

Northern Region - DJ Basin

Mustang

DD Section 08

Guttersen DD17-725

Guttersen DD17-725

Plan: Plan #1

Standard Planning Report

02 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4895.00ft
Project:	Mustang	MD Reference:	Well @ 4895.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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 DD17-725					
Well Position	+N/-S	4,079.98 ft	Northing:	1,334,132.98 usft	Latitude:	40.2458900
	+E/-W	3,384.49 ft	Easting:	3,291,248.78 usft	Longitude:	-104.4566100
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,865.00 ft

Wellbore	Guttersen DD17-725				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/1/2018	7.90	66.75	52,196.73153807

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	177.82

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	
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,154.89	23.10	9.64	4,123.86	226.41	38.47	2.00	2.00	0.00	9.64	
6,004.70	23.10	9.64	5,825.38	941.84	160.01	0.00	0.00	0.00	0.00	
7,256.86	90.00	179.21	6,705.00	355.50	236.02	9.00	5.34	13.54	168.68	Guttersen DD17-72
17,504.74	90.00	179.21	6,705.00	-9,891.40	377.14	0.00	0.00	0.00	0.00	Guttersen DD17-72

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Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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
386.00	0.00	0.00	386.00	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
726.00	0.00	0.00	726.00	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
1,621.00	0.00	0.00	1,621.00	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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
3,100.00	2.00	9.64	3,099.98	1.72	0.29	-1.71	2.00	2.00	0.00
3,200.00	4.00	9.64	3,199.84	6.88	1.17	-6.83	2.00	2.00	0.00
3,300.00	6.00	9.64	3,299.45	15.47	2.63	-15.36	2.00	2.00	0.00
3,400.00	8.00	9.64	3,398.70	27.49	4.67	-27.29	2.00	2.00	0.00
3,500.00	10.00	9.64	3,497.47	42.91	7.29	-42.60	2.00	2.00	0.00
3,600.00	12.00	9.64	3,595.62	61.72	10.49	-61.27	2.00	2.00	0.00
3,700.00	14.00	9.64	3,693.06	83.89	14.25	-83.29	2.00	2.00	0.00
3,770.25	15.40	9.64	3,761.00	101.47	17.24	-100.74	2.00	2.00	0.00
Parkman									
3,800.00	16.00	9.64	3,789.64	109.41	18.59	-108.62	2.00	2.00	0.00
3,900.00	18.00	9.64	3,885.27	138.23	23.48	-137.24	2.00	2.00	0.00
4,000.00	20.00	9.64	3,979.82	170.33	28.94	-169.10	2.00	2.00	0.00
4,100.00	22.00	9.64	4,073.17	205.66	34.94	-204.18	2.00	2.00	0.00
4,154.89	23.10	9.64	4,123.86	226.41	38.47	-224.78	2.00	2.00	0.00
Hold: 23.10° Inc, 9.64° Azm									

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Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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)
4,184.39	23.10	9.64	4,151.00	237.82	40.40	-236.11	0.00	0.00	0.00
Sussex									
4,200.00	23.10	9.64	4,165.36	243.85	41.43	-242.10	0.00	0.00	0.00
4,300.00	23.10	9.64	4,257.34	282.53	48.00	-280.50	0.00	0.00	0.00
4,400.00	23.10	9.64	4,349.32	321.21	54.57	-318.89	0.00	0.00	0.00
4,500.00	23.10	9.64	4,441.31	359.88	61.14	-357.29	0.00	0.00	0.00
4,600.00	23.10	9.64	4,533.29	398.56	67.71	-395.69	0.00	0.00	0.00
4,700.00	23.10	9.64	4,625.27	437.23	74.28	-434.09	0.00	0.00	0.00
4,800.00	23.10	9.64	4,717.26	475.91	80.85	-472.48	0.00	0.00	0.00
4,900.00	23.10	9.64	4,809.24	514.59	87.42	-510.88	0.00	0.00	0.00
5,000.00	23.10	9.64	4,901.22	553.26	94.00	-549.28	0.00	0.00	0.00
5,032.37	23.10	9.64	4,931.00	565.78	96.12	-561.71	0.00	0.00	0.00
Shannon									
5,100.00	23.10	9.64	4,993.21	591.94	100.57	-587.68	0.00	0.00	0.00
5,200.00	23.10	9.64	5,085.19	630.61	107.14	-626.08	0.00	0.00	0.00
5,300.00	23.10	9.64	5,177.18	669.29	113.71	-664.47	0.00	0.00	0.00
5,400.00	23.10	9.64	5,269.16	707.97	120.28	-702.87	0.00	0.00	0.00
5,500.00	23.10	9.64	5,361.14	746.64	126.85	-741.27	0.00	0.00	0.00
5,600.00	23.10	9.64	5,453.13	785.32	133.42	-779.67	0.00	0.00	0.00
5,700.00	23.10	9.64	5,545.11	824.00	139.99	-818.06	0.00	0.00	0.00
5,800.00	23.10	9.64	5,637.09	862.67	146.56	-856.46	0.00	0.00	0.00
5,900.00	23.10	9.64	5,729.08	901.35	153.13	-894.86	0.00	0.00	0.00
6,004.70	23.10	9.64	5,825.38	941.84	160.01	-935.06	0.00	0.00	0.00
KOP: Build 9°/100' @ 6004.70' MD									
6,050.00	19.12	12.08	5,867.64	957.86	163.05	-950.95	9.00	-8.79	5.39
6,100.00	14.78	16.23	5,915.46	972.00	166.55	-964.95	9.00	-8.67	8.29
6,150.00	10.57	23.65	5,964.23	982.33	170.18	-975.13	9.00	-8.41	14.83
6,166.01	9.29	27.39	5,980.00	984.82	171.36	-977.58	9.00	-8.05	23.42
Teepee Buttes									
6,200.00	6.76	39.90	6,013.66	988.79	173.90	-981.45	9.00	-7.44	36.78
6,250.00	4.46	81.24	6,063.43	991.34	177.71	-983.85	9.00	-4.59	82.69
6,300.00	5.88	130.61	6,113.25	989.97	181.58	-982.33	9.00	2.84	98.73
6,350.00	9.47	151.63	6,162.81	984.68	185.48	-976.90	9.00	7.18	42.04
6,400.00	13.61	160.61	6,211.79	975.51	189.39	-967.59	9.00	8.28	17.96
6,450.00	17.92	165.39	6,259.90	962.52	193.28	-954.45	9.00	8.62	9.58
6,500.00	22.30	168.36	6,306.84	945.77	197.14	-937.58	9.00	8.77	5.93
6,550.00	26.72	170.39	6,352.32	925.39	200.93	-917.06	9.00	8.84	4.06
6,600.00	31.17	171.88	6,396.07	901.48	204.64	-893.03	9.00	8.88	2.97
6,650.00	35.62	173.02	6,437.80	874.21	208.24	-865.64	9.00	8.91	2.30
6,700.00	40.09	173.95	6,477.27	843.73	211.71	-835.05	9.00	8.93	1.85
6,750.00	44.56	174.71	6,514.23	810.24	215.02	-801.46	9.00	8.94	1.53
6,800.00	49.03	175.37	6,548.46	773.94	218.16	-765.07	9.00	8.95	1.31
6,825.84	51.34	175.67	6,565.00	754.15	219.71	-745.23	9.00	8.95	1.17
Sharon Springs									
6,850.00	53.51	175.94	6,579.73	735.06	221.11	-726.10	9.00	8.96	1.10
6,864.12	54.77	176.09	6,588.00	723.64	221.91	-714.66	9.00	8.96	1.05
Top A Chalk									
6,889.09	57.01	176.34	6,602.00	703.02	223.28	-694.00	9.00	8.96	1.01
Top A Marl									
6,900.00	57.99	176.44	6,607.86	693.83	223.85	-684.80	9.00	8.96	0.97
6,909.81	58.87	176.54	6,613.00	685.49	224.37	-676.44	9.00	8.96	0.95
Top B Chalk									
6,950.00	62.47	176.90	6,632.68	650.51	226.37	-641.42	9.00	8.96	0.91

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Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4895.00ft
Project:	Mustang	MD Reference:	Well @ 4895.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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	66.96	177.33	6,654.04	605.37	228.64	-596.22	9.00	8.97	0.85
7,010.32	67.88	177.41	6,658.00	595.85	229.08	-586.69	9.00	8.97	0.81
Top B Marl									
7,050.00	71.44	177.73	6,671.79	558.69	230.65	-549.49	9.00	8.97	0.79
7,100.00	75.93	178.10	6,685.83	510.75	232.40	-501.52	9.00	8.97	0.75
7,150.00	80.41	178.46	6,696.08	461.84	233.86	-452.60	9.00	8.97	0.72
7,200.00	84.90	178.82	6,702.47	412.28	235.04	-403.03	9.00	8.97	0.70
7,250.00	89.38	179.16	6,704.97	362.36	235.92	-353.11	9.00	8.97	0.69
7,256.86	90.00	179.21	6,705.00	355.50	236.02	-346.25	9.00	8.97	0.69
LP: 7256.86' MD, 90.00° Inc, 179.21° Azm									
7,300.00	90.00	179.21	6,705.00	312.37	236.61	-303.13	0.00	0.00	0.00
7,400.00	90.00	179.21	6,705.00	212.38	237.99	-203.16	0.00	0.00	0.00
7,500.00	90.00	179.21	6,705.00	112.39	239.36	-103.18	0.00	0.00	0.00
7,600.00	90.00	179.21	6,705.00	12.40	240.74	-3.21	0.00	0.00	0.00
7,700.00	90.00	179.21	6,705.00	-87.59	242.12	96.76	0.00	0.00	0.00
7,800.00	90.00	179.21	6,705.00	-187.59	243.50	196.73	0.00	0.00	0.00
7,900.00	90.00	179.21	6,705.00	-287.58	244.87	296.70	0.00	0.00	0.00
8,000.00	90.00	179.21	6,705.00	-387.57	246.25	396.67	0.00	0.00	0.00
8,100.00	90.00	179.21	6,705.00	-487.56	247.63	496.64	0.00	0.00	0.00
8,200.00	90.00	179.21	6,705.00	-587.55	249.00	596.61	0.00	0.00	0.00
8,300.00	90.00	179.21	6,705.00	-687.54	250.38	696.58	0.00	0.00	0.00
8,400.00	90.00	179.21	6,705.00	-787.53	251.76	796.55	0.00	0.00	0.00
8,500.00	90.00	179.21	6,705.00	-887.52	253.14	896.52	0.00	0.00	0.00
8,600.00	90.00	179.21	6,705.00	-987.51	254.51	996.49	0.00	0.00	0.00
8,700.00	90.00	179.21	6,705.00	-1,087.50	255.89	1,096.46	0.00	0.00	0.00
8,800.00	90.00	179.21	6,705.00	-1,187.49	257.27	1,196.43	0.00	0.00	0.00
8,900.00	90.00	179.21	6,705.00	-1,287.48	258.64	1,296.40	0.00	0.00	0.00
9,000.00	90.00	179.21	6,705.00	-1,387.47	260.02	1,396.37	0.00	0.00	0.00
9,100.00	90.00	179.21	6,705.00	-1,487.46	261.40	1,496.34	0.00	0.00	0.00
9,200.00	90.00	179.21	6,705.00	-1,587.45	262.77	1,596.31	0.00	0.00	0.00
9,300.00	90.00	179.21	6,705.00	-1,687.44	264.15	1,696.28	0.00	0.00	0.00
9,400.00	90.00	179.21	6,705.00	-1,787.43	265.53	1,796.25	0.00	0.00	0.00
9,500.00	90.00	179.21	6,705.00	-1,887.42	266.91	1,896.22	0.00	0.00	0.00
9,600.00	90.00	179.21	6,705.00	-1,987.41	268.28	1,996.19	0.00	0.00	0.00
9,700.00	90.00	179.21	6,705.00	-2,087.41	269.66	2,096.16	0.00	0.00	0.00
9,800.00	90.00	179.21	6,705.00	-2,187.40	271.04	2,196.13	0.00	0.00	0.00
9,900.00	90.00	179.21	6,705.00	-2,287.39	272.41	2,296.10	0.00	0.00	0.00
10,000.00	90.00	179.21	6,705.00	-2,387.38	273.79	2,396.07	0.00	0.00	0.00
10,100.00	90.00	179.21	6,705.00	-2,487.37	275.17	2,496.05	0.00	0.00	0.00
10,200.00	90.00	179.21	6,705.00	-2,587.36	276.55	2,596.02	0.00	0.00	0.00
10,300.00	90.00	179.21	6,705.00	-2,687.35	277.92	2,695.99	0.00	0.00	0.00
10,400.00	90.00	179.21	6,705.00	-2,787.34	279.30	2,795.96	0.00	0.00	0.00
10,500.00	90.00	179.21	6,705.00	-2,887.33	280.68	2,895.93	0.00	0.00	0.00
10,600.00	90.00	179.21	6,705.00	-2,987.32	282.05	2,995.90	0.00	0.00	0.00
10,700.00	90.00	179.21	6,705.00	-3,087.31	283.43	3,095.87	0.00	0.00	0.00
10,800.00	90.00	179.21	6,705.00	-3,187.30	284.81	3,195.84	0.00	0.00	0.00
10,900.00	90.00	179.21	6,705.00	-3,287.29	286.19	3,295.81	0.00	0.00	0.00
11,000.00	90.00	179.21	6,705.00	-3,387.28	287.56	3,395.78	0.00	0.00	0.00
11,100.00	90.00	179.21	6,705.00	-3,487.27	288.94	3,495.75	0.00	0.00	0.00
11,200.00	90.00	179.21	6,705.00	-3,587.26	290.32	3,595.72	0.00	0.00	0.00
11,300.00	90.00	179.21	6,705.00	-3,687.25	291.69	3,695.69	0.00	0.00	0.00
11,400.00	90.00	179.21	6,705.00	-3,787.24	293.07	3,795.66	0.00	0.00	0.00
11,500.00	90.00	179.21	6,705.00	-3,887.23	294.45	3,895.63	0.00	0.00	0.00
11,600.00	90.00	179.21	6,705.00	-3,987.23	295.82	3,995.60	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4895.00ft
Project:	Mustang	MD Reference:	Well @ 4895.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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)
11,700.00	90.00	179.21	6,705.00	-4,087.22	297.20	4,095.57	0.00	0.00	0.00
11,800.00	90.00	179.21	6,705.00	-4,187.21	298.58	4,195.54	0.00	0.00	0.00
11,900.00	90.00	179.21	6,705.00	-4,287.20	299.96	4,295.51	0.00	0.00	0.00
12,000.00	90.00	179.21	6,705.00	-4,387.19	301.33	4,395.48	0.00	0.00	0.00
12,100.00	90.00	179.21	6,705.00	-4,487.18	302.71	4,495.45	0.00	0.00	0.00
12,200.00	90.00	179.21	6,705.00	-4,587.17	304.09	4,595.42	0.00	0.00	0.00
12,300.00	90.00	179.21	6,705.00	-4,687.16	305.46	4,695.39	0.00	0.00	0.00
12,400.00	90.00	179.21	6,705.00	-4,787.15	306.84	4,795.36	0.00	0.00	0.00
12,500.00	90.00	179.21	6,705.00	-4,887.14	308.22	4,895.33	0.00	0.00	0.00
12,600.00	90.00	179.21	6,705.00	-4,987.13	309.60	4,995.30	0.00	0.00	0.00
12,700.00	90.00	179.21	6,705.00	-5,087.12	310.97	5,095.28	0.00	0.00	0.00
12,800.00	90.00	179.21	6,705.00	-5,187.11	312.35	5,195.25	0.00	0.00	0.00
12,900.00	90.00	179.21	6,705.00	-5,287.10	313.73	5,295.22	0.00	0.00	0.00
13,000.00	90.00	179.21	6,705.00	-5,387.09	315.10	5,395.19	0.00	0.00	0.00
13,100.00	90.00	179.21	6,705.00	-5,487.08	316.48	5,495.16	0.00	0.00	0.00
13,200.00	90.00	179.21	6,705.00	-5,587.07	317.86	5,595.13	0.00	0.00	0.00
13,300.00	90.00	179.21	6,705.00	-5,687.06	319.24	5,695.10	0.00	0.00	0.00
13,400.00	90.00	179.21	6,705.00	-5,787.05	320.61	5,795.07	0.00	0.00	0.00
13,500.00	90.00	179.21	6,705.00	-5,887.04	321.99	5,895.04	0.00	0.00	0.00
13,600.00	90.00	179.21	6,705.00	-5,987.04	323.37	5,995.01	0.00	0.00	0.00
13,700.00	90.00	179.21	6,705.00	-6,087.03	324.74	6,094.98	0.00	0.00	0.00
13,800.00	90.00	179.21	6,705.00	-6,187.02	326.12	6,194.95	0.00	0.00	0.00
13,900.00	90.00	179.21	6,705.00	-6,287.01	327.50	6,294.92	0.00	0.00	0.00
14,000.00	90.00	179.21	6,705.00	-6,387.00	328.88	6,394.89	0.00	0.00	0.00
14,100.00	90.00	179.21	6,705.00	-6,486.99	330.25	6,494.86	0.00	0.00	0.00
14,200.00	90.00	179.21	6,705.00	-6,586.98	331.63	6,594.83	0.00	0.00	0.00
14,300.00	90.00	179.21	6,705.00	-6,686.97	333.01	6,694.80	0.00	0.00	0.00
14,400.00	90.00	179.21	6,705.00	-6,786.96	334.38	6,794.77	0.00	0.00	0.00
14,500.00	90.00	179.21	6,705.00	-6,886.95	335.76	6,894.74	0.00	0.00	0.00
14,600.00	90.00	179.21	6,705.00	-6,986.94	337.14	6,994.71	0.00	0.00	0.00
14,700.00	90.00	179.21	6,705.00	-7,086.93	338.51	7,094.68	0.00	0.00	0.00
14,800.00	90.00	179.21	6,705.00	-7,186.92	339.89	7,194.65	0.00	0.00	0.00
14,900.00	90.00	179.21	6,705.00	-7,286.91	341.27	7,294.62	0.00	0.00	0.00
15,000.00	90.00	179.21	6,705.00	-7,386.90	342.65	7,394.59	0.00	0.00	0.00
15,100.00	90.00	179.21	6,705.00	-7,486.89	344.02	7,494.56	0.00	0.00	0.00
15,200.00	90.00	179.21	6,705.00	-7,586.88	345.40	7,594.53	0.00	0.00	0.00
15,300.00	90.00	179.21	6,705.00	-7,686.87	346.78	7,694.51	0.00	0.00	0.00
15,400.00	90.00	179.21	6,705.00	-7,786.86	348.15	7,794.48	0.00	0.00	0.00
15,500.00	90.00	179.21	6,705.00	-7,886.86	349.53	7,894.45	0.00	0.00	0.00
15,600.00	90.00	179.21	6,705.00	-7,986.85	350.91	7,994.42	0.00	0.00	0.00
15,700.00	90.00	179.21	6,705.00	-8,086.84	352.29	8,094.39	0.00	0.00	0.00
15,800.00	90.00	179.21	6,705.00	-8,186.83	353.66	8,194.36	0.00	0.00	0.00
15,900.00	90.00	179.21	6,705.00	-8,286.82	355.04	8,294.33	0.00	0.00	0.00
16,000.00	90.00	179.21	6,705.00	-8,386.81	356.42	8,394.30	0.00	0.00	0.00
16,100.00	90.00	179.21	6,705.00	-8,486.80	357.79	8,494.27	0.00	0.00	0.00
16,200.00	90.00	179.21	6,705.00	-8,586.79	359.17	8,594.24	0.00	0.00	0.00
16,300.00	90.00	179.21	6,705.00	-8,686.78	360.55	8,694.21	0.00	0.00	0.00
16,400.00	90.00	179.21	6,705.00	-8,786.77	361.93	8,794.18	0.00	0.00	0.00
16,500.00	90.00	179.21	6,705.00	-8,886.76	363.30	8,894.15	0.00	0.00	0.00
16,600.00	90.00	179.21	6,705.00	-8,986.75	364.68	8,994.12	0.00	0.00	0.00
16,700.00	90.00	179.21	6,705.00	-9,086.74	366.06	9,094.09	0.00	0.00	0.00
16,800.00	90.00	179.21	6,705.00	-9,186.73	367.43	9,194.06	0.00	0.00	0.00
16,900.00	90.00	179.21	6,705.00	-9,286.72	368.81	9,294.03	0.00	0.00	0.00
17,000.00	90.00	179.21	6,705.00	-9,386.71	370.19	9,394.00	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4895.00ft
Project:	Mustang	MD Reference:	Well @ 4895.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
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)
17,100.00	90.00	179.21	6,705.00	-9,486.70	371.56	9,493.97	0.00	0.00	0.00
17,200.00	90.00	179.21	6,705.00	-9,586.69	372.94	9,593.94	0.00	0.00	0.00
17,300.00	90.00	179.21	6,705.00	-9,686.68	374.32	9,693.91	0.00	0.00	0.00
17,400.00	90.00	179.21	6,705.00	-9,786.68	375.70	9,793.88	0.00	0.00	0.00
17,504.74	90.00	179.21	6,705.00	-9,891.40	377.14	9,898.59	0.00	0.00	0.00
TD @ 17504.74' MD/6705.00' TVD									

Design Targets									
Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	
- Shape									Latitude Longitude
Guttersen DD17-725-l	- plan hits target center	0.00	0.00	0.00	0.00	0.00	1,334,132.98	3,291,248.78	40.2458900 -104.4566100
- Point									
Guttersen DD17-725-l	- plan hits target center	0.00	0.00	5,825.38	941.84	160.01	1,335,074.82	3,291,408.80	40.2484701 -104.4559971
- Point									
Guttersen DD17-725-l	- plan hits target center	0.00	0.00	6,705.00	-9,891.40	377.14	1,324,241.60	3,291,625.92	40.2187268 -104.4556763
- Point									
Guttersen DD17-725-l	- plan hits target center	0.00	0.00	6,705.00	355.50	236.02	1,334,488.48	3,291,484.80	40.2468582 -104.4557495
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
386.00	386.00	Pierre				
726.00	726.00	Upper Pierre Aquifer Top				
1,621.00	1,621.00	Upper Pierre Aquifer Base				
3,770.25	3,761.00	Parkman				
4,184.39	4,151.00	Sussex				
5,032.37	4,931.00	Shannon				
6,166.01	5,980.00	Teepee Buttes				
6,825.84	6,565.00	Sharon Springs				
6,864.12	6,588.00	Top A Chalk				
6,889.09	6,602.00	Top A Marl				
6,909.81	6,613.00	Top B Chalk				
7,010.32	6,658.00	Top B Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen DD17-725
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4895.00ft
Project:	Mustang	MD Reference:	Well @ 4895.00ft
Site:	DD Section 08	North Reference:	Grid
Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen DD17-725		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
3,000.00	3,000.00	0.00	0.00	Build: 2°/100'	
4,154.89	4,123.86	226.41	38.47	Hold: 23.10° Inc, 9.64° Azm	
6,004.70	5,825.38	941.84	160.01	KOP: Build 9°/100' @ 6004.70' MD	
7,256.86	6,705.00	355.50	236.02	LP: 7256.86' MD, 90.00° Inc, 179.21° Azm	
17,504.74	6,705.00	-9,891.40	377.14	TD @ 17504.74' MD/6705.00' TVD	

Northern Region - DJ Basin

Mustang

DD Section 08

Guttersen DD17-725

Guttersen DD17-725

Plan #1

Anticollision Summary Report

02 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen DD17-725
Project:	Mustang	TVD Reference:	Well @ 4895.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4895.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen DD17-725	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	17,504.74	Plan #1 (Guttersen DD17-725)	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						
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	5,093.31	5,030.79	119.92	85.94	3.529	CC, ES, SF
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	5,166.45	5,047.98	520.28	484.50	14.541	CC
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	5,200.00	5,078.07	520.44	484.42	14.451	ES
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	6,700.00	6,589.01	553.99	507.46	11.905	SF
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,796.38	3,649.33	820.81	795.10	31.923	CC
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,800.00	3,652.28	820.81	795.08	31.896	ES
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	4,700.00	4,434.31	914.85	883.41	29.097	SF
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	1,083.22	1,069.24	2,561.64	2,554.37	352.533	CC
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	4,154.89	4,119.53	2,564.24	2,535.31	88.642	ES
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	6,750.00	6,586.36	2,688.45	2,643.88	60.326	SF
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	837.16	822.02	2,589.20	2,583.62	463.922	CC, ES
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,000.00	6,128.61	3,668.12	3,621.99	79.509	SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,021.05	5,818.31	3,221.34	3,179.55	77.078	CC
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,050.00	5,842.24	3,221.50	3,179.51	76.718	ES
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,900.00	6,611.48	3,342.96	3,296.20	71.493	SF

CC - Min centre to center distance or covergent 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 DD17-725
Project:	Mustang	TVD Reference:	Well @ 4895.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4895.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen DD17-725	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						
DD Section 08						
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	3,000.00	2,985.00	753.82	683.60	10.735	CC
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	3,200.00	3,184.84	756.12	681.19	10.091	ES
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	7,720.51	6,690.00	986.43	828.11	6.231	SF
GUTTERSEN #32-8(PA) - GUTTERSEN #32-8 - No Sur	9,053.77	6,710.00	997.52	834.67	6.126	CC, ES, SF
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,368.86	6,700.00	991.82	822.14	5.845	CC, ES
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,400.00	6,700.00	992.31	822.48	5.843	SF
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Sur	11,676.78	6,690.00	933.06	755.03	5.241	CC, ES
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Sur	11,700.00	6,690.00	933.35	755.20	5.239	SF
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Sur	9,049.19	6,680.00	345.25	183.03	2.128	CC, ES, SF
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,371.53	6,700.00	334.26	164.56	1.970	CC, ES, SF
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	8,362.47	6,707.19	267.98	218.72	5.440	CC, ES, SF
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,050.32	6,720.30	363.79	300.50	5.748	CC, ES, SF
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	7,558.85	6,684.88	560.45	513.94	12.051	CC, ES, SF
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	11,738.47	6,723.00	390.82	236.07	2.525	CC, ES, SF
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	2,111.69	2,124.69	2,437.06	2,422.34	165.559	CC
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	2,200.00	2,209.41	2,437.07	2,421.73	158.867	ES
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,700.00	12,243.71	3,327.81	3,229.26	33.766	SF
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	2,112.12	2,124.12	2,459.39	2,444.67	167.082	CC
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	2,200.00	2,200.00	2,459.42	2,444.11	160.677	ES
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	12,900.00	12,287.22	4,007.15	3,906.72	39.900	SF
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,200.00	2,199.00	22.33	7.03	1.459	Level 3, CC, ES
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,300.00	2,298.53	23.34	7.32	1.457	Level 3, SF
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,200.00	2,201.00	22.63	7.32	1.478	Level 3, CC
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,300.00	2,300.79	23.08	7.05	1.440	Level 3, ES, SF
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,200.00	2,202.00	44.81	29.50	2.926	CC, ES
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,300.00	2,301.34	45.55	29.52	2.842	SF
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,200.00	2,204.00	69.88	54.56	4.561	CC, ES
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,300.00	2,302.24	71.17	55.14	4.441	SF
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,200.00	2,205.00	92.19	76.86	6.016	CC, ES
Guttersen DD17-750 - Guttersen DD17-750 - Plan #1	2,300.00	2,302.41	93.65	77.62	5.844	SF
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	7,267.62	7,353.03	1,973.76	1,924.80	40.315	CC
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	17,504.74	17,580.06	1,974.17	1,797.15	11.152	ES, SF
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	2,592.13	2,606.49	2,392.23	2,374.07	131.763	CC
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	2,900.00	2,905.61	2,392.97	2,372.66	117.836	ES
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	17,504.74	17,442.96	2,629.67	2,452.99	14.884	SF
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	2,111.69	2,124.69	2,414.73	2,400.01	164.042	CC
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	2,300.00	2,294.03	2,415.17	2,399.17	150.940	ES
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	17,504.74	17,618.15	2,963.55	2,786.74	16.761	SF
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,350.42	6,710.81	2,233.23	2,174.43	37.979	CC, ES
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,700.00	6,713.31	2,260.42	2,199.87	37.328	SF
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,606.35	6,760.22	3,704.52	3,637.25	55.073	CC, ES
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	12,500.00	6,767.65	3,810.78	3,738.49	52.720	SF
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	7,488.56	6,665.00	338.30	180.76	2.147	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 DD17-725
Project:	Mustang	TVD Reference:	Well @ 4895.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4895.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen DD17-725	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						
DD Section 17						
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,592.82	6,664.56	2,415.21	2,318.74	25.035	CC
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,600.00	6,664.56	2,415.22	2,318.69	25.022	ES
Gutttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,900.00	6,664.92	2,434.66	2,336.47	24.796	SF
Gutttersen State DD17-78HN - Original Drilling - Original	17,504.74	6,686.58	3,641.77	3,532.34	33.278	CC, ES, SF
Gutttersen State DD17-78HN - Original Drilling - ST01 - S	13,200.00	13,200.00	3,652.76	3,475.32	20.586	ES, SF
Gutttersen State DD17-78HN - Original Drilling - ST01 - S	15,318.06	8,690.61	3,639.64	3,526.76	32.244	CC
Gutttersen State DD17-79-1HN - Original Drilling - Original	12,500.00	11,502.00	4,000.35	3,857.21	27.947	SF
Gutttersen State DD17-79-1HN - Original Drilling - Original	13,291.76	10,679.81	3,983.42	3,849.42	29.728	ES
Gutttersen State DD17-79-1HN - Original Drilling - Original	16,069.31	7,900.00	3,959.64	3,850.87	36.404	CC
Gutttersen State DD17-79HN - Original Drilling - Original	13,200.00	13,200.00	4,243.48	4,065.49	23.842	ES, SF
Gutttersen State DD17-79HN - Original Drilling - Original	14,816.07	9,227.00	4,198.24	4,079.39	35.322	CC
Gutttersen USX DD17-19 - Original Drilling - Original	13,570.05	6,670.63	3,086.82	3,005.71	38.059	CC
Gutttersen USX DD17-19 - Original Drilling - Original	13,600.00	6,670.57	3,086.97	3,005.65	37.963	ES
Gutttersen USX DD17-19 - Original Drilling - Original	14,100.00	6,669.55	3,131.98	3,047.82	37.216	SF
DD Section 18						
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,465.55	6,741.63	5,702.63	5,600.02	55.578	CC
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,500.00	6,742.09	5,702.73	5,599.86	55.436	ES
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,504.74	6,755.27	5,796.53	5,687.18	53.013	SF
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,102.01	6,705.02	7,586.39	7,478.67	70.428	CC
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,705.07	7,587.02	7,478.55	69.946	ES
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,504.74	6,705.20	7,597.07	7,486.34	68.612	SF
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,696.23	6,642.97	6,293.66	6,196.44	64.735	CC
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,700.00	6,642.99	6,293.66	6,196.41	64.716	ES
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,400.00	6,653.88	6,520.19	6,412.59	60.597	SF
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,137.89	6,664.37	6,374.49	6,266.97	59.285	CC
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,200.00	6,663.76	6,374.79	6,266.80	59.028	ES
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,504.74	6,660.73	6,385.04	6,274.82	57.934	SF
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,704.13	6,663.14	5,096.50	4,997.03	51.238	CC, ES
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	16,800.00	6,667.81	5,212.99	5,106.80	49.090	SF
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,073.28	6,671.48	5,031.49	4,924.52	47.034	CC
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,100.00	6,671.42	5,031.56	4,924.38	46.946	ES
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,504.74	6,670.56	5,049.96	4,939.97	45.913	SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,043.89	6,561.53	7,975.71	7,876.08	80.050	CC
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,100.00	6,561.68	7,975.91	7,875.85	79.708	ES
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,504.74	6,564.95	8,108.39	7,998.75	73.951	SF
Karch Blue DD18-12 - Original Drilling - Original Drilling	15,658.82	6,660.65	9,112.52	9,011.16	89.905	CC
Karch Blue DD18-12 - Original Drilling - Original Drilling	15,700.00	6,660.48	9,112.61	9,010.94	89.629	ES
Karch Blue DD18-12 - Original Drilling - Original Drilling	17,504.74	6,652.98	9,297.60	9,183.63	81.582	SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,145.13	6,825.91	9,167.67	9,058.40	83.904	CC
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,200.00	6,824.90	9,167.83	9,058.15	83.584	ES
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,504.74	6,819.30	9,174.71	9,062.74	81.937	SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,504.74	6,612.73	3,613.84	3,506.08	33.536	CC, ES, SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	17,504.74	6,708.85	5,221.09	5,140.49	64.772	CC, ES, SF

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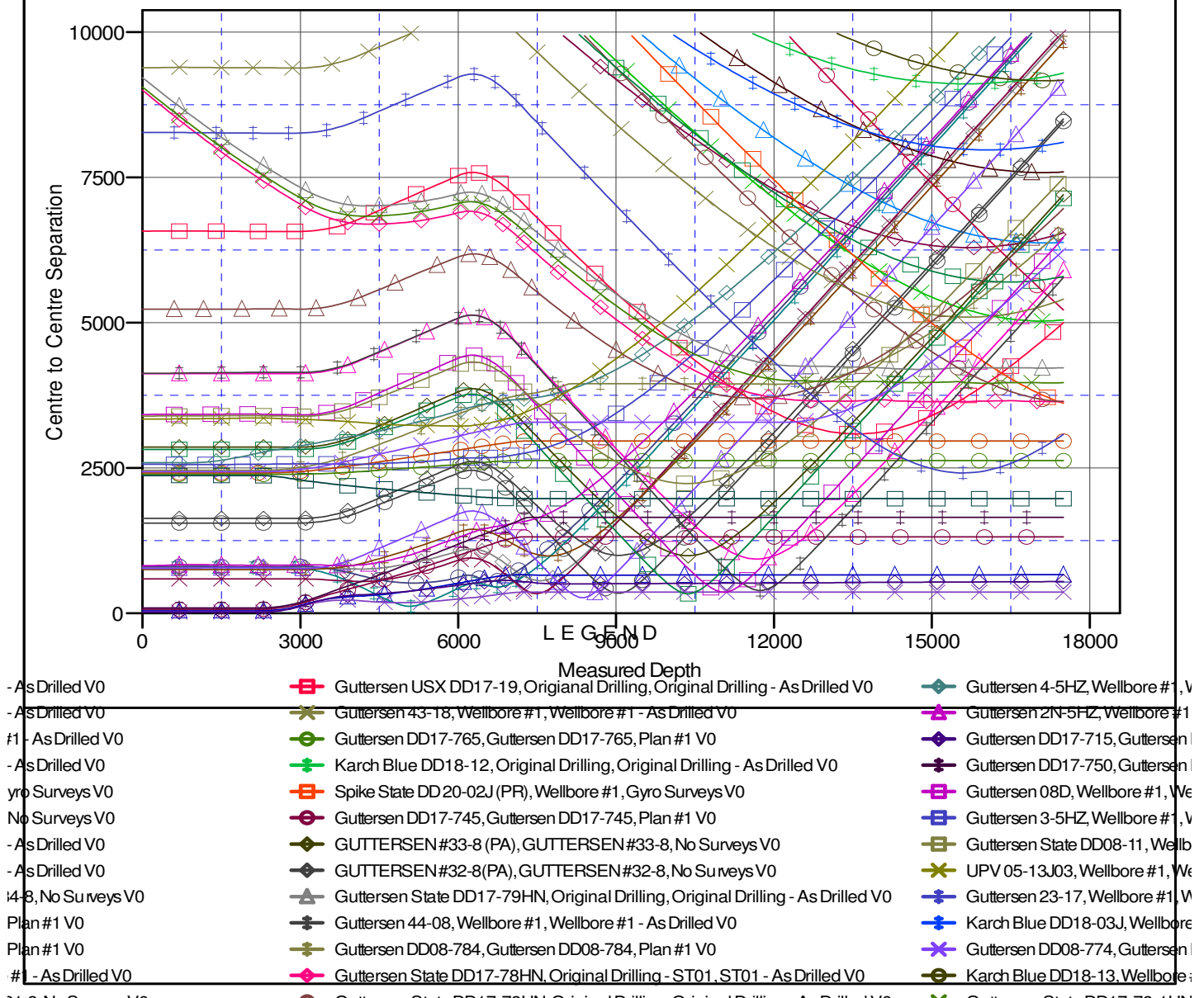
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen DD17-725
Project:	Mustang	TVD Reference:	Well @ 4895.00ft
Reference Site:	DD Section 08	MD Reference:	Well @ 4895.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen DD17-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4895.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Guttersen DD17-725
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.67°

Ladder Plot



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

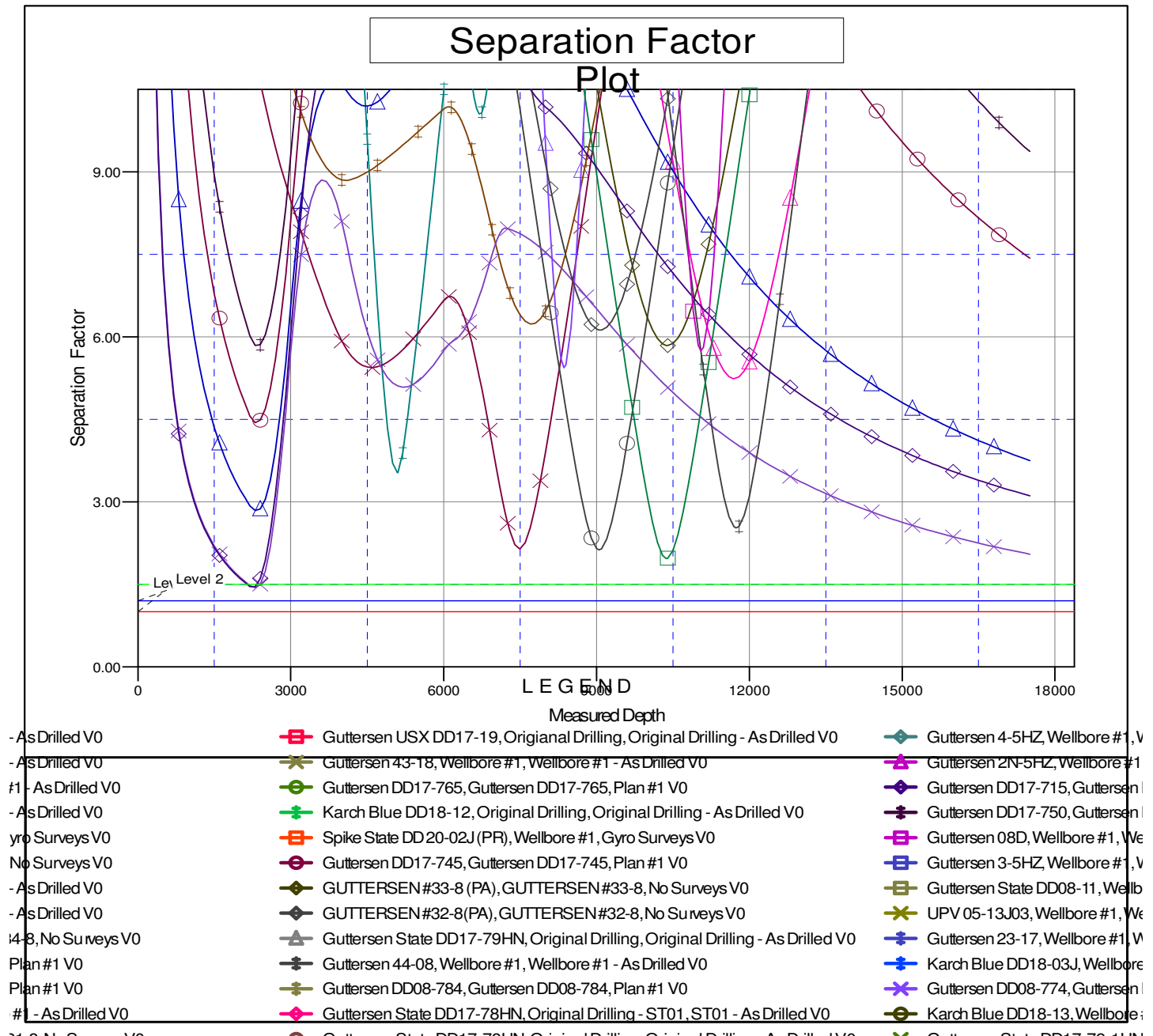
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen DD17-725
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Reference Well:	Guttersen DD17-725	Survey Calculation Method:	Minimum Curvature
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Reference Wellbore	Guttersen DD17-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4895.00ft
Offset Depths are relative to Offset Datum
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Coordinates are relative to: Guttersen DD17-725
Coordinate System is US State Plane 1983, Colorado Northern Zone
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