

Project: Mustang
Site: C Section 33
Well: Gutteresen C28-755
Wellbore: Gutteresen C28-755
Design: Plan #1

Northern Region - DJ Basin

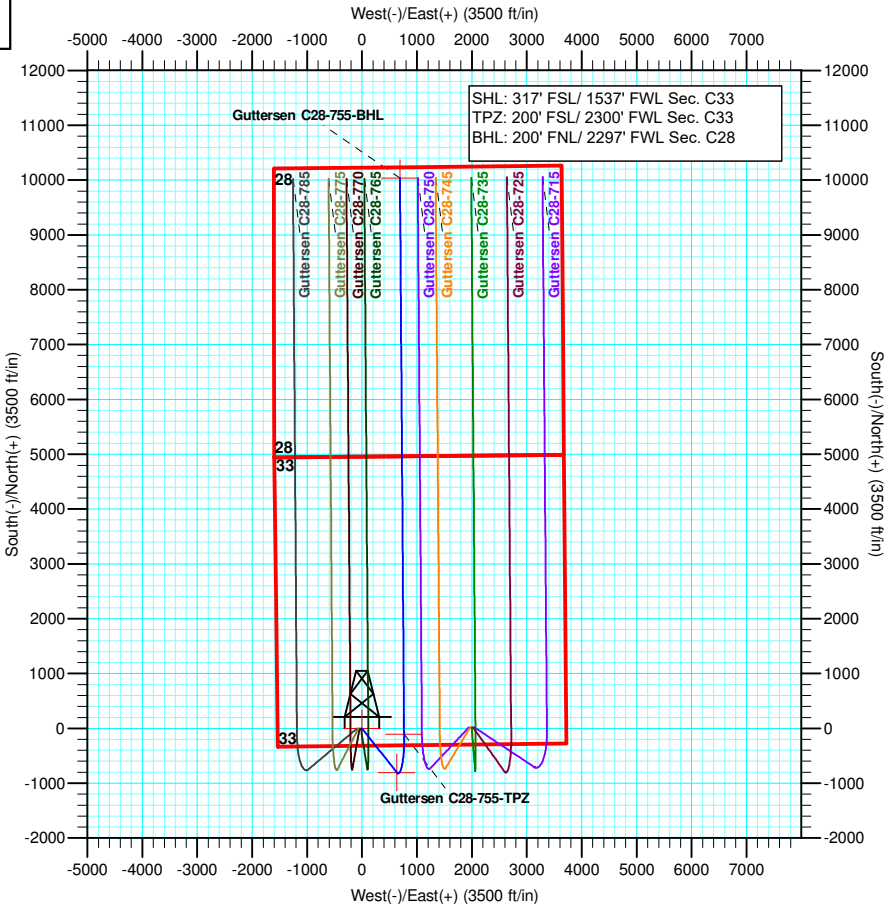
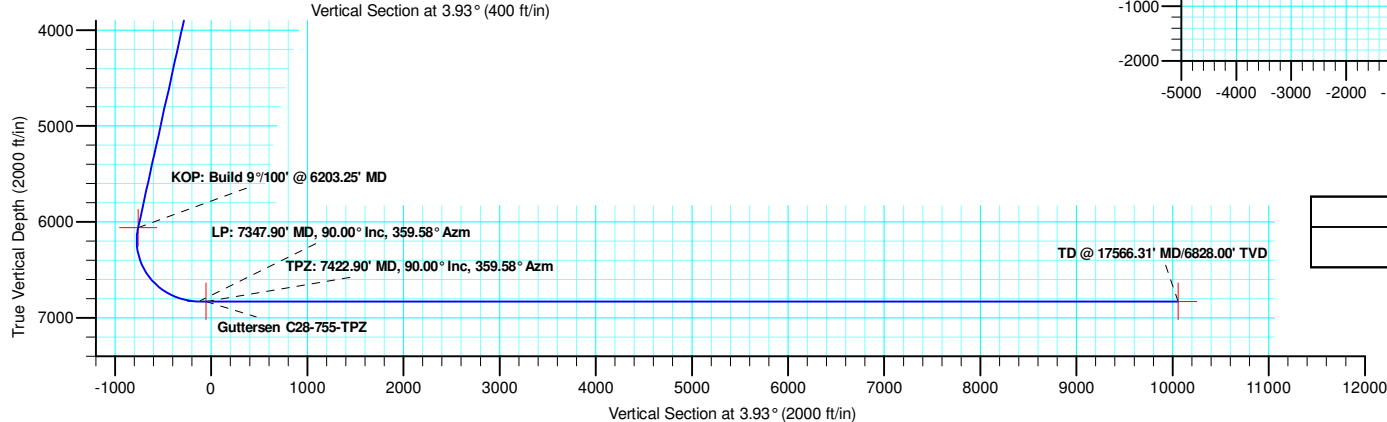
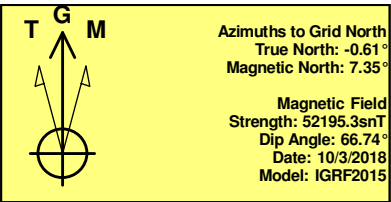
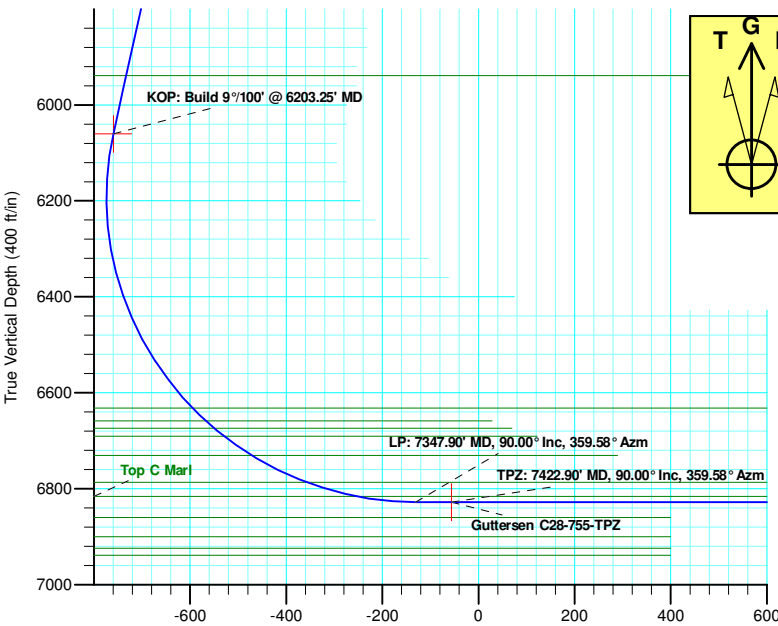
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	3026.64	16.53	141.91	3015.21	-93.22	73.06	2.00	141.91	-87.99	
4	6203.25	16.53	141.91	6060.49	-804.71	630.65	0.00	0.00	-759.57	
5	7347.90	90.00	359.58	6828.00	-183.44	765.25	9.09	-141.16	-130.54	
6	7422.90	90.00	359.58	6828.00	-108.44	764.70	0.00	0.00	-55.75	Gutteresen C28-755-TPZ
7	17566.31	90.00	359.58	6828.00	10034.69	689.62	0.00	0.00	10058.36	Gutteresen C28-755-BHL

WELL DETAILS: Gutteresen C28-755

+N/-S	+E/-W	Northing	Ground Level: Easting	4723.00 Latitude	Longitude	Slot
0.00	0.00	1339901.54	3262365.84	40.2626110	-104.5598550	



Plan: Plan #1 (Gutteresen C28-755/Gutteresen C28-755)

Created By: Keith Noack Date: 11:55, October 04 2018

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-755

Guttersen C28-755

Plan: Plan #1

Standard Planning Report

04 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-755
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4753.00ft
Project:	Mustang	MD Reference:	Well @ 4753.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
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 C28-755					
Well Position	+N/-S	-0.14 ft	Northing:	1,339,901.54 usft	Latitude:	40.2626110
	+E/-W	89.87 ft	Easting:	3,262,365.84 usft	Longitude:	-104.5598550
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,723.00 ft

Wellbore	Guttersen C28-755				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/3/2018	7.95	66.74	52,195.27565798

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	3.93

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	
3,026.64	16.53	141.91	3,015.21	-93.22	73.06	2.00	2.00	0.00	141.91	
6,203.25	16.53	141.91	6,060.49	-804.71	630.65	0.00	0.00	0.00	0.00	
7,347.90	90.00	359.58	6,828.00	-183.44	765.25	9.00	6.42	-12.44	-141.16	
7,422.90	90.00	359.58	6,828.00	-108.44	764.70	0.00	0.00	0.00	0.00	Guttersen C28-755
17,566.31	90.00	359.58	6,828.00	10,034.69	689.62	0.00	0.00	0.00	0.00	Guttersen C28-755

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-755
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4753.00ft
Project:	Mustang	MD Reference:	Well @ 4753.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
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
470.00	0.00	0.00	470.00	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
603.00	0.00	0.00	603.00	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
1,523.00	0.00	0.00	1,523.00	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	141.91	2,299.98	-1.37	1.08	-1.30	2.00	2.00	0.00
2,400.00	4.00	141.91	2,399.84	-5.49	4.30	-5.18	2.00	2.00	0.00
2,500.00	6.00	141.91	2,499.45	-12.35	9.68	-11.66	2.00	2.00	0.00
2,600.00	8.00	141.91	2,598.70	-21.94	17.20	-20.71	2.00	2.00	0.00
2,700.00	10.00	141.91	2,697.47	-34.26	26.85	-32.33	2.00	2.00	0.00
2,800.00	12.00	141.91	2,795.62	-49.27	38.62	-46.51	2.00	2.00	0.00
2,900.00	14.00	141.91	2,893.06	-66.98	52.49	-63.22	2.00	2.00	0.00
3,000.00	16.00	141.91	2,989.64	-87.35	68.46	-82.45	2.00	2.00	0.00
3,026.64	16.53	141.91	3,015.21	-93.22	73.06	-87.99	2.00	2.00	0.00
Hold: 16.53° Inc, 141.91° Azm									
3,100.00	16.53	141.91	3,085.54	-109.65	85.93	-103.50	0.00	0.00	0.00
3,200.00	16.53	141.91	3,181.41	-132.05	103.49	-124.64	0.00	0.00	0.00
3,300.00	16.53	141.91	3,277.27	-154.45	121.04	-145.79	0.00	0.00	0.00
3,400.00	16.53	141.91	3,373.14	-176.85	138.59	-166.93	0.00	0.00	0.00
3,500.00	16.53	141.91	3,469.01	-199.24	156.15	-188.07	0.00	0.00	0.00
3,600.00	16.53	141.91	3,564.87	-221.64	173.70	-209.21	0.00	0.00	0.00
3,638.73	16.53	141.91	3,602.00	-230.32	180.50	-217.40	0.00	0.00	0.00
Parkman									
3,700.00	16.53	141.91	3,660.74	-244.04	191.25	-230.35	0.00	0.00	0.00
3,800.00	16.53	141.91	3,756.60	-266.44	208.81	-251.49	0.00	0.00	0.00
3,900.00	16.53	141.91	3,852.47	-288.83	226.36	-272.63	0.00	0.00	0.00
4,000.00	16.53	141.91	3,948.34	-311.23	243.91	-293.78	0.00	0.00	0.00
4,061.20	16.53	141.91	4,007.00	-324.94	254.65	-306.71	0.00	0.00	0.00

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Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
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	16.53	141.91	4,044.20	-333.63	261.47	-314.92	0.00	0.00	0.00	
4,200.00	16.53	141.91	4,140.07	-356.03	279.02	-336.06	0.00	0.00	0.00	
4,300.00	16.53	141.91	4,235.93	-378.42	296.57	-357.20	0.00	0.00	0.00	
4,400.00	16.53	141.91	4,331.80	-400.82	314.12	-378.34	0.00	0.00	0.00	
4,500.00	16.53	141.91	4,427.66	-423.22	331.68	-399.48	0.00	0.00	0.00	
4,600.00	16.53	141.91	4,523.53	-445.62	349.23	-420.62	0.00	0.00	0.00	
4,637.00	16.53	141.91	4,559.00	-453.90	355.73	-428.45	0.00	0.00	0.00	
Shannon										
4,700.00	16.53	141.91	4,619.40	-468.02	366.78	-441.77	0.00	0.00	0.00	
4,800.00	16.53	141.91	4,715.26	-490.41	384.34	-462.91	0.00	0.00	0.00	
4,900.00	16.53	141.91	4,811.13	-512.81	401.89	-484.05	0.00	0.00	0.00	
5,000.00	16.53	141.91	4,906.99	-535.21	419.44	-505.19	0.00	0.00	0.00	
5,100.00	16.53	141.91	5,002.86	-557.61	437.00	-526.33	0.00	0.00	0.00	
5,200.00	16.53	141.91	5,098.72	-580.00	454.55	-547.47	0.00	0.00	0.00	
5,300.00	16.53	141.91	5,194.59	-602.40	472.10	-568.62	0.00	0.00	0.00	
5,400.00	16.53	141.91	5,290.46	-624.80	489.65	-589.76	0.00	0.00	0.00	
5,500.00	16.53	141.91	5,386.32	-647.20	507.21	-610.90	0.00	0.00	0.00	
5,600.00	16.53	141.91	5,482.19	-669.59	524.76	-632.04	0.00	0.00	0.00	
5,700.00	16.53	141.91	5,578.05	-691.99	542.31	-653.18	0.00	0.00	0.00	
5,800.00	16.53	141.91	5,673.92	-714.39	559.87	-674.32	0.00	0.00	0.00	
5,900.00	16.53	141.91	5,769.78	-736.79	577.42	-695.46	0.00	0.00	0.00	
6,000.00	16.53	141.91	5,865.65	-759.18	594.97	-716.61	0.00	0.00	0.00	
6,076.51	16.53	141.91	5,939.00	-776.32	608.40	-732.78	0.00	0.00	0.00	
Teepee Buttes										
6,100.00	16.53	141.91	5,961.52	-781.58	612.53	-737.75	0.00	0.00	0.00	
6,203.25	16.53	141.91	6,060.49	-804.71	630.65	-759.57	0.00	0.00	0.00	
KOP: Build 9°/100' @ 6203.25' MD										
6,250.00	13.51	130.55	6,105.65	-813.50	638.91	-767.78	9.00	-6.47	-24.30	
6,300.00	11.14	112.48	6,154.52	-819.14	647.81	-772.80	9.00	-4.74	-36.15	
6,350.00	10.28	88.52	6,203.67	-820.87	656.74	-773.92	9.00	-1.71	-47.92	
6,400.00	11.29	64.89	6,252.81	-818.68	665.63	-771.12	9.00	2.01	-47.25	
6,450.00	13.76	47.38	6,301.63	-812.58	674.44	-764.42	9.00	4.93	-35.02	
6,500.00	17.06	35.80	6,349.84	-802.60	683.11	-753.87	9.00	6.61	-23.16	
6,550.00	20.81	28.08	6,397.14	-788.81	691.59	-739.54	9.00	7.49	-15.44	
6,600.00	24.80	22.69	6,443.22	-771.29	699.82	-721.50	9.00	7.98	-10.79	
6,650.00	28.93	18.73	6,487.82	-750.15	707.75	-699.86	9.00	8.26	-7.92	
6,700.00	33.15	15.70	6,530.66	-725.53	715.34	-674.78	9.00	8.44	-6.07	
6,750.00	37.43	13.28	6,571.46	-697.57	722.53	-646.39	9.00	8.56	-4.83	
6,800.00	41.75	11.30	6,609.99	-666.44	729.29	-614.87	9.00	8.64	-3.97	
6,830.13	44.36	10.26	6,632.00	-646.24	733.13	-594.45	9.00	8.69	-3.45	
Sharon Springs										
6,850.00	46.10	9.63	6,645.99	-632.34	735.57	-580.42	9.00	8.71	-3.19	
6,869.04	47.76	9.06	6,659.00	-618.61	737.82	-566.57	9.00	8.73	-3.01	
Top A Chalk										
6,891.80	49.75	8.41	6,674.00	-601.71	740.42	-549.53	9.00	8.74	-2.84	
Top A Marl										
6,900.00	50.46	8.19	6,679.26	-595.48	741.33	-543.25	9.00	8.75	-2.73	
6,918.77	52.11	7.69	6,691.00	-580.97	743.35	-528.64	9.00	8.76	-2.64	
Top B Chalk										
6,950.00	54.85	6.91	6,709.58	-556.08	746.54	-503.59	9.00	8.78	-2.49	
6,988.87	58.27	6.02	6,731.00	-523.86	750.18	-471.19	9.00	8.79	-2.31	
Top B Marl										

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Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,000.00	59.25	5.77	6,736.77	-514.39	751.16	-461.68	9.00	8.80	-2.20
7,050.00	63.65	4.73	6,760.67	-470.67	755.17	-417.78	9.00	8.81	-2.08
7,100.00	68.07	3.76	6,781.11	-425.18	758.54	-372.17	9.00	8.83	-1.93
7,116.28	69.50	3.46	6,787.00	-410.03	759.50	-357.00	9.00	8.83	-1.85
Top C Chalk									
7,150.00	72.48	2.86	6,797.98	-378.20	761.25	-325.12	9.00	8.84	-1.80
7,200.00	76.91	1.99	6,811.18	-330.03	763.29	-276.92	9.00	8.84	-1.73
7,223.07	78.95	1.61	6,816.00	-307.48	764.00	-254.38	9.00	8.85	-1.68
Top C Marl									
7,250.00	81.33	1.16	6,820.61	-280.96	764.64	-227.87	9.00	8.85	-1.65
7,300.00	85.76	0.35	6,826.23	-231.29	765.29	-178.28	9.00	8.85	-1.63
7,347.90	90.00	359.58	6,828.00	-183.44	765.25	-130.54	9.00	8.86	-1.61
LP: 7347.90' MD, 90.00° Inc, 359.58° Azm									
7,400.00	90.00	359.58	6,828.00	-131.34	764.87	-78.59	0.00	0.00	0.00
7,422.90	90.00	359.58	6,828.00	-108.44	764.70	-55.75	0.00	0.00	0.00
TPZ: 7422.90' MD, 90.00° Inc, 359.58° Azm									
7,500.00	90.00	359.58	6,828.00	-31.34	764.13	21.12	0.00	0.00	0.00
7,600.00	90.00	359.58	6,828.00	68.66	763.39	120.83	0.00	0.00	0.00
7,700.00	90.00	359.58	6,828.00	168.65	762.65	220.54	0.00	0.00	0.00
7,800.00	90.00	359.58	6,828.00	268.65	761.91	320.26	0.00	0.00	0.00
7,900.00	90.00	359.58	6,828.00	368.65	761.17	419.97	0.00	0.00	0.00
8,000.00	90.00	359.58	6,828.00	468.64	760.43	519.68	0.00	0.00	0.00
8,100.00	90.00	359.58	6,828.00	568.64	759.69	619.39	0.00	0.00	0.00
8,200.00	90.00	359.58	6,828.00	668.64	758.95	719.10	0.00	0.00	0.00
8,300.00	90.00	359.58	6,828.00	768.64	758.21	818.81	0.00	0.00	0.00
8,400.00	90.00	359.58	6,828.00	868.63	757.47	918.52	0.00	0.00	0.00
8,500.00	90.00	359.58	6,828.00	968.63	756.73	1,018.23	0.00	0.00	0.00
8,600.00	90.00	359.58	6,828.00	1,068.63	755.99	1,117.95	0.00	0.00	0.00
8,700.00	90.00	359.58	6,828.00	1,168.63	755.25	1,217.66	0.00	0.00	0.00
8,800.00	90.00	359.58	6,828.00	1,268.62	754.51	1,317.37	0.00	0.00	0.00
8,900.00	90.00	359.58	6,828.00	1,368.62	753.77	1,417.08	0.00	0.00	0.00
9,000.00	90.00	359.58	6,828.00	1,468.62	753.03	1,516.79	0.00	0.00	0.00
9,100.00	90.00	359.58	6,828.00	1,568.61	752.29	1,616.50	0.00	0.00	0.00
9,200.00	90.00	359.58	6,828.00	1,668.61	751.55	1,716.21	0.00	0.00	0.00
9,300.00	90.00	359.58	6,828.00	1,768.61	750.81	1,815.92	0.00	0.00	0.00
9,400.00	90.00	359.58	6,828.00	1,868.61	750.07	1,915.64	0.00	0.00	0.00
9,500.00	90.00	359.58	6,828.00	1,968.60	749.33	2,015.35	0.00	0.00	0.00
9,600.00	90.00	359.58	6,828.00	2,068.60	748.59	2,115.06	0.00	0.00	0.00
9,700.00	90.00	359.58	6,828.00	2,168.60	747.85	2,214.77	0.00	0.00	0.00
9,800.00	90.00	359.58	6,828.00	2,268.60	747.10	2,314.48	0.00	0.00	0.00
9,900.00	90.00	359.58	6,828.00	2,368.59	746.36	2,414.19	0.00	0.00	0.00
10,000.00	90.00	359.58	6,828.00	2,468.59	745.62	2,513.90	0.00	0.00	0.00
10,100.00	90.00	359.58	6,828.00	2,568.59	744.88	2,613.61	0.00	0.00	0.00
10,200.00	90.00	359.58	6,828.00	2,668.58	744.14	2,713.32	0.00	0.00	0.00
10,300.00	90.00	359.58	6,828.00	2,768.58	743.40	2,813.04	0.00	0.00	0.00
10,400.00	90.00	359.58	6,828.00	2,868.58	742.66	2,912.75	0.00	0.00	0.00
10,500.00	90.00	359.58	6,828.00	2,968.58	741.92	3,012.46	0.00	0.00	0.00
10,600.00	90.00	359.58	6,828.00	3,068.57	741.18	3,112.17	0.00	0.00	0.00
10,700.00	90.00	359.58	6,828.00	3,168.57	740.44	3,211.88	0.00	0.00	0.00
10,800.00	90.00	359.58	6,828.00	3,268.57	739.70	3,311.59	0.00	0.00	0.00
10,900.00	90.00	359.58	6,828.00	3,368.57	738.96	3,411.30	0.00	0.00	0.00
11,000.00	90.00	359.58	6,828.00	3,468.56	738.22	3,511.01	0.00	0.00	0.00
11,100.00	90.00	359.58	6,828.00	3,568.56	737.48	3,610.73	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-755
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4753.00ft
Project:	Mustang	MD Reference:	Well @ 4753.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,200.00	90.00	359.58	6,828.00	3,668.56	736.74	3,710.44	0.00	0.00	0.00
11,300.00	90.00	359.58	6,828.00	3,768.55	736.00	3,810.15	0.00	0.00	0.00
11,400.00	90.00	359.58	6,828.00	3,868.55	735.26	3,909.86	0.00	0.00	0.00
11,500.00	90.00	359.58	6,828.00	3,968.55	734.52	4,009.57	0.00	0.00	0.00
11,600.00	90.00	359.58	6,828.00	4,068.55	733.78	4,109.28	0.00	0.00	0.00
11,700.00	90.00	359.58	6,828.00	4,168.54	733.04	4,208.99	0.00	0.00	0.00
11,800.00	90.00	359.58	6,828.00	4,268.54	732.30	4,308.70	0.00	0.00	0.00
11,900.00	90.00	359.58	6,828.00	4,368.54	731.56	4,408.42	0.00	0.00	0.00
12,000.00	90.00	359.58	6,828.00	4,468.54	730.82	4,508.13	0.00	0.00	0.00
12,100.00	90.00	359.58	6,828.00	4,568.53	730.08	4,607.84	0.00	0.00	0.00
12,200.00	90.00	359.58	6,828.00	4,668.53	729.34	4,707.55	0.00	0.00	0.00
12,300.00	90.00	359.58	6,828.00	4,768.53	728.60	4,807.26	0.00	0.00	0.00
12,400.00	90.00	359.58	6,828.00	4,868.52	727.86	4,906.97	0.00	0.00	0.00
12,500.00	90.00	359.58	6,828.00	4,968.52	727.12	5,006.68	0.00	0.00	0.00
12,600.00	90.00	359.58	6,828.00	5,068.52	726.38	5,106.39	0.00	0.00	0.00
12,700.00	90.00	359.58	6,828.00	5,168.52	725.64	5,206.10	0.00	0.00	0.00
12,800.00	90.00	359.58	6,828.00	5,268.51	724.90	5,305.82	0.00	0.00	0.00
12,900.00	90.00	359.58	6,828.00	5,368.51	724.16	5,405.53	0.00	0.00	0.00
13,000.00	90.00	359.58	6,828.00	5,468.51	723.42	5,505.24	0.00	0.00	0.00
13,100.00	90.00	359.58	6,828.00	5,568.50	722.68	5,604.95	0.00	0.00	0.00
13,200.00	90.00	359.58	6,828.00	5,668.50	721.94	5,704.66	0.00	0.00	0.00
13,300.00	90.00	359.58	6,828.00	5,768.50	721.20	5,804.37	0.00	0.00	0.00
13,400.00	90.00	359.58	6,828.00	5,868.50	720.46	5,904.08	0.00	0.00	0.00
13,500.00	90.00	359.58	6,828.00	5,968.49	719.72	6,003.79	0.00	0.00	0.00
13,600.00	90.00	359.58	6,828.00	6,068.49	718.98	6,103.51	0.00	0.00	0.00
13,700.00	90.00	359.58	6,828.00	6,168.49	718.24	6,203.22	0.00	0.00	0.00
13,800.00	90.00	359.58	6,828.00	6,268.49	717.50	6,302.93	0.00	0.00	0.00
13,900.00	90.00	359.58	6,828.00	6,368.48	716.76	6,402.64	0.00	0.00	0.00
14,000.00	90.00	359.58	6,828.00	6,468.48	716.02	6,502.35	0.00	0.00	0.00
14,100.00	90.00	359.58	6,828.00	6,568.48	715.28	6,602.06	0.00	0.00	0.00
14,200.00	90.00	359.58	6,828.00	6,668.47	714.54	6,701.77	0.00	0.00	0.00
14,300.00	90.00	359.58	6,828.00	6,768.47	713.80	6,801.48	0.00	0.00	0.00
14,400.00	90.00	359.58	6,828.00	6,868.47	713.06	6,901.20	0.00	0.00	0.00
14,500.00	90.00	359.58	6,828.00	6,968.47	712.32	7,000.91	0.00	0.00	0.00
14,600.00	90.00	359.58	6,828.00	7,068.46	711.58	7,100.62	0.00	0.00	0.00
14,700.00	90.00	359.58	6,828.00	7,168.46	710.84	7,200.33	0.00	0.00	0.00
14,800.00	90.00	359.58	6,828.00	7,268.46	710.10	7,300.04	0.00	0.00	0.00
14,900.00	90.00	359.58	6,828.00	7,368.46	709.36	7,399.75	0.00	0.00	0.00
15,000.00	90.00	359.58	6,828.00	7,468.45	708.62	7,499.46	0.00	0.00	0.00
15,100.00	90.00	359.58	6,828.00	7,568.45	707.88	7,599.17	0.00	0.00	0.00
15,200.00	90.00	359.58	6,828.00	7,668.45	707.14	7,698.89	0.00	0.00	0.00
15,300.00	90.00	359.58	6,828.00	7,768.44	706.40	7,798.60	0.00	0.00	0.00
15,400.00	90.00	359.58	6,828.00	7,868.44	705.66	7,898.31	0.00	0.00	0.00
15,500.00	90.00	359.58	6,828.00	7,968.44	704.91	7,998.02	0.00	0.00	0.00
15,600.00	90.00	359.58	6,828.00	8,068.44	704.17	8,097.73	0.00	0.00	0.00
15,700.00	90.00	359.58	6,828.00	8,168.43	703.43	8,197.44	0.00	0.00	0.00
15,800.00	90.00	359.58	6,828.00	8,268.43	702.69	8,297.15	0.00	0.00	0.00
15,900.00	90.00	359.58	6,828.00	8,368.43	701.95	8,396.86	0.00	0.00	0.00
16,000.00	90.00	359.58	6,828.00	8,468.43	701.21	8,496.57	0.00	0.00	0.00
16,100.00	90.00	359.58	6,828.00	8,568.42	700.47	8,596.29	0.00	0.00	0.00
16,200.00	90.00	359.58	6,828.00	8,668.42	699.73	8,696.00	0.00	0.00	0.00
16,300.00	90.00	359.58	6,828.00	8,768.42	698.99	8,795.71	0.00	0.00	0.00
16,400.00	90.00	359.58	6,828.00	8,868.41	698.25	8,895.42	0.00	0.00	0.00
16,500.00	90.00	359.58	6,828.00	8,968.41	697.51	8,995.13	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-755
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4753.00ft
Project:	Mustang	MD Reference:	Well @ 4753.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
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)
16,600.00	90.00	359.58	6,828.00	9,068.41	696.77	9,094.84	0.00	0.00	0.00
16,700.00	90.00	359.58	6,828.00	9,168.41	696.03	9,194.55	0.00	0.00	0.00
16,800.00	90.00	359.58	6,828.00	9,268.40	695.29	9,294.26	0.00	0.00	0.00
16,900.00	90.00	359.58	6,828.00	9,368.40	694.55	9,393.98	0.00	0.00	0.00
17,000.00	90.00	359.58	6,828.00	9,468.40	693.81	9,493.69	0.00	0.00	0.00
17,100.00	90.00	359.58	6,828.00	9,568.40	693.07	9,593.40	0.00	0.00	0.00
17,200.00	90.00	359.58	6,828.00	9,668.39	692.33	9,693.11	0.00	0.00	0.00
17,300.00	90.00	359.58	6,828.00	9,768.39	691.59	9,792.82	0.00	0.00	0.00
17,400.00	90.00	359.58	6,828.00	9,868.39	690.85	9,892.53	0.00	0.00	0.00
17,500.00	90.00	359.58	6,828.00	9,968.38	690.11	9,992.24	0.00	0.00	0.00
17,566.31	90.00	359.58	6,828.00	10,034.69	689.62	10,058.36	0.00	0.00	0.00
TD @ 17566.31' MD/6828.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen C28-755-SI - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,339,901.54	3,262,365.84	40.2626110	-104.5598550
Guttersen C28-755-KI - plan hits target center - Point	0.00	0.00	6,060.50	-804.71	630.65	1,339,096.84	3,262,996.49	40.2603838	-104.5576260
Guttersen C28-755-TI - plan hits target center - Point	0.00	0.00	6,828.00	-108.44	764.70	1,339,793.11	3,263,130.54	40.2622911	-104.5571191
Guttersen C28-755-BI - plan hits target center - Point	0.00	0.00	6,828.00	10,034.69	689.62	1,349,936.22	3,263,055.46	40.2901354	-104.5570017

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen C28-755
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4753.00ft
Project:	Mustang	MD Reference:	Well @ 4753.00ft
Site:	C Section 33	North Reference:	Grid
Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen C28-755		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
470.00	470.00	Pierre				
603.00	603.00	Upper Pierre Aquifer Top				
1,523.00	1,523.00	Upper Pierre Aquifer Base				
3,638.73	3,602.00	Parkman				
4,061.20	4,007.00	Sussex				
4,637.00	4,559.00	Shannon				
6,076.51	5,939.00	Teepee Buttes				
6,830.13	6,632.00	Sharon Springs				
6,869.04	6,659.00	Top A Chalk				
6,891.80	6,674.00	Top A Marl				
6,918.77	6,691.00	Top B Chalk				
6,988.87	6,731.00	Top B Marl				
7,116.28	6,787.00	Top C Chalk				
7,223.07	6,816.00	Top C Marl				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
3,026.64	3,015.21	-93.22	73.06	Hold: 16.53° Inc, 141.91° Azm	
6,203.25	6,060.49	-804.71	630.65	KOP: Build 9°/100' @ 6203.25' MD	
7,347.90	6,828.00	-183.44	765.25	LP: 7347.90' MD, 90.00° Inc, 359.58° Azm	
7,422.90	6,828.00	-108.44	764.70	TPZ: 7422.90' MD, 90.00° Inc, 359.58° Azm	
17,566.31	6,828.00	10,034.69	689.62	TD @ 17566.31' MD/6828.00' TVD	

Northern Region - DJ Basin

Mustang

C Section 33

Guttersen C28-755

Guttersen C28-755

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 C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-755	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	17,566.31	Plan #1 (Guttersen C28-755)	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	17,566.31	6,575.66	2,505.36	2,397.22	23.168	CC, ES, SF
NOVACEK C #28-27D - NOVACEK C #28-27D OH - As-	17,566.31	6,883.17	1,623.45	1,507.60	14.013	CC, ES, SF
C Section 27						
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,325.45	7,230.07	2,880.79	2,761.88	24.226	CC, ES
HERBST #C27-31D - HERBST #C27-31D - As-Drilled	16,500.00	7,236.97	2,886.07	2,766.36	24.109	SF
C Section 28						
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	12,602.41	6,942.84	2,849.52	2,773.17	37.319	CC, ES
Aloysius C #34-30D - Aloysius C #34-30D OH - As-Drille	13,100.00	6,948.02	2,892.64	2,813.55	36.574	SF
HANSCOME #28-4 - Wellbore #1 - No Surveys	16,943.80	6,860.00	1,763.12	1,405.86	4.935	CC, ES
HANSCOME #28-4 - Wellbore #1 - No Surveys	17,000.00	6,860.00	1,764.02	1,406.42	4.933	SF
HANSCOME #28-6 - Wellbore #1 - No Surveys	15,803.74	6,825.00	336.98	-9.96	0.971	Level 1, CC, ES, SF
HANSCOME C #28-18 - Wellbore #1 - No Surveys	16,450.43	6,808.00	247.34	-103.97	0.704	Level 1, CC, ES, SF
HANSCOME C #28-19 - Wellbore #1 - No Surveys	16,525.25	6,838.00	1,066.04	712.94	3.019	CC, ES, SF
HANSCOME C #28-20 - Wellbore #1 - No Surveys	15,219.48	6,839.00	999.66	656.67	2.915	CC, ES, SF
HANSCOME C #28-21 - Wellbore #1 - No Surveys	15,267.41	6,823.00	197.33	-145.38	0.576	Level 1, CC, ES, SF
HANSCOME C #28-28D - HANSCOME C #28-28D OH -	17,566.31	6,836.89	443.23	335.88	4.129	CC, ES, SF
HANSCOME C #28-29D - HANSCOME C #28-29D OH -	17,566.31	7,023.29	980.23	868.99	8.812	CC, ES, SF
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,788.61	6,861.00	1,653.74	1,305.47	4.748	CC
HANSCOME, C #2 - Wellbore #1 - No Surveys	15,800.00	6,861.00	1,653.78	1,305.43	4.748	ES, SF
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,099.52	6,820.00	338.64	-18.25	0.949	Level 1, CC
HANSCOME, C #28-1 - Wellbore #1 - No Surveys	17,100.00	6,820.00	338.64	-18.25	0.949	Level 1, ES, SF
NIX #1 - Wellbore #1 - No Surveys	16,977.96	6,755.00	2,256.45	1,903.12	6.386	CC
NIX #1 - Wellbore #1 - No Surveys	17,000.00	6,755.00	2,256.56	1,903.04	6.383	ES
NIX #1 - Wellbore #1 - No Surveys	17,100.00	6,755.00	2,259.75	1,905.45	6.378	SF
NIX #28-8I4 - Wellbore #1 - No Surveys	15,616.26	6,778.00	2,481.38	2,137.76	7.221	CC, ES
NIX #28-8I4 - Wellbore #1 - No Surveys	15,700.00	6,778.00	2,482.79	2,138.49	7.211	SF
NOVACEK #1 - Wellbore #1 - No Surveys	17,101.27	6,789.00	986.73	631.07	2.774	CC, ES, SF
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,450.82	6,785.00	1,482.65	1,132.25	4.231	CC, ES
NOVACEK C #28-17 - Wellbore #1 - No Surveys	16,500.00	6,785.00	1,483.46	1,132.65	4.229	SF
NOVACEK C #28-7 - Wellbore #1 - No Surveys	15,618.86	6,802.00	1,064.12	719.53	3.088	CC, ES, SF
THOMPSON #1 - Wellbore #1 - As-Drilled	14,445.17	6,753.57	2,292.10	2,203.13	25.764	CC, ES
THOMPSON #1 - Wellbore #1 - As-Drilled	14,800.00	6,758.82	2,319.39	2,228.01	25.381	SF
THOMPSON #2 - Wellbore #1 - No Surveys	14,484.89	6,828.00	374.59	37.67	1.112	Level 2, CC, ES, SF
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,478.11	6,829.00	906.04	569.13	2.689	CC, ES
THOMPSON #28-10 - Wellbore #1 - No Surveys	14,500.00	6,829.00	906.30	569.20	2.688	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 C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-755	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
C Section 28						
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,433.32	6,853.00	1,694.09	1,356.56	5.019	CC, ES
THOMPSON #28-12 - Wellbore #1 - No Surveys	14,500.00	6,853.00	1,695.40	1,357.49	5.017	SF
THOMPSON #28-14 - Wellbore #1 - No Surveys	13,151.53	6,831.00	392.62	65.58	1.201	Level 3, CC, ES, SF
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,156.66	6,823.00	2,291.47	1,964.72	7.013	CC, ES
THOMPSON #28-16 - Wellbore #1 - No Surveys	13,300.00	6,823.00	2,295.95	1,968.10	7.003	SF
THOMPSON #3 - Wellbore #1 - No Surveys	13,151.04	6,826.00	1,690.03	1,363.19	5.171	CC, ES
THOMPSON #3 - Wellbore #1 - No Surveys	13,200.00	6,826.00	1,690.74	1,363.62	5.169	SF
THOMPSON #4 - Wellbore #1 - No Surveys	13,090.41	6,831.00	980.33	653.74	3.002	CC
THOMPSON #4 - Wellbore #1 - No Surveys	13,100.00	6,831.00	980.37	653.70	3.001	ES, SF
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,447.96	6,949.89	2,400.69	2,326.14	32.204	CC, ES
THOMPSON #C33-30D - THOMPSON #C33-30D OH - A	12,700.00	6,951.02	2,413.88	2,338.14	31.868	SF
THOMPSON C #28-22 - Wellbore #1 - No Surveys	14,966.98	6,802.00	1,677.53	1,337.97	4.940	CC, ES
THOMPSON C #28-22 - Wellbore #1 - No Surveys	15,000.00	6,802.00	1,677.85	1,338.01	4.937	SF
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,890.71	6,820.00	1,631.14	1,299.04	4.912	CC
THOMPSON C #28-23 - Wellbore #1 - No Surveys	13,900.00	6,820.00	1,631.17	1,298.98	4.910	ES
THOMPSON C #28-23 - Wellbore #1 - No Surveys	14,000.00	6,820.00	1,634.80	1,301.85	4.910	SF
THOMPSON C #28-24 - Wellbore #1 - No Surveys	13,700.50	6,836.00	392.42	61.10	1.184	Level 2, CC, ES, SF
THOMPSON C #28-25 - Wellbore #1 - No Surveys	13,816.23	6,843.00	1,000.20	667.74	3.008	CC, ES, SF
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,648.68	10,305.07	2,221.03	2,067.55	14.471	CC
Thompson C28-79HN - Thompson C28-79HN OH - Origi	16,700.00	10,327.88	2,221.36	2,067.09	14.400	ES
Thompson C28-79HN - Thompson C28-79HN OH - Origi	17,400.00	10,884.02	2,251.55	2,082.60	13.326	SF
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,565.74	8,397.78	90.28	27.23	1.432	Level 3, CC
Thompson C33-69HN - Thompson C33-69HN OH - Origi	12,600.00	8,397.80	96.56	26.24	1.373	Level 3, ES, SF
C Section 32						
Becker #1 - Wellbore #1 - Plan #1	1,900.00	1,992.00	6,249.35	6,235.86	463.406	CC
Becker #1 - Wellbore #1 - Plan #1	2,100.00	2,145.57	6,250.06	6,235.34	424.660	ES
Becker #1 - Wellbore #1 - Plan #1	17,566.31	17,647.88	7,234.82	7,055.70	40.392	SF
Becker #2 - Wellbore #1 - Plan #1	2,630.36	3,320.90	6,191.04	6,170.59	302.815	CC, ES
Becker #2 - Wellbore #1 - Plan #1	17,566.31	17,664.97	6,582.05	6,402.99	36.758	SF
Becker #3 - Wellbore #1 - Plan #1	5,858.78	7,242.69	5,854.70	5,807.16	123.142	CC
Becker #3 - Wellbore #1 - Plan #1	17,566.31	17,776.56	5,929.31	5,750.44	33.149	ES, SF
Becker #4 - Wellbore #1 - Plan #1	6,026.76	7,650.00	5,226.77	5,176.79	104.587	CC
Becker #4 - Wellbore #1 - Plan #1	17,566.31	18,007.80	5,276.60	5,097.57	29.474	ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutteresen C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutteresen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen C28-755	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	11,176.50	7,052.58	2,408.53	2,332.57	31.708	CC
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,200.00	7,053.10	2,408.64	2,332.51	31.637	ES
GUTTERSEN C #33-31D - GUTTERSEN C #33-31D OH	11,500.00	7,054.54	2,430.16	2,352.17	31.158	SF
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,699.92	6,839.00	2,097.69	1,793.50	6.896	CC
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,700.00	6,839.00	2,097.69	1,793.50	6.896	ES
GUTTERSEN C #33-32 - Wellbore #1 - No Surveys	9,800.00	6,839.00	2,100.08	1,795.41	6.893	SF
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	2,686.15	3,147.60	2,250.83	2,229.15	103.822	CC
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	2,700.00	3,159.27	2,250.87	2,229.08	103.260	ES
GUTTERSEN C #33-33D - GUTTERSEN C #33-33D OH	8,700.00	7,015.84	2,408.98	2,350.03	40.864	SF
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	3,156.81	2,800.00	2,026.72	2,006.38	99.632	CC
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	3,200.00	2,826.89	2,026.90	2,006.33	98.553	ES
Gutteresen C28-715 - Gutteresen C28-715 - Plan #1	17,566.31	17,595.05	2,596.31	2,417.42	14.513	SF
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	6,623.73	6,275.54	1,930.85	1,883.91	41.132	CC
Gutteresen C28-725 - Gutteresen C28-725 - Plan #1	17,566.31	17,549.92	1,950.06	1,769.75	10.815	ES, SF
Gutteresen C28-735 - Gutteresen C28-735 - Plan #1	17,566.31	17,458.39	1,298.16	1,118.42	7.222	CC, ES, SF
Gutteresen C28-745 - Gutteresen C28-745 - Plan #1	12,652.81	12,432.78	653.42	549.52	6.289	CC
Gutteresen C28-745 - Gutteresen C28-745 - Plan #1	17,566.31	17,346.60	655.43	476.11	3.655	ES, SF
Gutteresen C28-750 - Gutteresen C28-750 - Plan #1	17,566.31	17,562.41	334.49	155.72	1.871	CC, ES, SF
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	2,200.00	2,200.00	22.33	7.02	1.459	Level 3, CC, ES
Gutteresen C28-765 - Gutteresen C28-765 - Plan #1	2,300.00	2,300.12	23.13	7.14	1.447	Level 3, SF
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,200.00	2,200.00	44.93	29.63	2.935	CC, ES
Gutteresen C28-770 - Gutteresen C28-770 - Plan #1	2,300.00	2,299.70	46.32	30.33	2.897	SF
Gutteresen C28-775 - Gutteresen C28-775 - Plan #1	2,200.00	2,201.00	67.26	51.95	4.393	CC, ES
Gutteresen C28-775 - Gutteresen C28-775 - Plan #1	2,300.00	2,299.90	69.14	53.15	4.325	SF
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	2,200.00	2,201.00	89.87	74.56	5.870	CC, ES
Gutteresen C28-785 - Gutteresen C28-785 - Plan #1	2,300.00	2,298.58	92.27	76.29	5.773	SF
GUTTERSEN D #03-30D - Wellbore #1 - No Surveys	7,876.82	6,789.00	325.42	30.05	1.102	Level 2, CC, ES, SF
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	7,882.33	6,791.63	938.51	889.12	19.000	CC, ES
LINDSAY #33-1 - LINDSAY #33-1 OH - As-Drilled	7,900.00	6,791.60	938.68	889.25	18.990	SF
LINDSAY #33-3 - Wellbore #1 - No Surveys	10,525.16	6,804.00	342.32	34.42	1.112	Level 2, CC, ES, SF
LINDSAY #33-4 - Wellbore #1 - No Surveys	10,536.76	6,804.00	988.68	680.71	3.210	CC, ES, SF
LINDSAY #33-5 - Wellbore #1 - No Surveys	9,210.75	6,781.00	990.23	690.50	3.304	CC, ES, SF
LINDSAY #33-6 - Wellbore #1 - No Surveys	9,206.44	6,404.00	335.28	50.66	1.178	Level 2, CC, ES, SF
LINDSAY #33-7 - Wellbore #1 - No Surveys	11,843.87	6,804.00	346.56	29.97	1.095	Level 2, CC, ES, SF
LINDSAY #33-8 - Wellbore #1 - No Surveys	11,844.49	6,807.00	967.66	650.95	3.055	CC, ES, SF
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,879.60	6,820.00	1,708.33	1,390.85	5.381	CC, ES
LINDSAY #C33-10 - Wellbore #1 - No Surveys	11,900.00	6,820.00	1,708.45	1,390.86	5.379	SF
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,594.02	6,834.94	1,747.71	1,685.68	28.175	CC
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,600.00	6,835.07	1,747.72	1,685.65	28.160	ES
LINDSAY #C33-11 - LINDSAY #C33-11 OH - As-Drilled	10,800.00	6,839.79	1,759.80	1,696.77	27.919	SF
LINDSAY #C33-12 - Wellbore #1 - No Surveys	9,205.91	6,807.00	1,646.85	1,346.11	5.476	CC, ES, SF
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	100.00	82.07	931.33	931.06	3,457.039	CC
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	2,200.00	2,174.68	937.51	922.43	62.175	ES
LINDSAY #C33-13 - LINDSAY #C33-13 OH - As-Drilled	8,000.00	6,795.23	1,692.03	1,642.37	34.077	SF
LINDSAY #C33-14 - Wellbore #1 - No Surveys	11,838.63	6,806.00	2,285.25	1,968.62	7.217	CC, ES
LINDSAY #C33-14 - Wellbore #1 - No Surveys	12,000.00	6,806.00	2,290.94	1,973.15	7.209	SF
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,523.93	6,808.00	2,291.30	1,983.45	7.443	CC, ES
LINDSAY #C33-15 - Wellbore #1 - No Surveys	10,600.00	6,808.00	2,292.56	1,984.20	7.435	SF
LINDSAY #C33-16 - Wellbore #1 - No Surveys	7,932.74	6,779.00	2,292.10	1,997.00	7.767	CC, ES
LINDSAY #C33-16 - Wellbore #1 - No Surveys	8,000.00	6,779.00	2,293.08	1,997.84	7.767	SF
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,251.47	6,774.00	2,290.50	1,990.87	7.644	CC, ES
LINDSAY #C33-9 - Wellbore #1 - No Surveys	9,300.00	6,774.00	2,291.02	1,991.13	7.640	SF
LINDSAY C #33-17 - Wellbore #1 - No Surveys	11,182.03	6,805.00	1,468.19	1,156.04	4.704	CC

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-755	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 C #33-17 - Wellbore #1 - No Surveys	11,200.00	6,805.00	1,468.30	1,156.02	4.702	ES, SF
LINDSAY C #33-18 - Wellbore #1 - As-Drilled	11,186.99	6,918.50	294.27	159.84	2.189	CC, ES, SF
LINDSAY C #33-19 - Wellbore #1 - No Surveys	11,127.47	6,813.00	1,094.86	782.76	3.508	CC, ES, SF
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,676.09	6,809.00	992.57	689.38	3.274	CC, ES
LINDSAY C #33-20 - Wellbore #1 - No Surveys	9,700.00	6,809.00	992.86	689.57	3.274	SF
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,697.82	6,808.00	323.93	20.67	1.068	Level 2, CC
LINDSAY C #33-21 - Wellbore #1 - No Surveys	9,700.00	6,808.00	323.94	20.66	1.068	Level 2, ES, SF
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,710.10	6,789.00	1,627.35	1,324.78	5.378	CC, ES
LINDSAY C #33-22 - Wellbore #1 - No Surveys	9,800.00	6,789.00	1,629.83	1,326.73	5.377	SF
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,535.17	6,778.00	1,603.59	1,306.79	5.403	CC, ES
LINDSAY C #33-23 - Wellbore #1 - No Surveys	8,600.00	6,778.00	1,604.90	1,307.86	5.403	SF
LINDSAY C #33-24 - Wellbore #1 - No Surveys	8,526.18	6,789.00	297.04	-0.17	0.999	Level 1, CC, ES, SF
LINDSAY C #33-25 - Wellbore #1 - No Surveys	2,200.00	2,173.00	934.72	842.15	10.097	CC
LINDSAY C #33-25 - Wellbore #1 - No Surveys	8,455.17	6,801.00	939.00	641.56	3.157	ES, SF
C Section 34						
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	8,395.11	10,570.00	3,498.16	3,439.31	59.436	CC
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	8,500.00	10,570.00	3,499.73	3,438.84	57.469	ES
Aloysius C34-99HZ - Original Drilling - Original Drilling - /	10,900.00	10,570.00	4,302.51	4,190.66	38.465	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-755	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	6,458.29	6,310.70	2,643.77	2,599.00	59.046	CC, ES
Burghart D04-22 - Wellbore #1 - Wellbore #1- As Drilled	6,700.00	6,516.37	2,681.05	2,634.92	58.121	SF
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,513.90	6,323.17	2,788.53	2,743.41	61.805	CC, ES
Gittlein Blue D04-08 - Wellbore #1 - Wellbore #1- As Drill	6,800.00	6,566.04	2,829.12	2,782.51	60.700	SF
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,442.79	6,343.85	4,383.58	4,334.09	88.564	CC
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,450.00	6,353.43	4,383.61	4,334.07	88.478	ES
Guttersen D03-33D - Wellbore #1 - Wellbore #1- As Drill	6,700.00	6,551.67	4,423.95	4,373.22	87.214	SF
Guttersen D04-30D - Plan B - Plan B	1,116.96	1,125.79	1,377.29	1,370.85	213.758	CC
Guttersen D04-30D - Plan B - Plan B	1,200.00	1,191.43	1,377.81	1,370.83	197.564	ES
Guttersen D04-30D - Plan B - Plan B	7,500.00	6,877.21	2,384.93	2,336.14	48.880	SF
Guttersen D04-31D - Plan B - Plan B	924.12	929.67	1,388.75	1,383.72	276.256	CC, ES
Guttersen D04-31D - Plan B - Plan B	6,550.00	6,639.52	2,471.28	2,420.72	48.875	SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,250.00	8,502.22	57.77	-10.14	0.851	Level 1, ES, SF
Guttersen D04-69HN - Original Drilling - Original Drilling	7,300.54	8,501.18	30.07	2.23	1.080	Level 2, CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,630.30	6,382.49	1,191.02	1,144.88	25.816	CC
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,650.00	6,402.22	1,191.13	1,144.88	25.755	ES
Karch Blue D04-02 - Wellbore #1 - Wellbore #1- As Drille	6,800.00	6,526.84	1,200.89	1,153.92	25.566	SF
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,420.14	6,227.76	1,897.35	1,852.91	42.693	CC, ES
Karch Blue D04-07 - Wellbore #1 - Wellbore #1- As Drille	6,600.00	6,399.40	1,919.22	1,873.66	42.124	SF
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,560.95	6,366.86	1,928.06	1,882.57	42.382	CC, ES
Karch D04-17 - Wellbore #1 - Wellbore #1- As Drilled	6,800.00	6,587.30	1,952.82	1,906.09	41.789	SF
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,439.39	6,225.92	3,637.14	3,592.65	81.747	CC
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,450.00	6,236.61	3,637.21	3,592.64	81.618	ES
Marie D04-09 - Wellbore #1 - Wellbore #1- As Drilled	6,800.00	6,590.00	3,715.83	3,669.26	79.794	SF
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,394.54	6,224.00	3,136.43	3,092.08	70.726	CC
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,400.00	6,229.09	3,136.45	3,092.07	70.668	ES
Marie D04-10 - Wellbore #1 - Wellbore #1- As Drilled	6,650.00	6,468.42	3,184.40	3,138.50	69.374	SF
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,372.34	6,148.93	4,245.89	4,201.81	96.314	CC, ES
Marie D04-15 - Wellbore #1 - Wellbore #1- As Drilled	6,700.00	6,444.83	4,327.21	4,281.21	94.065	SF
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,417.98	6,259.71	4,671.37	4,626.85	104.936	CC, ES
Marie D04-16 - Wellbore #1 - Wellbore #1- As Drilled	6,750.00	6,527.97	4,747.39	4,701.10	102.537	SF
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,408.85	6,245.93	3,856.61	3,812.16	86.751	CC, ES
Marie D04-23 - Wellbore #1 - Wellbore #1-As Drilled	6,700.00	6,490.97	3,917.13	3,871.03	84.981	SF
Marie D04-72-1HN - Original Drilling - Original Drilling - A	7,006.66	11,395.00	2,657.47	2,546.18	23.879	CC, ES
Marie D04-72-1HN - Original Drilling - Original Drilling - A	7,100.00	11,395.00	2,660.74	2,549.03	23.818	SF
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,930.68	11,120.00	1,854.82	1,745.51	16.969	CC, ES
Marie D04-73-1HN - Original Drilling - Original Drilling - A	6,950.00	11,120.00	1,854.99	1,745.66	16.968	SF
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,393.79	6,393.79	4,893.09	4,850.36	114.504	CC, ES
Marie D04-74-1HN - Original Drilling - Original Drilling - P	6,750.00	6,592.47	4,991.94	4,947.64	112.685	SF
Marie D04-74-1HN - Original Drilling - ST01 - ST-01- As	6,920.30	11,217.00	1,352.59	1,287.98	20.935	CC, ES, SF
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	6,832.86	6,588.24	2,045.45	1,998.34	43.415	CC, ES
Two E Ranch 01-04 - Wellbore #1 - Wellbore #1- As Drill	7,000.00	6,690.76	2,055.23	2,007.53	43.090	SF

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

Noble Energy, Inc.

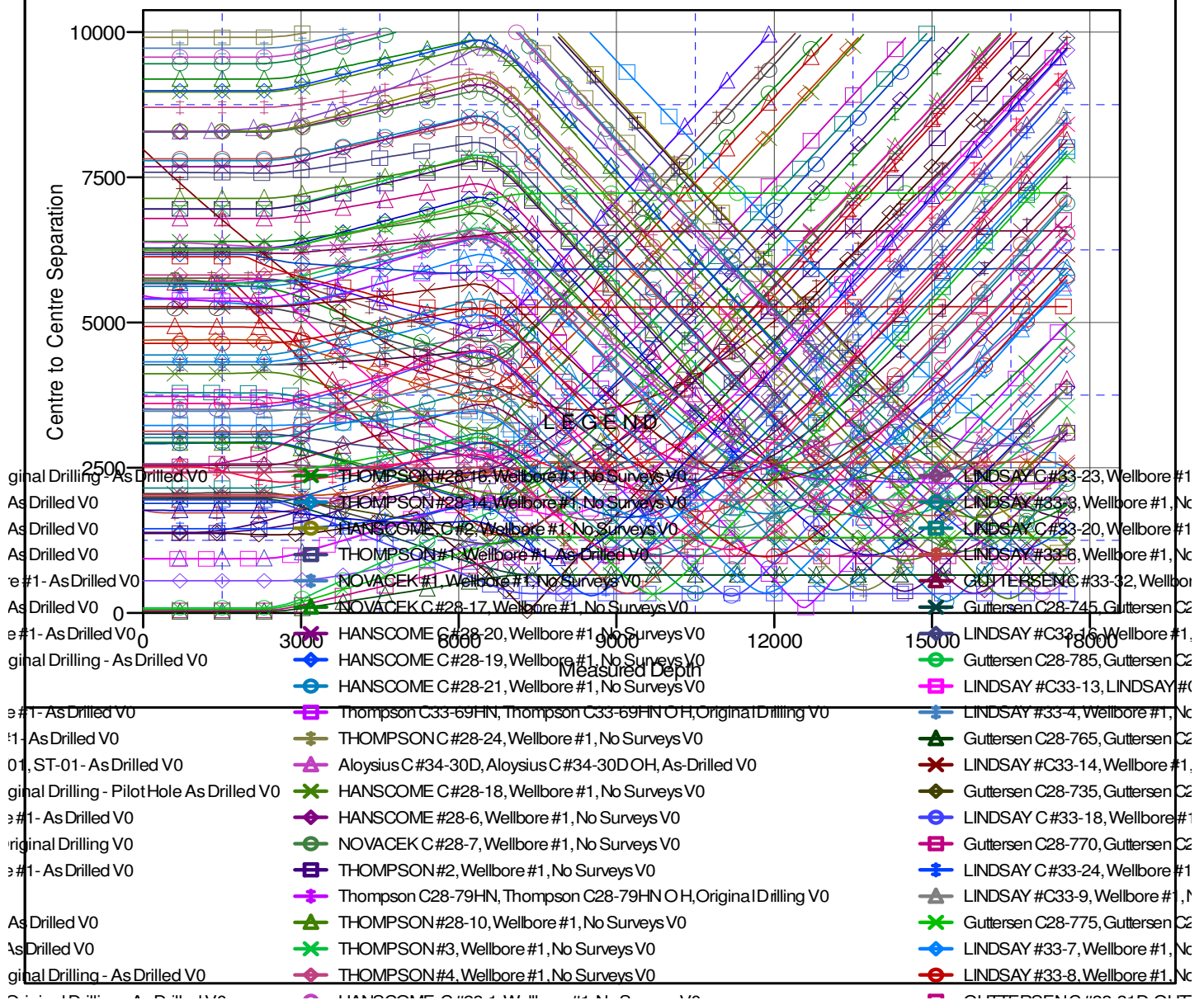
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-755
Project:	Mustang	TVD Reference:	Well @ 4753.00ft
Reference Site:	C Section 33	MD Reference:	Well @ 4753.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen C28-755	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen C28-755	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4753.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Guttersen C28-755
 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

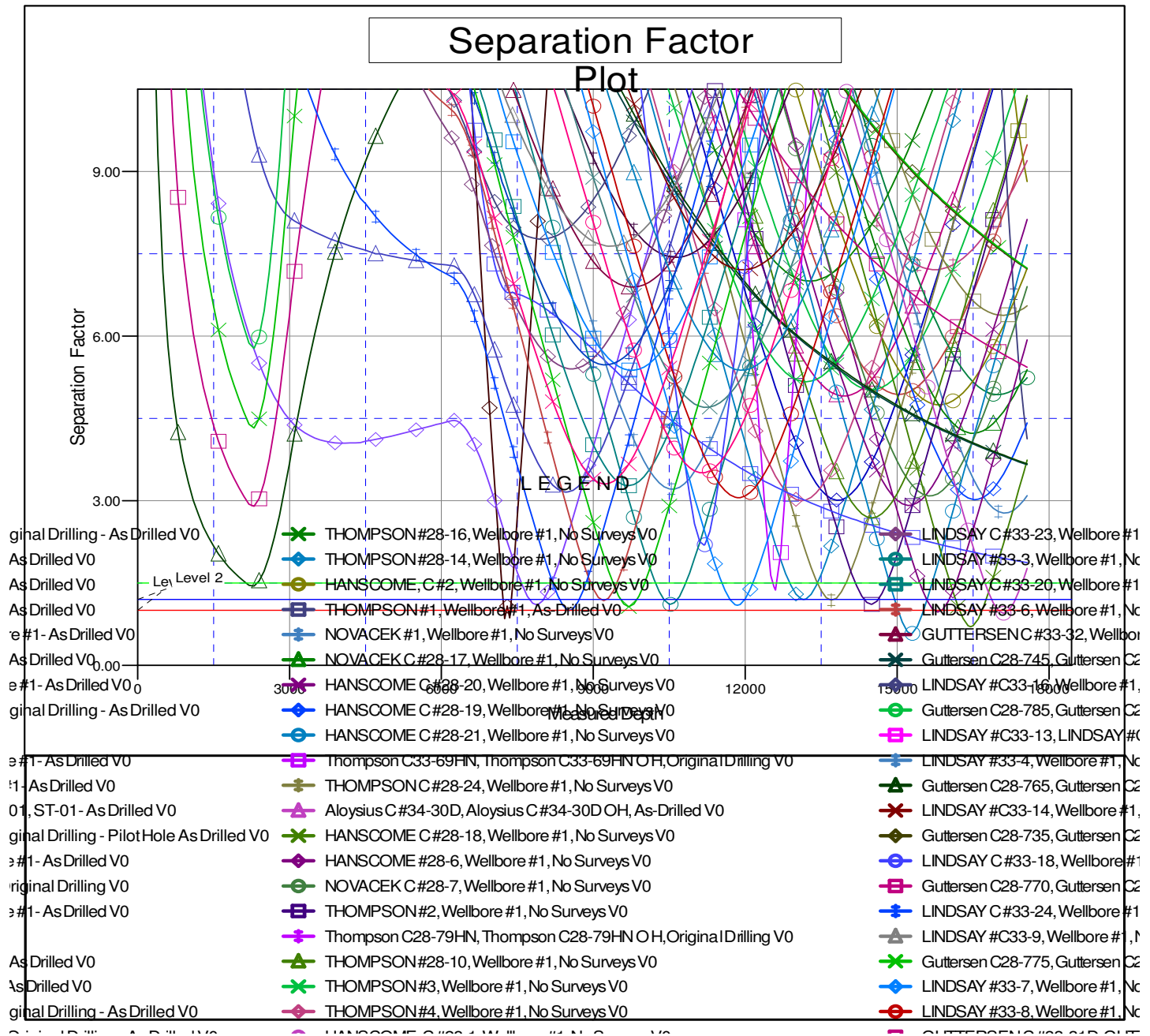
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen C28-755
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Reference Wellbore	Guttersen C28-755	Database:	EDMP
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Reference Depths are relative to Well @ 4753.00ft
 Offset Depths are relative to Offset Datum
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 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