

Project: Mustang
Site: DD Section 30
Well: Gutttersen State DD30-745
Wellbore: Gutttersen State DD30-745
Design: Plan #2

Northern Region - DJ Basin

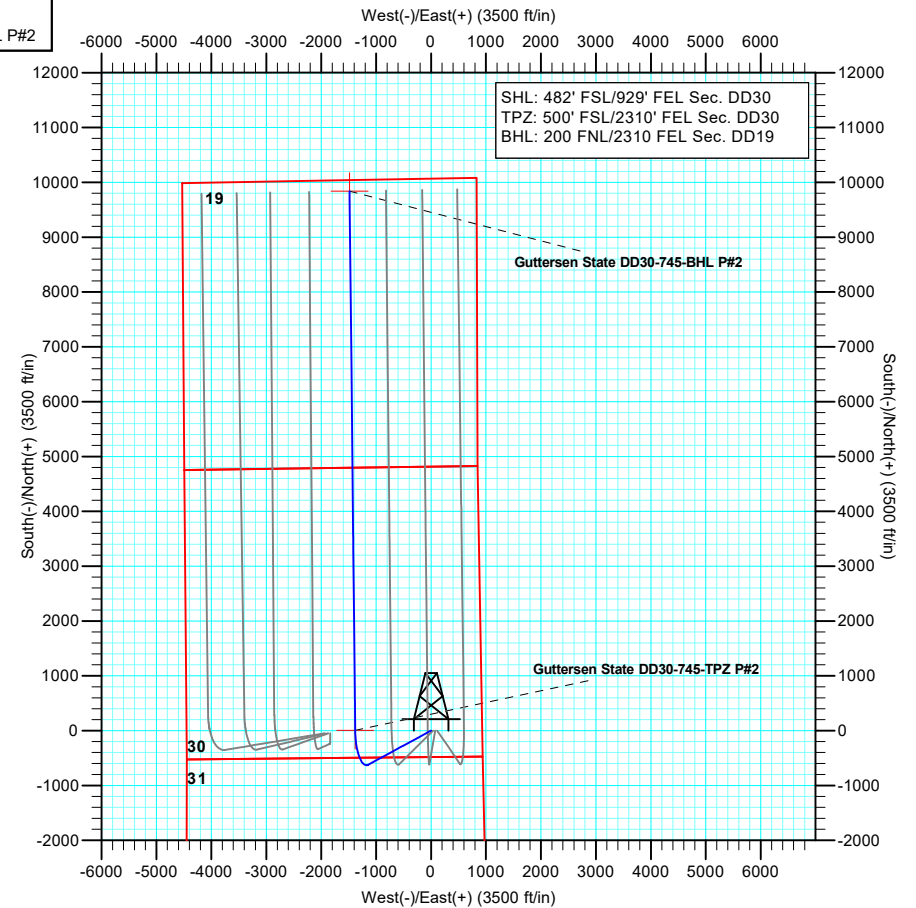
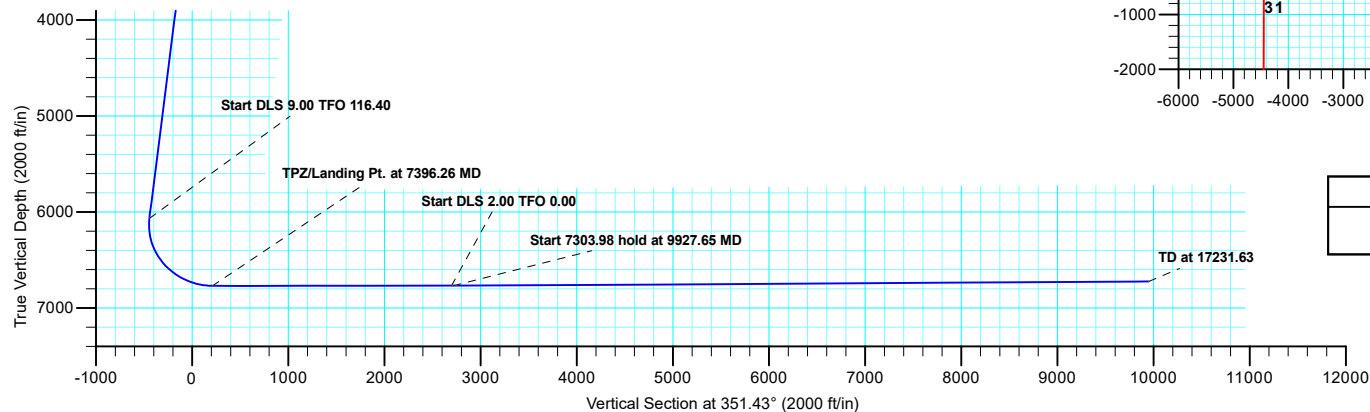
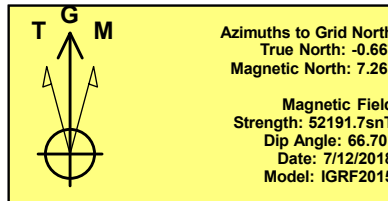
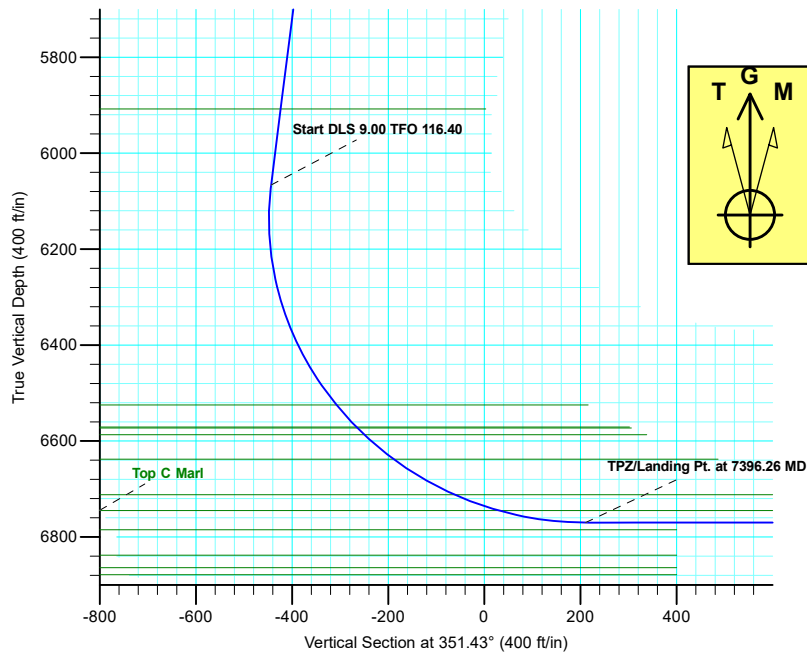
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	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	2876.06	20.28	241.52	2862.03	-56.47	-104.08	3.00	241.52	-40.32	
4	6292.59	20.28	241.52	6066.74	-621.20	-1145.06	0.00	0.00	-443.55	
5	7396.26	90.00	359.41	6770.00	4.58	-1381.29	9.00	116.40	210.45	Gutttersen State DD30-745-TPZ P#2
6	9910.15	90.00	359.41	6770.00	2518.33	-1407.39	0.00	0.00	2700.00	
7	9927.65	90.35	359.41	6769.95	2535.83	-1407.57	2.00	0.00	2717.33	
8	17231.63	90.35	359.41	6725.33	9839.28	-1483.40	0.00	0.00	9950.48	Gutttersen State DD30-745-BHL P#2

WELL DETAILS: Gutttersen State DD30-745

+N/-S	+E/-W	Northing	Ground Level: Easting	4823.00 Latitude	Longitude	Slot
0.00	0.00	1313884.82	3286510.13	40.1904621	-104.4744235	



Plan: Plan #2 (Gutttersen State DD30-745/Gutttersen State DD30-745)

Created by: Shelly C. Peterkin Date: 11:08, August 09 2019

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-745

Guttersen State DD30-745

Plan: Plan #2

Standard Planning Report

09 August, 2019

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-745
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

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 30				
Site Position:		Northing:	1,316,013.13 usft	Latitude:	40.1963600
From:	Lat/Long	Easting:	3,284,747.15 usft	Longitude:	-104.4806460
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.66 °

Well	Guttersen State DD30-745					
Well Position	+N/-S	-2,128.32 ft	Northing:	1,313,884.82 usft	Latitude:	40.1904621
	+E/-W	1,762.98 ft	Easting:	3,286,510.13 usft	Longitude:	-104.4744235
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

Wellbore	Guttersen State DD30-745				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/12/2018	7.92	66.70	52,191.74577749

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	351.43

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,876.06	20.28	241.52	2,862.03	-56.47	-104.08	3.00	3.00	0.00	241.52	
6,292.60	20.28	241.52	6,066.74	-621.20	-1,145.06	0.00	0.00	0.00	0.00	
7,396.26	90.00	359.41	6,770.00	4.58	-1,381.29	9.00	6.32	10.68	116.40	Guttersen State DD30
9,910.15	90.00	359.41	6,770.00	2,518.33	-1,407.39	0.00	0.00	0.00	0.00	
9,927.65	90.35	359.41	6,769.95	2,535.83	-1,407.57	2.00	2.00	0.00	0.00	
17,231.63	90.35	359.41	6,725.33	9,839.28	-1,483.40	0.00	0.00	0.00	0.00	Guttersen State DD30

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-745
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

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
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
630.00	0.00	0.00	630.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
716.00	0.00	0.00	716.00	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
1,653.00	0.00	0.00	1,653.00	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
Start Build 3.00									
2,300.00	3.00	241.52	2,299.95	-1.25	-2.30	-0.89	3.00	3.00	0.00
2,400.00	6.00	241.52	2,399.63	-4.99	-9.20	-3.56	3.00	3.00	0.00
2,500.00	9.00	241.52	2,498.77	-11.21	-20.67	-8.01	3.00	3.00	0.00
2,600.00	12.00	241.52	2,597.08	-19.90	-36.68	-14.21	3.00	3.00	0.00
2,700.00	15.00	241.52	2,694.31	-31.03	-57.20	-22.16	3.00	3.00	0.00
2,800.00	18.00	241.52	2,790.18	-44.57	-82.16	-31.83	3.00	3.00	0.00
2,876.06	20.28	241.52	2,862.03	-56.47	-104.08	-40.32	3.00	3.00	0.00
Start 3416.54 hold at 2876.06 MD									
2,900.00	20.28	241.52	2,884.49	-60.42	-111.38	-43.14	0.00	0.00	0.00
3,000.00	20.28	241.52	2,978.28	-76.95	-141.85	-54.95	0.00	0.00	0.00
3,100.00	20.28	241.52	3,072.08	-93.48	-172.32	-66.75	0.00	0.00	0.00
3,200.00	20.28	241.52	3,165.88	-110.01	-202.78	-78.55	0.00	0.00	0.00
3,300.00	20.28	241.52	3,259.68	-126.54	-233.25	-90.35	0.00	0.00	0.00
3,400.00	20.28	241.52	3,353.48	-143.07	-263.72	-102.16	0.00	0.00	0.00
3,500.00	20.28	241.52	3,447.28	-159.60	-294.19	-113.96	0.00	0.00	0.00
3,600.00	20.28	241.52	3,541.08	-176.13	-324.66	-125.76	0.00	0.00	0.00
3,697.99	20.28	241.52	3,633.00	-192.33	-354.52	-137.33	0.00	0.00	0.00
Parkman									
3,700.00	20.28	241.52	3,634.88	-192.66	-355.13	-137.56	0.00	0.00	0.00
3,800.00	20.28	241.52	3,728.68	-209.19	-385.60	-149.37	0.00	0.00	0.00
3,900.00	20.28	241.52	3,822.48	-225.72	-416.07	-161.17	0.00	0.00	0.00
4,000.00	20.28	241.52	3,916.28	-242.25	-446.53	-172.97	0.00	0.00	0.00
4,100.00	20.28	241.52	4,010.08	-258.78	-477.00	-184.77	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

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)
4,147.88	20.28	241.52	4,055.00	-266.69	-491.59	-190.42	0.00	0.00	0.00
Sussex									
4,200.00	20.28	241.52	4,103.88	-275.31	-507.47	-196.58	0.00	0.00	0.00
4,300.00	20.28	241.52	4,197.68	-291.83	-537.94	-208.38	0.00	0.00	0.00
4,345.11	20.28	241.52	4,240.00	-299.29	-551.69	-213.70	0.00	0.00	0.00
Shannon									
4,400.00	20.28	241.52	4,291.48	-308.36	-568.41	-220.18	0.00	0.00	0.00
4,500.00	20.28	241.52	4,385.28	-324.89	-598.88	-231.98	0.00	0.00	0.00
4,600.00	20.28	241.52	4,479.08	-341.42	-629.35	-243.79	0.00	0.00	0.00
4,700.00	20.28	241.52	4,572.88	-357.95	-659.82	-255.59	0.00	0.00	0.00
4,800.00	20.28	241.52	4,666.68	-374.48	-690.29	-267.39	0.00	0.00	0.00
4,900.00	20.28	241.52	4,760.48	-391.01	-720.75	-279.19	0.00	0.00	0.00
5,000.00	20.28	241.52	4,854.28	-407.54	-751.22	-291.00	0.00	0.00	0.00
5,100.00	20.28	241.52	4,948.08	-424.07	-781.69	-302.80	0.00	0.00	0.00
5,200.00	20.28	241.52	5,041.88	-440.60	-812.16	-314.60	0.00	0.00	0.00
5,300.00	20.28	241.52	5,135.68	-457.13	-842.63	-326.40	0.00	0.00	0.00
5,400.00	20.28	241.52	5,229.48	-473.66	-873.10	-338.21	0.00	0.00	0.00
5,500.00	20.28	241.52	5,323.28	-490.19	-903.57	-350.01	0.00	0.00	0.00
5,600.00	20.28	241.52	5,417.08	-506.72	-934.04	-361.81	0.00	0.00	0.00
5,700.00	20.28	241.52	5,510.88	-523.25	-964.51	-373.61	0.00	0.00	0.00
5,800.00	20.28	241.52	5,604.68	-539.78	-994.97	-385.42	0.00	0.00	0.00
5,900.00	20.28	241.52	5,698.48	-556.31	-1,025.44	-397.22	0.00	0.00	0.00
6,000.00	20.28	241.52	5,792.28	-572.84	-1,055.91	-409.02	0.00	0.00	0.00
6,100.00	20.28	241.52	5,886.08	-589.36	-1,086.38	-420.82	0.00	0.00	0.00
6,123.37	20.28	241.52	5,908.00	-593.23	-1,093.50	-423.58	0.00	0.00	0.00
Teepee Buttes									
6,200.00	20.28	241.52	5,979.88	-605.89	-1,116.85	-432.63	0.00	0.00	0.00
6,292.60	20.28	241.52	6,066.74	-621.20	-1,145.06	-443.55	0.00	0.00	0.00
Start DLS 9.00 TFO 116.40									
6,300.00	19.99	243.27	6,073.69	-622.38	-1,147.32	-444.39	9.00	-3.89	23.58
6,350.00	18.55	256.21	6,120.91	-628.12	-1,162.69	-447.77	9.00	-2.90	25.89
6,400.00	18.09	270.49	6,168.40	-629.95	-1,178.18	-447.27	9.00	-0.91	28.56
6,450.00	18.70	284.65	6,215.87	-627.86	-1,193.71	-442.89	9.00	1.22	28.32
6,500.00	20.28	297.31	6,263.02	-621.85	-1,209.17	-434.64	9.00	3.16	25.32
6,550.00	22.63	307.83	6,309.57	-611.97	-1,224.48	-422.59	9.00	4.70	21.04
6,600.00	25.54	316.27	6,355.22	-598.28	-1,239.54	-406.80	9.00	5.81	16.89
6,650.00	28.83	323.00	6,399.71	-580.85	-1,254.25	-387.38	9.00	6.58	13.46
6,700.00	32.39	328.41	6,442.74	-559.81	-1,268.52	-364.44	9.00	7.12	10.82
6,750.00	36.14	332.84	6,484.06	-535.27	-1,282.28	-338.13	9.00	7.50	8.84
6,800.00	40.03	336.52	6,523.41	-507.39	-1,295.42	-308.60	9.00	7.77	7.36
6,802.07	40.19	336.66	6,525.00	-506.16	-1,295.95	-307.31	9.00	7.89	6.73
Sharon Springs									
6,850.00	44.01	339.64	6,560.56	-476.34	-1,307.88	-276.04	9.00	7.97	6.23
6,864.67	45.20	340.48	6,571.00	-466.66	-1,311.39	-265.94	9.00	8.07	5.67
Top A Chalk									
6,867.51	45.43	340.63	6,573.00	-464.75	-1,312.06	-263.96	9.00	8.10	5.53
Top A Marl									
6,887.76	47.07	341.72	6,587.00	-450.91	-1,316.78	-249.57	9.00	8.13	5.36
Top B Chalk									
6,900.00	48.07	342.35	6,595.26	-442.31	-1,319.57	-240.65	9.00	8.16	5.13
6,950.00	52.19	344.72	6,627.31	-405.52	-1,330.42	-202.65	9.00	8.23	4.75
6,967.73	53.66	345.50	6,638.00	-391.84	-1,334.05	-188.59	9.00	8.29	4.39
Top B Marl									

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

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	56.34	346.84	6,656.51	-366.18	-1,340.36	-162.27	9.00	8.33	4.17
7,050.00	60.53	348.77	6,682.67	-324.55	-1,349.34	-119.76	9.00	8.38	3.85
7,100.00	64.75	350.54	6,705.65	-280.87	-1,357.30	-75.39	9.00	8.43	3.55
7,115.26	66.04	351.06	6,712.00	-267.17	-1,359.52	-61.51	9.00	8.46	3.38
Top C Chalk									
7,150.00	68.99	352.20	6,725.29	-235.42	-1,364.19	-29.42	9.00	8.48	3.27
7,200.00	73.24	353.76	6,741.47	-188.48	-1,369.96	17.86	9.00	8.50	3.12
7,212.63	74.31	354.14	6,745.00	-176.42	-1,371.24	29.97	9.00	8.52	3.03
Top C Marl									
7,250.00	77.50	355.25	6,754.10	-140.34	-1,374.59	66.15	9.00	8.53	2.97
7,300.00	81.77	356.70	6,763.10	-91.29	-1,378.04	115.17	9.00	8.54	2.89
7,350.00	86.04	358.11	6,768.40	-41.63	-1,380.29	164.60	9.00	8.55	2.83
7,396.26	90.00	359.41	6,770.00	4.58	-1,381.29	210.45	9.00	8.55	2.80
TPZ/Landing Pt. at 7396.26 MD									
7,400.00	90.00	359.41	6,770.00	8.32	-1,381.33	214.15	0.00	0.00	0.00
7,500.00	90.00	359.41	6,770.00	108.31	-1,382.36	313.18	0.00	0.00	0.00
7,600.00	90.00	359.41	6,770.00	208.31	-1,383.40	412.21	0.00	0.00	0.00
7,700.00	90.00	359.41	6,770.00	308.30	-1,384.44	511.24	0.00	0.00	0.00
7,800.00	90.00	359.41	6,770.00	408.30	-1,385.48	610.28	0.00	0.00	0.00
7,900.00	90.00	359.41	6,770.00	508.29	-1,386.52	709.31	0.00	0.00	0.00
8,000.00	90.00	359.41	6,770.00	608.28	-1,387.55	808.34	0.00	0.00	0.00
8,100.00	90.00	359.41	6,770.00	708.28	-1,388.59	907.37	0.00	0.00	0.00
8,200.00	90.00	359.41	6,770.00	808.27	-1,389.63	1,006.40	0.00	0.00	0.00
8,300.00	90.00	359.41	6,770.00	908.27	-1,390.67	1,105.44	0.00	0.00	0.00
8,400.00	90.00	359.41	6,770.00	1,008.26	-1,391.71	1,204.47	0.00	0.00	0.00
8,500.00	90.00	359.41	6,770.00	1,108.26	-1,392.75	1,303.50	0.00	0.00	0.00
8,600.00	90.00	359.41	6,770.00	1,208.25	-1,393.78	1,402.53	0.00	0.00	0.00
8,700.00	90.00	359.41	6,770.00	1,308.25	-1,394.82	1,501.56	0.00	0.00	0.00
8,800.00	90.00	359.41	6,770.00	1,408.24	-1,395.86	1,600.60	0.00	0.00	0.00
8,900.00	90.00	359.41	6,770.00	1,508.24	-1,396.90	1,699.63	0.00	0.00	0.00
9,000.00	90.00	359.41	6,770.00	1,608.23	-1,397.94	1,798.66	0.00	0.00	0.00
9,100.00	90.00	359.41	6,770.00	1,708.22	-1,398.97	1,897.69	0.00	0.00	0.00
9,200.00	90.00	359.41	6,770.00	1,808.22	-1,400.01	1,996.72	0.00	0.00	0.00
9,300.00	90.00	359.41	6,770.00	1,908.21	-1,401.05	2,095.76	0.00	0.00	0.00
9,400.00	90.00	359.41	6,770.00	2,008.21	-1,402.09	2,194.79	0.00	0.00	0.00
9,500.00	90.00	359.41	6,770.00	2,108.20	-1,403.13	2,293.82	0.00	0.00	0.00
9,600.00	90.00	359.41	6,770.00	2,208.20	-1,404.17	2,392.85	0.00	0.00	0.00
9,700.00	90.00	359.41	6,770.00	2,308.19	-1,405.20	2,491.88	0.00	0.00	0.00
9,800.00	90.00	359.41	6,770.00	2,408.19	-1,406.24	2,590.92	0.00	0.00	0.00
9,900.00	90.00	359.41	6,770.00	2,508.18	-1,407.28	2,689.95	0.00	0.00	0.00
9,910.15	90.00	359.41	6,770.00	2,518.33	-1,407.39	2,700.00	0.00	0.00	0.00
Start DLS 2.00 TFO 0.00									
9,927.65	90.35	359.41	6,769.95	2,535.83	-1,407.57	2,717.33	2.00	2.00	0.00
Start 7303.98 hold at 9927.65 MD									
10,000.00	90.35	359.41	6,769.50	2,608.18	-1,408.32	2,788.98	0.00	0.00	0.00
10,100.00	90.35	359.41	6,768.89	2,708.17	-1,409.36	2,888.01	0.00	0.00	0.00
10,200.00	90.35	359.41	6,768.28	2,808.16	-1,410.39	2,987.04	0.00	0.00	0.00
10,300.00	90.35	359.41	6,767.67	2,908.15	-1,411.43	3,086.07	0.00	0.00	0.00
10,400.00	90.35	359.41	6,767.06	3,008.15	-1,412.47	3,185.10	0.00	0.00	0.00
10,500.00	90.35	359.41	6,766.45	3,108.14	-1,413.51	3,284.13	0.00	0.00	0.00
10,600.00	90.35	359.41	6,765.84	3,208.13	-1,414.55	3,383.16	0.00	0.00	0.00
10,700.00	90.35	359.41	6,765.23	3,308.12	-1,415.59	3,482.19	0.00	0.00	0.00
10,800.00	90.35	359.41	6,764.62	3,408.12	-1,416.62	3,581.22	0.00	0.00	0.00
10,900.00	90.35	359.41	6,764.01	3,508.11	-1,417.66	3,680.25	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-745
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

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)
11,000.00	90.35	359.41	6,763.40	3,608.10	-1,418.70	3,779.28	0.00	0.00	0.00
11,100.00	90.35	359.41	6,762.79	3,708.10	-1,419.74	3,878.31	0.00	0.00	0.00
11,200.00	90.35	359.41	6,762.17	3,808.09	-1,420.78	3,977.34	0.00	0.00	0.00
11,300.00	90.35	359.41	6,761.56	3,908.08	-1,421.81	4,076.37	0.00	0.00	0.00
11,400.00	90.35	359.41	6,760.95	4,008.07	-1,422.85	4,175.40	0.00	0.00	0.00
11,500.00	90.35	359.41	6,760.34	4,108.07	-1,423.89	4,274.43	0.00	0.00	0.00
11,600.00	90.35	359.41	6,759.73	4,208.06	-1,424.93	4,373.46	0.00	0.00	0.00
11,700.00	90.35	359.41	6,759.12	4,308.05	-1,425.97	4,472.49	0.00	0.00	0.00
11,800.00	90.35	359.41	6,758.51	4,408.04	-1,427.01	4,571.52	0.00	0.00	0.00
11,900.00	90.35	359.41	6,757.90	4,508.04	-1,428.04	4,670.55	0.00	0.00	0.00
12,000.00	90.35	359.41	6,757.29	4,608.03	-1,429.08	4,769.58	0.00	0.00	0.00
12,100.00	90.35	359.41	6,756.68	4,708.02	-1,430.12	4,868.61	0.00	0.00	0.00
12,200.00	90.35	359.41	6,756.07	4,808.02	-1,431.16	4,967.64	0.00	0.00	0.00
12,300.00	90.35	359.41	6,755.46	4,908.01	-1,432.20	5,066.67	0.00	0.00	0.00
12,400.00	90.35	359.41	6,754.84	5,008.00	-1,433.23	5,165.70	0.00	0.00	0.00
12,500.00	90.35	359.41	6,754.23	5,107.99	-1,434.27	5,264.73	0.00	0.00	0.00
12,600.00	90.35	359.41	6,753.62	5,207.99	-1,435.31	5,363.76	0.00	0.00	0.00
12,700.00	90.35	359.41	6,753.01	5,307.98	-1,436.35	5,462.79	0.00	0.00	0.00
12,800.00	90.35	359.41	6,752.40	5,407.97	-1,437.39	5,561.82	0.00	0.00	0.00
12,900.00	90.35	359.41	6,751.79	5,507.96	-1,438.43	5,660.85	0.00	0.00	0.00
13,000.00	90.35	359.41	6,751.18	5,607.96	-1,439.46	5,759.88	0.00	0.00	0.00
13,100.00	90.35	359.41	6,750.57	5,707.95	-1,440.50	5,858.91	0.00	0.00	0.00
13,200.00	90.35	359.41	6,749.96	5,807.94	-1,441.54	5,957.94	0.00	0.00	0.00
13,300.00	90.35	359.41	6,749.35	5,907.94	-1,442.58	6,056.97	0.00	0.00	0.00
13,400.00	90.35	359.41	6,748.74	6,007.93	-1,443.62	6,156.00	0.00	0.00	0.00
13,500.00	90.35	359.41	6,748.12	6,107.92	-1,444.65	6,255.03	0.00	0.00	0.00
13,600.00	90.35	359.41	6,747.51	6,207.91	-1,445.69	6,354.06	0.00	0.00	0.00
13,700.00	90.35	359.41	6,746.90	6,307.91	-1,446.73	6,453.09	0.00	0.00	0.00
13,800.00	90.35	359.41	6,746.29	6,407.90	-1,447.77	6,552.12	0.00	0.00	0.00
13,900.00	90.35	359.41	6,745.68	6,507.89	-1,448.81	6,651.15	0.00	0.00	0.00
14,000.00	90.35	359.41	6,745.07	6,607.88	-1,449.85	6,750.18	0.00	0.00	0.00
14,100.00	90.35	359.41	6,744.46	6,707.88	-1,450.88	6,849.21	0.00	0.00	0.00
14,200.00	90.35	359.41	6,743.85	6,807.87	-1,451.92	6,948.25	0.00	0.00	0.00
14,300.00	90.35	359.41	6,743.24	6,907.86	-1,452.96	7,047.28	0.00	0.00	0.00
14,400.00	90.35	359.41	6,742.63	7,007.86	-1,454.00	7,146.31	0.00	0.00	0.00
14,500.00	90.35	359.41	6,742.02	7,107.85	-1,455.04	7,245.34	0.00	0.00	0.00
14,600.00	90.35	359.41	6,741.41	7,207.84	-1,456.07	7,344.37	0.00	0.00	0.00
14,700.00	90.35	359.41	6,740.79	7,307.83	-1,457.11	7,443.40	0.00	0.00	0.00
14,800.00	90.35	359.41	6,740.18	7,407.83	-1,458.15	7,542.43	0.00	0.00	0.00
14,900.00	90.35	359.41	6,739.57	7,507.82	-1,459.19	7,641.46	0.00	0.00	0.00
15,000.00	90.35	359.41	6,738.96	7,607.81	-1,460.23	7,740.49	0.00	0.00	0.00
15,100.00	90.35	359.41	6,738.35	7,707.81	-1,461.27	7,839.52	0.00	0.00	0.00
15,200.00	90.35	359.41	6,737.74	7,807.80	-1,462.30	7,938.55	0.00	0.00	0.00
15,300.00	90.35	359.41	6,737.13	7,907.79	-1,463.34	8,037.58	0.00	0.00	0.00
15,400.00	90.35	359.41	6,736.52	8,007.78	-1,464.38	8,136.61	0.00	0.00	0.00
15,500.00	90.35	359.41	6,735.91	8,107.78	-1,465.42	8,235.64	0.00	0.00	0.00
15,600.00	90.35	359.41	6,735.30	8,207.77	-1,466.46	8,334.67	0.00	0.00	0.00
15,700.00	90.35	359.41	6,734.69	8,307.76	-1,467.49	8,433.70	0.00	0.00	0.00
15,800.00	90.35	359.41	6,734.08	8,407.75	-1,468.53	8,532.73	0.00	0.00	0.00
15,900.00	90.35	359.41	6,733.46	8,507.75	-1,469.57	8,631.76	0.00	0.00	0.00
16,000.00	90.35	359.41	6,732.85	8,607.74	-1,470.61	8,730.79	0.00	0.00	0.00
16,100.00	90.35	359.41	6,732.24	8,707.73	-1,471.65	8,829.82	0.00	0.00	0.00
16,200.00	90.35	359.41	6,731.63	8,807.73	-1,472.69	8,928.85	0.00	0.00	0.00
16,300.00	90.35	359.41	6,731.02	8,907.72	-1,473.72	9,027.88	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersten State DD30-745
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersten State DD30-745		
Design:	Plan #2		

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)
16,400.00	90.35	359.41	6,730.41	9,007.71	-1,474.76	9,126.91	0.00	0.00	0.00
16,500.00	90.35	359.41	6,729.80	9,107.70	-1,475.80	9,225.94	0.00	0.00	0.00
16,600.00	90.35	359.41	6,729.19	9,207.70	-1,476.84	9,324.97	0.00	0.00	0.00
16,700.00	90.35	359.41	6,728.58	9,307.69	-1,477.88	9,424.00	0.00	0.00	0.00
16,800.00	90.35	359.41	6,727.97	9,407.68	-1,478.91	9,523.03	0.00	0.00	0.00
16,900.00	90.35	359.41	6,727.36	9,507.67	-1,479.95	9,622.06	0.00	0.00	0.00
17,000.00	90.35	359.41	6,726.75	9,607.67	-1,480.99	9,721.09	0.00	0.00	0.00
17,100.00	90.35	359.41	6,726.13	9,707.66	-1,482.03	9,820.12	0.00	0.00	0.00
17,200.00	90.35	359.41	6,725.52	9,807.65	-1,483.07	9,919.15	0.00	0.00	0.00
17,231.63	90.35	359.41	6,725.33	9,839.28	-1,483.40	9,950.48	0.00	0.00	0.00
TD at 17231.63									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Guttersten State DD30-7	0.00	0.00	6,725.33	9,839.28	-1,483.40	1,323,724.08	3,285,026.74	40.2175172	-104.4793275
- plan hits target center									
- Point									
Guttersten State DD30-7	0.00	0.01	6,770.00	4.58	-1,381.29	1,313,889.40	3,285,128.85	40.1905185	-104.4793672
- plan hits target center									
- Point									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
630.00	630.00	Pierre			
716.00	716.00	Upper Pierre Aquifer Top			
1,653.00	1,653.00	Upper Pierre Aquifer Base			
3,697.99	3,633.00	Parkman			
4,147.88	4,055.00	Sussex			
4,345.11	4,240.00	Shannon			
6,123.37	5,908.00	Teepee Buttes			
6,802.07	6,525.00	Sharon Springs			
6,864.67	6,571.00	Top A Chalk			
6,867.51	6,573.00	Top A Marl			
6,887.76	6,587.00	Top B Chalk			
6,967.73	6,638.00	Top B Marl			
7,115.26	6,712.00	Top C Chalk			
7,212.63	6,745.00	Top C Marl			

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-745
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-745		
Design:	Plan #2		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,200.00	2,200.00	0.00	0.00	Start Build 3.00	
2,876.06	2,862.03	-56.47	-104.08	Start 3416.54 hold at 2876.06 MD	
6,292.60	6,066.74	-621.20	-1,145.06	Start DLS 9.00 TFO 116.40	
7,396.26	6,770.00	4.58	-1,381.29	TPZ/Landing Pt. at 7396.26 MD	
9,910.15	6,770.00	2,518.33	-1,407.39	Start DLS 2.00 TFO 0.00	
9,927.65	6,769.95	2,535.83	-1,407.57	Start 7303.98 hold at 9927.65 MD	
17,231.63	6,725.33	9,839.28	-1,483.40	TD at 17231.63	

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-745

Guttersen State DD30-745

Plan #2

Anticollision Summary Report

09 August, 2019

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Reference	Plan #2		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00ft	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	8/9/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,231.63	Plan #2 (Guttersten State DD30-745)	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						
D Section 13						
Dalbey D 13-11 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,671.71	6,588.43	6,484.68	63.509	CC, ES, SF
Dalbey D 13-12 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,658.46	7,562.46	7,455.75	70.869	CC, ES, SF
Dalbey D 13-13 (SI) - Wellbore #1 - As-Drilled	17,231.63	6,754.22	7,664.63	7,555.41	70.175	CC, ES, SF
Dalbey D 13-14 (PA) - Wellbore #1 - Gyro Surveys	17,231.63	6,586.76	6,498.40	6,389.84	59.858	CC, ES, SF
Guttersten 12-13 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	7,039.78	8,433.35	8,331.67	82.939	CC, ES, SF
Guttersten 13C (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,773.02	5,988.39	5,902.87	70.023	CC, ES, SF
Guttersten 13D (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,638.41	4,615.86	4,512.24	44.544	CC, ES, SF
Guttersten 13N (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,864.03	7,188.50	7,095.44	77.244	CC, ES, SF
Guttersten 13S (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,696.07	5,216.29	5,122.05	55.351	CC, ES, SF
Guttersten 13T (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,668.48	4,472.99	4,363.59	40.887	CC, ES, SF
Guttersten 21-13 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,823.84	8,003.94	7,912.01	87.068	CC, ES, SF
Guttersten 22-13 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,719.71	7,202.52	7,104.73	73.655	CC, ES, SF
Guttersten 31-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,581.25	6,960.00	6,874.52	81.420	CC, ES, SF
Guttersten 32-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,670.06	6,131.29	6,038.91	66.369	CC, ES, SF
Guttersten 34-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,631.50	5,163.22	5,055.25	47.820	CC, ES, SF
Guttersten 41-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,783.50	5,966.39	5,888.85	76.942	CC, ES, SF
Guttersten 42-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,673.24	4,966.91	4,881.66	58.258	CC, ES, SF
Guttersten 43-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,639.00	4,279.39	4,182.83	44.320	CC, ES, SF
Guttersten 44-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,638.01	3,843.11	3,733.02	34.910	CC, ES, SF
L F Ranch 1-13 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,731.81	5,448.16	5,344.47	52.543	CC, ES, SF
L. F. Ranch 13-4 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	7,376.00	8,524.93	8,421.79	82.649	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 Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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						
D Section 24						
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	13,769.54	6,688.76	4,678.70	4,595.32	56.113	CC
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	13,800.00	6,688.56	4,678.80	4,595.16	55.940	ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	15,100.00	6,679.09	4,864.18	4,771.54	52.501	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,812.00	6,633.12	5,153.30	5,077.04	67.578	CC, ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,630.55	5,422.72	5,334.97	61.800	SF
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	15,979.12	6,668.57	4,021.78	3,921.58	40.136	CC
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	16,000.00	6,668.33	4,021.84	3,921.45	40.061	ES
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,659.18	4,104.69	3,998.46	38.637	SF
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,776.30	6,777.55	7,697.23	7,590.76	72.299	CC
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,800.00	6,777.41	7,697.26	7,590.60	72.162	ES
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,774.81	7,710.68	7,600.45	69.946	SF
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,479.91	6,713.33	7,719.36	7,622.95	80.068	CC
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,500.00	6,713.17	7,719.39	7,622.81	79.928	ES
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,700.72	7,915.61	7,806.18	72.334	SF
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,783.72	6,628.97	6,378.46	6,272.04	59.937	CC
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,800.00	6,628.92	6,378.48	6,271.92	59.858	ES
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,627.48	6,394.17	6,284.03	58.057	SF
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,554.70	6,650.13	6,334.16	6,237.28	65.381	CC
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,600.00	6,649.94	6,334.33	6,237.06	65.122	ES
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,643.33	6,552.38	6,443.56	60.211	SF
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	16,112.57	6,697.80	7,009.62	6,908.34	69.212	CC
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,698.07	7,010.16	6,908.14	68.712	ES
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,701.39	7,098.38	6,988.42	64.550	SF
Guttersten 24J (PR) - Wellbore #1 - Gyro Surveys	17,231.63	6,650.34	6,916.23	6,806.45	63.001	CC, ES, SF
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	16,145.43	6,588.54	5,780.33	5,680.06	57.645	CC
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	16,200.00	6,587.94	5,780.59	5,679.84	57.377	ES
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	17,231.63	6,576.32	5,881.49	5,773.02	54.225	SF
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	14,649.46	6,692.79	4,325.75	4,236.59	48.515	CC
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	14,700.00	6,692.21	4,326.05	4,236.44	48.280	ES
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	15,700.00	6,680.84	4,451.47	4,354.84	46.068	SF
Guttersten 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,023.64	6,626.33	3,786.24	3,700.97	44.404	CC, ES
Guttersten 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,900.00	6,616.56	3,886.32	3,794.69	42.411	SF
Guttersten 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,784.78	6,714.40	3,719.54	3,643.34	48.817	CC
Guttersten 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,800.00	6,714.47	3,719.57	3,643.24	48.735	ES
Guttersten 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,800.00	6,718.69	3,855.59	3,772.27	46.273	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,301.53	6,680.31	7,670.20	7,582.89	87.852	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,400.00	6,679.74	7,670.83	7,582.72	87.052	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	17,231.63	6,663.42	8,210.80	8,103.87	76.785	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,767.57	6,664.60	6,112.57	5,926.38	32.829	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,800.00	6,664.40	6,112.66	5,926.21	32.785	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,100.00	6,656.46	6,256.11	6,060.28	31.947	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,292.45	6,584.82	6,253.13	6,159.67	66.907	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,300.00	6,584.85	6,253.14	6,159.61	66.862	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	16,300.00	6,592.57	6,567.48	6,460.17	61.198	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,827.00	6,586.05	5,054.77	4,948.09	47.382	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,900.00	6,586.45	5,055.30	4,947.97	47.102	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,231.63	6,588.23	5,070.94	4,960.88	46.074	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,392.16	6,794.82	5,049.37	4,953.58	52.714	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,794.78	5,049.38	4,953.52	52.677	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,788.25	5,215.99	5,110.98	49.672	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,375.15	6,645.08	3,744.46	3,648.96	39.211	CC
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,644.64	3,744.54	3,648.82	39.120	ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,630.68	3,834.21	3,732.74	37.787	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutteresen State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutteresen State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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						
D Section 24						
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,192.79	6,900.85	7,333.09	7,253.45	92.074	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,300.00	6,900.61	7,333.87	7,253.37	91.105	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,894.33	7,925.75	7,826.29	79.687	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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						
D Section 25						
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	8,868.79	6,806.10	7,670.82	7,610.82	127.839	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,806.13	7,670.88	7,610.71	127.483	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	13,300.00	6,795.08	8,858.43	8,771.10	101.438	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	7,585.25	7,000.42	7,691.12	7,641.80	155.929	CC, ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	13,000.00	7,018.96	9,406.25	9,331.87	126.462	SF
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	8,235.08	11,093.00	3,589.74	3,539.38	71.284	CC, ES
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	11,400.00	11,093.00	4,785.43	4,663.93	39.386	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	8,867.84	6,875.58	6,345.83	6,287.56	108.917	CC
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,875.60	6,345.91	6,287.53	108.694	ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	11,800.00	6,868.05	6,990.46	6,918.48	97.114	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,371.32	6,769.42	6,208.04	6,159.05	126.742	CC, ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	11,000.00	6,769.65	7,229.31	7,166.39	114.892	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,139.37			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	8,221.63	7,012.80	8,151.51	8,097.75	151.630	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	13,800.00	6,962.13	9,877.54	9,789.97	112.790	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	7,330.27	7,024.47	7,005.10	6,954.32	137.941	CC, ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	11,500.00	7,105.00	8,276.86	8,210.78	125.240	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,258.75	6,738.53	4,311.10	4,261.64	87.168	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,396.26	6,754.62	4,317.91	4,268.27	86.993	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,203.02	6,980.47	3,176.16	3,122.96	59.698	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,500.00	6,976.97	3,190.01	3,136.52	59.641	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,233.27	6,889.61	3,167.31	3,115.06	60.622	CC, ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	8,100.00	6,930.86	3,342.90	3,286.43	59.201	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	8,851.61	6,876.84	5,034.89	4,974.14	82.874	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,876.97	5,035.13	4,974.10	82.512	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	11,000.00	6,876.78	5,474.07	5,400.58	74.492	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	7,362.68	6,703.74	5,212.07	5,163.30	106.860	CC, ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	9,910.15	6,707.40	5,838.15	5,780.73	101.673	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	8,860.96	6,944.02	3,740.27	3,679.95	62.005	CC, ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	9,600.00	6,950.59	3,812.58	3,750.05	60.969	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	7,553.46	6,807.22	3,719.16	3,670.49	76.411	CC, ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,804.56	3,955.42	3,902.33	74.501	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,117.62	6,900.00	6,663.98	6,598.89	102.381	CC
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,200.00	6,900.00	6,664.49	6,598.81	101.472	ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	14,200.00	6,828.25	7,341.63	7,257.22	86.978	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,174.55	7,085.54	7,859.89	7,799.07	129.222	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,200.00	7,082.81	7,859.94	7,798.97	128.921	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,700.00	8,960.27	8,875.27	105.420	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,551.28	6,826.38	7,662.91	7,596.15	114.780	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,600.00	6,825.52	7,663.06	7,595.95	114.176	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	15,300.00	6,767.27	8,530.49	8,440.14	94.416	SF
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,279.27	6,779.55	6,241.88	6,183.38	106.712	CC
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,300.00	6,778.62	6,241.91	6,183.29	106.473	ES
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	13,200.00	6,640.04	6,890.05	6,813.96	90.550	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,149.99	6,698.91	8,064.72	7,993.83	113.767	CC
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,200.00	6,697.68	8,064.87	7,993.61	113.168	ES
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	16,000.00	6,600.49	8,936.17	8,840.81	93.704	SF
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	9,670.15	7,080.85	6,998.32	6,941.22	122.558	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	9,700.00	7,081.25	6,998.39	6,941.13	122.222	ES
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	13,800.00	7,111.49	8,126.48	8,044.34	98.942	SF
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	9,796.50	6,687.55	5,805.11	5,749.25	103.929	CC
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	9,800.00	6,687.55	5,805.11	5,749.23	103.891	ES
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	12,600.00	6,672.13	6,446.56	6,374.26	89.161	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 State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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
D Section 25						
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,878.07	6,552.56	4,565.75	4,502.74	72.461	CC
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,900.00	6,552.23	4,565.80	4,502.64	72.280	ES
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	12,500.00	6,529.24	4,845.21	4,771.74	65.949	SF
Guttersen D25-715 - Wellbore #1 - Plan #3	17,231.63	12,554.96	3,388.01	3,241.22	23.081	CC, ES, SF
Guttersen D25-724 - Wellbore #1 - Plan #3	17,231.63	12,440.12	3,988.20	3,841.28	27.145	CC, ES, SF
Guttersen D25-734 - Wellbore #1 - Plan #5	17,231.63	12,466.36	4,617.93	4,470.88	31.404	CC, ES, SF
Guttersen D25-743 - Wellbore #1 - Plan #3	11,154.44	5,703.45	5,134.38	5,069.40	79.019	CC
Guttersen D25-743 - Wellbore #1 - Plan #3	11,200.00	5,715.39	5,134.57	5,069.22	78.567	ES
Guttersen D25-743 - Wellbore #1 - Plan #3	17,231.63	12,582.57	5,240.08	5,092.39	35.482	SF
Guttersen D25-753 - Wellbore #1 - Plan #3	17,231.63	12,521.06	5,847.65	5,703.51	40.570	CC, ES, SF
Guttersen D25-762 - Wellbore #1 - Plan #3	17,231.63	12,369.59	6,481.23	6,337.51	45.097	CC, ES, SF
Guttersen D25-772 - Wellbore #1 - Plan #3	11,241.29	5,663.05	7,036.27	6,972.09	109.632	CC
Guttersen D25-772 - Wellbore #1 - Plan #3	17,231.63	12,576.82	7,092.74	6,948.72	49.248	ES, SF
Guttersen D25-781 - Wellbore #1 - Plan #3	11,106.20	4,636.27	7,406.27	7,345.70	122.262	CC
Guttersen D25-781 - Wellbore #1 - Plan #3	11,200.00	4,647.89	7,406.86	7,345.56	120.833	ES
Guttersen D25-781 - Wellbore #1 - Plan #3	17,231.63	12,688.03	7,735.56	7,590.88	53.467	SF
Guttersen State D36-714 - Wellbore #1 - Plan #1	9,370.54	7,150.00	3,347.01	3,289.93	58.644	CC
Guttersen State D36-714 - Wellbore #1 - Plan #1	9,400.00	7,133.18	3,347.05	3,289.87	58.533	ES
Guttersen State D36-714 - Wellbore #1 - Plan #1	10,800.00	6,650.00	3,532.95	3,468.60	54.900	SF
Guttersen State D36-724 - Wellbore #1 - Plan #1	9,504.92	6,942.18	3,970.60	3,913.86	69.980	CC, ES
Guttersen State D36-724 - Wellbore #1 - Plan #1	11,300.00	6,383.11	4,238.31	4,172.23	64.138	SF
Guttersen State D36-733 - Wellbore #1 - Plan #1	9,300.00	9,300.00	4,596.10	4,532.08	71.795	SF
Guttersen State D36-733 - Wellbore #1 - Plan #1	9,906.62	6,375.59	4,570.70	4,513.14	79.404	CC
Guttersen State D36-733 - Wellbore #1 - Plan #1	9,927.65	6,369.25	4,570.74	4,513.06	79.244	ES
Guttersen State D36-743 - Wellbore #1 - Plan #1	10,031.24	5,709.49	5,084.77	5,027.48	88.753	CC, ES
Guttersen State D36-743 - Wellbore #1 - Plan #1	12,100.00	5,401.96	5,481.92	5,412.72	79.225	SF
Guttersen State D36-752 - Wellbore #1 - Plan #1	9,371.27	7,179.48	5,837.11	5,779.11	100.634	CC
Guttersen State D36-752 - Wellbore #1 - Plan #1	9,400.00	7,164.52	5,837.15	5,779.05	100.482	ES
Guttersen State D36-752 - Wellbore #1 - Plan #1	12,700.00	6,450.00	6,513.88	6,438.90	86.879	SF
Guttersen State D36-762 - Wellbore #1 - Plan #1	9,890.15	6,528.21	6,420.58	6,362.33	110.213	CC
Guttersen State D36-762 - Wellbore #1 - Plan #1	9,927.65	6,520.03	6,420.68	6,362.22	109.837	ES
Guttersen State D36-762 - Wellbore #1 - Plan #1	13,000.00	5,850.11	7,095.91	7,020.54	94.151	SF
Guttersen State D36-771 - Wellbore #1 - Plan #1	10,150.69	5,606.37	6,937.47	6,879.95	120.610	CC
Guttersen State D36-771 - Wellbore #1 - Plan #1	10,200.00	5,606.36	6,937.63	6,879.78	119.932	ES
Guttersen State D36-771 - Wellbore #1 - Plan #1	13,700.00	4,689.84	7,738.60	7,662.01	101.034	SF
Guttersen State D36-781 - Wellbore #1 - Plan #1	10,434.23	4,605.66	7,303.97	7,247.63	129.646	CC
Guttersen State D36-781 - Wellbore #1 - Plan #1	10,500.00	4,589.31	7,304.24	7,247.52	128.774	ES
Guttersen State D36-781 - Wellbore #1 - Plan #1	14,100.00	3,705.90	8,121.26	8,044.96	106.434	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,481.86	6,668.45	5,039.11	4,861.83	28.424	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,500.00	6,668.34	5,039.14	4,861.73	28.403	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,400.00	6,662.84	5,122.07	4,938.26	27.867	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,207.90	6,617.11	3,752.92	3,693.91	63.594	CC, ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,555.79	3,937.38	3,870.88	59.208	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,208.71	6,685.14	5,077.40	5,018.34	85.964	CC, ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	12,300.00	6,663.20	5,491.18	5,419.33	76.425	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,443.71	6,620.02	3,761.45	3,694.70	56.356	CC
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,618.04	3,761.87	3,694.69	55.994	ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,586.53	3,935.00	3,860.49	52.814	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,151.29	6,674.47	4,049.98	3,874.77	23.115	CC
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,200.00	6,674.17	4,050.27	3,874.70	23.069	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,800.00	6,670.51	4,101.60	3,921.78	22.809	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 State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-745	Database:	EDMP
Reference Design:	Plan #2	Offset TVD Reference:	Offset Datum

Summary

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,987.35	6,570.91	3,854.85	3,807.17	80.848	CC, ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	7,250.00	6,724.32	3,881.42	3,832.91	80.010	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	7,158.58	6,718.90	5,214.22	5,165.61	107.274	CC, ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	7,350.00	6,773.43	5,227.05	5,178.08	106.740	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,724.16	6,327.59	7,229.24	7,142.25	83.104	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,348.79	7,229.54	7,142.24	82.812	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,200.00	6,606.61	7,327.95	7,236.84	80.426	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,867.68	6,613.00	5,540.02	5,492.57	116.751	CC, ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,200.00	6,737.44	5,585.81	5,537.31	115.150	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	7,177.26	6,841.81	7,783.70	7,734.83	159.286	CC, ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	12,100.00	6,944.43	9,667.39	9,599.26	141.892	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,099.18	6,677.30	6,621.70	6,463.04	41.735	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,100.00	6,677.65	6,621.70	6,463.03	41.733	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,300.00	6,735.10	6,635.24	6,475.18	41.455	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,965.76	6,965.76	8,144.35	8,095.41	166.407	CC, ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	11,100.00	7,049.18	9,969.47	9,906.60	158.564	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,896.50	6,588.39	6,932.46	6,884.90	145.760	CC
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,900.00	6,591.81	6,932.47	6,884.89	145.704	ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	8,100.00	8,100.00	7,303.84	7,248.92	132.995	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,882.99	6,408.29	4,656.17	4,609.22	99.156	CC, ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,000.00	7,000.00	4,661.08	4,612.13	95.222	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,703.57	6,344.23	7,920.37	7,874.17	171.441	CC, ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	7,200.00	6,644.43	8,031.61	7,983.25	166.053	SF
DD Section 17						
Guttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,730.20	4,798.68	4,695.51	46.509	CC, ES, SF
Guttersen State DD17-78HN - Original Drilling - Original D	17,231.63	6,734.35	2,980.16	2,871.86	27.516	CC, ES, SF
Guttersen State DD17-78HN - Original Drilling - ST01 - S	17,231.63	6,694.03	3,018.58	2,915.16	29.188	CC, ES, SF
Guttersen State DD17-79-1HN - Original Drilling - Origina	17,231.63	6,420.41	2,708.60	2,603.92	25.875	CC, ES, SF
Guttersen State DD17-79HN - Original Drilling - Original D	17,231.63	6,401.00	2,445.25	2,340.80	23.410	CC, ES, SF
Guttersen USX DD17-19 - Original Drilling - Original Dri	17,231.63	6,676.09	5,604.05	5,517.82	64.993	CC, ES, SF
DD Section 18						
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,689.31	1,722.28	1,644.04	22.011	CC, ES, SF
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,688.68	1,284.13	1,196.11	14.590	CC, ES, SF
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,694.67	2,256.50	2,199.19	39.372	CC, ES, SF
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,677.86	826.70	763.95	13.173	CC, ES, SF
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,702.95	2,690.37	2,606.23	31.975	CC, ES, SF
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,231.63	6,677.78	1,793.13	1,691.08	17.572	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,231.63	6,658.48	2,332.56	2,257.00	30.870	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,231.63	6,656.31	3,383.34	3,292.02	37.053	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dri	17,231.63	6,723.34	2,679.78	2,574.68	25.497	CC, ES, SF
SPIKE STATE GWS DD #18-1J(PA) - SPIKE STATE GW	17,231.63	6,689.33	4,277.24	4,105.75	24.942	CC, ES, SF
DD Section 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,735.52	6,675.75	1,224.99	1,126.84	12.480	CC, ES, SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,135.72	6,682.35	1,404.06	1,214.84	7.420	CC, ES
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,200.00	6,681.96	1,405.53	1,215.66	7.402	SF
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,732.71	6,670.81	304.01	197.94	2.866	CC, ES, SF
Guttersen 44-19 (SI) - Wellbore #1 - No Surveys	12,868.86	6,728.98	1,627.29	1,439.08	8.646	CC, ES
Guttersen 44-19 (SI) - Wellbore #1 - No Surveys	12,900.00	6,728.79	1,627.59	1,439.26	8.642	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 Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,546.89	6,714.48	3,172.07	3,067.23	30.256	CC, ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,900.00	6,707.52	3,191.66	3,085.14	29.963	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,435.73	6,712.08	3,565.14	3,484.17	44.030	CC, ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	14,000.00	6,713.31	3,609.52	3,525.75	43.090	SF
DD Section 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	11,152.02	6,930.75	5,899.73	5,833.61	89.226	CC
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	11,200.00	6,931.65	5,899.92	5,833.52	88.851	ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	15,700.00	15,700.00	7,448.90	7,335.25	65.543	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,200.00	2,209.01	2,395.26	2,343.42	46.210	CC, ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,400.00	6,779.01	3,635.43	3,472.44	22.304	SF
Guttersten 42-29 (PR) - Wellbore #1 - Gyro Surveys	2,218.49	2,281.78	6,318.58	6,303.05	407.036	CC, ES
Guttersten 42-29 (PR) - Wellbore #1 - Gyro Surveys	12,300.00	6,963.96	7,136.69	7,035.53	70.554	SF
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	2,106.24	2,144.24	4,983.59	4,968.82	337.396	CC
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	2,200.00	2,200.00	4,983.73	4,968.43	325.598	ES
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	11,800.00	5,264.00	8,352.70	8,296.43	148.432	SF
Guttersten Federal YY5-725 - Guttersten Federal YY5-725	2,200.00	2,239.00	4,947.28	4,931.83	320.284	CC, ES
Guttersten Federal YY5-725 - Guttersten Federal YY5-725	10,700.00	5,927.94	7,353.21	7,298.80	135.158	SF
Guttersten Federal YY5-735 - Guttersten Federal YY5-735	2,200.00	2,241.00	4,908.18	4,892.73	317.605	CC, ES
Guttersten Federal YY5-735 - Guttersten Federal YY5-735	6,600.00	7,349.78	5,874.37	5,825.12	119.271	SF
Guttersten Federal YY5-745 - Guttersten Federal YY5-745	2,645.27	3,700.85	4,773.69	4,751.95	219.526	CC, ES
Guttersten Federal YY5-745 - Guttersten Federal YY5-745	6,500.00	7,200.00	5,206.56	5,157.06	105.188	SF
Guttersten Federal YY5-755 - Guttersten Federal YY5-755	2,200.00	2,239.00	3,132.64	3,117.19	202.805	CC, ES
Guttersten Federal YY5-755 - Guttersten Federal YY5-755	6,900.00	6,900.00	4,632.70	4,584.19	95.515	SF
Guttersten Federal YY5-765 - Guttersten Federal YY5-765	2,200.00	2,240.00	3,093.56	3,078.11	200.229	CC, ES
Guttersten Federal YY5-765 - Guttersten Federal YY5-765	6,500.00	7,021.26	3,901.33	3,852.93	80.608	SF
Guttersten Federal YY5-775 - Guttersten Federal YY5-775	2,713.62	3,507.67	2,982.34	2,961.18	140.939	CC, ES
Guttersten Federal YY5-775 - Guttersten Federal YY5-775	6,500.00	7,212.28	3,263.89	3,213.91	65.301	SF
Guttersten Federal YY5-785 - Guttersten Federal YY5-785	6,067.05	7,307.36	2,574.46	2,524.65	51.685	CC, ES
Guttersten Federal YY5-785 - Guttersten Federal YY5-785	6,400.00	7,350.00	2,595.27	2,544.04	50.657	SF
Guttersten State DD29-715 - Wellbore #1 - Plan #1	1,909.84	1,926.84	4,980.86	4,967.57	374.856	CC
Guttersten State DD29-715 - Wellbore #1 - Plan #1	2,000.00	2,000.00	4,980.88	4,967.01	359.040	ES
Guttersten State DD29-715 - Wellbore #1 - Plan #1	17,231.63	17,372.72	7,282.82	7,107.27	41.484	SF
Guttersten State DD29-725 - Wellbore #1 - Plan #1	1,904.34	1,931.34	4,942.86	4,929.57	372.097	CC
Guttersten State DD29-725 - Wellbore #1 - Plan #1	2,100.00	2,080.91	4,943.45	4,928.94	340.785	ES
Guttersten State DD29-725 - Wellbore #1 - Plan #1	17,231.63	17,182.89	6,624.11	6,448.50	37.719	SF
Guttersten State DD29-735 - Wellbore #1 - Plan #1	2,361.00	2,766.48	4,893.96	4,876.32	277.381	CC, ES
Guttersten State DD29-735 - Wellbore #1 - Plan #1	17,231.63	17,327.45	5,962.94	5,786.95	33.883	SF
Guttersten State DD29-745 - Wellbore #1 - Plan #1	2,654.14	3,706.16	4,758.99	4,737.13	217.708	CC, ES
Guttersten State DD29-745 - Wellbore #1 - Plan #1	17,231.63	17,328.27	5,303.94	5,128.81	30.285	SF
Guttersten State DD29-755 - Wellbore #1 - Plan #1	1,907.10	1,944.10	3,127.22	3,113.88	234.434	CC
Guttersten State DD29-755 - Wellbore #1 - Plan #1	2,100.00	2,121.94	3,127.55	3,112.91	213.607	ES
Guttersten State DD29-755 - Wellbore #1 - Plan #1	17,231.63	17,343.11	4,620.34	4,444.25	26.239	SF
Guttersten State DD29-765 - Wellbore #1 - Plan #1	2,435.54	2,810.79	3,073.45	3,055.45	170.679	CC, ES
Guttersten State DD29-765 - Wellbore #1 - Plan #1	17,231.63	17,374.36	3,960.29	3,784.39	22.515	SF
Guttersten State DD29-775 - Wellbore #1 - Plan #1	2,741.92	3,526.68	2,956.74	2,935.37	138.366	CC, ES
Guttersten State DD29-775 - Wellbore #1 - Plan #1	17,231.63	17,485.62	3,300.25	3,124.81	18.811	SF
Guttersten State DD29-785 - Wellbore #1 - Plan #1	6,127.91	7,344.74	2,507.19	2,456.75	49.711	CC, ES
Guttersten State DD29-785 - Wellbore #1 - Plan #1	17,231.63	17,707.08	2,640.23	2,464.79	15.049	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 Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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 30						
Guttersten 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,531.95	6,691.02	2,424.00	2,356.61	35.972	CC, ES
Guttersten 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,000.00	6,681.94	2,468.76	2,397.88	34.829	SF
Guttersten 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,113.98	6,676.65	2,508.38	2,449.83	42.842	CC, ES
Guttersten 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,700.00	6,649.65	2,575.75	2,513.33	41.266	SF
Guttersten 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,182.94	6,740.55	1,096.50	1,037.73	18.657	CC
Guttersten 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,200.00	6,740.13	1,096.63	1,037.71	18.611	ES
Guttersten 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,300.00	6,737.60	1,102.73	1,042.97	18.454	SF
Guttersten 30 A (PR) - Wellbore #1 - Gyro Surveys	10,812.95	6,711.82	1,696.84	1,634.15	27.069	CC, ES
Guttersten 30 A (PR) - Wellbore #1 - Gyro Surveys	11,100.00	6,711.04	1,720.94	1,656.08	26.531	SF
Guttersten State DD30-715 - Guttersten State DD30-715 -	2,200.00	2,200.00	112.02	96.71	7.318	CC, ES
Guttersten State DD30-715 - Guttersten State DD30-715 -	2,300.00	2,296.67	115.74	99.77	7.245	SF
Guttersten State DD30-725 - Guttersten State DD30-725 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES
Guttersten State DD30-725 - Guttersten State DD30-725 -	2,300.00	2,300.61	76.88	60.89	4.807	SF
Guttersten State DD30-735 - Guttersten State DD30-735 -	2,200.00	2,200.00	37.00	21.70	2.417	CC
Guttersten State DD30-735 - Guttersten State DD30-735 -	2,300.00	2,301.40	37.41	21.43	2.340	ES
Guttersten State DD30-735 - Guttersten State DD30-735 -	2,400.00	2,402.77	38.71	22.08	2.328	SF
Guttersten State DD30-755 - Guttersten State DD30-755 -	17,231.63	16,679.20	737.12	564.31	4.266	CC, ES, SF
Guttersten State DD30-766 - Guttersten State DD30-766 -	7,199.44	6,558.11	1,439.37	1,389.72	28.991	CC
Guttersten State DD30-766 - Guttersten State DD30-766 -	17,231.63	16,747.49	1,447.23	1,274.82	8.394	ES, SF
Guttersten State DD30-775 - Guttersten State DD30-775 -	3,240.23	2,610.74	1,881.93	1,862.33	96.045	CC
Guttersten State DD30-775 - Guttersten State DD30-775 -	7,050.00	6,257.40	1,904.25	1,855.23	38.846	ES
Guttersten State DD30-775 - Guttersten State DD30-775 -	17,231.63	16,883.11	2,057.47	1,885.02	11.931	SF
Guttersten State DD30-785 - Guttersten State DD30-785 -	3,240.14	2,600.00	1,918.48	1,898.92	98.059	CC, ES
Guttersten State DD30-785 - Guttersten State DD30-785 -	17,231.63	17,131.52	2,697.69	2,525.06	15.627	SF
Guttersten YY06-756 - Guttersten YY06-756 - Plan #1	7,100.00	6,594.88	867.47	818.95	17.879	SF
Guttersten YY06-756 - Guttersten YY06-756 - Plan #1	7,119.71	6,586.92	867.26	818.78	17.888	CC, ES
Guttersten YY06-766 - Guttersten YY06-766 - Plan #1	7,277.48	6,510.62	1,387.85	1,338.34	28.031	CC, ES, SF
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	3,563.50	2,970.48	1,819.89	1,797.72	82.104	CC
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	3,600.00	3,000.00	1,820.05	1,797.65	81.264	ES
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	7,396.26	6,246.58	1,992.62	1,943.14	40.274	SF
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	3,461.86	2,852.25	1,887.51	1,866.14	88.324	CC
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	3,500.00	2,875.25	1,887.66	1,866.10	87.532	ES
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	7,800.00	5,933.67	2,452.62	2,403.15	49.574	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	8,992.55	6,693.00	2,556.15	2,392.61	15.630	CC
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,000.00	6,693.00	2,556.16	2,392.58	15.626	ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,200.00	6,693.00	2,564.55	2,399.92	15.577	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,490.38	6,699.00	1,042.94	883.34	6.535	CC, ES, SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,437.15	6,698.00	1,387.58	1,226.01	8.588	CC, ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,500.00	6,698.00	1,389.00	1,227.16	8.583	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,185.08	6,673.56	1,110.97	1,045.59	16.992	CC
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,200.00	6,673.29	1,111.07	1,045.53	16.954	ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,671.45	1,116.89	1,050.44	16.806	SF
State 19 (PA) - Wellbore #1 - NO Surveys	10,825.30	6,743.46	1,112.41	937.91	6.375	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 Guttersten State DD30-745
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-745	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-745	Database:	EDMP
Reference Design:	Plan #2	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 31						
Guttersten 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,670.83	10,956.00	493.26	438.36	8.985	CC, ES
Guttersten 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,700.00	10,956.00	494.75	439.20	8.907	SF
Guttersten 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,800.00	11,132.00	620.14	560.89	10.466	SF
Guttersten 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,810.95	11,132.00	619.95	560.78	10.476	CC, ES
Guttersten 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,605.13	11,048.00	905.60	808.10	9.288	CC, ES
Guttersten 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,700.00	11,048.00	913.84	813.75	9.130	SF
Guttersten 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,718.38	11,127.00	725.83	645.56	9.043	CC, ES
Guttersten 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,800.00	11,127.00	734.04	651.43	8.886	SF
Guttersten 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,389.57	6,115.61	3,076.84	3,031.44	67.772	CC, ES
Guttersten 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,650.00	6,343.52	3,130.56	3,083.38	66.359	SF
YY Section 06						
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,371.97	6,183.76	9,560.20	9,298.90	36.588	CC
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,400.00	6,210.40	9,560.81	9,298.34	36.426	ES
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	7,000.00	6,698.51	9,844.64	9,561.01	34.710	SF
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,388.36	6,343.66	9,090.72	9,044.43	196.387	CC
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,400.00	6,360.71	9,090.82	9,044.42	195.934	ES
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,900.00	6,802.93	9,284.64	9,235.18	187.706	SF
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,379.77	5,894.89	5,194.76	5,149.49	114.738	CC, ES
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,600.00	5,913.00	5,236.41	5,190.24	113.434	SF
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,376.29	5,959.88	5,196.50	5,151.64	115.821	CC, ES
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,600.00	6,010.00	5,238.98	5,193.08	114.138	SF
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,358.87	5,914.00	5,203.57	5,157.93	114.032	CC, ES
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,550.00	5,946.00	5,235.09	5,188.61	112.635	SF
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,341.41	5,879.40	5,243.62	5,196.29	110.771	CC, ES
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,600.00	6,010.00	5,297.48	5,248.75	108.700	SF
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,393.11	6,167.22	5,842.64	5,797.06	128.206	CC
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,400.00	6,172.19	5,842.67	5,797.06	128.075	ES
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,750.00	6,453.39	5,941.47	5,893.65	124.266	SF
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,392.68	6,173.14	7,121.64	7,076.04	156.186	CC
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,400.00	6,177.96	7,121.68	7,076.03	156.022	ES
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,950.40	7,424.48	7,373.13	144.595	SF
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys	6,428.10	5,965.08	9,673.72	9,628.98	216.246	CC, ES
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys	6,950.00	7,010.12	9,860.45	9,810.73	198.326	SF

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