

Project: Mustang
Site: DD Section 30
Well: Gutteresen State DD30-735
Wellbore: Gutteresen State DD30-735
Design: Plan #2

Northern Region - DJ Basin

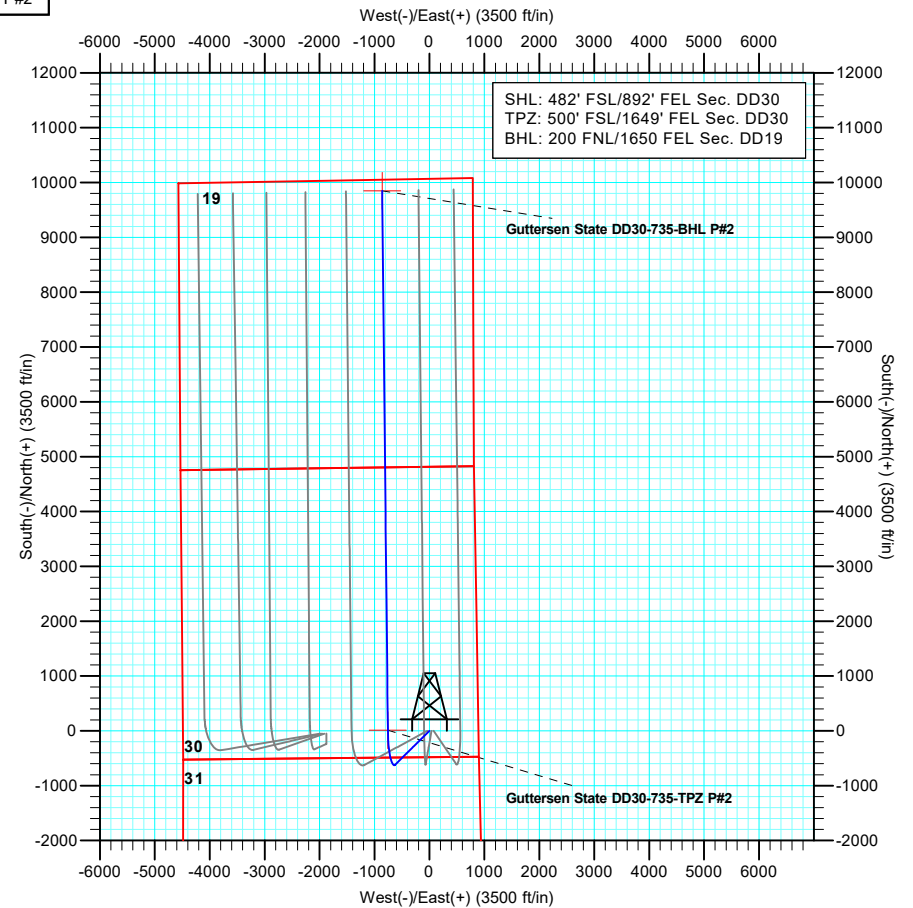
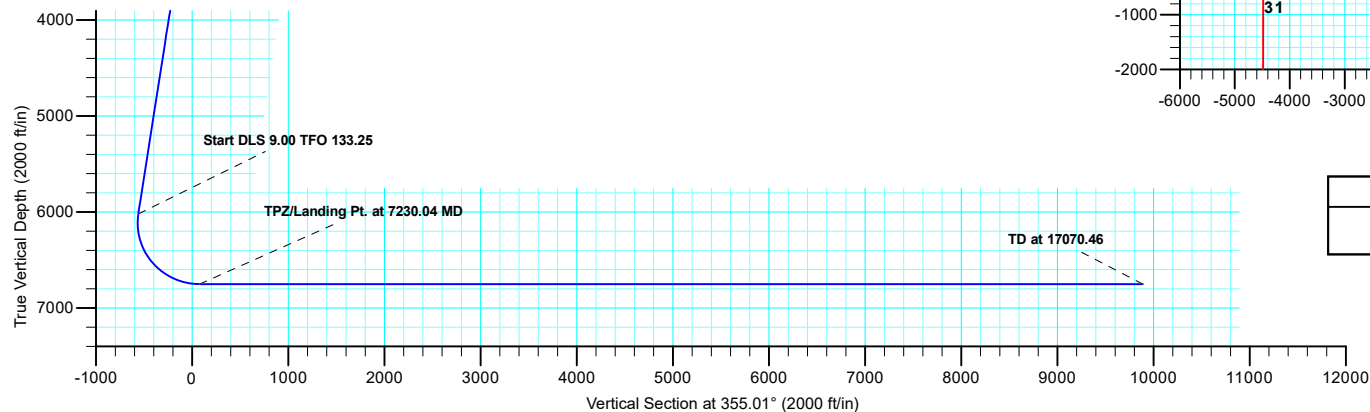
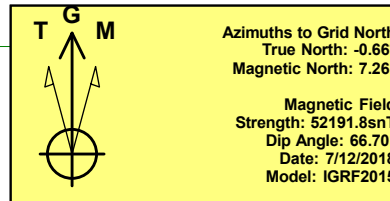
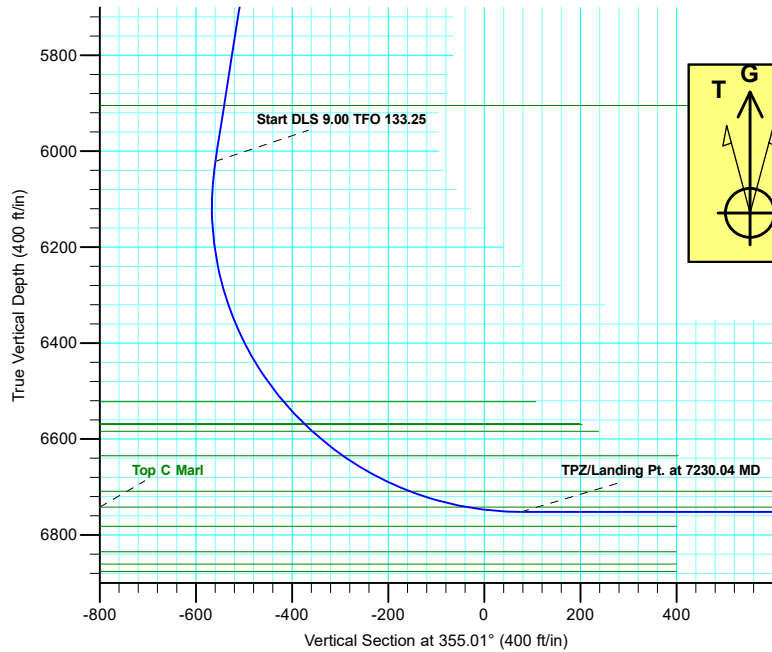
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2656.78	13.70	225.32	2652.44	-38.23	-38.65	3.00	225.32	-34.72	
4	6124.64	13.70	225.32	6021.58	-615.90	-622.78	0.00	0.00	-559.37	
5	7230.04	90.00	359.40	6752.00	10.64	-757.30	9.00	133.25	76.50	Gutteresen State DD30-735-TPZ P#2
6	17070.46	90.00	359.40	6752.00	9850.53	-860.43	0.00	0.00	9888.04	Gutteresen State DD30-735-BHL P#2

WELL DETAILS: Gutteresen State DD30-735

+N/-S	+E/-W	Northing	Ground Level: Easting	4823.00 Latitude	Longitude	Slot
0.00	0.00	1313885.18	3286547.13	40.1904619	-104.4742910	



Plan: Plan #2 (Gutteresen State DD30-735/Gutteresen State DD30-735)

Created by: Shelly C. Peterkin Date: 11:01, August 09 2019

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-735

Guttersen State DD30-735

Plan: Plan #2

Standard Planning Report

09 August, 2019

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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 DD30-735					
Well Position	+N/-S	-2,127.96 ft	Northing:	1,313,885.18 usft	Latitude:	40.1904619
	+E/-W	1,799.98 ft	Easting:	3,286,547.13 usft	Longitude:	-104.4742910
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

Wellbore	Guttersen State DD30-735				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/12/2018	7.92	66.70	52,191.75934482

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	355.01

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	
2,656.78	13.70	225.32	2,652.44	-38.23	-38.65	3.00	3.00	0.00	225.32	
6,124.64	13.70	225.32	6,021.58	-615.90	-622.78	0.00	0.00	0.00	0.00	
7,230.04	90.00	359.40	6,752.00	10.64	-757.30	9.00	6.90	12.13	133.25	Guttersen State DD30
17,070.46	90.00	359.40	6,752.00	9,850.53	-860.43	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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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
627.00	0.00	0.00	627.00	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	225.32	2,299.95	-1.84	-1.86	-1.67	3.00	3.00	0.00
2,400.00	6.00	225.32	2,399.63	-7.36	-7.44	-6.68	3.00	3.00	0.00
2,500.00	9.00	225.32	2,498.77	-16.53	-16.72	-15.02	3.00	3.00	0.00
2,600.00	12.00	225.32	2,597.08	-29.35	-29.67	-26.65	3.00	3.00	0.00
2,656.78	13.70	225.32	2,652.44	-38.23	-38.65	-34.72	3.00	3.00	0.00
Start 3467.86 hold at 2656.78 MD									
2,700.00	13.70	225.32	2,694.43	-45.43	-45.93	-41.26	0.00	0.00	0.00
2,800.00	13.70	225.32	2,791.58	-62.08	-62.78	-56.39	0.00	0.00	0.00
2,900.00	13.70	225.32	2,888.73	-78.74	-79.62	-71.51	0.00	0.00	0.00
3,000.00	13.70	225.32	2,985.89	-95.40	-96.47	-86.64	0.00	0.00	0.00
3,100.00	13.70	225.32	3,083.04	-112.06	-113.31	-101.77	0.00	0.00	0.00
3,200.00	13.70	225.32	3,180.19	-128.72	-130.15	-116.90	0.00	0.00	0.00
3,300.00	13.70	225.32	3,277.35	-145.37	-147.00	-132.03	0.00	0.00	0.00
3,400.00	13.70	225.32	3,374.50	-162.03	-163.84	-147.16	0.00	0.00	0.00
3,500.00	13.70	225.32	3,471.66	-178.69	-180.69	-162.29	0.00	0.00	0.00
3,600.00	13.70	225.32	3,568.81	-195.35	-197.53	-177.42	0.00	0.00	0.00
3,662.98	13.70	225.32	3,630.00	-205.84	-208.14	-186.95	0.00	0.00	0.00
Parkman									
3,700.00	13.70	225.32	3,665.96	-212.00	-214.37	-192.55	0.00	0.00	0.00
3,800.00	13.70	225.32	3,763.12	-228.66	-231.22	-207.67	0.00	0.00	0.00
3,900.00	13.70	225.32	3,860.27	-245.32	-248.06	-222.80	0.00	0.00	0.00
4,000.00	13.70	225.32	3,957.42	-261.98	-264.91	-237.93	0.00	0.00	0.00
4,097.35	13.70	225.32	4,052.00	-278.19	-281.30	-252.66	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
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Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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)
Sussex									
4,100.00	13.70	225.32	4,054.58	-278.64	-281.75	-253.06	0.00	0.00	0.00
4,200.00	13.70	225.32	4,151.73	-295.29	-298.59	-268.19	0.00	0.00	0.00
4,287.77	13.70	225.32	4,237.00	-309.91	-313.38	-281.47	0.00	0.00	0.00
Shannon									
4,300.00	13.70	225.32	4,248.88	-311.95	-315.44	-283.32	0.00	0.00	0.00
4,400.00	13.70	225.32	4,346.04	-328.61	-332.28	-298.45	0.00	0.00	0.00
4,500.00	13.70	225.32	4,443.19	-345.27	-349.13	-313.58	0.00	0.00	0.00
4,600.00	13.70	225.32	4,540.34	-361.92	-365.97	-328.71	0.00	0.00	0.00
4,700.00	13.70	225.32	4,637.50	-378.58	-382.81	-343.83	0.00	0.00	0.00
4,800.00	13.70	225.32	4,734.65	-395.24	-399.66	-358.96	0.00	0.00	0.00
4,900.00	13.70	225.32	4,831.80	-411.90	-416.50	-374.09	0.00	0.00	0.00
5,000.00	13.70	225.32	4,928.96	-428.56	-433.35	-389.22	0.00	0.00	0.00
5,100.00	13.70	225.32	5,026.11	-445.21	-450.19	-404.35	0.00	0.00	0.00
5,200.00	13.70	225.32	5,123.26	-461.87	-467.04	-419.48	0.00	0.00	0.00
5,300.00	13.70	225.32	5,220.42	-478.53	-483.88	-434.61	0.00	0.00	0.00
5,400.00	13.70	225.32	5,317.57	-495.19	-500.72	-449.74	0.00	0.00	0.00
5,500.00	13.70	225.32	5,414.72	-511.85	-517.57	-464.87	0.00	0.00	0.00
5,600.00	13.70	225.32	5,511.88	-528.50	-534.41	-479.99	0.00	0.00	0.00
5,700.00	13.70	225.32	5,609.03	-545.16	-551.26	-495.12	0.00	0.00	0.00
5,800.00	13.70	225.32	5,706.18	-561.82	-568.10	-510.25	0.00	0.00	0.00
5,900.00	13.70	225.32	5,803.34	-578.48	-584.94	-525.38	0.00	0.00	0.00
6,000.00	13.70	225.32	5,900.49	-595.13	-601.79	-540.51	0.00	0.00	0.00
6,004.64	13.70	225.32	5,905.00	-595.91	-602.57	-541.21	0.00	0.00	0.00
Teepee Buttes									
6,100.00	13.70	225.32	5,997.65	-611.79	-618.63	-555.64	0.00	0.00	0.00
6,124.64	13.70	225.32	6,021.58	-615.90	-622.78	-559.37	0.00	0.00	0.00
Start DLS 9.00 TFO 133.25									
6,150.00	12.25	233.18	6,046.30	-619.62	-627.07	-562.71	9.00	-5.73	30.98
6,200.00	10.29	254.09	6,095.35	-624.03	-635.62	-566.35	9.00	-3.92	41.84
6,250.00	10.09	279.70	6,144.59	-624.51	-644.24	-566.08	9.00	-0.40	51.22
6,300.00	11.75	302.00	6,193.70	-621.08	-652.88	-561.91	9.00	3.30	44.59
6,350.00	14.63	317.26	6,242.39	-613.74	-661.48	-553.85	9.00	5.77	30.53
6,400.00	18.18	327.15	6,290.36	-602.54	-670.00	-541.95	9.00	7.09	19.78
6,450.00	22.06	333.79	6,337.31	-587.56	-678.38	-526.30	9.00	7.77	13.27
6,500.00	26.13	338.48	6,382.94	-568.88	-686.57	-506.98	9.00	8.15	9.39
6,550.00	30.32	341.97	6,426.99	-546.62	-694.52	-484.11	9.00	8.38	6.98
6,600.00	34.58	344.68	6,469.17	-520.92	-702.18	-457.84	9.00	8.52	5.42
6,650.00	38.89	346.86	6,509.24	-491.94	-709.50	-428.33	9.00	8.62	4.35
6,666.57	40.33	347.49	6,522.00	-481.64	-711.85	-417.87	9.00	8.66	3.82
Sharon Springs									
6,700.00	43.23	348.66	6,546.93	-459.84	-716.44	-395.76	9.00	8.69	3.50
6,729.56	45.81	349.60	6,568.00	-439.49	-720.35	-375.14	9.00	8.72	3.16
Top A Chalk									
6,732.43	46.06	349.68	6,570.00	-437.46	-720.72	-373.08	9.00	8.74	3.01
Top A Marl									
6,750.00	47.60	350.20	6,582.02	-424.84	-722.96	-360.32	9.00	8.74	2.92
6,752.95	47.86	350.28	6,584.00	-422.70	-723.33	-358.15	9.00	8.75	2.84
Top B Chalk									
6,800.00	51.98	351.53	6,614.29	-387.15	-729.01	-322.25	9.00	8.77	2.66
6,834.83	55.04	352.37	6,635.00	-359.43	-732.92	-294.29	9.00	8.79	2.40
Top B Marl									
6,850.00	56.38	352.71	6,643.55	-347.00	-734.55	-281.77	9.00	8.80	2.28

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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)
6,900.00	60.79	353.78	6,669.60	-304.64	-739.56	-239.13	9.00	8.81	2.13
6,950.00	65.20	354.76	6,692.30	-260.33	-744.00	-194.60	9.00	8.83	1.96
6,992.91	68.99	355.54	6,709.00	-220.95	-747.34	-155.08	9.00	8.84	1.83
Top C Chalk									
7,000.00	69.62	355.67	6,711.51	-214.33	-747.85	-148.45	9.00	8.85	1.77
7,050.00	74.05	356.53	6,727.09	-166.95	-751.07	-100.96	9.00	8.85	1.72
7,100.00	78.47	357.35	6,738.96	-118.46	-753.66	-52.43	9.00	8.86	1.65
7,116.19	79.91	357.61	6,742.00	-102.57	-754.36	-36.54	9.00	8.86	1.61
Top C Marl									
7,150.00	82.91	358.15	6,747.05	-69.17	-755.59	-3.16	9.00	8.86	1.59
7,200.00	87.34	358.93	6,751.30	-19.38	-756.86	46.55	9.00	8.86	1.56
7,230.04	90.00	359.40	6,752.00	10.64	-757.30	76.50	9.00	8.86	1.55
TPZ/Landing Pt. at 7230.04 MD									
7,300.00	90.00	359.40	6,752.00	80.60	-758.03	146.26	0.00	0.00	0.00
7,400.00	90.00	359.40	6,752.00	180.60	-759.08	245.96	0.00	0.00	0.00
7,500.00	90.00	359.40	6,752.00	280.59	-760.13	345.67	0.00	0.00	0.00
7,600.00	90.00	359.40	6,752.00	380.58	-761.18	445.38	0.00	0.00	0.00
7,700.00	90.00	359.40	6,752.00	480.58	-762.22	545.08	0.00	0.00	0.00
7,800.00	90.00	359.40	6,752.00	580.57	-763.27	644.79	0.00	0.00	0.00
7,900.00	90.00	359.40	6,752.00	680.57	-764.32	744.50	0.00	0.00	0.00
8,000.00	90.00	359.40	6,752.00	780.56	-765.37	844.20	0.00	0.00	0.00
8,100.00	90.00	359.40	6,752.00	880.56	-766.42	943.91	0.00	0.00	0.00
8,200.00	90.00	359.40	6,752.00	980.55	-767.46	1,043.62	0.00	0.00	0.00
8,300.00	90.00	359.40	6,752.00	1,080.55	-768.51	1,143.32	0.00	0.00	0.00
8,400.00	90.00	359.40	6,752.00	1,180.54	-769.56	1,243.03	0.00	0.00	0.00
8,500.00	90.00	359.40	6,752.00	1,280.54	-770.61	1,342.73	0.00	0.00	0.00
8,600.00	90.00	359.40	6,752.00	1,380.53	-771.66	1,442.44	0.00	0.00	0.00
8,700.00	90.00	359.40	6,752.00	1,480.52	-772.70	1,542.15	0.00	0.00	0.00
8,800.00	90.00	359.40	6,752.00	1,580.52	-773.75	1,641.85	0.00	0.00	0.00
8,900.00	90.00	359.40	6,752.00	1,680.51	-774.80	1,741.56	0.00	0.00	0.00
9,000.00	90.00	359.40	6,752.00	1,780.51	-775.85	1,841.27	0.00	0.00	0.00
9,100.00	90.00	359.40	6,752.00	1,880.50	-776.90	1,940.97	0.00	0.00	0.00
9,200.00	90.00	359.40	6,752.00	1,980.50	-777.94	2,040.68	0.00	0.00	0.00
9,300.00	90.00	359.40	6,752.00	2,080.49	-778.99	2,140.39	0.00	0.00	0.00
9,400.00	90.00	359.40	6,752.00	2,180.49	-780.04	2,240.09	0.00	0.00	0.00
9,500.00	90.00	359.40	6,752.00	2,280.48	-781.09	2,339.80	0.00	0.00	0.00
9,600.00	90.00	359.40	6,752.00	2,380.47	-782.14	2,439.50	0.00	0.00	0.00
9,700.00	90.00	359.40	6,752.00	2,480.47	-783.19	2,539.21	0.00	0.00	0.00
9,800.00	90.00	359.40	6,752.00	2,580.46	-784.23	2,638.92	0.00	0.00	0.00
9,900.00	90.00	359.40	6,752.00	2,680.46	-785.28	2,738.62	0.00	0.00	0.00
10,000.00	90.00	359.40	6,752.00	2,780.45	-786.33	2,838.33	0.00	0.00	0.00
10,100.00	90.00	359.40	6,752.00	2,880.45	-787.38	2,938.04	0.00	0.00	0.00
10,200.00	90.00	359.40	6,752.00	2,980.44	-788.43	3,037.74	0.00	0.00	0.00
10,300.00	90.00	359.40	6,752.00	3,080.44	-789.47	3,137.45	0.00	0.00	0.00
10,400.00	90.00	359.40	6,752.00	3,180.43	-790.52	3,237.16	0.00	0.00	0.00
10,500.00	90.00	359.40	6,752.00	3,280.43	-791.57	3,336.86	0.00	0.00	0.00
10,600.00	90.00	359.40	6,752.00	3,380.42	-792.62	3,436.57	0.00	0.00	0.00
10,700.00	90.00	359.40	6,752.00	3,480.41	-793.67	3,536.28	0.00	0.00	0.00
10,800.00	90.00	359.40	6,752.00	3,580.41	-794.71	3,635.98	0.00	0.00	0.00
10,900.00	90.00	359.40	6,752.00	3,680.40	-795.76	3,735.69	0.00	0.00	0.00
11,000.00	90.00	359.40	6,752.00	3,780.40	-796.81	3,835.39	0.00	0.00	0.00
11,100.00	90.00	359.40	6,752.00	3,880.39	-797.86	3,935.10	0.00	0.00	0.00
11,200.00	90.00	359.40	6,752.00	3,980.39	-798.91	4,034.81	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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)
11,300.00	90.00	359.40	6,752.00	4,080.38	-799.95	4,134.51	0.00	0.00	0.00
11,400.00	90.00	359.40	6,752.00	4,180.38	-801.00	4,234.22	0.00	0.00	0.00
11,500.00	90.00	359.40	6,752.00	4,280.37	-802.05	4,333.93	0.00	0.00	0.00
11,600.00	90.00	359.40	6,752.00	4,380.37	-803.10	4,433.63	0.00	0.00	0.00
11,700.00	90.00	359.40	6,752.00	4,480.36	-804.15	4,533.34	0.00	0.00	0.00
11,800.00	90.00	359.40	6,752.00	4,580.35	-805.20	4,633.05	0.00	0.00	0.00
11,900.00	90.00	359.40	6,752.00	4,680.35	-806.24	4,732.75	0.00	0.00	0.00
12,000.00	90.00	359.40	6,752.00	4,780.34	-807.29	4,832.46	0.00	0.00	0.00
12,100.00	90.00	359.40	6,752.00	4,880.34	-808.34	4,932.17	0.00	0.00	0.00
12,200.00	90.00	359.40	6,752.00	4,980.33	-809.39	5,031.87	0.00	0.00	0.00
12,300.00	90.00	359.40	6,752.00	5,080.33	-810.44	5,131.58	0.00	0.00	0.00
12,400.00	90.00	359.40	6,752.00	5,180.32	-811.48	5,231.28	0.00	0.00	0.00
12,500.00	90.00	359.40	6,752.00	5,280.32	-812.53	5,330.99	0.00	0.00	0.00
12,600.00	90.00	359.40	6,752.00	5,380.31	-813.58	5,430.70	0.00	0.00	0.00
12,700.00	90.00	359.40	6,752.00	5,480.30	-814.63	5,530.40	0.00	0.00	0.00
12,800.00	90.00	359.40	6,752.00	5,580.30	-815.68	5,630.11	0.00	0.00	0.00
12,900.00	90.00	359.40	6,752.00	5,680.29	-816.72	5,729.82	0.00	0.00	0.00
13,000.00	90.00	359.40	6,752.00	5,780.29	-817.77	5,829.52	0.00	0.00	0.00
13,100.00	90.00	359.40	6,752.00	5,880.28	-818.82	5,929.23	0.00	0.00	0.00
13,200.00	90.00	359.40	6,752.00	5,980.28	-819.87	6,028.94	0.00	0.00	0.00
13,300.00	90.00	359.40	6,752.00	6,080.27	-820.92	6,128.64	0.00	0.00	0.00
13,400.00	90.00	359.40	6,752.00	6,180.27	-821.96	6,228.35	0.00	0.00	0.00
13,500.00	90.00	359.40	6,752.00	6,280.26	-823.01	6,328.05	0.00	0.00	0.00
13,600.00	90.00	359.40	6,752.00	6,380.26	-824.06	6,427.76	0.00	0.00	0.00
13,700.00	90.00	359.40	6,752.00	6,480.25	-825.11	6,527.47	0.00	0.00	0.00
13,800.00	90.00	359.40	6,752.00	6,580.24	-826.16	6,627.17	0.00	0.00	0.00
13,900.00	90.00	359.40	6,752.00	6,680.24	-827.21	6,726.88	0.00	0.00	0.00
14,000.00	90.00	359.40	6,752.00	6,780.23	-828.25	6,826.59	0.00	0.00	0.00
14,100.00	90.00	359.40	6,752.00	6,880.23	-829.30	6,926.29	0.00	0.00	0.00
14,200.00	90.00	359.40	6,752.00	6,980.22	-830.35	7,026.00	0.00	0.00	0.00
14,300.00	90.00	359.40	6,752.00	7,080.22	-831.40	7,125.71	0.00	0.00	0.00
14,400.00	90.00	359.40	6,752.00	7,180.21	-832.45	7,225.41	0.00	0.00	0.00
14,500.00	90.00	359.40	6,752.00	7,280.21	-833.49	7,325.12	0.00	0.00	0.00
14,600.00	90.00	359.40	6,752.00	7,380.20	-834.54	7,424.83	0.00	0.00	0.00
14,700.00	90.00	359.40	6,752.00	7,480.19	-835.59	7,524.53	0.00	0.00	0.00
14,800.00	90.00	359.40	6,752.00	7,580.19	-836.64	7,624.24	0.00	0.00	0.00
14,900.00	90.00	359.40	6,752.00	7,680.18	-837.69	7,723.94	0.00	0.00	0.00
15,000.00	90.00	359.40	6,752.00	7,780.18	-838.73	7,823.65	0.00	0.00	0.00
15,100.00	90.00	359.40	6,752.00	7,880.17	-839.78	7,923.36	0.00	0.00	0.00
15,200.00	90.00	359.40	6,752.00	7,980.17	-840.83	8,023.06	0.00	0.00	0.00
15,300.00	90.00	359.40	6,752.00	8,080.16	-841.88	8,122.77	0.00	0.00	0.00
15,400.00	90.00	359.40	6,752.00	8,180.16	-842.93	8,222.48	0.00	0.00	0.00
15,500.00	90.00	359.40	6,752.00	8,280.15	-843.97	8,322.18	0.00	0.00	0.00
15,600.00	90.00	359.40	6,752.00	8,380.15	-845.02	8,421.89	0.00	0.00	0.00
15,700.00	90.00	359.40	6,752.00	8,480.14	-846.07	8,521.60	0.00	0.00	0.00
15,800.00	90.00	359.40	6,752.00	8,580.13	-847.12	8,621.30	0.00	0.00	0.00
15,900.00	90.00	359.40	6,752.00	8,680.13	-848.17	8,721.01	0.00	0.00	0.00
16,000.00	90.00	359.40	6,752.00	8,780.12	-849.22	8,820.72	0.00	0.00	0.00
16,100.00	90.00	359.40	6,752.00	8,880.12	-850.26	8,920.42	0.00	0.00	0.00
16,200.00	90.00	359.40	6,752.00	8,980.11	-851.31	9,020.13	0.00	0.00	0.00
16,300.00	90.00	359.40	6,752.00	9,080.11	-852.36	9,119.83	0.00	0.00	0.00
16,400.00	90.00	359.40	6,752.00	9,180.10	-853.41	9,219.54	0.00	0.00	0.00
16,500.00	90.00	359.40	6,752.00	9,280.10	-854.46	9,319.25	0.00	0.00	0.00
16,600.00	90.00	359.40	6,752.00	9,380.09	-855.50	9,418.95	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
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)
16,700.00	90.00	359.40	6,752.00	9,480.09	-856.55	9,518.66	0.00	0.00	0.00
16,800.00	90.00	359.40	6,752.00	9,580.08	-857.60	9,618.37	0.00	0.00	0.00
16,900.00	90.00	359.40	6,752.00	9,680.07	-858.65	9,718.07	0.00	0.00	0.00
17,000.00	90.00	359.40	6,752.00	9,780.07	-859.70	9,817.78	0.00	0.00	0.00
17,070.46	90.00	359.40	6,752.00	9,850.53	-860.43	9,888.04	0.00	0.00	0.00
TD at 17070.46									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen State DD30-7 - plan hits target center - Point	0.00	0.00	6,752.00	10.64	-757.30	1,313,895.82	3,285,789.83	40.1905152	-104.4770011
Guttersen State DD30-7 - plan hits target center - Point	0.00	0.00	6,752.00	9,850.53	-860.43	1,323,735.69	3,285,686.70	40.2175282	-104.4769639

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
627.00	627.00	Pierre				
716.00	716.00	Upper Pierre Aquifer Top				
1,653.00	1,653.00	Upper Pierre Aquifer Base				
3,662.98	3,630.00	Parkman				
4,097.35	4,052.00	Sussex				
4,287.77	4,237.00	Shannon				
6,004.64	5,905.00	Teepee Buttes				
6,666.57	6,522.00	Sharon Springs				
6,729.56	6,568.00	Top A Chalk				
6,732.43	6,570.00	Top A Marl				
6,752.95	6,584.00	Top B Chalk				
6,834.83	6,635.00	Top B Marl				
6,992.91	6,709.00	Top C Chalk				
7,116.19	6,742.00	Top C Marl				

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
2,656.78	2,652.44	-38.23	-38.65	Start 3467.86 hold at 2656.78 MD
6,124.64	6,021.58	-615.90	-622.78	Start DLS 9.00 TFO 133.25
7,230.04	6,752.00	10.64	-757.30	TPZ/Landing Pt. at 7230.04 MD
17,070.46	6,752.00	9,850.53	-860.43	TD at 17070.46

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-735

Guttersen State DD30-735

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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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	17,070.46	Plan #2 (Guttersten State DD30-735)	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	17,070.46	6,702.83	7,212.58	7,106.69	68.111	CC, ES, SF
Dalbey D 13-12 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,707.10	8,205.48	8,097.34	75.879	CC, ES, SF
Dalbey D 13-13 (SI) - Wellbore #1 - As-Drilled	17,070.46	6,782.97	8,320.33	8,210.32	75.630	CC, ES, SF
Dalbey D 13-14 (PA) - Wellbore #1 - Gyro Surveys	17,070.46	6,623.75	7,153.52	7,044.15	65.405	CC, ES, SF
Guttersten 12-13 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	7,018.00	9,037.89	8,933.65	86.701	CC, ES, SF
Guttersten 13C (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,815.17	6,476.62	6,385.32	70.936	CC, ES, SF
Guttersten 13D (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,656.70	5,240.95	5,134.90	49.421	CC, ES, SF
Guttersten 13N (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,905.42	7,733.89	7,636.76	79.618	CC, ES, SF
Guttersten 13S (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,736.87	5,774.44	5,675.59	58.419	CC, ES, SF
Guttersten 13T (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,715.27	5,130.86	5,020.77	46.604	CC, ES, SF
Guttersten 21-13 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,864.73	8,540.55	8,444.61	89.026	CC, ES, SF
Guttersten 22-13 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,758.67	7,783.66	7,682.63	77.042	CC, ES, SF
Guttersten 31-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,594.80	7,450.23	7,359.65	82.250	CC, ES, SF
Guttersten 32-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,696.32	6,674.31	6,577.42	68.882	CC, ES, SF
Guttersten 34-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,663.41	5,814.80	5,705.75	53.320	CC, ES, SF
Guttersten 41-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,856.97	6,387.12	6,301.96	74.996	CC, ES, SF
Guttersten 42-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,737.18	5,457.77	5,366.04	59.497	CC, ES, SF
Guttersten 43-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,680.13	4,857.44	4,756.45	48.101	CC, ES, SF
Guttersten 44-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,662.59	4,489.25	4,377.09	40.026	CC, ES, SF
L F Ranch 1-13 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,701.41	6,070.44	5,964.53	57.320	CC, ES, SF
L. F. Ranch 13-4 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	7,376.00	9,090.06	8,983.35	85.188	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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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	13,604.42	6,699.64	5,339.03	5,255.56	63.964	CC, ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	15,200.00	6,700.85	5,572.35	5,478.63	59.455	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,646.59	6,629.15	5,813.78	5,737.61	76.328	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,700.00	6,629.50	5,814.02	5,737.44	75.923	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	14,700.00	6,643.10	6,165.74	6,076.63	69.190	SF
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	15,813.74	6,693.82	4,681.79	4,581.35	46.610	CC, ES
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,688.52	4,784.55	4,677.49	44.693	SF
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,612.07	6,813.41	8,356.78	8,250.04	78.293	CC
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,813.42	8,357.24	8,249.79	77.777	ES
Guttersten 11-24 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,813.46	8,369.34	8,258.97	75.831	SF
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,315.22	6,735.03	8,379.42	8,282.85	86.776	CC
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,734.87	8,379.84	8,282.60	86.174	ES
Guttersten 12-24 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,731.68	8,561.28	8,452.10	78.418	SF
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,618.54	6,645.71	7,038.56	6,931.92	66.006	CC
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,645.82	7,039.03	6,931.73	65.601	ES
Guttersten 21-24 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,646.31	7,053.05	6,942.85	64.004	SF
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,389.63	6,667.22	6,994.33	6,897.27	72.061	CC
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,667.23	6,994.34	6,897.19	71.999	ES
Guttersten 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,669.47	7,193.46	7,084.80	66.202	SF
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	15,948.08	6,724.12	7,669.55	7,568.05	75.555	CC
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	16,000.00	6,724.59	7,669.73	7,567.80	75.245	ES
Guttersten 24A (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,734.35	7,751.24	7,641.36	70.543	SF
Guttersten 24J (PR) - Wellbore #1 - Gyro Surveys	17,070.46	6,682.55	7,575.85	7,465.66	68.748	CC, ES, SF
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	15,979.83	6,601.92	6,440.61	6,340.20	64.140	CC
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	16,000.00	6,601.81	6,440.65	6,340.07	64.035	ES
Guttersten 24N (SI) - Wellbore #1 - MWD Surveys	17,070.46	6,596.06	6,532.30	6,424.01	60.322	SF
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	14,484.21	6,706.75	4,985.94	4,896.61	55.819	CC
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	14,500.00	6,706.65	4,985.96	4,896.51	55.740	ES
Guttersten 24S (PR) - Wellbore #1 - As-Drilled	15,800.00	6,698.68	5,156.62	5,058.82	52.726	SF
Guttersten 43-24 (PR) - Wellbore #1 - Gyro Surveys	13,858.04	6,628.80	4,446.64	4,361.37	52.150	CC
Guttersten 43-24 (PR) - Wellbore #1 - Gyro Surveys	13,900.00	6,628.62	4,446.83	4,361.23	51.947	ES
Guttersten 43-24 (PR) - Wellbore #1 - Gyro Surveys	15,000.00	6,624.02	4,590.93	4,498.25	49.534	SF
Guttersten 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,619.54	6,710.45	4,380.01	4,303.84	57.506	CC, ES
Guttersten 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,800.00	6,708.23	4,536.29	4,452.52	54.146	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,136.61	6,690.79	8,330.51	8,243.13	95.338	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,200.00	6,690.81	8,330.75	8,242.88	94.799	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	17,070.46	6,691.80	8,832.04	8,725.44	82.850	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,602.40	6,664.00	6,773.06	6,586.94	36.390	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,700.00	6,664.00	6,773.77	6,586.90	36.250	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,100.00	6,664.00	6,936.65	6,740.10	35.292	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,126.96	6,587.75	6,913.52	6,820.04	73.958	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,200.00	6,588.48	6,913.91	6,819.84	73.504	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	16,500.00	6,611.41	7,309.41	7,200.56	67.152	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,661.61	6,602.33	5,715.04	5,608.18	53.485	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,602.86	5,715.16	5,607.99	53.327	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,070.46	6,607.76	5,729.64	5,619.57	52.056	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,227.85	6,831.09	5,708.78	5,612.63	59.372	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,831.17	5,709.24	5,612.50	59.019	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	16,800.00	6,832.78	5,921.31	5,814.95	55.673	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,209.53	6,661.61	4,404.68	4,309.04	46.052	CC, ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,650.34	4,514.66	4,412.50	44.190	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,028.95	6,883.04	7,993.30	7,913.60	100.296	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,882.45	7,993.61	7,913.38	99.623	ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-735
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:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-735	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	16,400.00	6,900.85	8,675.02	8,574.17	86.022	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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	100.00	58.09	8,200.96	8,200.73	10,000.000	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	300.00	209.56	8,201.24	8,199.81	5,732.323	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	13,600.00	6,790.42	9,663.54	9,575.06	109.218	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	100.00	60.98	8,184.31	8,184.08	10,000.000	CC
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	900.00	847.76	8,185.06	8,180.55	1,813.724	ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	12,900.00	7,030.41	9,989.38	9,915.80	135.755	SF
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	8,069.72	11,093.00	4,249.71	4,200.38	86.154	CC, ES
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	11,900.00	11,093.00	5,721.11	5,597.80	46.397	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	8,702.74	6,859.76	7,006.66	6,949.13	121.783	CC, ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	12,100.00	6,862.17	7,786.82	7,713.65	106.411	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,195.64	6,757.38	6,869.01	6,821.12	143.407	CC
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,200.00	6,757.56	6,869.02	6,821.12	143.393	ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	6,764.47	8,087.95	8,023.74	125.974	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,176.34			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	100.00	35.58	8,176.35	8,176.16	10,000.000	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	12,700.00	6,979.68	9,960.95	9,879.75	122.665	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	7,139.80	7,023.59	7,665.37	7,615.56	153.882	CC, ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	11,900.00	7,105.00	9,138.08	9,070.56	135.340	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,048.17	6,704.99	4,968.26	4,920.02	103.005	CC
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,050.00	6,705.54	4,968.26	4,920.02	102.996	ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	8,800.00	6,749.50	5,344.64	5,291.89	101.313	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,037.74	6,969.57	3,837.25	3,784.89	73.275	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,900.00	6,958.63	3,932.92	3,878.82	72.688	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,025.39	6,856.84	3,823.17	3,772.35	75.228	CC, ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	8,400.00	6,925.35	4,127.22	4,070.03	72.167	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	8,686.34	6,862.04	5,695.69	5,635.68	94.906	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	8,700.00	6,862.09	5,695.71	5,635.62	94.791	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	11,200.00	6,865.73	6,225.71	6,151.45	83.842	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	7,184.42	6,684.83	5,872.81	5,825.17	123.274	CC, ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,688.62	6,729.59	6,670.62	114.116	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	8,695.43	6,923.54	4,401.14	4,341.55	73.854	CC
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	8,700.00	6,923.59	4,401.14	4,341.54	73.838	ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	9,700.00	6,933.71	4,514.32	4,451.57	71.937	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	7,388.14	6,794.45	4,380.27	4,332.63	91.955	CC, ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	9,300.00	6,792.75	4,779.32	4,724.99	87.959	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	10,952.46	6,924.16	7,324.57	7,259.50	112.554	CC
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,000.00	6,900.00	7,324.81	7,259.47	112.104	ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	14,400.00	6,837.56	8,094.39	8,008.79	94.563	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,029.72	7,096.63	8,520.73	8,459.87	139.990	CC, ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	14,800.00	6,700.00	9,763.39	9,677.03	113.065	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,386.98	6,828.55	8,323.56	8,256.89	124.842	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,400.00	6,828.40	8,323.57	8,256.81	124.670	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	15,500.00	6,786.67	9,284.22	9,192.69	101.440	SF
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,114.92	6,771.86	6,902.75	6,844.58	118.669	CC
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,200.00	6,768.56	6,903.28	6,844.58	117.612	ES
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	13,500.00	6,629.82	7,686.82	7,609.36	99.232	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	11,985.08	6,692.26	8,725.26	8,654.51	123.322	CC
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,000.00	6,692.00	8,725.27	8,654.41	123.133	ES
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	16,200.00	6,617.58	9,689.78	9,593.28	100.414	SF
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	100.00	26.46	7,534.36	7,534.18	10,000.000	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	300.00	191.83	7,534.96	7,533.78	6,348.136	ES
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	14,100.00	7,131.05	8,931.69	8,848.12	106.878	SF
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	9,631.34	6,666.59	6,465.84	6,410.52	116.885	CC

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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						
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	9,700.00	6,666.63	6,466.20	6,410.48	116.055	ES
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	12,800.00	6,668.62	7,200.52	7,127.35	98.418	SF
Guttersten D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,712.28	6,528.88	5,225.84	5,163.33	83.600	CC, ES
Guttersten D 25-17 (SI) - Wellbore #1 - Gyro Surveys	12,700.00	6,511.11	5,591.06	5,516.65	75.138	SF
Guttersten D25-715 - Wellbore #1 - Plan #3	17,070.46	12,560.52	4,047.72	3,900.62	27.515	CC, ES, SF
Guttersten D25-724 - Wellbore #1 - Plan #3	17,070.46	12,446.95	4,648.42	4,501.26	31.586	CC, ES, SF
Guttersten D25-734 - Wellbore #1 - Plan #5	17,070.46	12,474.37	5,277.68	5,130.24	35.796	CC, ES, SF
Guttersten D25-743 - Wellbore #1 - Plan #3	10,935.56	5,530.54	5,774.25	5,711.75	92.392	CC
Guttersten D25-743 - Wellbore #1 - Plan #3	11,000.00	5,547.80	5,774.58	5,711.56	91.627	ES
Guttersten D25-743 - Wellbore #1 - Plan #3	17,070.46	12,609.13	5,900.22	5,752.09	39.832	SF
Guttersten D25-753 - Wellbore #1 - Plan #3	17,070.46	12,530.46	6,507.35	6,362.85	45.034	CC, ES, SF
Guttersten D25-762 - Wellbore #1 - Plan #3	17,070.46	12,374.81	7,141.33	6,997.35	49.601	CC, ES, SF
Guttersten D25-772 - Wellbore #1 - Plan #3	11,053.51	5,544.85	7,686.67	7,624.11	122.875	CC
Guttersten D25-772 - Wellbore #1 - Plan #3	17,070.46	12,586.91	7,752.38	7,607.94	53.675	ES, SF
Guttersten D25-781 - Wellbore #1 - Plan #3	10,900.52	4,426.42	8,033.93	7,976.19	139.126	CC
Guttersten D25-781 - Wellbore #1 - Plan #3	11,000.00	4,439.32	8,034.54	7,976.04	137.346	ES
Guttersten D25-781 - Wellbore #1 - Plan #3	17,070.46	12,701.11	8,395.42	8,250.34	57.867	SF
Guttersten State D36-714 - Wellbore #1 - Plan #1	9,205.15	7,150.00	4,007.93	3,951.40	70.895	CC, ES
Guttersten State D36-714 - Wellbore #1 - Plan #1	11,100.00	6,600.00	4,302.96	4,237.45	65.680	SF
Guttersten State D36-724 - Wellbore #1 - Plan #1	9,351.36	6,929.79	4,631.39	4,575.18	82.395	CC
Guttersten State D36-724 - Wellbore #1 - Plan #1	9,400.00	6,900.00	4,631.49	4,575.11	82.154	ES
Guttersten State D36-724 - Wellbore #1 - Plan #1	11,500.00	6,350.00	4,980.89	4,914.33	74.826	SF
Guttersten State D36-733 - Wellbore #1 - Plan #1	9,761.51	6,309.01	5,227.56	5,170.98	92.399	CC
Guttersten State D36-733 - Wellbore #1 - Plan #1	9,800.00	6,301.05	5,227.69	5,170.91	92.064	ES
Guttersten State D36-733 - Wellbore #1 - Plan #1	11,900.00	6,041.34	5,639.79	5,571.69	82.817	SF
Guttersten State D36-743 - Wellbore #1 - Plan #1	9,881.03	5,526.48	5,725.23	5,670.05	103.742	CC
Guttersten State D36-743 - Wellbore #1 - Plan #1	9,900.00	5,523.95	5,725.26	5,669.97	103.538	ES
Guttersten State D36-743 - Wellbore #1 - Plan #1	12,400.00	5,209.95	6,245.83	6,176.96	90.692	SF
Guttersten State D36-752 - Wellbore #1 - Plan #1	9,208.28	7,177.32	6,498.00	6,440.54	113.091	CC, ES
Guttersten State D36-752 - Wellbore #1 - Plan #1	12,900.00	6,450.00	7,266.26	7,190.67	96.128	SF
Guttersten State D36-762 - Wellbore #1 - Plan #1	9,736.09	6,500.00	7,079.68	7,022.17	123.102	CC
Guttersten State D36-762 - Wellbore #1 - Plan #1	9,800.00	6,489.18	7,079.96	7,022.10	122.381	ES
Guttersten State D36-762 - Wellbore #1 - Plan #1	13,400.00	5,709.15	7,927.44	7,851.18	103.947	SF
Guttersten State D36-771 - Wellbore #1 - Plan #1	10,013.03	5,467.33	7,584.20	7,528.35	135.794	CC, ES
Guttersten State D36-771 - Wellbore #1 - Plan #1	14,000.00	4,461.00	8,509.01	8,432.94	111.853	SF
Guttersten State D36-781 - Wellbore #1 - Plan #1	10,309.39	4,383.19	7,927.46	7,873.67	147.370	CC
Guttersten State D36-781 - Wellbore #1 - Plan #1	10,400.00	4,361.17	7,927.95	7,873.65	145.998	ES
Guttersten State D36-781 - Wellbore #1 - Plan #1	14,800.00	3,308.07	9,045.41	8,968.78	118.040	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,316.61	6,660.00	5,699.73	5,522.80	32.215	CC, ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,400.00	6,660.00	5,801.78	5,617.49	31.483	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,043.23	6,582.57	4,413.25	4,354.81	75.509	CC, ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	11,600.00	6,498.32	4,679.30	4,612.00	69.523	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,043.54	6,671.65	5,738.15	5,679.51	97.848	CC
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,100.00	6,671.40	5,738.43	5,679.43	97.268	ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	12,500.00	6,657.25	6,241.82	6,169.00	85.706	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,278.49	6,600.00	4,421.88	4,355.46	66.577	CC
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,600.00	4,421.93	4,355.36	66.422	ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	12,700.00	6,574.31	4,644.65	4,569.52	61.818	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	10,985.95	6,664.00	4,710.63	4,535.85	26.953	CC
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,000.00	6,664.00	4,710.65	4,535.78	26.938	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,800.00	6,664.00	4,780.45	4,600.24	26.527	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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,709.63	6,461.19	4,480.97	4,434.93	97.319	CC, ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	7,500.00	7,500.00	4,632.25	4,581.57	91.392	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	6,911.38	6,668.22	5,863.36	5,816.08	124.026	CC, ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	9,500.00	6,817.76	6,614.20	6,559.29	120.446	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,435.25	6,178.08	7,775.50	7,691.59	92.672	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,450.00	6,191.82	7,775.57	7,691.47	92.455	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,050.00	6,581.57	7,908.37	7,818.72	88.213	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,586.69	6,534.99	6,135.92	6,090.02	133.682	CC
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,541.98	6,135.97	6,090.01	133.512	ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,716.76	6,203.24	6,155.85	130.894	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	6,924.33	6,803.54	8,434.07	8,386.47	177.190	CC, ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	11,500.00	6,942.03	9,961.33	9,896.27	153.115	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	6,821.84	6,599.45	7,263.48	7,107.61	46.600	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	6,850.00	6,615.55	7,263.65	7,107.41	46.491	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,150.00	6,719.05	7,287.37	7,128.66	45.916	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,583.36	6,583.36	8,758.08	8,711.79	189.203	CC, ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	10,000.00	7,020.52	9,976.28	9,918.76	173.439	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,584.85	6,419.70	7,535.58	7,489.95	165.144	CC
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,600.00	6,431.72	7,535.64	7,489.93	164.860	ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	8,100.00	8,100.00	7,971.97	7,917.84	147.281	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,589.08	6,310.23	5,261.72	5,216.50	116.353	CC
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,316.51	5,261.75	5,216.48	116.226	ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,866.41	5,328.00	5,279.81	110.559	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,423.64	6,305.25	8,453.39	8,408.72	189.233	CC, ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,619.33	8,600.58	8,553.50	182.690	SF
DD Section 06						
Guttersten 06D - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 23-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 24-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 33-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 34-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 43-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten 44-06 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Guttersten DD18-715 - Guttersten DD18-715 - Plan #1	17,070.46	17,440.37	1,362.70	1,187.91	7.796	CC, ES, SF
Guttersten DD18-725 - Guttersten DD18-725 - Plan #1	17,070.46	17,276.88	757.42	601.48	4.857	CC, ES, SF
Guttersten DD18-730 - Guttersten DD18-730 - Plan #1	17,070.46	17,467.47	517.83	393.48	4.164	CC, ES, SF
Guttersten DD18-735 - Guttersten DD18-735 - Plan #1	17,070.46	17,393.03	401.32	340.69	6.619	CC, ES, SF
Guttersten DD18-746 - Guttersten DD18-746 - Plan #1	17,070.46	17,388.93	802.06	641.12	4.983	CC, ES, SF
Guttersten DD18-750 - Guttersten DD18-750 - Plan #1	17,070.46	17,652.14	1,108.65	939.27	6.545	CC, ES, SF
Guttersten DD18-754 - Guttersten DD18-754 - Plan #1	17,070.46	17,462.94	1,415.81	1,244.42	8.261	CC, ES, SF
Guttersten DD18-765 - Guttersten DD18-765 - Plan #1	17,070.46	17,287.24	2,062.95	1,887.30	11.745	CC, ES, SF
Guttersten DD18-770 - Guttersten DD18-770 - Plan #1	17,070.46	17,473.14	2,392.64	2,216.28	13.567	CC, ES, SF
Guttersten DD18-775 - Guttersten DD18-775 - Plan #1	17,070.46	17,369.80	2,717.81	2,540.30	15.311	CC, ES, SF
Guttersten DD18-785 - Guttersten DD18-785 - Plan #1	17,070.46	17,360.03	3,377.47	3,198.30	18.851	CC, ES, SF
DD Section 17						
Guttersten 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,747.86	4,233.15	4,134.29	42.820	CC, ES, SF
Guttersten State DD17-78HN - Original Drilling - Original D	17,070.46	6,760.89	2,323.65	2,215.50	21.486	CC, ES, SF
Guttersten State DD17-78HN - Original Drilling - ST01 - S	17,070.46	6,448.00	2,377.40	2,274.59	23.124	CC, ES, SF
Guttersten State DD17-79-1HN - Original Drilling - Original D	17,070.46	6,429.69	2,072.94	1,969.27	19.995	CC, ES, SF
Guttersten State DD17-79HN - Original Drilling - Original D	17,070.46	6,480.40	1,811.48	1,708.02	17.509	CC, ES, SF
Guttersten USX DD17-19 - Original Drilling - Original Dri	17,070.46	6,709.69	5,212.97	5,134.80	66.684	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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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 18						
Guttersten 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,729.34	1,483.68	1,429.01	27.136	CC, ES, SF
Guttersten 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,724.22	1,836.72	1,736.43	18.313	CC, ES, SF
Guttersten 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,723.80	2,258.99	2,205.65	42.352	CC, ES, SF
Guttersten 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,709.25	899.96	831.21	13.091	CC, ES, SF
Guttersten 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,732.81	2,381.10	2,312.98	34.956	CC, ES, SF
Guttersten 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,070.46	6,709.11	1,252.49	1,162.58	13.929	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,070.46	6,676.65	2,770.80	2,682.44	31.358	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,070.46	6,688.70	3,896.04	3,796.93	39.309	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dri	17,070.46	6,756.91	3,315.29	3,207.58	30.779	CC, ES, SF
SPIKE STATE GWS DD #18-1J(PA) - SPIKE STATE GW	17,070.46	6,716.00	4,180.21	4,016.70	25.565	CC, ES, SF
DD Section 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,568.09	6,708.16	565.32	466.84	5.741	CC, ES, SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	12,970.08	6,684.00	2,064.52	1,875.29	10.910	CC
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,000.00	6,684.00	2,064.73	1,875.26	10.897	ES
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,100.00	6,684.00	2,068.60	1,878.36	10.874	SF
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,566.33	6,699.37	355.89	249.55	3.347	CC, ES, SF
Guttersten 44-19 (SI) - Wellbore #1 - No Surveys	12,702.93	6,729.00	966.82	778.66	5.138	CC, ES, SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,380.55	6,734.23	2,511.87	2,406.92	23.934	CC
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,400.00	6,733.97	2,511.95	2,406.86	23.904	ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,600.00	6,731.25	2,521.44	2,415.26	23.747	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,269.51	6,719.80	2,904.76	2,823.74	35.854	CC
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,300.00	6,720.04	2,904.92	2,823.70	35.766	ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,700.00	6,723.16	2,936.48	2,853.09	35.212	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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
DD Section 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	10,986.11	6,900.01	5,239.59	5,173.95	79.821	CC
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	11,000.00	6,900.01	5,239.61	5,173.88	79.715	ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	15,800.00	15,800.00	7,114.57	7,001.29	62.800	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,200.00	2,209.01	2,360.56	2,308.72	45.541	CC, ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,200.00	6,761.01	2,973.63	2,811.86	18.383	SF
Guttersten 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,067.43	6,998.67	6,170.99	6,080.50	68.200	CC
Guttersten 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,100.00	6,997.67	6,171.07	6,080.42	68.072	ES
Guttersten 42-29 (PR) - Wellbore #1 - Gyro Surveys	11,900.00	6,942.02	6,437.09	6,337.33	64.522	SF
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	2,106.24	2,144.24	4,946.60	4,931.83	334.892	CC
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	2,200.00	2,200.00	4,946.74	4,931.44	323.182	ES
Guttersten Federal YY5-715 - Guttersten Federal YY5-715	11,100.00	5,410.02	7,523.67	7,467.89	134.884	SF
Guttersten Federal YY5-725 - Guttersten Federal YY5-725	2,200.00	2,239.00	4,910.29	4,894.84	317.889	CC, ES
Guttersten Federal YY5-725 - Guttersten Federal YY5-725	10,400.00	6,009.43	6,709.28	6,654.56	122.615	SF
Guttersten Federal YY5-735 - Guttersten Federal YY5-735	2,200.00	2,241.00	4,871.19	4,855.74	315.212	CC, ES
Guttersten Federal YY5-735 - Guttersten Federal YY5-735	6,550.00	7,300.69	5,291.96	5,243.83	109.969	SF
Guttersten Federal YY5-745 - Guttersten Federal YY5-745	6,021.08	7,165.12	4,614.89	4,567.92	98.255	CC, ES
Guttersten Federal YY5-745 - Guttersten Federal YY5-745	6,650.00	7,150.00	4,654.85	4,606.02	95.327	SF
Guttersten Federal YY5-755 - Guttersten Federal YY5-755	2,200.00	2,239.00	3,095.67	3,080.23	200.412	CC, ES
Guttersten Federal YY5-755 - Guttersten Federal YY5-755	6,850.00	6,535.45	4,008.16	3,961.65	86.165	SF
Guttersten Federal YY5-765 - Guttersten Federal YY5-765	2,200.00	2,240.00	3,056.60	3,041.15	197.836	CC, ES
Guttersten Federal YY5-765 - Guttersten Federal YY5-765	6,550.00	6,971.03	3,338.15	3,290.59	70.197	SF
Guttersten Federal YY5-775 - Guttersten Federal YY5-775	6,356.10	7,201.60	2,689.64	2,641.05	55.348	CC, ES
Guttersten Federal YY5-775 - Guttersten Federal YY5-775	6,550.00	7,168.06	2,696.47	2,647.41	54.969	SF
Guttersten Federal YY5-785 - Guttersten Federal YY5-785	6,399.46	7,335.11	2,037.15	1,986.90	40.539	CC
Guttersten Federal YY5-785 - Guttersten Federal YY5-785	6,400.00	7,335.05	2,037.15	1,986.90	40.538	ES
Guttersten Federal YY5-785 - Guttersten Federal YY5-785	6,500.00	7,320.30	2,039.68	1,989.29	40.473	SF
Guttersten State DD29-715 - Wellbore #1 - Plan #1	1,909.84	1,926.84	4,943.85	4,930.57	372.071	CC
Guttersten State DD29-715 - Wellbore #1 - Plan #1	2,000.00	2,000.00	4,943.88	4,930.01	356.373	ES
Guttersten State DD29-715 - Wellbore #1 - Plan #1	17,070.46	17,377.09	6,622.91	6,447.10	37.672	SF
Guttersten State DD29-725 - Wellbore #1 - Plan #1	1,904.34	1,931.34	4,905.86	4,892.57	369.311	CC
Guttersten State DD29-725 - Wellbore #1 - Plan #1	2,100.00	2,081.12	4,906.45	4,891.94	338.218	ES
Guttersten State DD29-725 - Wellbore #1 - Plan #1	17,070.46	17,188.00	5,964.88	5,788.95	33.905	SF
Guttersten State DD29-735 - Wellbore #1 - Plan #1	2,399.56	2,801.95	4,855.64	4,837.75	271.484	CC
Guttersten State DD29-735 - Wellbore #1 - Plan #1	2,400.00	2,802.38	4,855.64	4,837.75	271.441	ES
Guttersten State DD29-735 - Wellbore #1 - Plan #1	17,070.46	17,330.34	5,303.07	5,126.91	30.102	SF
Guttersten State DD29-745 - Wellbore #1 - Plan #1	5,869.31	6,977.06	4,563.95	4,518.05	99.415	CC
Guttersten State DD29-745 - Wellbore #1 - Plan #1	17,070.46	17,332.22	4,644.75	4,469.41	26.490	ES, SF
Guttersten State DD29-755 - Wellbore #1 - Plan #1	1,907.10	1,944.10	3,090.22	3,076.88	231.660	CC
Guttersten State DD29-755 - Wellbore #1 - Plan #1	2,100.00	2,122.09	3,090.55	3,075.91	211.073	ES
Guttersten State DD29-755 - Wellbore #1 - Plan #1	17,070.46	17,347.75	3,960.37	3,784.08	22.465	SF
Guttersten State DD29-765 - Wellbore #1 - Plan #1	2,493.16	2,864.19	3,033.57	3,015.20	165.110	CC
Guttersten State DD29-765 - Wellbore #1 - Plan #1	2,500.00	2,870.98	3,033.58	3,015.16	164.697	ES
Guttersten State DD29-765 - Wellbore #1 - Plan #1	17,070.46	17,379.00	3,300.37	3,124.31	18.746	SF
Guttersten State DD29-775 - Wellbore #1 - Plan #1	6,352.38	7,116.90	2,601.43	2,552.88	53.589	CC
Guttersten State DD29-775 - Wellbore #1 - Plan #1	17,070.46	17,490.25	2,640.41	2,464.88	15.043	ES, SF
Guttersten State DD29-785 - Wellbore #1 - Plan #1	6,586.52	7,440.16	1,956.74	1,905.80	38.413	CC
Guttersten State DD29-785 - Wellbore #1 - Plan #1	17,070.46	17,711.70	1,980.18	1,804.75	11.288	ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-735	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						
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,366.58	6,686.30	3,084.64	3,017.43	45.893	CC
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	6,685.86	3,084.82	3,017.36	45.727	ES
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,100.00	6,676.37	3,170.62	3,098.79	44.140	SF
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	9,949.23	6,661.47	3,169.07	3,110.98	54.562	CC, ES
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,800.00	6,628.96	3,281.06	3,218.11	52.116	SF
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,017.45	6,745.83	1,757.43	1,698.88	30.013	CC, ES
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	11,200.00	11,200.00	2,118.09	2,039.70	27.019	SF
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	10,647.52	6,708.27	2,357.63	2,295.16	37.741	CC, ES
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,100.00	6,710.25	2,400.66	2,335.37	36.769	SF
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES, SF
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,200.00	2,200.00	38.02	22.71	2.484	CC, ES
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,300.00	2,300.29	39.45	23.46	2.467	SF
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,200.00	2,200.00	37.00	21.70	2.417	CC
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,300.00	2,298.31	37.40	21.43	2.341	ES
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,400.00	2,396.60	38.66	22.07	2.330	SF
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,061.20	16,676.04	1,397.36	1,224.28	8.073	CC
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,070.46	16,672.17	1,397.40	1,224.25	8.070	ES, SF
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,808.88	2,447.15	1,904.74	1,886.79	106.118	CC, ES
Guttersen State DD30-766 - Guttersen State DD30-766 -	17,070.46	16,747.49	2,107.30	1,934.49	12.194	SF
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,000.00	1,971.00	1,950.09	1,936.32	141.630	CC, ES
Guttersen State DD30-775 - Guttersen State DD30-775 -	17,070.46	16,884.89	2,717.28	2,544.33	15.711	SF
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,000.00	1,971.00	1,987.07	1,973.30	144.316	CC, ES
Guttersen State DD30-785 - Guttersen State DD30-785 -	17,070.46	17,131.52	3,357.39	3,184.26	19.392	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	6,950.00	6,484.21	1,503.20	1,456.44	32.145	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	7,000.00	6,467.99	1,502.43	1,455.70	32.156	ES
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	7,002.28	6,467.22	1,502.43	1,455.70	32.157	CC
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	3,184.84	2,856.27	1,853.67	1,832.92	89.331	CC
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	3,200.00	2,865.59	1,853.70	1,832.87	88.995	ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	7,150.00	6,349.80	2,026.00	1,978.71	42.843	SF
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,906.23	2,564.16	1,936.37	1,917.64	103.402	CC, ES
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	7,400.00	5,977.48	2,612.48	2,565.92	56.107	SF
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,000.00	1,968.00	1,989.37	1,975.61	144.596	CC
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,809.48	2,458.52	1,990.09	1,972.07	110.414	ES
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	7,900.00	5,608.78	3,063.81	3,017.44	66.069	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	8,827.09	6,675.00	3,217.01	3,054.47	19.792	CC, ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,100.00	6,675.00	3,228.57	3,064.69	19.701	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,324.77	6,681.00	1,703.95	1,545.74	10.770	CC, ES, SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,271.57	6,680.00	2,048.49	1,888.07	12.769	CC, ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,400.00	6,680.00	2,052.52	1,891.60	12.755	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,019.62	6,651.71	1,771.13	1,706.21	27.281	CC, ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,647.80	1,793.18	1,726.42	26.858	SF
State 19 (PA) - Wellbore #1 - NO Surveys	10,659.46	6,731.00	451.73	277.76	2.597	CC, ES, SF
DD Section 31						
Guttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,550.00	10,956.00	718.70	632.53	8.341	SF
Guttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,581.21	10,956.00	717.44	631.45	8.343	CC, ES
Guttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,691.84	11,132.00	997.70	904.53	10.709	CC, ES, SF
Guttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,568.04	11,048.00	561.07	501.50	9.419	CC, ES
Guttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,600.00	11,048.00	562.73	502.46	9.337	SF
Guttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,643.58	11,127.00	635.34	578.13	11.104	CC, ES, SF
Guttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,246.72	6,100.00	3,110.98	3,067.50	71.539	CC
Guttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,250.00	6,102.53	3,110.99	3,067.49	71.504	ES
Guttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,500.00	6,328.56	3,160.73	3,115.66	70.126	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 DD30-735
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 DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	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						
YY Section 06						
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,223.11	6,160.10	9,506.83	9,248.35	36.779	CC
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,250.00	6,186.59	9,507.40	9,247.76	36.617	ES
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,850.00	6,685.55	9,791.08	9,510.14	34.851	SF
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,237.47	6,315.85	9,055.48	9,011.16	204.322	CC, ES
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,750.00	6,798.03	9,249.74	9,202.45	195.572	SF
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,221.74	5,881.00	5,256.83	5,213.41	121.074	CC, ES
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,400.00	5,913.00	5,283.43	5,239.30	119.738	SF
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,223.75	5,946.00	5,221.51	5,178.52	121.469	CC, ES
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,450.00	6,010.00	5,264.35	5,220.40	119.771	SF
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,212.37	5,914.00	5,193.47	5,149.67	118.575	CC, ES
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,400.00	5,946.00	5,224.02	5,179.48	117.306	SF
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,198.94	5,876.66	5,199.84	5,154.30	114.191	CC
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,200.00	5,877.42	5,199.84	5,154.30	114.175	ES
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,450.00	6,010.00	5,250.61	5,203.83	112.228	SF
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,241.01	6,146.89	5,853.00	5,809.35	134.094	CC, ES
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,444.17	5,952.46	5,906.74	130.185	SF
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,237.72	6,147.45	7,130.38	7,086.72	163.320	CC, ES
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,900.00	6,976.98	7,434.87	7,385.46	150.448	SF
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys	6,248.60	5,931.82	9,821.35	9,778.46	228.994	CC
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys	6,250.00	5,932.72	9,821.35	9,778.46	228.949	ES
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys	6,750.00	7,018.36	9,992.68	9,944.93	209.280	SF

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