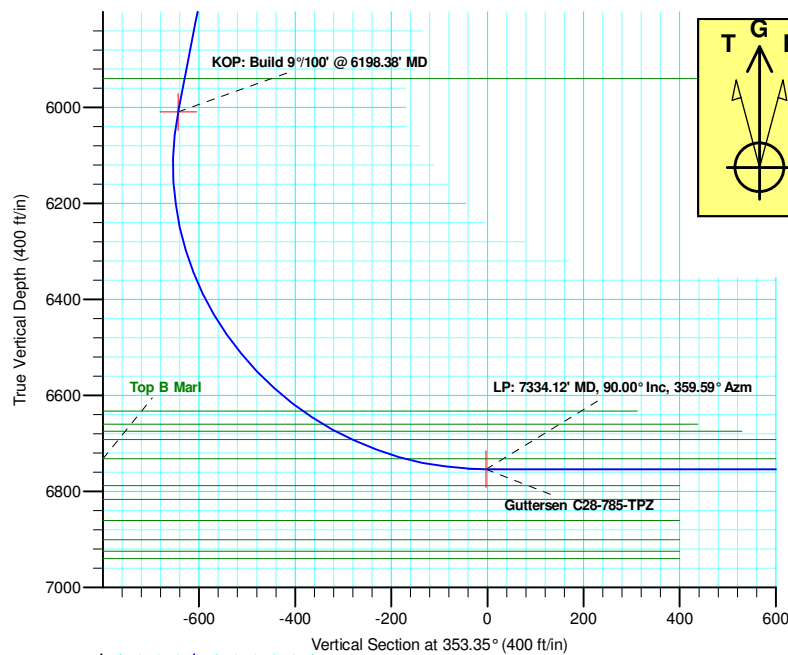
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	3166.39	19.33	229.85	3148.17	-104.11	-123.41	2.00	229.85	-89.12	
4	6198.38	19.33	229.85	6009.27	-751.20	-890.42	0.00	0.00	-643.05	
5	7334.12	90.00	359.59	6754.00	-130.44	-1095.67	9.09	128.12	-2.70	Guttersen C28-785-TPZ
6	17481.76	90.00	359.59	6754.00	10016.94	-1167.67	0.00	0.00	10084.77	Guttersen C28-785-BHL

WELL DETAILS: Guttersen C28-785

+N/-S	+E/-W	Northing	Ground Level: Easting	4724.00 Latitude	Longitude	Slot
0.00	0.00	1339901.69	3262275.97	40.2626140	-104.5601770	



Plan: Plan #1 (Guttersen C28-785/Guttersen C28-785)

Created By: Keith Noack Date: 13:47, October 04 2018

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-785

Guttersen C28-785

Plan: Plan #1

Standard Planning Report

04 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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 C28-785					
Well Position	+N/-S	0.00 ft	Northing:	1,339,901.69 usft	Latitude:	40.2626140
	+E/-W	0.00 ft	Easting:	3,262,275.97 usft	Longitude:	-104.5601770
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,724.00 ft

Wellbore	Guttersen C28-785				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2018	7.95	66.74	52,195.23585392

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	353.35

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,166.39	19.33	229.85	3,148.17	-104.11	-123.41	2.00	2.00	0.00	229.85	
6,198.38	19.33	229.85	6,009.27	-751.20	-890.42	0.00	0.00	0.00	0.00	
7,334.12	90.00	359.59	6,754.00	-130.44	-1,095.67	9.00	6.22	11.42	128.12	Guttersen C28-785
17,481.76	90.00	359.59	6,754.00	10,016.94	-1,167.67	0.00	0.00	0.00	0.00	Guttersen C28-785

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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	229.85	2,299.98	-1.13	-1.33	-0.96	2.00	2.00	0.00
2,400.00	4.00	229.85	2,399.84	-4.50	-5.33	-3.85	2.00	2.00	0.00
2,500.00	6.00	229.85	2,499.45	-10.12	-12.00	-8.66	2.00	2.00	0.00
2,600.00	8.00	229.85	2,598.70	-17.98	-21.31	-15.39	2.00	2.00	0.00
2,700.00	10.00	229.85	2,697.47	-28.06	-33.27	-24.02	2.00	2.00	0.00
2,800.00	12.00	229.85	2,795.62	-40.37	-47.85	-34.56	2.00	2.00	0.00
2,900.00	14.00	229.85	2,893.06	-54.87	-65.04	-46.97	2.00	2.00	0.00
3,000.00	16.00	229.85	2,989.64	-71.56	-84.82	-61.26	2.00	2.00	0.00
3,100.00	18.00	229.85	3,085.27	-90.41	-107.17	-77.40	2.00	2.00	0.00
3,166.39	19.33	229.85	3,148.17	-104.11	-123.41	-89.12	2.00	2.00	0.00
Hold: 19.33° Inc, 229.85° Azm									
3,200.00	19.33	229.85	3,179.88	-111.29	-131.91	-95.26	0.00	0.00	0.00
3,300.00	19.33	229.85	3,274.25	-132.63	-157.21	-113.53	0.00	0.00	0.00
3,400.00	19.33	229.85	3,368.61	-153.97	-182.50	-131.80	0.00	0.00	0.00
3,500.00	19.33	229.85	3,462.97	-175.31	-207.80	-150.07	0.00	0.00	0.00
3,600.00	19.33	229.85	3,557.34	-196.65	-233.10	-168.34	0.00	0.00	0.00
3,648.39	19.33	229.85	3,603.00	-206.98	-245.34	-177.18	0.00	0.00	0.00
Parkman									
3,700.00	19.33	229.85	3,651.70	-218.00	-258.40	-186.61	0.00	0.00	0.00
3,800.00	19.33	229.85	3,746.07	-239.34	-283.69	-204.88	0.00	0.00	0.00
3,900.00	19.33	229.85	3,840.43	-260.68	-308.99	-223.15	0.00	0.00	0.00
4,000.00	19.33	229.85	3,934.79	-282.02	-334.29	-241.42	0.00	0.00	0.00
4,077.58	19.33	229.85	4,008.00	-298.58	-353.91	-255.59	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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	19.33	229.85	4,029.16	-303.36	-359.59	-259.69	0.00	0.00	0.00
4,200.00	19.33	229.85	4,123.52	-324.71	-384.88	-277.96	0.00	0.00	0.00
4,300.00	19.33	229.85	4,217.89	-346.05	-410.18	-296.23	0.00	0.00	0.00
4,400.00	19.33	229.85	4,312.25	-367.39	-435.48	-314.50	0.00	0.00	0.00
4,500.00	19.33	229.85	4,406.61	-388.73	-460.78	-332.77	0.00	0.00	0.00
4,600.00	19.33	229.85	4,500.98	-410.07	-486.07	-351.04	0.00	0.00	0.00
4,662.55	19.33	229.85	4,560.00	-423.42	-501.90	-362.46	0.00	0.00	0.00
Shannon									
4,700.00	19.33	229.85	4,595.34	-431.42	-511.37	-369.30	0.00	0.00	0.00
4,800.00	19.33	229.85	4,689.71	-452.76	-536.67	-387.57	0.00	0.00	0.00
4,900.00	19.33	229.85	4,784.07	-474.10	-561.96	-405.84	0.00	0.00	0.00
5,000.00	19.33	229.85	4,878.43	-495.44	-587.26	-424.11	0.00	0.00	0.00
5,100.00	19.33	229.85	4,972.80	-516.78	-612.56	-442.38	0.00	0.00	0.00
5,200.00	19.33	229.85	5,067.16	-538.13	-637.86	-460.65	0.00	0.00	0.00
5,300.00	19.33	229.85	5,161.53	-559.47	-663.15	-478.92	0.00	0.00	0.00
5,400.00	19.33	229.85	5,255.89	-580.81	-688.45	-497.19	0.00	0.00	0.00
5,500.00	19.33	229.85	5,350.25	-602.15	-713.75	-515.46	0.00	0.00	0.00
5,600.00	19.33	229.85	5,444.62	-623.49	-739.05	-533.73	0.00	0.00	0.00
5,700.00	19.33	229.85	5,538.98	-644.84	-764.34	-552.00	0.00	0.00	0.00
5,800.00	19.33	229.85	5,633.35	-666.18	-789.64	-570.27	0.00	0.00	0.00
5,900.00	19.33	229.85	5,727.71	-687.52	-814.94	-588.54	0.00	0.00	0.00
6,000.00	19.33	229.85	5,822.07	-708.86	-840.23	-606.81	0.00	0.00	0.00
6,100.00	19.33	229.85	5,916.44	-730.20	-865.53	-625.08	0.00	0.00	0.00
6,124.97	19.33	229.85	5,940.00	-735.53	-871.85	-629.64	0.00	0.00	0.00
Teepee Buttes									
6,198.38	19.33	229.85	6,009.27	-751.20	-890.42	-643.05	0.00	0.00	0.00
KOP: Build 9°/100' @ 6198.38' MD									
6,200.00	19.24	230.20	6,010.80	-751.54	-890.83	-643.34	9.00	-5.54	21.49
6,250.00	16.85	242.55	6,058.36	-760.16	-903.59	-650.43	9.00	-4.78	24.71
6,300.00	15.39	257.95	6,106.41	-764.89	-916.52	-653.62	9.00	-2.90	30.80
6,350.00	15.16	275.07	6,154.67	-765.70	-929.53	-652.92	9.00	-0.47	34.23
6,400.00	16.19	291.34	6,202.83	-762.58	-942.54	-648.32	9.00	2.06	32.54
6,450.00	18.28	304.85	6,250.61	-755.56	-955.47	-639.85	9.00	4.17	27.02
6,500.00	21.11	315.27	6,297.69	-744.68	-968.25	-627.56	9.00	5.66	20.85
6,550.00	24.42	323.16	6,343.80	-730.01	-980.79	-611.53	9.00	6.63	15.77
6,600.00	28.05	329.19	6,388.65	-711.63	-993.01	-591.86	9.00	7.26	12.06
6,650.00	31.89	333.91	6,431.96	-689.66	-1,004.85	-568.67	9.00	7.67	9.43
6,700.00	35.87	337.69	6,473.47	-664.23	-1,016.23	-542.10	9.00	7.95	7.57
6,750.00	39.94	340.80	6,512.92	-635.51	-1,027.07	-512.32	9.00	8.15	6.23
6,800.00	44.08	343.43	6,550.06	-603.66	-1,037.31	-479.50	9.00	8.29	5.24
6,850.00	48.28	345.68	6,584.68	-568.90	-1,046.89	-443.85	9.00	8.39	4.51
6,900.00	52.52	347.66	6,616.54	-531.42	-1,055.75	-405.60	9.00	8.47	3.95
6,927.80	54.88	348.66	6,633.00	-509.49	-1,060.35	-383.29	9.00	8.52	3.61
Sharon Springs									
6,950.00	56.78	349.42	6,645.47	-491.46	-1,063.84	-364.98	9.00	8.54	3.42
6,977.39	59.13	350.31	6,660.00	-468.61	-1,067.92	-341.81	9.00	8.56	3.26
Top A Chalk									
7,000.00	61.07	351.02	6,671.27	-449.27	-1,071.10	-322.23	9.00	8.58	3.12
7,007.79	61.74	351.26	6,675.00	-442.51	-1,072.15	-315.40	9.00	8.60	3.04
Top A Marl									
7,045.72	65.00	352.37	6,692.00	-408.96	-1,076.97	-281.51	9.00	8.61	2.93
Top B Chalk									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,050.00	65.37	352.49	6,693.80	-405.10	-1,077.48	-277.62	9.00	8.62	2.84
7,100.00	69.69	353.86	6,712.90	-359.24	-1,082.96	-231.43	9.00	8.64	2.75
7,150.00	74.02	355.16	6,728.48	-311.95	-1,087.50	-183.94	9.00	8.66	2.60
7,163.27	75.17	355.50	6,732.00	-299.20	-1,088.54	-171.16	9.00	8.67	2.52
Top B Marl									
7,200.00	78.35	356.41	6,740.41	-263.54	-1,091.06	-135.44	9.00	8.67	2.47
7,250.00	82.69	357.61	6,748.65	-214.30	-1,093.63	-86.24	9.00	8.68	2.41
7,300.00	87.03	358.79	6,753.12	-164.54	-1,095.19	-36.63	9.00	8.69	2.36
7,334.12	90.00	359.59	6,754.00	-130.44	-1,095.67	-2.70	9.00	8.69	2.35
LP: 7334.12' MD, 90.00° Inc, 359.59° Azm									
7,400.00	90.00	359.59	6,754.00	-64.56	-1,096.14	62.79	0.00	0.00	0.00
7,500.00	90.00	359.59	6,754.00	35.43	-1,096.85	162.19	0.00	0.00	0.00
7,600.00	90.00	359.59	6,754.00	135.43	-1,097.56	261.60	0.00	0.00	0.00
7,700.00	90.00	359.59	6,754.00	235.43	-1,098.26	361.01	0.00	0.00	0.00
7,800.00	90.00	359.59	6,754.00	335.43	-1,098.97	460.42	0.00	0.00	0.00
7,900.00	90.00	359.59	6,754.00	435.42	-1,099.68	559.82	0.00	0.00	0.00
8,000.00	90.00	359.59	6,754.00	535.42	-1,100.39	659.23	0.00	0.00	0.00
8,100.00	90.00	359.59	6,754.00	635.42	-1,101.10	758.64	0.00	0.00	0.00
8,200.00	90.00	359.59	6,754.00	735.42	-1,101.81	858.04	0.00	0.00	0.00
8,300.00	90.00	359.59	6,754.00	835.41	-1,102.52	957.45	0.00	0.00	0.00
8,400.00	90.00	359.59	6,754.00	935.41	-1,103.23	1,056.86	0.00	0.00	0.00
8,500.00	90.00	359.59	6,754.00	1,035.41	-1,103.94	1,156.27	0.00	0.00	0.00
8,600.00	90.00	359.59	6,754.00	1,135.41	-1,104.65	1,255.67	0.00	0.00	0.00
8,700.00	90.00	359.59	6,754.00	1,235.40	-1,105.36	1,355.08	0.00	0.00	0.00
8,800.00	90.00	359.59	6,754.00	1,335.40	-1,106.07	1,454.49	0.00	0.00	0.00
8,900.00	90.00	359.59	6,754.00	1,435.40	-1,106.78	1,553.89	0.00	0.00	0.00
9,000.00	90.00	359.59	6,754.00	1,535.40	-1,107.49	1,653.30	0.00	0.00	0.00
9,100.00	90.00	359.59	6,754.00	1,635.39	-1,108.20	1,752.71	0.00	0.00	0.00
9,200.00	90.00	359.59	6,754.00	1,735.39	-1,108.91	1,852.11	0.00	0.00	0.00
9,300.00	90.00	359.59	6,754.00	1,835.39	-1,109.62	1,951.52	0.00	0.00	0.00
9,400.00	90.00	359.59	6,754.00	1,935.39	-1,110.33	2,050.93	0.00	0.00	0.00
9,500.00	90.00	359.59	6,754.00	2,035.38	-1,111.04	2,150.34	0.00	0.00	0.00
9,600.00	90.00	359.59	6,754.00	2,135.38	-1,111.75	2,249.74	0.00	0.00	0.00
9,700.00	90.00	359.59	6,754.00	2,235.38	-1,112.46	2,349.15	0.00	0.00	0.00
9,800.00	90.00	359.59	6,754.00	2,335.38	-1,113.16	2,448.56	0.00	0.00	0.00
9,900.00	90.00	359.59	6,754.00	2,435.37	-1,113.87	2,547.96	0.00	0.00	0.00
10,000.00	90.00	359.59	6,754.00	2,535.37	-1,114.58	2,647.37	0.00	0.00	0.00
10,100.00	90.00	359.59	6,754.00	2,635.37	-1,115.29	2,746.78	0.00	0.00	0.00
10,200.00	90.00	359.59	6,754.00	2,735.37	-1,116.00	2,846.19	0.00	0.00	0.00
10,300.00	90.00	359.59	6,754.00	2,835.36	-1,116.71	2,945.59	0.00	0.00	0.00
10,400.00	90.00	359.59	6,754.00	2,935.36	-1,117.42	3,045.00	0.00	0.00	0.00
10,500.00	90.00	359.59	6,754.00	3,035.36	-1,118.13	3,144.41	0.00	0.00	0.00
10,600.00	90.00	359.59	6,754.00	3,135.36	-1,118.84	3,243.81	0.00	0.00	0.00
10,700.00	90.00	359.59	6,754.00	3,235.35	-1,119.55	3,343.22	0.00	0.00	0.00
10,800.00	90.00	359.59	6,754.00	3,335.35	-1,120.26	3,442.63	0.00	0.00	0.00
10,900.00	90.00	359.59	6,754.00	3,435.35	-1,120.97	3,542.04	0.00	0.00	0.00
11,000.00	90.00	359.59	6,754.00	3,535.35	-1,121.68	3,641.44	0.00	0.00	0.00
11,100.00	90.00	359.59	6,754.00	3,635.34	-1,122.39	3,740.85	0.00	0.00	0.00
11,200.00	90.00	359.59	6,754.00	3,735.34	-1,123.10	3,840.26	0.00	0.00	0.00
11,300.00	90.00	359.59	6,754.00	3,835.34	-1,123.81	3,939.66	0.00	0.00	0.00
11,400.00	90.00	359.59	6,754.00	3,935.34	-1,124.52	4,039.07	0.00	0.00	0.00
11,500.00	90.00	359.59	6,754.00	4,035.33	-1,125.23	4,138.48	0.00	0.00	0.00
11,600.00	90.00	359.59	6,754.00	4,135.33	-1,125.94	4,237.88	0.00	0.00	0.00
11,700.00	90.00	359.59	6,754.00	4,235.33	-1,126.65	4,337.29	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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)
11,800.00	90.00	359.59	6,754.00	4,335.33	-1,127.36	4,436.70	0.00	0.00	0.00
11,900.00	90.00	359.59	6,754.00	4,435.32	-1,128.06	4,536.11	0.00	0.00	0.00
12,000.00	90.00	359.59	6,754.00	4,535.32	-1,128.77	4,635.51	0.00	0.00	0.00
12,100.00	90.00	359.59	6,754.00	4,635.32	-1,129.48	4,734.92	0.00	0.00	0.00
12,200.00	90.00	359.59	6,754.00	4,735.32	-1,130.19	4,834.33	0.00	0.00	0.00
12,300.00	90.00	359.59	6,754.00	4,835.31	-1,130.90	4,933.73	0.00	0.00	0.00
12,400.00	90.00	359.59	6,754.00	4,935.31	-1,131.61	5,033.14	0.00	0.00	0.00
12,500.00	90.00	359.59	6,754.00	5,035.31	-1,132.32	5,132.55	0.00	0.00	0.00
12,600.00	90.00	359.59	6,754.00	5,135.31	-1,133.03	5,231.96	0.00	0.00	0.00
12,700.00	90.00	359.59	6,754.00	5,235.30	-1,133.74	5,331.36	0.00	0.00	0.00
12,800.00	90.00	359.59	6,754.00	5,335.30	-1,134.45	5,430.77	0.00	0.00	0.00
12,900.00	90.00	359.59	6,754.00	5,435.30	-1,135.16	5,530.18	0.00	0.00	0.00
13,000.00	90.00	359.59	6,754.00	5,535.30	-1,135.87	5,629.58	0.00	0.00	0.00
13,100.00	90.00	359.59	6,754.00	5,635.29	-1,136.58	5,728.99	0.00	0.00	0.00
13,200.00	90.00	359.59	6,754.00	5,735.29	-1,137.29	5,828.40	0.00	0.00	0.00
13,300.00	90.00	359.59	6,754.00	5,835.29	-1,138.00	5,927.81	0.00	0.00	0.00
13,400.00	90.00	359.59	6,754.00	5,935.29	-1,138.71	6,027.21	0.00	0.00	0.00
13,500.00	90.00	359.59	6,754.00	6,035.28	-1,139.42	6,126.62	0.00	0.00	0.00
13,600.00	90.00	359.59	6,754.00	6,135.28	-1,140.13	6,226.03	0.00	0.00	0.00
13,700.00	90.00	359.59	6,754.00	6,235.28	-1,140.84	6,325.43	0.00	0.00	0.00
13,800.00	90.00	359.59	6,754.00	6,335.28	-1,141.55	6,424.84	0.00	0.00	0.00
13,900.00	90.00	359.59	6,754.00	6,435.27	-1,142.25	6,524.25	0.00	0.00	0.00
14,000.00	90.00	359.59	6,754.00	6,535.27	-1,142.96	6,623.65	0.00	0.00	0.00
14,100.00	90.00	359.59	6,754.00	6,635.27	-1,143.67	6,723.06	0.00	0.00	0.00
14,200.00	90.00	359.59	6,754.00	6,735.27	-1,144.38	6,822.47	0.00	0.00	0.00
14,300.00	90.00	359.59	6,754.00	6,835.26	-1,145.09	6,921.88	0.00	0.00	0.00
14,400.00	90.00	359.59	6,754.00	6,935.26	-1,145.80	7,021.28	0.00	0.00	0.00
14,500.00	90.00	359.59	6,754.00	7,035.26	-1,146.51	7,120.69	0.00	0.00	0.00
14,600.00	90.00	359.59	6,754.00	7,135.26	-1,147.22	7,220.10	0.00	0.00	0.00
14,700.00	90.00	359.59	6,754.00	7,235.25	-1,147.93	7,319.50	0.00	0.00	0.00
14,800.00	90.00	359.59	6,754.00	7,335.25	-1,148.64	7,418.91	0.00	0.00	0.00
14,900.00	90.00	359.59	6,754.00	7,435.25	-1,149.35	7,518.32	0.00	0.00	0.00
15,000.00	90.00	359.59	6,754.00	7,535.25	-1,150.06	7,617.73	0.00	0.00	0.00
15,100.00	90.00	359.59	6,754.00	7,635.24	-1,150.77	7,717.13	0.00	0.00	0.00
15,200.00	90.00	359.59	6,754.00	7,735.24	-1,151.48	7,816.54	0.00	0.00	0.00
15,300.00	90.00	359.59	6,754.00	7,835.24	-1,152.19	7,915.95	0.00	0.00	0.00
15,400.00	90.00	359.59	6,754.00	7,935.24	-1,152.90	8,015.35	0.00	0.00	0.00
15,500.00	90.00	359.59	6,754.00	8,035.23	-1,153.61	8,114.76	0.00	0.00	0.00
15,600.00	90.00	359.59	6,754.00	8,135.23	-1,154.32	8,214.17	0.00	0.00	0.00
15,700.00	90.00	359.59	6,754.00	8,235.23	-1,155.03	8,313.58	0.00	0.00	0.00
15,800.00	90.00	359.59	6,754.00	8,335.23	-1,155.74	8,412.98	0.00	0.00	0.00
15,900.00	90.00	359.59	6,754.00	8,435.22	-1,156.45	8,512.39	0.00	0.00	0.00
16,000.00	90.00	359.59	6,754.00	8,535.22	-1,157.15	8,611.80	0.00	0.00	0.00
16,100.00	90.00	359.59	6,754.00	8,635.22	-1,157.86	8,711.20	0.00	0.00	0.00
16,200.00	90.00	359.59	6,754.00	8,735.22	-1,158.57	8,810.61	0.00	0.00	0.00
16,300.00	90.00	359.59	6,754.00	8,835.21	-1,159.28	8,910.02	0.00	0.00	0.00
16,400.00	90.00	359.59	6,754.00	8,935.21	-1,159.99	9,009.42	0.00	0.00	0.00
16,500.00	90.00	359.59	6,754.00	9,035.21	-1,160.70	9,108.83	0.00	0.00	0.00
16,600.00	90.00	359.59	6,754.00	9,135.21	-1,161.41	9,208.24	0.00	0.00	0.00
16,700.00	90.00	359.59	6,754.00	9,235.20	-1,162.12	9,307.65	0.00	0.00	0.00
16,800.00	90.00	359.59	6,754.00	9,335.20	-1,162.83	9,407.05	0.00	0.00	0.00
16,900.00	90.00	359.59	6,754.00	9,435.20	-1,163.54	9,506.46	0.00	0.00	0.00
17,000.00	90.00	359.59	6,754.00	9,535.20	-1,164.25	9,605.87	0.00	0.00	0.00
17,100.00	90.00	359.59	6,754.00	9,635.19	-1,164.96	9,705.27	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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)
17,200.00	90.00	359.59	6,754.00	9,735.19	-1,165.67	9,804.68	0.00	0.00	0.00
17,300.00	90.00	359.59	6,754.00	9,835.19	-1,166.38	9,904.09	0.00	0.00	0.00
17,400.00	90.00	359.59	6,754.00	9,935.19	-1,167.09	10,003.50	0.00	0.00	0.00
17,481.76	90.00	359.59	6,754.00	10,016.94	-1,167.67	10,084.77	0.00	0.00	0.00
TD @ 17481.76' MD/6754.00' TVD									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen C28-785-SI - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,339,901.69	3,262,275.97	40.2626140	-104.5601770
Guttersen C28-785-KI - plan hits target center - Point	0.00	0.00	6,009.27	-751.20	-890.42	1,339,150.49	3,261,385.56	40.2605779	-104.5633958
Guttersen C28-785-TI - plan hits target center - Point	0.00	0.00	6,754.00	-130.44	-1,095.67	1,339,771.25	3,261,180.31	40.2622878	-104.5641078
Guttersen C28-785-BI - plan hits target center - Point	0.00	0.00	6,754.00	10,016.94	-1,167.67	1,349,918.61	3,261,108.31	40.2901437	-104.5639819

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				
3,648.39	3,603.00	Parkman				
4,077.58	4,008.00	Sussex				
4,662.55	4,560.00	Shannon				
6,124.97	5,940.00	Teepee Buttes				
6,927.80	6,633.00	Sharon Springs				
6,977.39	6,660.00	Top A Chalk				
7,007.79	6,675.00	Top A Marl				
7,045.72	6,692.00	Top B Chalk				
7,163.27	6,732.00	Top B Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-785		
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'
3,166.39	3,148.17	-104.11	-123.41	Hold: 19.33° Inc, 229.85° Azm
6,198.38	6,009.27	-751.20	-890.42	KOP: Build 9°/100' @ 6198.38' MD
7,334.12	6,754.00	-130.44	-1,095.67	LP: 7334.12' MD, 90.00° Inc, 359.59° Azm
17,481.76	6,754.00	10,016.94	-1,167.67	TD @ 17481.76' MD/6754.00' TVD

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-785

Guttersen C28-785

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 C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-785	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	17,481.76	Plan #1 (Guttersen C28-785)	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	17,481.76	6,505.01	904.69	824.56	11.289	CC, ES, SF
NOVACEK C #28-27D - NOVACEK C #28-27D OH - As-	17,481.76	6,811.53	3,568.32	3,452.82	30.895	CC, ES, SF
C Section 27						
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,243.86	7,130.19	4,829.10	4,711.00	40.890	CC, ES
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,800.00	7,138.82	4,861.01	4,740.60	40.372	SF
C Section 28						
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,521.97	6,886.66	4,798.91	4,723.22	63.403	CC, ES
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	13,700.00	6,897.95	4,941.37	4,860.03	60.748	SF
HANSCOME #28-4 - Wellbore #1 - No Surveys	16,862.50	6,785.00	184.30	-169.25	0.521	Level 1, CC, ES, SF
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,722.88	6,750.00	1,610.79	1,267.54	4.693	CC, ES, SF
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,369.75	6,733.00	2,194.92	1,847.31	6.314	CC, ES
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,400.00	6,733.00	2,195.13	1,847.34	6.312	SF
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,444.17	6,763.00	881.52	532.13	2.523	CC, ES, SF
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,138.42	6,764.00	948.29	609.00	2.795	CC, ES, SF
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,186.71	6,748.00	2,145.27	1,806.25	6.328	CC
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,200.00	6,748.00	2,145.31	1,806.21	6.326	ES
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,300.00	6,748.00	2,148.26	1,808.65	6.326	SF
HANSCOME C #28-28D - HANSCOME C #28-28D OH -	17,481.76	6,745.46	2,369.81	2,258.29	21.251	CC, ES, SF
HANSCOME C #28-29D - HANSCOME C #28-29D OH -	17,481.76	6,904.07	1,037.19	925.06	9.250	CC, ES, SF
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,707.35	6,786.00	294.04	-50.53	0.853	Level 1, CC, ES, SF
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,018.66	6,745.00	1,608.73	1,255.55	4.555	CC, ES, SF
NIX #1 - Wellbore #1 - No Surveys	16,897.89	6,680.00	4,203.86	3,854.24	12.024	CC
NIX #1 - Wellbore #1 - No Surveys	16,900.00	6,680.00	4,203.87	3,854.22	12.023	ES
NIX #1 - Wellbore #1 - No Surveys	17,200.00	6,680.00	4,214.71	3,863.18	11.990	SF
NIX #28-814 - Wellbore #1 - No Surveys	15,536.26	6,703.00	4,429.21	4,089.29	13.030	CC, ES
NIX #28-814 - Wellbore #1 - No Surveys	15,900.00	6,703.00	4,444.12	4,101.91	12.987	SF
NOVACEK #1 - Wellbore #1 - No Surveys	17,020.82	6,714.00	2,934.11	2,582.15	8.337	CC, ES
NOVACEK #1 - Wellbore #1 - No Surveys	17,200.00	6,714.00	2,939.57	2,586.59	8.328	SF
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,370.52	6,710.00	3,430.22	3,083.53	9.894	CC
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,400.00	6,710.00	3,430.35	3,083.46	9.889	ES
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,600.00	6,710.00	3,437.89	3,089.83	9.877	SF
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,538.43	6,727.00	3,011.95	2,671.05	8.835	CC, ES
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,700.00	6,727.00	3,016.28	2,674.43	8.823	SF
THOMPSON #1 - Wellbore #1 - As-Drilled	14,366.87	6,627.62	4,238.23	4,150.61	48.369	CC
THOMPSON #1 - Wellbore #1 - As-Drilled	14,400.00	6,627.07	4,238.36	4,150.52	48.251	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 Gutteresen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen C28-785	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						
THOMPSON #1 - Wellbore #1 - As-Drilled	15,200.00	6,613.82	4,319.32	4,227.25	46.910	SF
THOMPSON #2 - Wellbore #1 - No Surveys	14,404.02	6,753.00	1,573.59	1,240.36	4.722	CC, ES, SF
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,397.63	6,754.00	2,854.22	2,520.99	8.565	CC
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,400.00	6,754.00	2,854.22	2,520.98	8.565	ES
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,500.00	6,754.00	2,856.05	2,522.22	8.555	SF
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,352.05	6,778.00	254.11	-79.73	0.761	Level 1, CC, ES, SF
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,070.65	6,756.00	1,555.97	1,232.58	4.812	CC, ES
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,100.00	6,756.00	1,556.24	1,232.72	4.810	SF
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,076.61	6,748.00	4,240.06	3,916.95	13.123	CC
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,100.00	6,748.00	4,240.12	3,916.86	13.117	ES
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,400.00	6,748.00	4,252.37	3,927.29	13.081	SF
THOMPSON #3 - Wellbore #1 - No Surveys	13,069.76	6,751.00	258.56	-64.62	0.800	Level 1, CC, ES, SF
THOMPSON #4 - Wellbore #1 - No Surveys	13,009.96	6,756.00	2,928.93	2,605.99	9.070	CC, ES
THOMPSON #4 - Wellbore #1 - No Surveys	13,200.00	6,756.00	2,935.09	2,611.08	9.059	SF
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,366.03	6,838.39	453.15	379.79	6.178	CC, ES
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,400.00	6,838.53	454.42	380.82	6.174	SF
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,886.73	6,727.00	3,625.56	3,289.68	10.794	CC
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,900.00	6,727.00	3,625.58	3,289.62	10.792	ES
THOMPSON C #28-22 - Wellbore #1 - No Surveys	15,100.00	6,727.00	3,631.83	3,294.64	10.771	SF
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,810.45	6,745.00	3,579.50	3,251.07	10.899	CC, ES
THOMPSON C #28-23 - Wellbore #1 - No Surveys	14,000.00	6,745.00	3,584.51	3,254.92	10.876	SF
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,619.87	6,761.00	2,340.83	2,013.19	7.144	CC, ES
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,700.00	6,761.00	2,342.20	2,014.11	7.139	SF
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,735.17	6,768.00	948.18	619.39	2.884	CC, ES, SF
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,571.08	10,308.91	272.71	118.88	1.773	CC
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,600.00	10,334.03	272.91	118.36	1.766	ES
Thompson C28-79HN - Thompson C28-79HN OH - Origi	17,000.00	10,724.40	286.35	122.11	1.743	SF
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,499.18	6,631.85	320.14	258.57	5.200	CC
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,500.00	6,631.83	320.14	258.56	5.199	ES, SF
C Section 32						
Becker #1 - Wellbore #1 - Plan #1	7,300.00	7,300.00	5,278.44	5,228.16	104.979	CC
Becker #1 - Wellbore #1 - Plan #1	17,481.76	17,647.88	5,290.23	5,112.27	29.727	ES, SF
Becker #2 - Wellbore #1 - Plan #1	7,332.01	7,537.86	4,622.29	4,571.64	91.253	CC
Becker #2 - Wellbore #1 - Plan #1	17,481.76	17,664.97	4,637.88	4,459.92	26.061	ES, SF
Becker #3 - Wellbore #1 - Plan #1	7,335.54	7,657.03	3,970.12	3,918.71	77.217	CC
Becker #3 - Wellbore #1 - Plan #1	17,481.76	17,776.56	3,985.70	3,807.85	22.411	ES, SF
Becker #4 - Wellbore #1 - Plan #1	7,331.16	7,871.46	3,318.74	3,266.19	63.143	CC
Becker #4 - Wellbore #1 - Plan #1	17,481.76	18,007.80	3,333.78	3,155.66	18.716	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 C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-785	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						
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,093.74	6,988.31	458.85	383.55	6.093	CC
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,100.00	6,988.43	458.90	383.47	6.084	ES, SF
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,618.52	6,764.00	148.05	-152.69	0.492	Level 1, CC, ES, SF
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	8,455.79	6,939.77	453.52	395.36	7.798	CC, ES, SF
Guttersen C28-715 - Guttersen C28-715 - Plan #1	2,200.00	2,194.00	2,128.79	2,113.50	139.271	CC, ES
Guttersen C28-715 - Guttersen C28-715 - Plan #1	17,481.76	17,592.65	4,544.17	4,366.07	25.515	SF
Guttersen C28-725 - Guttersen C28-725 - Plan #1	2,200.00	2,192.00	2,106.46	2,091.18	137.875	CC, ES
Guttersen C28-725 - Guttersen C28-725 - Plan #1	17,481.76	17,547.32	3,894.59	3,715.68	21.769	SF
Guttersen C28-735 - Guttersen C28-735 - Plan #1	2,200.00	2,191.00	2,083.86	2,068.58	136.427	CC, ES
Guttersen C28-735 - Guttersen C28-735 - Plan #1	17,481.76	17,455.60	3,246.26	3,067.11	18.121	SF
Guttersen C28-745 - Guttersen C28-745 - Plan #1	2,683.99	2,942.72	2,060.01	2,040.74	106.897	CC
Guttersen C28-745 - Guttersen C28-745 - Plan #1	2,700.00	2,958.64	2,060.04	2,040.67	106.303	ES
Guttersen C28-745 - Guttersen C28-745 - Plan #1	17,481.76	17,343.60	2,596.36	2,418.06	14.562	SF
Guttersen C28-750 - Guttersen C28-750 - Plan #1	2,924.04	3,308.23	2,010.64	1,989.41	94.690	CC, ES
Guttersen C28-750 - Guttersen C28-750 - Plan #1	17,481.76	17,559.31	2,277.12	2,097.85	12.702	SF
Guttersen C28-755 - Guttersen C28-755 - Plan #1	2,200.00	2,199.00	89.87	74.57	5.873	CC, ES
Guttersen C28-755 - Guttersen C28-755 - Plan #1	2,300.00	2,297.06	92.24	76.26	5.772	SF
Guttersen C28-765 - Guttersen C28-765 - Plan #1	2,200.00	2,199.00	67.54	52.24	4.413	CC, ES
Guttersen C28-765 - Guttersen C28-765 - Plan #1	2,300.00	2,298.61	69.14	53.16	4.326	SF
Guttersen C28-770 - Guttersen C28-770 - Plan #1	2,200.00	2,199.00	44.94	29.63	2.936	CC, ES
Guttersen C28-770 - Guttersen C28-770 - Plan #1	2,300.00	2,299.25	45.98	29.99	2.876	SF
Guttersen C28-775 - Guttersen C28-775 - Plan #1	2,200.00	2,200.00	22.61	7.30	1.477	Level 3, CC
Guttersen C28-775 - Guttersen C28-775 - Plan #1	2,300.00	2,300.35	23.15	7.16	1.448	Level 3, ES, SF
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,200.00	2,160.00	627.74	535.68	6.819	CC
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	2,300.00	2,259.98	629.47	533.07	6.530	ES
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,800.00	6,714.00	1,624.79	1,332.55	5.560	SF
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	1,131.75	1,095.78	1,851.57	1,844.08	247.291	CC
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	2,200.00	2,158.26	1,855.24	1,840.22	123.552	ES
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	8,200.00	6,719.86	2,915.95	2,866.14	58.546	SF
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,444.29	6,721.00	1,607.07	1,303.04	5.286	CC, ES
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,500.00	6,721.00	1,608.04	1,303.77	5.285	SF
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,456.31	6,721.00	2,938.07	2,633.96	9.661	CC, ES
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,600.00	6,721.00	2,941.58	2,636.74	9.650	SF
LINDSAY #33-5 - Wellbore #1 - No Surveys	2,200.00	2,152.00	2,489.77	2,398.04	27.141	CC
LINDSAY #33-5 - Wellbore #1 - No Surveys	2,300.00	2,251.98	2,491.52	2,395.44	25.933	ES
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,200.00	6,706.00	2,940.85	2,644.24	9.915	SF
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,125.58	6,329.00	1,614.51	1,333.29	5.741	CC, ES, SF
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,763.01	6,729.00	1,602.43	1,289.45	5.120	CC, ES
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,800.00	6,729.00	1,602.85	1,289.71	5.119	SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,764.03	6,732.00	2,916.65	2,603.55	9.315	CC, ES
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,900.00	6,732.00	2,919.82	2,605.96	9.303	SF
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,798.32	6,745.00	240.65	-73.21	0.767	Level 1, CC, ES, SF
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,511.03	6,740.06	200.91	139.90	3.293	CC, ES, SF
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,124.64	6,732.00	302.94	5.60	1.019	Level 2, CC, ES, SF
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	7,807.96	6,739.11	262.44	213.28	5.339	CC, ES, SF
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,758.58	6,731.00	4,234.24	3,921.22	13.527	CC
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,800.00	6,731.00	4,234.44	3,921.17	13.517	ES
LINDSAY #C33-14 - Wellbore #1 - No Surveys	12,100.00	6,731.00	4,247.98	3,932.96	13.485	SF
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,443.88	6,717.00	4,240.69	3,937.01	13.964	CC, ES
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,800.00	6,717.00	4,255.62	3,950.04	13.927	SF
LINDSAY #C33-16 - Wellbore #1 - No Surveys	2,200.00	2,150.00	3,170.53	3,078.88	34.593	CC
LINDSAY #C33-16 - Wellbore #1 - No Surveys	2,300.00	2,249.98	3,172.00	3,076.01	33.043	ES
LINDSAY #C33-16 - Wellbore #1 - No Surveys	8,000.00	6,704.00	4,244.84	3,952.60	14.525	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 C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-785	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	2,200.00	2,145.00	3,580.91	3,489.46	39.156	CC
LINDSAY #C33-9 - Wellbore #1 - No Surveys	2,300.00	2,244.98	3,582.62	3,486.83	37.398	ES
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,400.00	6,701.00	4,246.44	3,949.15	14.284	SF
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,101.73	6,730.00	3,417.38	3,108.81	11.075	CC, ES
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,300.00	6,730.00	3,423.12	3,113.47	11.055	SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,100.00	6,861.37	2,244.06	2,110.78	16.837	SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,106.18	6,861.39	2,244.05	2,110.78	16.838	CC, ES
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,046.37	6,738.00	854.34	545.82	2.769	CC, ES, SF
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,595.03	6,734.00	957.08	657.35	3.193	CC
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,600.00	6,734.00	957.10	657.35	3.193	ES, SF
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,617.16	6,717.00	2,273.58	1,974.41	7.600	CC, ES
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,700.00	6,717.00	2,275.09	1,975.57	7.596	SF
LINDSAY C #33-22 - Wellbore #1 - No Surveys	2,200.00	2,160.00	3,297.67	3,205.62	35.824	CC
LINDSAY C #33-22 - Wellbore #1 - No Surveys	2,300.00	2,259.98	3,299.42	3,203.02	34.228	ES
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,800.00	6,714.00	3,581.03	3,281.13	11.941	SF
LINDSAY C #33-23 - Wellbore #1 - No Surveys	2,200.00	2,149.00	2,652.02	2,560.41	28.948	CC
LINDSAY C #33-23 - Wellbore #1 - No Surveys	2,300.00	2,248.98	2,653.69	2,557.73	27.655	ES
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,600.00	6,703.00	3,556.55	3,262.59	12.098	SF
LINDSAY C #33-24 - Wellbore #1 - No Surveys	2,200.00	2,160.00	1,516.96	1,424.91	16.479	CC
LINDSAY C #33-24 - Wellbore #1 - No Surveys	2,300.00	2,259.98	1,518.71	1,422.31	15.755	ES
LINDSAY C #33-24 - Wellbore #1 - No Surveys	8,500.00	6,714.00	2,247.70	1,953.62	7.643	SF
LINDSAY C #33-25 - Wellbore #1 - No Surveys	2,200.00	2,172.00	921.32	828.79	9.957	CC
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,374.12	6,726.00	1,011.03	716.86	3.437	ES, SF
C Section 34						
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	5,169.83	10,570.00	5,430.33	5,383.49	115.951	CC
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	5,200.00	10,570.00	5,430.41	5,383.43	115.588	ES
Aloysius C34-99HZ - Original Drilling - Original Drilling - A	12,300.00	10,570.00	6,747.94	6,631.20	57.802	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen C28-785
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:	Gutttersen C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen C28-785	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	1,997.80	1,956.99	3,772.62	3,759.02	277.489	CC
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	2,100.00	2,039.39	3,772.94	3,758.69	264.788	ES
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,700.00	6,459.27	4,122.90	4,075.71	87.377	SF
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	1,904.82	1,858.86	3,860.61	3,847.69	298.833	CC
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	2,000.00	1,934.65	3,860.84	3,847.32	285.477	ES
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,800.00	6,479.84	4,486.74	4,439.43	94.825	SF
Gutttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	4,221.47	4,375.45	5,544.60	5,508.65	154.227	CC
Gutttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	4,300.00	4,400.01	5,544.95	5,508.55	152.343	ES
Gutttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,650.00	6,464.12	5,772.07	5,720.12	111.106	SF
Gutttersen D04-30D - Plan B - Plan B	7,216.48	6,795.61	427.31	379.11	8.866	CC, ES, SF
Gutttersen D04-31D - Plan B - Plan B	6,447.91	6,441.20	1,092.24	1,046.87	24.073	CC
Gutttersen D04-31D - Plan B - Plan B	6,450.00	6,443.19	1,092.24	1,046.86	24.067	ES
Gutttersen D04-31D - Plan B - Plan B	6,550.00	6,538.65	1,099.85	1,053.96	23.966	SF
Gutttersen D04-69HN - Original Drilling - Original Drilling	7,050.00	6,647.01	253.42	213.19	6.300	SF
Gutttersen D04-69HN - Original Drilling - Original Drilling	7,176.10	6,659.94	231.61	196.85	6.662	CC, ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	450.50	410.35	2,129.87	2,127.23	805.680	CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	500.00	444.71	2,130.02	2,127.08	724.186	ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,850.00	6,413.10	3,036.41	2,989.49	64.717	SF
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	100.00	47.15	2,968.58	2,968.37	10,000.000	CC
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	400.00	333.20	2,970.17	2,967.98	1,354.206	ES
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,600.00	6,312.84	3,269.15	3,222.71	70.399	SF
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	2,205.77	2,160.46	3,006.58	2,991.53	199.843	CC
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	2,300.00	2,252.61	3,007.07	2,991.38	191.656	ES
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,800.00	6,528.40	3,692.49	3,645.05	77.838	SF
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	2,975.85	2,969.50	4,749.29	4,728.82	231.962	CC
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	3,000.00	2,984.38	4,749.32	4,728.71	230.428	ES
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,850.00	6,605.32	5,155.35	5,107.34	107.391	SF
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	5,423.66	5,224.59	4,086.51	4,048.47	107.422	CC
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	5,800.00	5,603.59	4,087.30	4,046.34	99.796	ES
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,650.00	6,402.83	4,217.73	4,170.76	89.802	SF
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,226.55	6,000.01	4,997.97	4,953.85	113.283	CC, ES
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,700.00	6,385.79	5,144.73	5,097.75	109.502	SF
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	5,896.80	5,800.41	5,735.86	5,693.79	136.335	CC
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,000.00	5,881.60	5,736.10	5,693.31	134.034	ES
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,750.00	6,464.09	5,914.73	5,867.33	124.783	SF
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	5,116.67	4,938.93	4,875.84	4,840.06	136.294	CC
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	5,400.00	5,191.04	4,877.15	4,839.31	128.887	ES
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,650.00	6,399.86	5,009.10	4,962.13	106.638	SF
Marie D04-72-1HN - Original Drilling - Original Drilling - A	5,869.10	11,395.00	4,433.23	4,328.69	42.407	CC
Marie D04-72-1HN - Original Drilling - Original Drilling - A	5,900.00	11,395.00	4,433.34	4,328.55	42.306	ES
Marie D04-72-1HN - Original Drilling - Original Drilling - A	6,800.00	11,395.00	4,530.52	4,419.96	40.976	SF
Marie D04-73-1HN - Original Drilling - Original Drilling - A	5,977.48	11,120.00	3,625.81	3,521.65	34.809	CC
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,000.00	11,120.00	3,625.88	3,521.51	34.740	ES
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,550.00	11,120.00	3,673.00	3,564.57	33.875	SF
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,224.42	6,007.00	5,657.58	5,615.67	134.984	CC, ES
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,450.00	6,450.00	5,690.63	5,646.34	128.482	SF
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,171.86	11,217.00	3,147.66	3,084.67	49.976	CC
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,198.38	11,217.00	3,147.77	3,084.63	49.853	ES
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,600.00	11,217.00	3,179.68	3,114.70	48.933	SF
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	1,807.29	1,757.36	3,008.06	2,995.84	246.205	CC
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	2,200.00	2,137.38	3,009.30	2,994.35	201.274	ES
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,950.00	6,601.98	3,934.10	3,886.36	82.403	SF

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

Noble Energy, Inc.

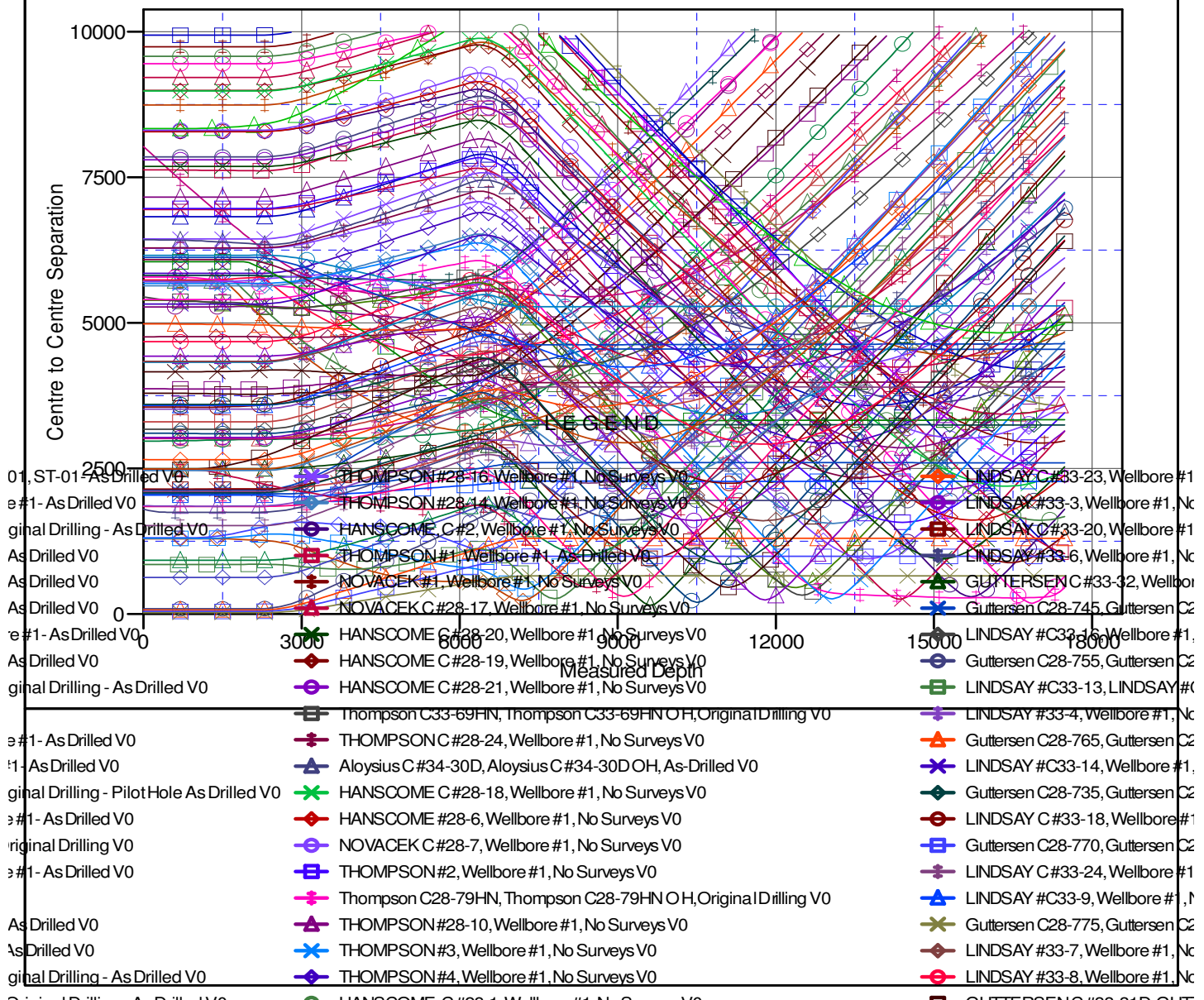
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-785
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 C28-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-785	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 C28-785
 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

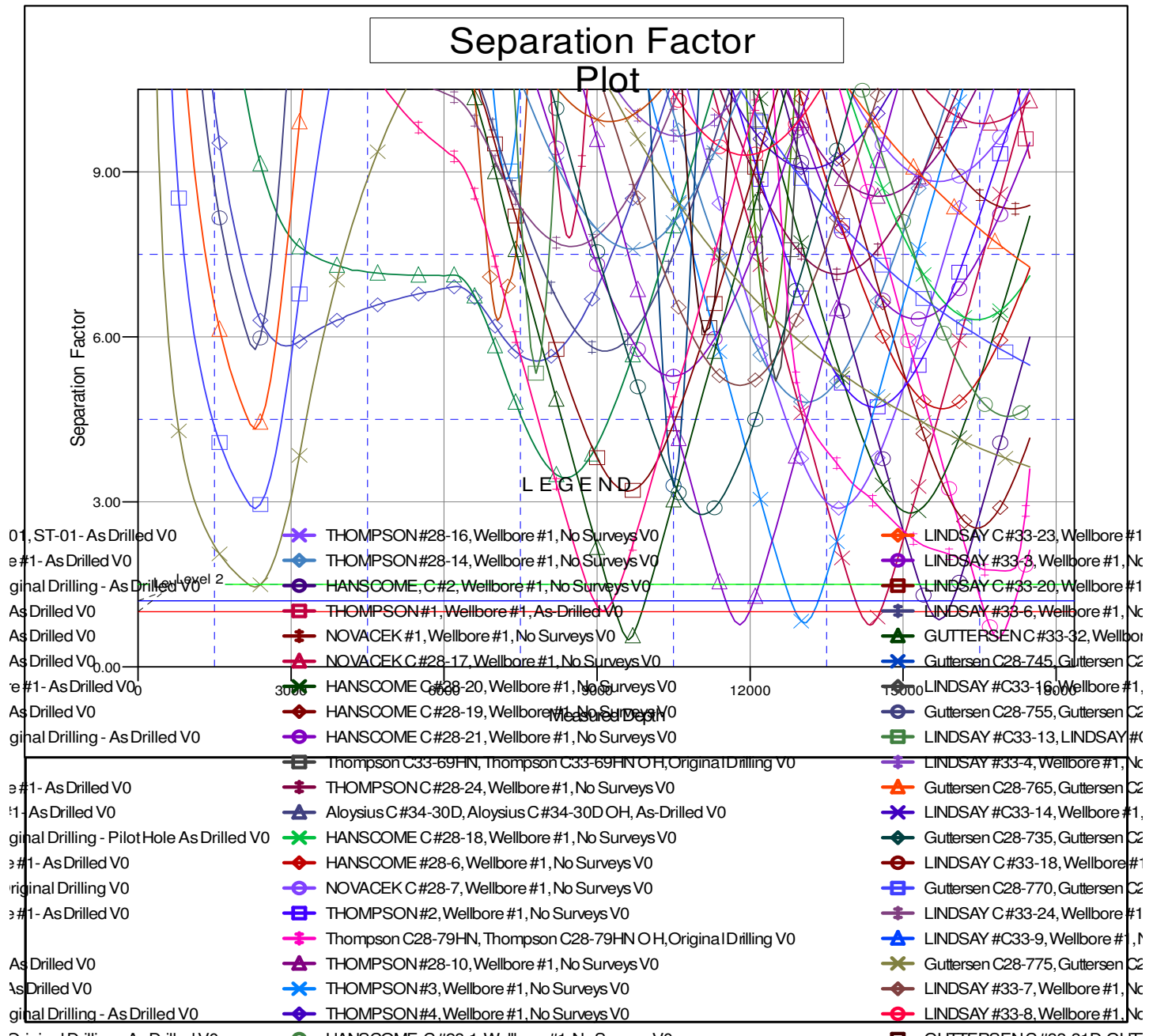
Noble Energy, Inc.

Anticollision Summary Report

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Reference Wellbore	Guttersen C28-785	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 C28-785
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