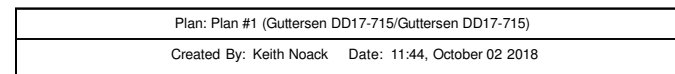


Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level



Northern Region - DJ Basin

Mustang

DD Section 08

Guttersen DD17-715

Guttersen DD17-715

Plan: Plan #1

Standard Planning Report

02 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
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		DD Section 08			
Site Position:		Northing:	1,330,053.01 usft	Latitude:	40.2347995
From:	Map	Easting:	3,287,864.30 usft	Longitude:	-104.4689036
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.67 °

Well	Guttersen DD17-715					
Well Position	+N/-S	4,080.24 ft	Northing:	1,334,133.24 usft	Latitude:	40.2458900
	+E/-W	3,406.82 ft	Easting:	3,291,271.11 usft	Longitude:	-104.4565300
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,864.00 ft

Wellbore	Guttersen DD17-715				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/1/2018	7.90	66.75	52,196.74780828

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	174.81

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	
3,200.01	20.00	33.81	3,179.83	143.56	96.13	2.00	2.00	0.00	33.81	
6,157.90	20.00	33.81	5,959.32	984.18	659.01	0.00	0.00	0.00	0.00	
7,350.70	90.00	184.50	6,773.00	367.03	755.86	9.00	5.87	12.63	149.15	Guttersen DD17-71
7,550.70	90.00	184.50	6,773.00	167.65	740.16	0.00	0.00	0.00	0.00	
8,105.49	90.00	178.95	6,773.00	-386.68	723.46	1.00	0.00	-1.00	-90.00	
17,602.36	90.00	178.95	6,773.00	-9,881.95	897.14	0.00	0.00	0.00	0.00	Guttersen DD17-71

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
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
385.00	0.00	0.00	385.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
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
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
725.00	0.00	0.00	725.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,620.00	0.00	0.00	1,620.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
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	33.81	2,299.98	1.45	0.97	-1.36	2.00	2.00	0.00
2,400.00	4.00	33.81	2,399.84	5.80	3.88	-5.42	2.00	2.00	0.00
2,500.00	6.00	33.81	2,499.45	13.04	8.73	-12.20	2.00	2.00	0.00
2,600.00	8.00	33.81	2,598.70	23.17	15.51	-21.67	2.00	2.00	0.00
2,700.00	10.00	33.81	2,697.47	36.16	24.22	-33.83	2.00	2.00	0.00
2,800.00	12.00	33.81	2,795.62	52.02	34.83	-48.66	2.00	2.00	0.00
2,900.00	14.00	33.81	2,893.06	70.71	47.35	-66.14	2.00	2.00	0.00
3,000.00	16.00	33.81	2,989.64	92.21	61.75	-86.25	2.00	2.00	0.00
3,100.00	18.00	33.81	3,085.27	116.51	78.01	-108.97	2.00	2.00	0.00
3,200.01	20.00	33.81	3,179.83	143.56	96.13	-134.28	2.00	2.00	0.00
Hold: 20.00° Inc, 33.81° Azm									
3,300.00	20.00	33.81	3,273.78	171.98	115.16	-160.86	0.00	0.00	0.00
3,400.00	20.00	33.81	3,367.75	200.40	134.19	-187.44	0.00	0.00	0.00
3,500.00	20.00	33.81	3,461.72	228.81	153.22	-214.02	0.00	0.00	0.00
3,600.00	20.00	33.81	3,555.69	257.23	172.25	-240.61	0.00	0.00	0.00
3,700.00	20.00	33.81	3,649.66	285.65	191.28	-267.19	0.00	0.00	0.00
3,800.00	20.00	33.81	3,743.63	314.07	210.31	-293.77	0.00	0.00	0.00
3,817.42	20.00	33.81	3,760.00	319.02	213.62	-298.40	0.00	0.00	0.00
Parkman									
3,900.00	20.00	33.81	3,837.60	342.49	229.34	-320.36	0.00	0.00	0.00
4,000.00	20.00	33.81	3,931.57	370.91	248.37	-346.94	0.00	0.00	0.00
4,100.00	20.00	33.81	4,025.54	399.33	267.40	-373.52	0.00	0.00	0.00
4,200.00	20.00	33.81	4,119.51	427.75	286.43	-400.10	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,232.45	20.00	33.81	4,150.00	436.97	292.60	-408.73	0.00	0.00	0.00	
Sussex										
4,300.00	20.00	33.81	4,213.48	456.17	305.46	-426.69	0.00	0.00	0.00	
4,400.00	20.00	33.81	4,307.44	484.59	324.49	-453.27	0.00	0.00	0.00	
4,500.00	20.00	33.81	4,401.41	513.01	343.52	-479.85	0.00	0.00	0.00	
4,600.00	20.00	33.81	4,495.38	541.43	362.55	-506.43	0.00	0.00	0.00	
4,700.00	20.00	33.81	4,589.35	569.85	381.58	-533.02	0.00	0.00	0.00	
4,800.00	20.00	33.81	4,683.32	598.27	400.61	-559.60	0.00	0.00	0.00	
4,900.00	20.00	33.81	4,777.29	626.69	419.64	-586.18	0.00	0.00	0.00	
5,000.00	20.00	33.81	4,871.26	655.11	438.67	-612.76	0.00	0.00	0.00	
5,062.51	20.00	33.81	4,930.00	672.87	450.56	-629.38	0.00	0.00	0.00	
Shannon										
5,100.00	20.00	33.81	4,965.23	683.53	457.70	-639.35	0.00	0.00	0.00	
5,200.00	20.00	33.81	5,059.20	711.95	476.73	-665.93	0.00	0.00	0.00	
5,300.00	20.00	33.81	5,153.17	740.37	495.76	-692.51	0.00	0.00	0.00	
5,400.00	20.00	33.81	5,247.14	768.79	514.79	-719.09	0.00	0.00	0.00	
5,500.00	20.00	33.81	5,341.10	797.21	533.82	-745.68	0.00	0.00	0.00	
5,600.00	20.00	33.81	5,435.07	825.63	552.85	-772.26	0.00	0.00	0.00	
5,700.00	20.00	33.81	5,529.04	854.04	571.88	-798.84	0.00	0.00	0.00	
5,800.00	20.00	33.81	5,623.01	882.46	590.91	-825.42	0.00	0.00	0.00	
5,900.00	20.00	33.81	5,716.98	910.88	609.94	-852.01	0.00	0.00	0.00	
6,000.00	20.00	33.81	5,810.95	939.30	628.97	-878.59	0.00	0.00	0.00	
6,100.00	20.00	33.81	5,904.92	967.72	648.00	-905.17	0.00	0.00	0.00	
6,157.90	20.00	33.81	5,959.32	984.18	659.01	-920.56	0.00	0.00	0.00	
KOP: Build 9°/100' @ 6157.90' MD										
6,178.73	18.41	36.85	5,979.00	989.77	662.97	-925.78	9.00	-7.61	14.62	
Teepee Buttes										
6,200.00	16.86	40.52	5,999.27	994.80	666.99	-930.42	9.00	-7.33	17.24	
6,250.00	13.54	52.21	6,047.52	1,003.91	676.33	-938.64	9.00	-6.63	23.39	
6,300.00	11.07	70.03	6,096.39	1,009.13	685.47	-943.02	9.00	-4.93	35.64	
6,350.00	10.10	94.14	6,145.56	1,010.46	694.36	-943.54	9.00	-1.95	48.21	
6,400.00	11.02	118.36	6,194.74	1,007.87	702.95	-940.18	9.00	1.84	48.45	
6,450.00	13.46	136.38	6,243.61	1,001.38	711.17	-932.98	9.00	4.87	36.03	
6,500.00	16.75	148.22	6,291.89	991.04	718.99	-921.97	9.00	6.60	23.68	
6,550.00	20.50	156.05	6,339.27	976.90	726.34	-907.23	9.00	7.50	15.67	
6,600.00	24.50	161.49	6,385.46	959.06	733.19	-888.84	9.00	7.99	10.87	
6,650.00	28.64	165.46	6,430.18	937.62	739.50	-866.92	9.00	8.27	7.94	
6,700.00	32.86	168.49	6,473.14	912.72	745.21	-841.61	9.00	8.45	6.07	
6,750.00	37.14	170.90	6,514.09	884.51	750.31	-813.05	9.00	8.57	4.81	
6,800.00	41.47	172.87	6,552.77	853.16	754.76	-781.43	9.00	8.65	3.94	
6,815.14	42.78	173.40	6,564.00	843.08	755.97	-771.27	9.00	8.69	3.51	
Sharon Springs										
6,847.22	45.58	174.44	6,587.00	820.85	758.33	-748.92	9.00	8.71	3.25	
Top A Chalk										
6,850.00	45.82	174.53	6,588.94	818.87	758.52	-746.93	9.00	8.73	3.08	
6,867.54	47.35	175.06	6,601.00	806.18	759.68	-734.19	9.00	8.73	2.99	
Top A Marl										
6,884.01	48.79	175.52	6,612.00	793.97	760.68	-721.94	9.00	8.75	2.85	
Top B Chalk										
6,900.00	50.19	175.96	6,622.39	781.85	761.59	-709.79	9.00	8.76	2.73	
6,950.00	54.58	177.22	6,652.90	742.32	763.93	-670.21	9.00	8.78	2.52	
6,957.13	55.21	177.39	6,657.00	736.49	764.20	-664.38	9.00	8.79	2.36	
Top B Marl										

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,000.00	58.98	178.35	6,680.28	700.53	765.53	-628.45	9.00	8.80	2.24
7,050.00	63.39	179.38	6,704.38	656.74	766.39	-584.76	9.00	8.82	2.06
7,089.54	66.88	180.14	6,721.00	620.88	766.54	-549.03	9.00	8.83	1.92
Top C Chalk									
7,100.00	67.81	180.33	6,725.03	611.22	766.50	-539.42	9.00	8.84	1.85
7,150.00	72.23	181.23	6,742.11	564.25	765.86	-492.69	9.00	8.84	1.79
7,173.94	74.34	181.64	6,749.00	541.33	765.28	-469.92	9.00	8.85	1.72
Top C Marl									
7,200.00	76.65	182.08	6,755.52	516.11	764.47	-444.88	9.00	8.85	1.68
7,250.00	81.08	182.90	6,765.18	467.11	762.33	-396.28	9.00	8.85	1.64
7,300.00	85.51	183.70	6,771.02	417.55	759.48	-347.17	9.00	8.86	1.60
7,350.70	90.00	184.50	6,773.00	367.03	755.86	-297.19	9.00	8.86	1.58
LP: 7350.70' MD, 90.00° Inc, 184.50° Azm									
7,400.00	90.00	184.50	6,773.00	317.89	751.99	-248.59	0.00	0.00	0.00
7,500.00	90.00	184.50	6,773.00	218.19	744.14	-150.02	0.00	0.00	0.00
7,550.70	90.00	184.50	6,773.00	167.65	740.16	-100.04	0.00	0.00	0.00
Turn: 1°/100'									
7,600.00	90.00	184.01	6,773.00	118.49	736.51	-51.41	1.00	0.00	-1.00
7,700.00	90.00	183.01	6,773.00	18.67	730.39	47.44	1.00	0.00	-1.00
7,800.00	90.00	182.01	6,773.00	-81.23	726.02	146.54	1.00	0.00	-1.00
7,900.00	90.00	181.01	6,773.00	-181.19	723.39	245.85	1.00	0.00	-1.00
8,000.00	90.00	180.01	6,773.00	-281.19	722.50	345.36	1.00	0.00	-1.00
8,105.49	90.00	178.95	6,773.00	-386.68	723.46	450.50	1.00	0.00	-1.00
Hold: 90.00° Inc, 178.95° Azm									
8,200.00	90.00	178.95	6,773.00	-481.17	725.19	544.76	0.00	0.00	0.00
8,300.00	90.00	178.95	6,773.00	-581.15	727.02	644.50	0.00	0.00	0.00
8,400.00	90.00	178.95	6,773.00	-681.13	728.85	744.24	0.00	0.00	0.00
8,500.00	90.00	178.95	6,773.00	-781.12	730.68	843.98	0.00	0.00	0.00
8,600.00	90.00	178.95	6,773.00	-881.10	732.50	943.72	0.00	0.00	0.00
8,700.00	90.00	178.95	6,773.00	-981.08	734.33	1,043.46	0.00	0.00	0.00
8,800.00	90.00	178.95	6,773.00	-1,081.07	736.16	1,143.20	0.00	0.00	0.00
8,900.00	90.00	178.95	6,773.00	-1,181.05	737.99	1,242.94	0.00	0.00	0.00
9,000.00	90.00	178.95	6,773.00	-1,281.03	739.82	1,342.68	0.00	0.00	0.00
9,100.00	90.00	178.95	6,773.00	-1,381.02	741.65	1,442.41	0.00	0.00	0.00
9,200.00	90.00	178.95	6,773.00	-1,481.00	743.48	1,542.15	0.00	0.00	0.00
9,300.00	90.00	178.95	6,773.00	-1,580.98	745.31	1,641.89	0.00	0.00	0.00
9,400.00	90.00	178.95	6,773.00	-1,680.97	747.13	1,741.63	0.00	0.00	0.00
9,500.00	90.00	178.95	6,773.00	-1,780.95	748.96	1,841.37	0.00	0.00	0.00
9,600.00	90.00	178.95	6,773.00	-1,880.93	750.79	1,941.11	0.00	0.00	0.00
9,700.00	90.00	178.95	6,773.00	-1,980.91	752.62	2,040.85	0.00	0.00	0.00
9,800.00	90.00	178.95	6,773.00	-2,080.90	754.45	2,140.59	0.00	0.00	0.00
9,900.00	90.00	178.95	6,773.00	-2,180.88	756.28	2,240.33	0.00	0.00	0.00
10,000.00	90.00	178.95	6,773.00	-2,280.86	758.11	2,340.07	0.00	0.00	0.00
10,100.00	90.00	178.95	6,773.00	-2,380.85	759.94	2,439.81	0.00	0.00	0.00
10,200.00	90.00	178.95	6,773.00	-2,480.83	761.77	2,539.54	0.00	0.00	0.00
10,300.00	90.00	178.95	6,773.00	-2,580.81	763.59	2,639.28	0.00	0.00	0.00
10,400.00	90.00	178.95	6,773.00	-2,680.80	765.42	2,739.02	0.00	0.00	0.00
10,500.00	90.00	178.95	6,773.00	-2,780.78	767.25	2,838.76	0.00	0.00	0.00
10,600.00	90.00	178.95	6,773.00	-2,880.76	769.08	2,938.50	0.00	0.00	0.00
10,700.00	90.00	178.95	6,773.00	-2,980.75	770.91	3,038.24	0.00	0.00	0.00
10,800.00	90.00	178.95	6,773.00	-3,080.73	772.74	3,137.98	0.00	0.00	0.00
10,900.00	90.00	178.95	6,773.00	-3,180.71	774.57	3,237.72	0.00	0.00	0.00
11,000.00	90.00	178.95	6,773.00	-3,280.70	776.40	3,337.46	0.00	0.00	0.00
11,100.00	90.00	178.95	6,773.00	-3,380.68	778.23	3,437.20	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
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	178.95	6,773.00	-3,480.66	780.05	3,536.94	0.00	0.00	0.00
11,300.00	90.00	178.95	6,773.00	-3,580.65	781.88	3,636.68	0.00	0.00	0.00
11,400.00	90.00	178.95	6,773.00	-3,680.63	783.71	3,736.41	0.00	0.00	0.00
11,500.00	90.00	178.95	6,773.00	-3,780.61	785.54	3,836.15	0.00	0.00	0.00
11,600.00	90.00	178.95	6,773.00	-3,880.60	787.37	3,935.89	0.00	0.00	0.00
11,700.00	90.00	178.95	6,773.00	-3,980.58	789.20	4,035.63	0.00	0.00	0.00
11,800.00	90.00	178.95	6,773.00	-4,080.56	791.03	4,135.37	0.00	0.00	0.00
11,900.00	90.00	178.95	6,773.00	-4,180.55	792.86	4,235.11	0.00	0.00	0.00
12,000.00	90.00	178.95	6,773.00	-4,280.53	794.69	4,334.85	0.00	0.00	0.00
12,100.00	90.00	178.95	6,773.00	-4,380.51	796.51	4,434.59	0.00	0.00	0.00
12,200.00	90.00	178.95	6,773.00	-4,480.50	798.34	4,534.33	0.00	0.00	0.00
12,300.00	90.00	178.95	6,773.00	-4,580.48	800.17	4,634.07	0.00	0.00	0.00
12,400.00	90.00	178.95	6,773.00	-4,680.46	802.00	4,733.81	0.00	0.00	0.00
12,500.00	90.00	178.95	6,773.00	-4,780.45	803.83	4,833.54	0.00	0.00	0.00
12,600.00	90.00	178.95	6,773.00	-4,880.43	805.66	4,933.28	0.00	0.00	0.00
12,700.00	90.00	178.95	6,773.00	-4,980.41	807.49	5,033.02	0.00	0.00	0.00
12,800.00	90.00	178.95	6,773.00	-5,080.40	809.32	5,132.76	0.00	0.00	0.00
12,900.00	90.00	178.95	6,773.00	-5,180.38	811.14	5,232.50	0.00	0.00	0.00
13,000.00	90.00	178.95	6,773.00	-5,280.36	812.97	5,332.24	0.00	0.00	0.00
13,100.00	90.00	178.95	6,773.00	-5,380.35	814.80	5,431.98	0.00	0.00	0.00
13,200.00	90.00	178.95	6,773.00	-5,480.33	816.63	5,531.72	0.00	0.00	0.00
13,300.00	90.00	178.95	6,773.00	-5,580.31	818.46	5,631.46	0.00	0.00	0.00
13,400.00	90.00	178.95	6,773.00	-5,680.30	820.29	5,731.20	0.00	0.00	0.00
13,500.00	90.00	178.95	6,773.00	-5,780.28	822.12	5,830.94	0.00	0.00	0.00
13,600.00	90.00	178.95	6,773.00	-5,880.26	823.95	5,930.68	0.00	0.00	0.00
13,700.00	90.00	178.95	6,773.00	-5,980.25	825.78	6,030.41	0.00	0.00	0.00
13,800.00	90.00	178.95	6,773.00	-6,080.23	827.60	6,130.15	0.00	0.00	0.00
13,900.00	90.00	178.95	6,773.00	-6,180.21	829.43	6,229.89	0.00	0.00	0.00
14,000.00	90.00	178.95	6,773.00	-6,280.20	831.26	6,329.63	0.00	0.00	0.00
14,100.00	90.00	178.95	6,773.00	-6,380.18	833.09	6,429.37	0.00	0.00	0.00
14,200.00	90.00	178.95	6,773.00	-6,480.16	834.92	6,529.11	0.00	0.00	0.00
14,300.00	90.00	178.95	6,773.00	-6,580.15	836.75	6,628.85	0.00	0.00	0.00
14,400.00	90.00	178.95	6,773.00	-6,680.13	838.58	6,728.59	0.00	0.00	0.00
14,500.00	90.00	178.95	6,773.00	-6,780.11	840.41	6,828.33	0.00	0.00	0.00
14,600.00	90.00	178.95	6,773.00	-6,880.10	842.24	6,928.07	0.00	0.00	0.00
14,700.00	90.00	178.95	6,773.00	-6,980.08	844.06	7,027.81	0.00	0.00	0.00
14,800.00	90.00	178.95	6,773.00	-7,080.06	845.89	7,127.54	0.00	0.00	0.00
14,900.00	90.00	178.95	6,773.00	-7,180.05	847.72	7,227.28	0.00	0.00	0.00
15,000.00	90.00	178.95	6,773.00	-7,280.03	849.55	7,327.02	0.00	0.00	0.00
15,100.00	90.00	178.95	6,773.00	-7,380.01	851.38	7,426.76	0.00	0.00	0.00
15,200.00	90.00	178.95	6,773.00	-7,480.00	853.21	7,526.50	0.00	0.00	0.00
15,300.00	90.00	178.95	6,773.00	-7,579.98	855.04	7,626.24	0.00	0.00	0.00
15,400.00	90.00	178.95	6,773.00	-7,679.96	856.87	7,725.98	0.00	0.00	0.00
15,500.00	90.00	178.95	6,773.00	-7,779.94	858.70	7,825.72	0.00	0.00	0.00
15,600.00	90.00	178.95	6,773.00	-7,879.93	860.52	7,925.46	0.00	0.00	0.00
15,700.00	90.00	178.95	6,773.00	-7,979.91	862.35	8,025.20	0.00	0.00	0.00
15,800.00	90.00	178.95	6,773.00	-8,079.89	864.18	8,124.94	0.00	0.00	0.00
15,900.00	90.00	178.95	6,773.00	-8,179.88	866.01	8,224.67	0.00	0.00	0.00
16,000.00	90.00	178.95	6,773.00	-8,279.86	867.84	8,324.41	0.00	0.00	0.00
16,100.00	90.00	178.95	6,773.00	-8,379.84	869.67	8,424.15	0.00	0.00	0.00
16,200.00	90.00	178.95	6,773.00	-8,479.83	871.50	8,523.89	0.00	0.00	0.00
16,300.00	90.00	178.95	6,773.00	-8,579.81	873.33	8,623.63	0.00	0.00	0.00
16,400.00	90.00	178.95	6,773.00	-8,679.79	875.16	8,723.37	0.00	0.00	0.00
16,500.00	90.00	178.95	6,773.00	-8,779.78	876.98	8,823.11	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
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	178.95	6,773.00	-8,879.76	878.81	8,922.85	0.00	0.00	0.00
16,700.00	90.00	178.95	6,773.00	-8,979.74	880.64	9,022.59	0.00	0.00	0.00
16,800.00	90.00	178.95	6,773.00	-9,079.73	882.47	9,122.33	0.00	0.00	0.00
16,900.00	90.00	178.95	6,773.00	-9,179.71	884.30	9,222.07	0.00	0.00	0.00
17,000.00	90.00	178.95	6,773.00	-9,279.69	886.13	9,321.81	0.00	0.00	0.00
17,100.00	90.00	178.95	6,773.00	-9,379.68	887.96	9,421.54	0.00	0.00	0.00
17,200.00	90.00	178.95	6,773.00	-9,479.66	889.79	9,521.28	0.00	0.00	0.00
17,300.00	90.00	178.95	6,773.00	-9,579.64	891.61	9,621.02	0.00	0.00	0.00
17,400.00	90.00	178.95	6,773.00	-9,679.63	893.44	9,720.76	0.00	0.00	0.00
17,500.00	90.00	178.95	6,773.00	-9,779.61	895.27	9,820.50	0.00	0.00	0.00
17,602.36	90.00	178.95	6,773.00	-9,881.95	897.14	9,922.59	0.00	0.00	0.00
TD @ 17602.36' MD/6773.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen DD17-715- - hit/miss target - plan hits target center - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,334,133.24	3,291,271.11	40.2458900	-104.4565300
Guttersen DD17-715- - hit/miss target - plan hits target center - Shape - Point	0.00	0.00	5,959.33	984.18	659.01	1,335,117.42	3,291,930.13	40.2485702	-104.4541277
Guttersen DD17-715- - hit/miss target - plan hits target center - Shape - Point	0.00	0.00	6,773.00	367.03	755.86	1,334,500.27	3,292,026.97	40.2468730	-104.4538069
Guttersen DD17-715- - hit/miss target - plan hits target center - Shape - Point	0.00	0.00	6,773.00	-9,881.95	897.14	1,324,251.31	3,292,168.26	40.2187360	-104.4537340

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-715
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4894.00ft
Project:	Mustang	MD Reference:	Well @ 4894.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-715		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
385.00	385.00	Pierre				
725.00	725.00	Upper Pierre Aquifer Top				
1,620.00	1,620.00	Upper Pierre Aquifer Base				
3,817.42	3,760.00	Parkman				
4,232.45	4,150.00	Sussex				
5,062.51	4,930.00	Shannon				
6,178.73	5,979.00	Teepee Buttes				
6,815.14	6,564.00	Sharon Springs				
6,847.22	6,587.00	Top A Chalk				
6,867.54	6,601.00	Top A Marl				
6,884.01	6,612.00	Top B Chalk				
6,957.13	6,657.00	Top B Marl				
7,089.54	6,721.00	Top C Chalk				
7,173.94	6,749.00	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'	
3,200.01	3,179.83	143.56	96.13	Hold: 20.00° Inc, 33.81° Azm	
6,157.90	5,959.32	984.18	659.01	KOP: Build 9°/100' @ 6157.90' MD	
7,350.70	6,773.00	367.03	755.86	LP: 7350.70' MD, 90.00° Inc, 184.50° Azm	
7,550.70	6,773.00	167.65	740.16	Turn: 1°/100'	
8,105.49	6,773.00	-386.68	723.46	Hold: 90.00° Inc, 178.95° Azm	
17,602.36	6,773.00	-9,881.95	897.14	TD @ 17602.36' MD/6773.00' TVD	

Northern Region - DJ Basin

Mustang

DD Section 08

Guttersen DD17-715

Guttersen DD17-715

Plan #1

Anticollision Summary Report

02 October, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen DD17-715
Project:	Mustang	TVD Reference:	Well @ 4894.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4894.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen DD17-715	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	10/2/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,602.36	Plan #1 (Gutttersen DD17-715)	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
Offset Well - Wellbore - Design						
DD Section 05						
Gutttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	6,752.29	6,776.36	73.52	26.62	1.568	CC, ES, SF
Gutttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	3,701.11	3,641.74	747.66	722.05	29.193	CC
Gutttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	3,800.00	3,736.67	748.26	721.95	28.442	ES
Gutttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	6,700.00	6,655.15	1,100.51	1,052.96	23.146	SF
Gutttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,212.84	3,136.47	806.76	784.82	36.772	CC, ES
Gutttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,700.00	3,510.25	850.96	826.13	34.266	SF
Gutttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	1,082.10	1,069.12	2,583.18	2,575.92	355.714	CC
Gutttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	2,200.00	2,181.78	2,587.41	2,572.24	170.547	ES
Gutttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	6,750.00	6,634.01	3,245.00	3,199.70	71.632	SF
Gutttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	836.04	821.91	2,610.75	2,605.17	468.151	CC, ES
Gutttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	6,550.00	6,550.00	4,152.74	4,105.52	87.949	SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	0.00	0.00	3,361.75			
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	2,900.00	2,969.46	3,374.98	3,354.70	166.421	ES
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	7,000.00	6,675.40	3,889.93	3,842.13	81.381	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 DD17-715
Project:	Mustang	TVD Reference:	Well @ 4894.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4894.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen DD17-715	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
DD Section 08						
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	2,200.00	2,186.00	775.91	724.54	15.103	CC
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	2,300.00	2,285.98	777.10	723.37	14.463	ES
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	7,873.77	6,759.00	1,490.54	1,330.18	9.295	SF
GUTTERSEN #32-8(PA) - GUTTERSEN #32-8 - No Sur	9,146.77	6,779.00	1,501.75	1,337.16	9.124	CC, ES
GUTTERSEN #32-8(PA) - GUTTERSEN #32-8 - No Sur	9,200.00	6,779.00	1,502.69	1,337.93	9.120	SF
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,461.87	6,769.00	1,501.99	1,330.74	8.771	CC, ES
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,500.00	6,769.00	1,502.48	1,331.06	8.765	SF
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Sur	11,770.03	6,759.00	1,449.14	1,269.66	8.074	CC, ES
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Sur	11,800.00	6,759.00	1,449.45	1,269.82	8.069	SF
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Sur	9,148.25	6,749.00	158.97	-5.03	0.969	Level 1, CC, ES, SF
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,470.52	6,769.00	175.94	4.63	1.027	Level 2, CC, ES, SF
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	8,458.52	6,784.51	767.82	717.74	15.331	CC, ES, SF
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,146.27	6,792.80	876.43	812.71	13.755	CC, ES
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,200.00	6,793.10	878.07	814.20	13.748	SF
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	7,655.67	6,756.16	45.85	-1.53	0.968	Level 1, CC, ES, SF
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	11,838.38	6,796.47	124.94	-32.61	0.793	Level 1, CC, ES, SF
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	2,111.24	2,125.24	2,459.39	2,444.67	167.072	CC
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	2,200.00	2,210.11	2,459.40	2,444.06	160.297	ES
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,900.00	12,243.71	3,857.15	3,758.04	38.917	SF
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	2,111.69	2,124.69	2,481.72	2,467.00	168.593	CC
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	2,200.00	2,200.00	2,481.76	2,466.45	162.137	ES
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	13,200.00	12,287.22	4,558.55	4,457.17	44.963	SF
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,200.00	2,201.00	22.33	7.02	1.459	Level 3, CC, ES
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,300.00	2,300.98	23.36	7.34	1.458	Level 3, SF
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,200.00	2,202.00	44.81	29.50	2.926	CC, ES
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,300.00	2,301.77	45.93	29.90	2.866	SF
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,200.00	2,203.00	67.09	51.78	4.380	CC, ES
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,300.00	2,302.10	68.68	52.65	4.285	SF
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,200.00	2,205.00	92.19	76.87	6.016	CC, ES
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,300.00	2,302.71	94.40	78.37	5.891	SF
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,200.00	2,206.00	114.51	99.18	7.470	CC, ES
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,300.00	2,302.78	116.91	100.89	7.296	SF
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	2,947.63	3,316.77	2,375.46	2,353.74	109.347	CC
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	17,602.36	17,577.79	2,514.74	2,338.06	14.234	ES, SF
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	2,200.30	2,214.44	2,414.73	2,399.37	157.215	CC, ES
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	17,602.36	17,440.68	3,172.84	2,996.42	17.984	SF
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	2,111.24	2,125.24	2,437.06	2,422.34	165.555	CC
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	2,200.00	2,211.63	2,437.07	2,421.72	158.784	ES
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	17,602.36	17,615.88	3,502.40	3,325.56	19.805	SF
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,438.20	6,786.52	2,742.92	2,683.66	46.286	CC, ES
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,900.00	6,788.47	2,781.52	2,720.12	45.303	SF
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,687.79	6,843.44	4,218.13	4,150.02	61.932	CC
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,700.00	6,843.54	4,218.15	4,149.97	61.864	ES
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	12,800.00	6,852.82	4,362.29	4,288.30	58.959	SF
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	7,602.88	6,734.00	181.60	22.06	1.138	Level 2, CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen DD17-715
Project:	Mustang	TVD Reference:	Well @ 4894.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4894.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen DD17-715	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
DD Section 17						
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,679.49	6,732.07	2,949.06	2,852.49	30.537	CC
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,700.00	6,732.07	2,949.13	2,852.42	30.495	ES
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	16,000.00	6,732.14	2,966.43	2,868.07	30.160	SF
Gutttersen State DD17-78HN - Original Drilling - Original	17,602.36	6,763.61	4,183.73	4,074.02	38.136	CC, ES, SF
Gutttersen State DD17-78HN - Original Drilling - ST01 - S	13,017.56	11,074.74	4,170.98	4,034.25	30.505	CC
Gutttersen State DD17-78HN - Original Drilling - ST01 - S	13,200.00	13,200.00	4,174.25	3,997.66	23.638	ES, SF
Gutttersen State DD17-79-1HN - Original Drilling - Original	14,200.00	14,200.00	4,513.61	4,311.85	22.371	ES, SF
Gutttersen State DD17-79-1HN - Original Drilling - Original	16,100.00	7,932.35	4,496.63	4,388.14	41.444	CC
Gutttersen State DD17-79HN - Original Drilling - Original	14,844.11	9,259.37	4,728.64	4,609.84	39.804	CC, ES
Gutttersen State DD17-79HN - Original Drilling - Original	17,602.36	17,602.36	4,770.18	4,624.05	32.645	SF
Gutttersen USX DD17-19 - Original Drilling - Original Dri	13,653.46	6,744.83	3,610.89	3,529.36	44.289	CC
Gutttersen USX DD17-19 - Original Drilling - Original Dri	13,700.00	6,744.77	3,611.19	3,529.35	44.127	ES
Gutttersen USX DD17-19 - Original Drilling - Original Dri	14,300.00	6,744.01	3,668.32	3,583.26	43.129	SF
DD Section 18						
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,538.27	6,820.91	6,238.80	6,136.08	60.741	CC
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,600.00	6,821.73	6,239.10	6,135.94	60.477	ES
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,602.36	6,834.98	6,328.88	6,219.38	57.799	SF
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,165.24	6,788.20	8,126.02	8,018.29	75.431	CC
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,788.27	8,126.09	8,018.10	75.250	ES
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,602.36	6,789.07	8,137.77	8,026.87	73.381	SF
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,765.71	6,709.76	6,827.59	6,730.38	70.241	CC
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.00	6,710.02	6,827.67	6,730.22	70.061	ES
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,602.36	6,723.41	7,070.29	6,962.14	65.371	SF
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,205.90	6,725.42	6,914.81	6,807.37	64.357	CC
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,300.00	6,724.76	6,915.45	6,807.32	63.952	ES
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,602.36	6,722.60	6,926.17	6,815.91	62.817	SF
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,778.84	6,734.62	5,630.40	5,530.56	56.397	CC
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,800.00	6,734.71	5,630.44	5,530.45	56.311	ES
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,100.00	6,740.29	5,783.32	5,675.78	53.775	SF
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,147.75	6,748.39	5,571.31	5,464.28	52.054	CC
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,748.19	5,571.55	5,464.14	51.872	ES
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,602.36	6,746.68	5,589.82	5,479.73	50.771	SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,105.32	6,620.35	8,511.86	8,412.39	85.571	CC
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,200.00	6,620.33	8,512.38	8,412.21	84.977	ES
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,602.36	6,620.11	8,642.50	8,532.98	78.911	SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	15,714.78	6,734.46	9,645.89	9,544.15	94.817	CC
Karch Blue DD18-12 - Original Drilling - Original Drilling -	15,800.00	6,734.11	9,646.26	9,543.90	94.238	ES
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,602.36	6,726.69	9,828.84	9,714.45	85.923	SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,199.63	6,908.77	9,706.54	9,597.29	88.850	CC
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,300.00	6,906.93	9,707.06	9,597.07	88.251	ES
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,602.36	6,901.41	9,714.89	9,602.69	86.588	SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,602.36	6,673.72	4,134.00	4,024.64	37.801	CC, ES, SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	17,602.36	6,772.64	5,556.79	5,469.61	63.739	CC, ES, SF

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

Noble Energy, Inc.

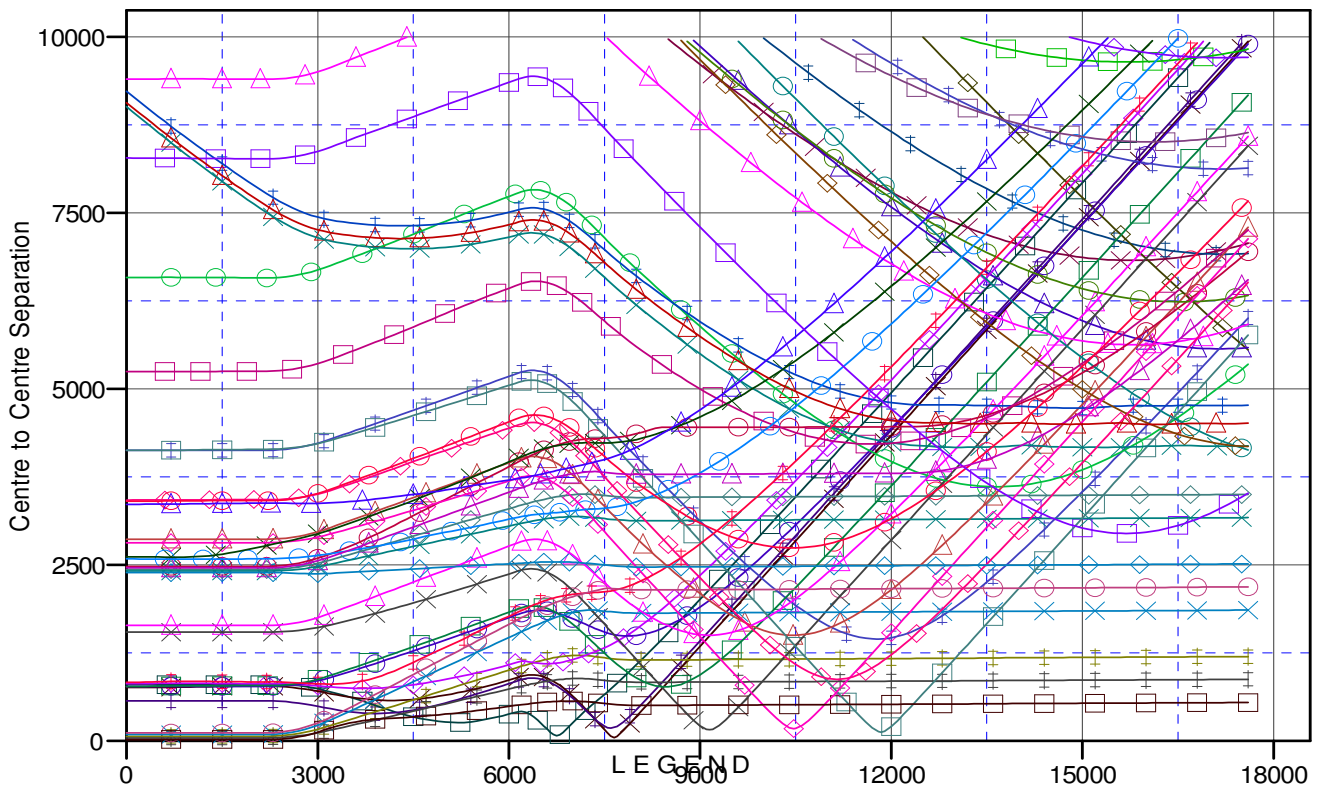
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen DD17-715
Project:	Mustang	TVD Reference:	Well @ 4894.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4894.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen DD17-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen DD17-715	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4894.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen DD17-715
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°

Ladder Plot



- As Drilled V0	Guttersen USX DD17-19, Original Drilling, Original Drilling - As Drilled V0	Guttersen 4-5-HZ, Wellbore #1, V
- As Drilled V0	Guttersen 43-18, Wellbore #1, Wellbore #1 - As Drilled V0	Guttersen 2N-5HZ, Wellbore #1
#1 - As Drilled V0	Guttersen DD17-765, Guttersen DD17-765, Plan #1 V0	Guttersen DD17-750, Guttersen
- As Drilled V0	Karch Blue DD18-12, Original Drilling, Original Drilling - As Drilled V0	Guttersen 08D, Wellbore #1, We
yro Surveys V0	Spike State DD20-02J (PR), Wellbore #1, Gyro Surveys V0	Guttersen 3-5HZ, Wellbore #1, V
No Surveys V0	Guttersen DD17-745, Guttersen DD17-745, Plan #1 V0	Guttersen State DD08-11, Wellb
- As Drilled V0	GUTTERSEN#33-8 (PA), GUTTERSEN#33-8, No Surveys V0	UPV 05-13J03, Wellbore #1, We
- As Drilled V0	GUTTERSEN#32-8 (PA), GUTTERSEN#32-8, No Surveys V0	Guttersen 23-17, Wellbore #1, V
4-8, No Surveys V0	Guttersen State DD17-79HN, Original Drilling, Original Drilling - As Drilled V0	Karch Blue DD18-03J, Wellbore
Plan #1 V0	Guttersen 44-08, Wellbore #1, Wellbore #1 - As Drilled V0	Guttersen DD08-774, Guttersen
Plan #1 V0	Guttersen DD08-784, Guttersen DD08-784, Plan #1 V0	Karch Blue DD18-13, Wellbore
#1 - As Drilled V0	Guttersen State DD17-78HN, Original Drilling - ST01, ST01 - As Drilled V0	Guttersen DD17-725, Guttersen

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

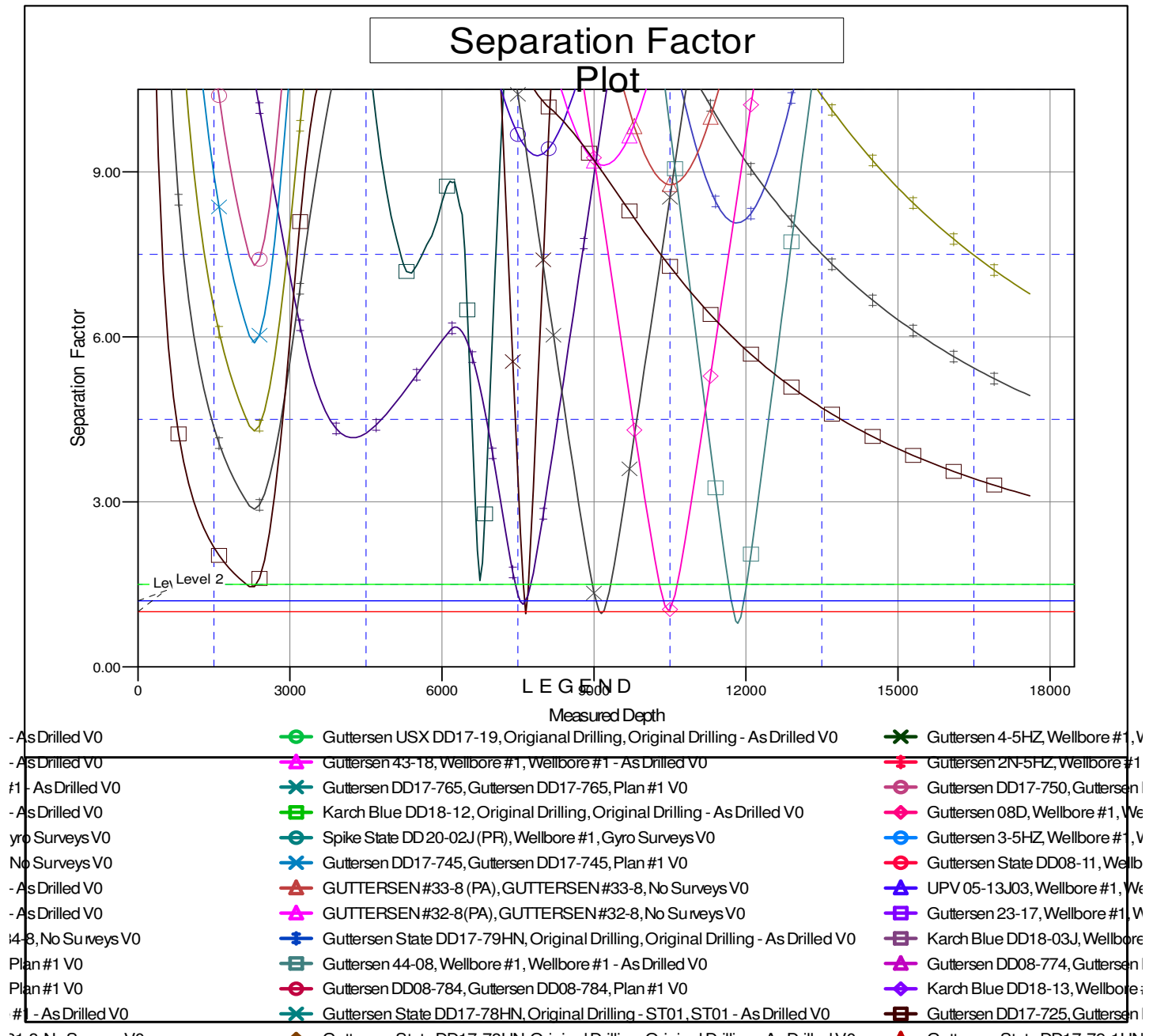
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten DD17-715
Project:	Mustang	TVD Reference:	Well @ 4894.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4894.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten DD17-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten DD17-715	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4894.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersten DD17-715
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°



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