

Project: Mustang  
Site: DD Section 30  
Well: Gutttersen State DD30-715  
Wellbore: Gutttersen State DD30-715  
Design: Plan #2

# Northern Region - DJ Basin

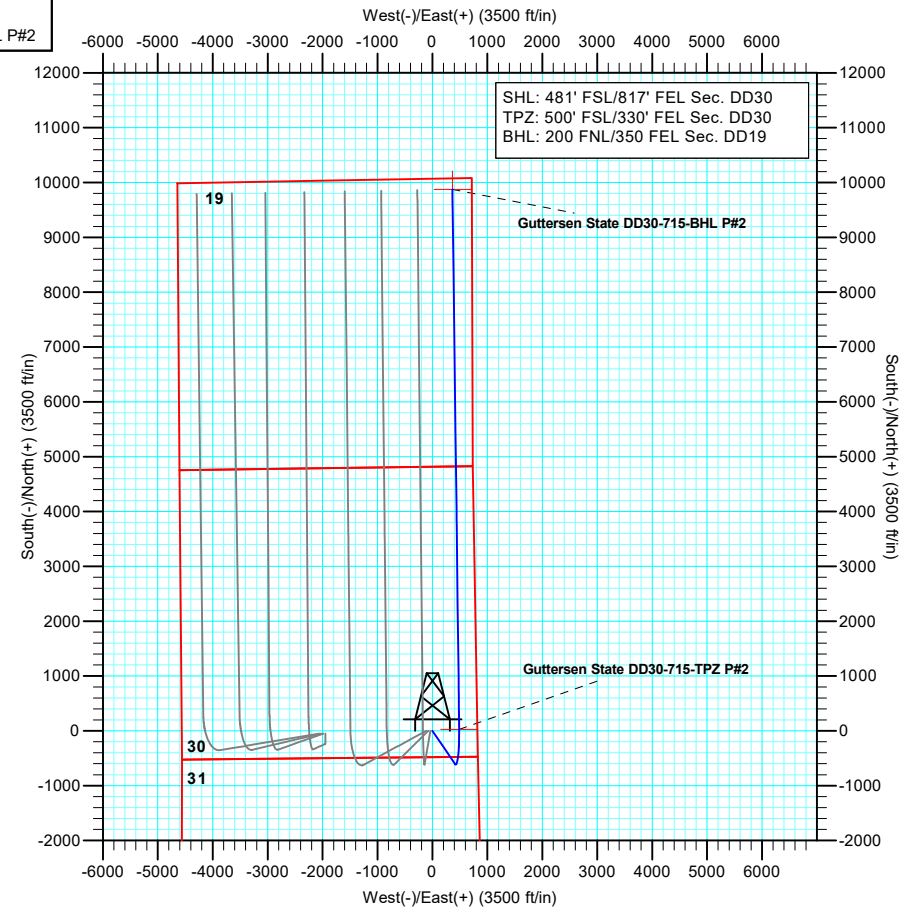
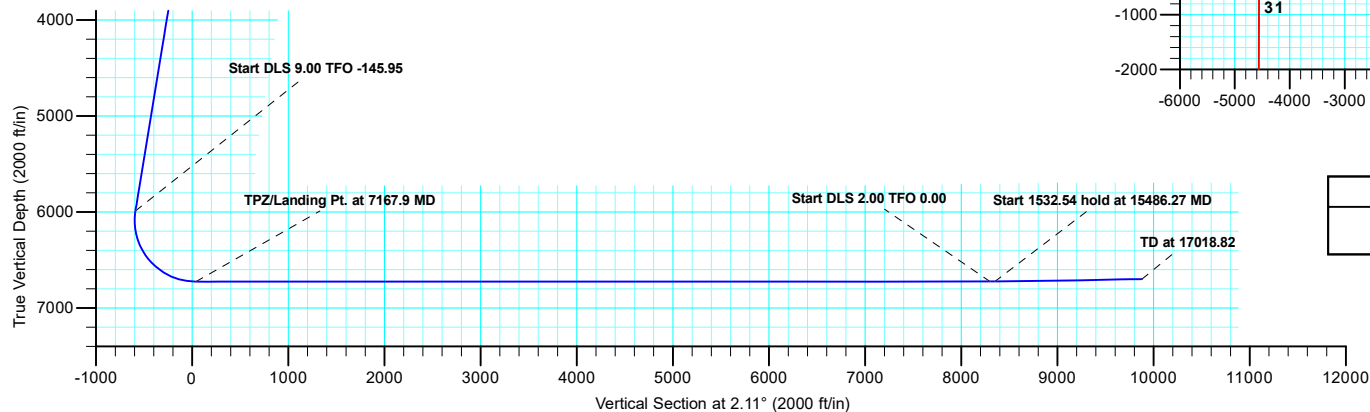
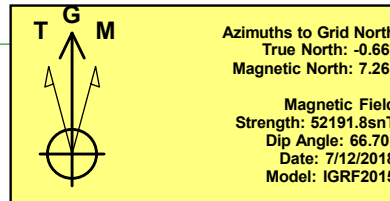
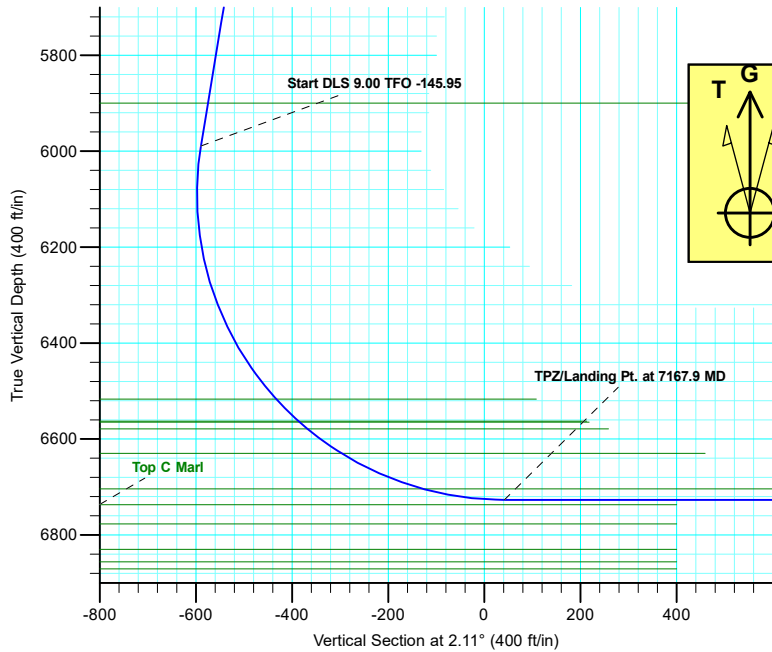
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
System Datum: Mean Sea Level

## 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	2583.30	11.50	145.77	2580.73	-31.70	21.56	3.00	145.77	-30.88	
4	6061.59	11.50	145.77	5989.21	-605.02	411.58	0.00	0.00	-589.42	
5	7167.90	90.00	359.29	6727.00	23.73	486.66	9.00	-145.95	41.67	Gutttersen State DD30-715-TPZ P#2
6	15436.28	90.00	359.29	6727.00	8291.47	384.10	0.00	0.00	8300.00	
7	15486.27	91.00	359.29	6726.56	8341.46	383.48	2.00	0.00	8349.93	
8	17018.82	91.00	359.29	6699.82	9873.66	364.47	0.00	0.00	9880.38	Gutttersen State DD30-715-BHL P#2

## WELL DETAILS: Gutttersen State DD30-715

+N/-S	+E/-W	Northing	Ground Level: Easting	4823.00 Latitude	Longitude	Slot
0.00	0.00	1313884.91	3286622.14	40.1904588	-104.4740225	



Plan: Plan #2 (Gutttersen State DD30-715/Gutttersen State DD30-715)

Created by: Shelly C. Peterkin Date: 17:20, August 08 2019

# **Northern Region - DJ Basin**

**Mustang**

**DD Section 30**

**Guttersen State DD30-715**

**Guttersen State DD30-715**

**Plan: Plan #2**

## **Standard Planning Report**

**08 August, 2019**

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersten State DD30-715		
<b>Design:</b>	Plan #2		

<b>Project</b>	Mustang, Weld County Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 DD30-715					
Well Position	+N/-S	-2,128.23 ft	Northing:	1,313,884.91 usft	Latitude:	40.1904588
	+E/-W	1,875.00 ft	Easting:	3,286,622.15 usft	Longitude:	-104.4740225
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

<b>Wellbore</b>	Guttersten State DD30-715				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	7/12/2018	7.92	66.70	52,191.78542169

<b>Design</b>	Plan #2			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	2.11

<b>Plan Sections</b>										
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	
2,583.30	11.50	145.77	2,580.73	-31.70	21.56	3.00	3.00	0.00	145.77	
6,061.60	11.50	145.77	5,989.21	-605.02	411.58	0.00	0.00	0.00	0.00	
7,167.90	90.00	359.29	6,727.00	23.73	486.66	9.00	7.10	-13.24	-145.95	Guttersten State DD30
15,436.28	90.00	359.29	6,727.00	8,291.47	384.10	0.00	0.00	0.00	0.00	
15,486.27	91.00	359.29	6,726.56	8,341.46	383.48	2.00	2.00	0.00	0.00	
17,018.82	91.00	359.29	6,699.82	9,873.66	364.47	0.00	0.00	0.00	0.00	Guttersten State DD30

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersen State DD30-715		
<b>Design:</b>	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
622.00	0.00	0.00	622.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Pierre</b>									
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
<b>Upper Pierre Aquifer Top</b>									
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
<b>Upper Pierre Aquifer Base</b>									
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
<b>Start Build 3.00</b>									
2,300.00	3.00	145.77	2,299.95	-2.16	1.47	-2.11	3.00	3.00	0.00
2,400.00	6.00	145.77	2,399.63	-8.65	5.88	-8.43	3.00	3.00	0.00
2,500.00	9.00	145.77	2,498.77	-19.44	13.23	-18.94	3.00	3.00	0.00
2,583.30	11.50	145.77	2,580.73	-31.70	21.56	-30.88	3.00	3.00	0.00
<b>Start 3478.29 hold at 2583.30 MD</b>									
2,600.00	11.50	145.77	2,597.10	-34.45	23.43	-33.56	0.00	0.00	0.00
2,700.00	11.50	145.77	2,695.09	-50.93	34.65	-49.62	0.00	0.00	0.00
2,800.00	11.50	145.77	2,793.08	-67.41	45.86	-65.68	0.00	0.00	0.00
2,900.00	11.50	145.77	2,891.08	-83.90	57.07	-81.73	0.00	0.00	0.00
3,000.00	11.50	145.77	2,989.07	-100.38	68.29	-97.79	0.00	0.00	0.00
3,100.00	11.50	145.77	3,087.06	-116.86	79.50	-113.85	0.00	0.00	0.00
3,200.00	11.50	145.77	3,185.05	-133.34	90.71	-129.91	0.00	0.00	0.00
3,300.00	11.50	145.77	3,283.05	-149.83	101.92	-145.97	0.00	0.00	0.00
3,400.00	11.50	145.77	3,381.04	-166.31	113.14	-162.02	0.00	0.00	0.00
3,500.00	11.50	145.77	3,479.03	-182.79	124.35	-178.08	0.00	0.00	0.00
3,600.00	11.50	145.77	3,577.02	-199.28	135.56	-194.14	0.00	0.00	0.00
3,648.96	11.50	145.77	3,625.00	-207.35	141.05	-202.00	0.00	0.00	0.00
<b>Parkman</b>									
3,700.00	11.50	145.77	3,675.02	-215.76	146.78	-210.20	0.00	0.00	0.00
3,800.00	11.50	145.77	3,773.01	-232.24	157.99	-226.26	0.00	0.00	0.00
3,900.00	11.50	145.77	3,871.00	-248.72	169.20	-242.31	0.00	0.00	0.00
4,000.00	11.50	145.77	3,969.00	-265.21	180.42	-258.37	0.00	0.00	0.00
4,079.60	11.50	145.77	4,047.00	-278.33	189.34	-271.15	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersen State DD30-715		
<b>Design:</b>	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)
<b>Sussex</b>									
4,100.00	11.50	145.77	4,066.99	-281.69	191.63	-274.43	0.00	0.00	0.00
4,200.00	11.50	145.77	4,164.98	-298.17	202.84	-290.49	0.00	0.00	0.00
4,268.39	11.50	145.77	4,232.00	-309.45	210.51	-301.47	0.00	0.00	0.00
<b>Shannon</b>									
4,300.00	11.50	145.77	4,262.97	-314.66	214.05	-306.55	0.00	0.00	0.00
4,400.00	11.50	145.77	4,360.97	-331.14	225.27	-322.60	0.00	0.00	0.00
4,500.00	11.50	145.77	4,458.96	-347.62	236.48	-338.66	0.00	0.00	0.00
4,600.00	11.50	145.77	4,556.95	-364.10	247.69	-354.72	0.00	0.00	0.00
4,700.00	11.50	145.77	4,654.95	-380.59	258.91	-370.78	0.00	0.00	0.00
4,800.00	11.50	145.77	4,752.94	-397.07	270.12	-386.83	0.00	0.00	0.00
4,900.00	11.50	145.77	4,850.93	-413.55	281.33	-402.89	0.00	0.00	0.00
5,000.00	11.50	145.77	4,948.92	-430.03	292.54	-418.95	0.00	0.00	0.00
5,100.00	11.50	145.77	5,046.92	-446.52	303.76	-435.01	0.00	0.00	0.00
5,200.00	11.50	145.77	5,144.91	-463.00	314.97	-451.07	0.00	0.00	0.00
5,300.00	11.50	145.77	5,242.90	-479.48	326.18	-467.12	0.00	0.00	0.00
5,400.00	11.50	145.77	5,340.90	-495.97	337.40	-483.18	0.00	0.00	0.00
5,500.00	11.50	145.77	5,438.89	-512.45	348.61	-499.24	0.00	0.00	0.00
5,600.00	11.50	145.77	5,536.88	-528.93	359.82	-515.30	0.00	0.00	0.00
5,700.00	11.50	145.77	5,634.87	-545.41	371.04	-531.36	0.00	0.00	0.00
5,800.00	11.50	145.77	5,732.87	-561.90	382.25	-547.41	0.00	0.00	0.00
5,900.00	11.50	145.77	5,830.86	-578.38	393.46	-563.47	0.00	0.00	0.00
5,970.56	11.50	145.77	5,900.00	-590.01	401.37	-574.80	0.00	0.00	0.00
<b>Teepee Buttes</b>									
6,000.00	11.50	145.77	5,928.85	-594.86	404.67	-579.53	0.00	0.00	0.00
6,061.60	11.50	145.77	5,989.21	-605.02	411.58	-589.42	0.00	0.00	0.00
<b>Start DLS 9.00 TFO -145.95</b>									
6,100.00	8.85	133.09	6,027.01	-610.20	415.89	-594.44	9.00	-6.91	-33.02
6,150.00	6.61	103.43	6,076.58	-613.50	421.50	-597.53	9.00	-4.48	-59.33
6,200.00	7.03	64.96	6,126.25	-612.87	427.07	-596.70	9.00	0.84	-76.94
6,250.00	9.77	40.01	6,175.72	-608.32	432.57	-591.95	9.00	5.48	-49.90
6,300.00	13.48	27.22	6,224.70	-599.89	437.97	-583.32	9.00	7.43	-25.58
6,350.00	17.57	20.07	6,272.87	-587.61	443.23	-570.86	9.00	8.16	-14.30
6,400.00	21.81	15.59	6,319.93	-571.57	448.32	-554.64	9.00	8.48	-8.96
6,450.00	26.13	12.52	6,365.61	-551.86	453.21	-534.77	9.00	8.65	-6.14
6,500.00	30.51	10.28	6,409.62	-528.61	457.86	-511.36	9.00	8.75	-4.49
6,550.00	34.91	8.55	6,451.68	-501.97	462.26	-484.57	9.00	8.81	-3.46
6,600.00	39.33	7.17	6,491.54	-472.08	466.36	-454.56	9.00	8.84	-2.77
6,633.65	42.31	6.38	6,517.00	-450.24	468.95	-432.64	9.00	8.87	-2.35
<b>Sharon Springs</b>									
6,650.00	43.77	6.02	6,528.95	-439.15	470.16	-421.50	9.00	8.88	-2.16
6,698.98	48.12	5.07	6,563.00	-404.12	473.55	-386.38	9.00	8.89	-1.95
<b>Top A Chalk</b>									
6,700.00	48.21	5.05	6,563.68	-403.36	473.62	-385.62	9.00	8.90	-1.81
6,701.98	48.39	5.02	6,565.00	-401.89	473.74	-384.14	9.00	8.90	-1.80
<b>Top A Marl</b>									
6,723.47	50.30	4.64	6,579.00	-385.64	475.12	-367.86	9.00	8.90	-1.75
<b>Top B Chalk</b>									
6,750.00	52.66	4.20	6,595.52	-364.95	476.72	-347.12	9.00	8.91	-1.64
6,800.00	57.12	3.45	6,624.27	-324.15	479.44	-306.24	9.00	8.92	-1.50
6,810.70	58.08	3.30	6,630.00	-315.13	479.97	-297.21	9.00	8.92	-1.41
<b>Top B Marl</b>									
6,850.00	61.58	2.77	6,649.75	-281.21	481.77	-263.24	9.00	8.92	-1.34

# Noble Energy, Inc.

## Planning Report

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<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
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<b>Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersen State DD30-715		
<b>Design:</b>	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	66.05	2.15	6,671.81	-236.39	483.69	-218.39	9.00	8.93	-1.25
6,950.00	70.52	1.57	6,690.30	-189.97	485.19	-171.95	9.00	8.93	-1.16
6,995.71	74.60	1.06	6,704.00	-146.39	486.19	-128.35	9.00	8.94	-1.10
<b>Top C Chalk</b>									
7,000.00	74.99	1.02	6,705.13	-142.25	486.27	-124.21	9.00	8.94	-1.08
7,050.00	79.46	0.49	6,716.18	-93.50	486.90	-75.48	9.00	8.94	-1.06
7,100.00	83.93	359.97	6,723.41	-44.04	487.10	-26.04	9.00	8.94	-1.03
7,150.00	88.40	359.47	6,726.75	5.83	486.86	23.79	9.00	8.94	-1.01
7,167.90	90.00	359.29	6,727.00	23.73	486.66	41.67	9.00	8.94	-1.00
<b>TPZ/Landing Pt. at 7167.9 MD</b>									
7,200.00	90.00	359.29	6,727.00	55.83	486.27	73.73	0.00	0.00	0.00
7,300.00	90.00	359.29	6,727.00	155.82	485.03	173.61	0.00	0.00	0.00
7,400.00	90.00	359.29	6,727.00	255.81	483.78	273.49	0.00	0.00	0.00
7,500.00	90.00	359.29	6,727.00	355.81	482.54	373.36	0.00	0.00	0.00
7,600.00	90.00	359.29	6,727.00	455.80	481.30	473.24	0.00	0.00	0.00
7,700.00	90.00	359.29	6,727.00	555.79	480.06	573.12	0.00	0.00	0.00
7,800.00	90.00	359.29	6,727.00	655.78	478.82	673.00	0.00	0.00	0.00
7,900.00	90.00	359.29	6,727.00	755.78	477.58	772.88	0.00	0.00	0.00
8,000.00	90.00	359.29	6,727.00	855.77	476.34	872.76	0.00	0.00	0.00
8,100.00	90.00	359.29	6,727.00	955.76	475.10	972.63	0.00	0.00	0.00
8,200.00	90.00	359.29	6,727.00	1,055.75	473.86	1,072.51	0.00	0.00	0.00
8,300.00	90.00	359.29	6,727.00	1,155.74	472.62	1,172.39	0.00	0.00	0.00
8,400.00	90.00	359.29	6,727.00	1,255.74	471.38	1,272.27	0.00	0.00	0.00
8,500.00	90.00	359.29	6,727.00	1,355.73	470.14	1,372.15	0.00	0.00	0.00
8,600.00	90.00	359.29	6,727.00	1,455.72	468.90	1,472.03	0.00	0.00	0.00
8,700.00	90.00	359.29	6,727.00	1,555.71	467.66	1,571.91	0.00	0.00	0.00
8,800.00	90.00	359.29	6,727.00	1,655.71	466.42	1,671.78	0.00	0.00	0.00
8,900.00	90.00	359.29	6,727.00	1,755.70	465.18	1,771.66	0.00	0.00	0.00
9,000.00	90.00	359.29	6,727.00	1,855.69	463.94	1,871.54	0.00	0.00	0.00
9,100.00	90.00	359.29	6,727.00	1,955.68	462.70	1,971.42	0.00	0.00	0.00
9,200.00	90.00	359.29	6,727.00	2,055.68	461.46	2,071.30	0.00	0.00	0.00
9,300.00	90.00	359.29	6,727.00	2,155.67	460.22	2,171.18	0.00	0.00	0.00
9,400.00	90.00	359.29	6,727.00	2,255.66	458.98	2,271.06	0.00	0.00	0.00
9,500.00	90.00	359.29	6,727.00	2,355.65	457.74	2,370.93	0.00	0.00	0.00
9,600.00	90.00	359.29	6,727.00	2,455.64	456.50	2,470.81	0.00	0.00	0.00
9,700.00	90.00	359.29	6,727.00	2,555.64	455.25	2,570.69	0.00	0.00	0.00
9,800.00	90.00	359.29	6,727.00	2,655.63	454.01	2,670.57	0.00	0.00	0.00
9,900.00	90.00	359.29	6,727.00	2,755.62	452.77	2,770.45	0.00	0.00	0.00
10,000.00	90.00	359.29	6,727.00	2,855.61	451.53	2,870.33	0.00	0.00	0.00
10,100.00	90.00	359.29	6,727.00	2,955.61	450.29	2,970.20	0.00	0.00	0.00
10,200.00	90.00	359.29	6,727.00	3,055.60	449.05	3,070.08	0.00	0.00	0.00
10,300.00	90.00	359.29	6,727.00	3,155.59	447.81	3,169.96	0.00	0.00	0.00
10,400.00	90.00	359.29	6,727.00	3,255.58	446.57	3,269.84	0.00	0.00	0.00
10,500.00	90.00	359.29	6,727.00	3,355.58	445.33	3,369.72	0.00	0.00	0.00
10,600.00	90.00	359.29	6,727.00	3,455.57	444.09	3,469.60	0.00	0.00	0.00
10,700.00	90.00	359.29	6,727.00	3,555.56	442.85	3,569.48	0.00	0.00	0.00
10,800.00	90.00	359.29	6,727.00	3,655.55	441.61	3,669.35	0.00	0.00	0.00
10,900.00	90.00	359.29	6,727.00	3,755.54	440.37	3,769.23	0.00	0.00	0.00
11,000.00	90.00	359.29	6,727.00	3,855.54	439.13	3,869.11	0.00	0.00	0.00
11,100.00	90.00	359.29	6,727.00	3,955.53	437.89	3,968.99	0.00	0.00	0.00
11,200.00	90.00	359.29	6,727.00	4,055.52	436.65	4,068.87	0.00	0.00	0.00
11,300.00	90.00	359.29	6,727.00	4,155.51	435.41	4,168.75	0.00	0.00	0.00
11,400.00	90.00	359.29	6,727.00	4,255.51	434.17	4,268.63	0.00	0.00	0.00
11,500.00	90.00	359.29	6,727.00	4,355.50	432.93	4,368.50	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersen State DD30-715		
<b>Design:</b>	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)
11,600.00	90.00	359.29	6,727.00	4,455.49	431.69	4,468.38	0.00	0.00	0.00
11,700.00	90.00	359.29	6,727.00	4,555.48	430.45	4,568.26	0.00	0.00	0.00
11,800.00	90.00	359.29	6,727.00	4,655.48	429.21	4,668.14	0.00	0.00	0.00
11,900.00	90.00	359.29	6,727.00	4,755.47	427.97	4,768.02	0.00	0.00	0.00
12,000.00	90.00	359.29	6,727.00	4,855.46	426.72	4,867.90	0.00	0.00	0.00
12,100.00	90.00	359.29	6,727.00	4,955.45	425.48	4,967.77	0.00	0.00	0.00
12,200.00	90.00	359.29	6,727.00	5,055.44	424.24	5,067.65	0.00	0.00	0.00
12,300.00	90.00	359.29	6,727.00	5,155.44	423.00	5,167.53	0.00	0.00	0.00
12,400.00	90.00	359.29	6,727.00	5,255.43	421.76	5,267.41	0.00	0.00	0.00
12,500.00	90.00	359.29	6,727.00	5,355.42	420.52	5,367.29	0.00	0.00	0.00
12,600.00	90.00	359.29	6,727.00	5,455.41	419.28	5,467.17	0.00	0.00	0.00
12,700.00	90.00	359.29	6,727.00	5,555.41	418.04	5,567.05	0.00	0.00	0.00
12,800.00	90.00	359.29	6,727.00	5,655.40	416.80	5,666.92	0.00	0.00	0.00
12,900.00	90.00	359.29	6,727.00	5,755.39	415.56	5,766.80	0.00	0.00	0.00
13,000.00	90.00	359.29	6,727.00	5,855.38	414.32	5,866.68	0.00	0.00	0.00
13,100.00	90.00	359.29	6,727.00	5,955.38	413.08	5,966.56	0.00	0.00	0.00
13,200.00	90.00	359.29	6,727.00	6,055.37	411.84	6,066.44	0.00	0.00	0.00
13,300.00	90.00	359.29	6,727.00	6,155.36	410.60	6,166.32	0.00	0.00	0.00
13,400.00	90.00	359.29	6,727.00	6,255.35	409.36	6,266.20	0.00	0.00	0.00
13,500.00	90.00	359.29	6,727.00	6,355.34	408.12	6,366.07	0.00	0.00	0.00
13,600.00	90.00	359.29	6,727.00	6,455.34	406.88	6,465.95	0.00	0.00	0.00
13,700.00	90.00	359.29	6,727.00	6,555.33	405.64	6,565.83	0.00	0.00	0.00
13,800.00	90.00	359.29	6,727.00	6,655.32	404.40	6,665.71	0.00	0.00	0.00
13,900.00	90.00	359.29	6,727.00	6,755.31	403.16	6,765.59	0.00	0.00	0.00
14,000.00	90.00	359.29	6,727.00	6,855.31	401.92	6,865.47	0.00	0.00	0.00
14,100.00	90.00	359.29	6,727.00	6,955.30	400.68	6,965.34	0.00	0.00	0.00
14,200.00	90.00	359.29	6,727.00	7,055.29	399.44	7,065.22	0.00	0.00	0.00
14,300.00	90.00	359.29	6,727.00	7,155.28	398.19	7,165.10	0.00	0.00	0.00
14,400.00	90.00	359.29	6,727.00	7,255.28	396.95	7,264.98	0.00	0.00	0.00
14,500.00	90.00	359.29	6,727.00	7,355.27	395.71	7,364.86	0.00	0.00	0.00
14,600.00	90.00	359.29	6,727.00	7,455.26	394.47	7,464.74	0.00	0.00	0.00
14,700.00	90.00	359.29	6,727.00	7,555.25	393.23	7,564.62	0.00	0.00	0.00
14,800.00	90.00	359.29	6,727.00	7,655.24	391.99	7,664.49	0.00	0.00	0.00
14,900.00	90.00	359.29	6,727.00	7,755.24	390.75	7,764.37	0.00	0.00	0.00
15,000.00	90.00	359.29	6,727.00	7,855.23	389.51	7,864.25	0.00	0.00	0.00
15,100.00	90.00	359.29	6,727.00	7,955.22	388.27	7,964.13	0.00	0.00	0.00
15,200.00	90.00	359.29	6,727.00	8,055.21	387.03	8,064.01	0.00	0.00	0.00
15,300.00	90.00	359.29	6,727.00	8,155.21	385.79	8,163.89	0.00	0.00	0.00
15,400.00	90.00	359.29	6,727.00	8,255.20	384.55	8,263.77	0.00	0.00	0.00
15,436.28	90.00	359.29	6,727.00	8,291.47	384.10	8,300.00	0.00	0.00	0.00
<b>Start DLS 2.00 TFO 0.00</b>									
15,486.27	91.00	359.29	6,726.56	8,341.46	383.48	8,349.93	2.00	2.00	0.00
<b>Start 1532.54 hold at 15486.27 MD</b>									
15,500.00	91.00	359.29	6,726.32	8,355.19	383.31	8,363.64	0.00	0.00	0.00
15,600.00	91.00	359.29	6,724.58	8,455.16	382.07	8,463.50	0.00	0.00	0.00
15,700.00	91.00	359.29	6,722.83	8,555.14	380.83	8,563.37	0.00	0.00	0.00
15,800.00	91.00	359.29	6,721.09	8,655.12	379.59	8,663.23	0.00	0.00	0.00
15,900.00	91.00	359.29	6,719.34	8,755.09	378.35	8,763.09	0.00	0.00	0.00
16,000.00	91.00	359.29	6,717.60	8,855.07	377.11	8,862.96	0.00	0.00	0.00
16,100.00	91.00	359.29	6,715.85	8,955.05	375.87	8,962.82	0.00	0.00	0.00
16,200.00	91.00	359.29	6,714.11	9,055.03	374.63	9,062.68	0.00	0.00	0.00
16,300.00	91.00	359.29	6,712.36	9,155.00	373.39	9,162.55	0.00	0.00	0.00
16,400.00	91.00	359.29	6,710.62	9,254.98	372.15	9,262.41	0.00	0.00	0.00
16,500.00	91.00	359.29	6,708.87	9,354.96	370.91	9,362.27	0.00	0.00	0.00

# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Gutttersen State DD30-715
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Gutttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Gutttersen State DD30-715		
<b>Design:</b>	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)
16,600.00	91.00	359.29	6,707.13	9,454.93	369.67	9,462.14	0.00	0.00	0.00
16,700.00	91.00	359.29	6,705.38	9,554.91	368.43	9,562.00	0.00	0.00	0.00
16,800.00	91.00	359.29	6,703.64	9,654.89	367.19	9,661.86	0.00	0.00	0.00
16,900.00	91.00	359.29	6,701.89	9,754.87	365.95	9,761.72	0.00	0.00	0.00
17,000.00	91.00	359.29	6,700.15	9,854.84	364.71	9,861.59	0.00	0.00	0.00
17,018.82	91.00	359.29	6,699.82	9,873.66	364.47	9,880.38	0.00	0.00	0.00
TD at 17018.82									

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									
Gutttersen State DD30-7	0.00	0.00	6,699.82	9,873.66	364.47	1,323,758.54	3,286,986.62	40.2175497	-104.4723084
- plan hits target center									
- Point									
Gutttersen State DD30-7	0.00	0.01	6,727.00	23.73	486.66	1,313,908.64	3,287,108.81	40.1905085	-104.4722797
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
622.00	622.00	Pierre				
716.00	716.00	Upper Pierre Aquifer Top				
1,653.00	1,653.00	Upper Pierre Aquifer Base				
3,648.96	3,625.00	Parkman				
4,079.60	4,047.00	Sussex				
4,268.39	4,232.00	Shannon				
5,970.56	5,900.00	Teepee Buttes				
6,633.65	6,517.00	Sharon Springs				
6,698.98	6,563.00	Top A Chalk				
6,701.98	6,565.00	Top A Marl				
6,723.47	6,579.00	Top B Chalk				
6,810.70	6,630.00	Top B Marl				
6,995.71	6,704.00	Top C Chalk				



# Noble Energy, Inc.

## Planning Report

<b>Database:</b>	EDMP	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Company:</b>	Northern Region - DJ Basin	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Project:</b>	Mustang	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site:</b>	DD Section 30	<b>North Reference:</b>	Grid
<b>Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Guttersen State DD30-715		
<b>Design:</b>	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
2,583.30	2,580.73	-31.70	21.56	Start 3478.29 hold at 2583.30 MD
6,061.60	5,989.21	-605.02	411.58	Start DLS 9.00 TFO -145.95
7,167.90	6,727.00	23.73	486.66	TPZ/Landing Pt. at 7167.9 MD
15,436.28	6,727.00	8,291.47	384.10	Start DLS 2.00 TFO 0.00
15,486.27	6,726.56	8,341.46	383.48	Start 1532.54 hold at 15486.27 MD
17,018.82	6,699.82	9,873.66	364.47	TD at 17018.82

# **Northern Region - DJ Basin**

**Mustang**

**DD Section 30**

**Guttersen State DD30-715**

**Guttersen State DD30-715**

**Plan #2**

## **Anticollision Summary Report**

**08 August, 2019**

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD + Stations Interval 100.00ft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00 ft	<b>Error Surface:</b>	Pedal Curve
<b>Warning Levels Evaluated at:</b>	2.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	8/8/2019		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	17,018.82	Plan #2 (Guttersten State DD30-715)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 13						
Dalbey D 13-11 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,666.05	8,458.77	8,350.56	78.171	CC, ES, SF
Dalbey D 13-12 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,641.65	9,479.49	9,370.07	86.634	CC, ES, SF
Dalbey D 13-13 (SI) - Wellbore #1 - As-Drilled	17,018.82	6,751.51	9,615.12	9,504.35	86.803	CC, ES, SF
Dalbey D 13-14 (PA) - Wellbore #1 - Gyro Surveys	17,018.82	6,529.78	8,445.76	8,335.96	76.918	CC, ES, SF
Guttersten 12-13 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Guttersten 13C (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,793.52	7,517.78	7,418.90	76.035	CC, ES, SF
Guttersten 13D (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,630.76	6,492.71	6,384.21	59.840	CC, ES, SF
Guttersten 13N (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,882.29	8,857.07	8,754.53	86.376	CC, ES, SF
Guttersten 13S (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,711.01	6,927.77	6,823.58	66.492	CC, ES, SF
Guttersten 13T (PR) - Wellbore #1 - Gyro Surveys	15,600.00	15,600.00	6,652.70	6,524.44	51.870	SF
Guttersten 13T (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,655.27	6,428.99	6,318.44	58.157	CC, ES
Guttersten 21-13 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,840.60	9,644.85	9,543.52	95.183	CC, ES, SF
Guttersten 22-13 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,730.72	8,961.78	8,856.71	85.295	CC, ES, SF
Guttersten 31-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,525.72	8,482.82	8,385.64	87.295	CC, ES, SF
Guttersten 32-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,658.10	7,797.58	7,695.20	76.170	CC, ES, SF
Guttersten 34-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,608.38	7,102.97	6,993.05	64.617	CC, ES, SF
Guttersten 41-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,900.59	7,322.26	7,226.84	76.732	CC, ES, SF
Guttersten 42-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,752.80	6,513.75	6,413.83	65.192	CC, ES, SF
Guttersten 43-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,616.62	6,045.34	5,939.79	57.273	CC, ES, SF
Guttersten 44-13 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,606.29	5,770.92	5,658.86	51.501	CC, ES, SF
L F Ranch 1-13 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,737.86	7,316.17	7,207.56	67.359	CC, ES, SF
L. F. Ranch 13-4 (SI) - Wellbore #1 - Gyro Surveys						Out of range

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersen State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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	13,556.08	6,683.51	6,645.94	6,562.26	79.417	CC
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	13,600.00	6,683.48	6,646.09	6,562.08	79.114	ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	15,700.00	6,676.66	6,983.21	6,886.72	72.372	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,598.99	6,589.96	7,122.24	7,046.08	93.518	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,700.00	6,590.35	7,122.96	7,046.07	92.646	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,602.73	7,617.19	7,525.08	82.692	SF
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	15,763.53	6,671.77	5,984.50	5,883.82	59.441	CC
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,670.89	5,984.61	5,883.66	59.281	ES
Glazier 2-24 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,641.90	6,114.67	6,006.14	56.342	SF
Guttersen 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,566.64	6,792.75	9,658.34	9,551.14	90.094	CC
Guttersen 11-24 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,792.17	9,658.40	9,550.94	89.878	ES
Guttersen 11-24 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,784.88	9,668.92	9,558.29	87.401	SF
Guttersen 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,272.75	6,721.33	9,683.05	9,586.12	99.899	CC
Guttersen 12-24 (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,721.28	9,683.09	9,585.95	99.685	ES
Guttersen 12-24 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,709.21	9,839.40	9,730.22	90.120	SF
Guttersen 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,573.43	6,615.93	8,339.53	8,232.69	78.056	CC
Guttersen 21-24 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,615.65	8,339.57	8,232.53	77.907	ES
Guttersen 21-24 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,611.14	8,351.41	8,241.25	75.807	SF
Guttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,344.44	6,647.14	8,297.72	8,200.44	85.296	CC
Guttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,647.23	8,297.91	8,200.20	84.929	ES
Guttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,625.16	8,465.01	8,356.44	77.970	SF
Guttersen 24A (SI) - Wellbore #1 - Gyro Surveys	15,902.60	6,704.41	8,972.06	8,870.21	88.087	CC
Guttersen 24A (SI) - Wellbore #1 - Gyro Surveys	16,000.00	6,703.54	8,972.59	8,869.99	87.453	ES
Guttersen 24A (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,694.26	9,041.22	8,931.36	82.291	SF
Guttersen 24J (PR) - Wellbore #1 - Gyro Surveys	17,018.82	6,628.82	8,875.65	8,765.24	80.388	CC, ES, SF
Guttersen 24N (SI) - Wellbore #1 - MWD Surveys	15,934.82	6,565.09	7,742.54	7,642.04	77.040	CC
Guttersen 24N (SI) - Wellbore #1 - MWD Surveys	16,000.00	6,563.74	7,742.81	7,641.82	76.666	ES
Guttersen 24N (SI) - Wellbore #1 - MWD Surveys	17,018.82	6,550.02	7,817.99	7,709.93	72.348	SF
Guttersen 24S (PR) - Wellbore #1 - As-Drilled	14,435.28	6,695.50	6,291.17	6,201.59	70.227	CC
Guttersen 24S (PR) - Wellbore #1 - As-Drilled	14,500.00	6,695.12	6,291.51	6,201.45	69.859	ES
Guttersen 24S (PR) - Wellbore #1 - As-Drilled	16,300.00	6,673.11	6,561.77	6,461.19	65.239	SF
Guttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	13,808.11	6,589.44	5,752.66	5,667.42	67.484	CC, ES
Guttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	15,436.28	6,584.84	5,978.63	5,883.67	62.961	SF
Guttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,569.33	6,726.64	5,688.81	5,612.41	74.459	CC
Guttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,726.58	5,688.89	5,612.27	74.248	ES
Guttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,723.21	5,976.11	5,889.05	68.647	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,094.02	6,669.17	9,636.31	9,548.67	109.951	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,200.00	6,669.21	9,636.89	9,548.46	108.971	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	16,700.00	6,648.20	9,982.47	9,877.52	95.118	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,556.82	6,639.00	8,081.75	7,895.94	43.495	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,600.00	6,639.00	8,081.87	7,895.75	43.423	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,500.00	6,639.00	8,312.08	8,113.52	41.861	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,081.29	6,551.47	8,219.01	8,125.61	88.004	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,100.00	6,551.65	8,219.03	8,125.49	87.871	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	17,018.82	6,553.62	8,727.92	8,616.58	78.390	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,614.43	6,557.51	7,015.54	6,908.62	65.617	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,557.19	7,016.06	6,908.49	65.223	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,555.99	7,027.18	6,917.28	63.938	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,180.23	6,847.27	7,012.56	6,915.81	72.481	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,200.00	6,847.29	7,012.59	6,915.69	72.370	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	17,018.82	6,821.97	7,250.36	7,142.18	67.019	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,159.68	6,634.68	5,708.37	5,612.59	59.600	CC
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,200.00	6,634.22	5,708.51	5,612.43	59.415	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersen State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,597.53	5,887.15	5,782.81	56.419	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	12,985.77	6,879.40	9,301.39	9,221.25	116.062	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,880.34	9,302.09	9,221.11	114.873	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,889.26	9,979.30	9,876.84	97.402	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 25						
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	100.00	58.05	8,275.93	8,275.70	10,000.000	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	300.00	209.38	8,276.21	8,274.78	5,787.216	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Surveys	11,200.00	6,752.17	9,975.51	9,900.99	133.867	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	100.00	60.97	8,259.30	8,259.07	10,000.000	CC
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	900.00	847.64	8,260.05	8,255.54	1,830.435	ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Surveys	9,900.00	7,011.76	9,994.71	9,936.87	172.789	SF
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	8,019.30	11,093.00	5,566.23	5,517.31	113.772	CC, ES
Coors Energy 14-25H (PR) - Wellbore #1 - MWD Surveys	13,000.00	11,093.00	7,469.29	7,342.39	58.858	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	2,386.96	2,919.00	8,123.96	8,104.23	411.813	CC
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	2,400.00	2,919.00	8,124.00	8,104.23	410.909	ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Surveys	13,100.00	6,842.51	9,434.20	9,356.68	121.714	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	7,676.52			
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	2,243.36	2,302.96	7,679.54	7,663.85	489.487	ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,753.32	9,872.58	9,803.43	142.778	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,251.32			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	100.00	35.45	8,251.34	8,251.15	10,000.000	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	5,900.00	5,900.00	9,836.39	9,792.59	224.569	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	100.00	59.49	8,258.85	8,258.62	10,000.000	CC
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	900.00	827.13	8,260.66	8,256.19	1,844.988	ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	11,200.00	7,105.00	9,967.92	9,903.08	153.725	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	2,409.76	2,719.67	5,911.93	5,895.18	353.060	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	10,100.00	6,734.37	7,113.47	7,056.01	123.802	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	7,986.66	6,958.61	5,154.92	5,102.72	98.749	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	10,000.00	6,929.15	5,534.08	5,475.93	95.176	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	5,193.66	5,854.98	5,006.34	4,964.62	119.995	CC
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	5,200.00	5,857.46	5,006.35	4,964.60	119.910	ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	9,400.00	6,926.06	5,768.04	5,706.86	94.276	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	100.00	31.13	5,936.32	5,936.14	10,000.000	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	300.00	194.40	5,937.07	5,935.80	4,670.223	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Surveys	12,100.00	6,843.68	7,819.65	7,741.33	99.846	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	1,061.09	1,008.15	6,720.93	6,714.00	970.697	CC
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,130.06	6,724.83	6,709.91	450.649	ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,661.36	8,448.66	8,385.37	133.503	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	8,644.98	6,893.15	5,717.32	5,657.94	96.283	CC, ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Surveys	10,500.00	6,914.93	6,010.69	5,944.94	91.417	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	3,980.36	4,648.99	5,488.06	5,458.44	185.300	CC
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	4,000.00	4,654.52	5,488.08	5,458.37	184.720	ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Surveys	10,300.00	6,772.99	6,422.88	6,364.58	110.159	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	10,907.60	6,930.64	8,636.57	8,571.06	131.818	CC
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,000.00	6,928.67	8,637.07	8,570.95	130.627	ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	15,200.00	6,832.54	9,643.29	9,553.62	107.550	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	513.07	473.08	9,785.61	9,782.52	3,171.643	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,000.00	7,070.00	9,834.41	9,773.19	160.640	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	11,700.00	6,954.84	9,984.52	9,913.57	140.728	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,344.45	6,823.38	9,634.82	9,567.85	143.886	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,400.00	6,822.75	9,634.98	9,567.64	143.086	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	14,000.00	6,795.41	9,994.04	9,909.97	118.875	SF
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,069.99	6,762.33	8,216.43	8,158.13	140.923	CC
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	10,100.00	6,761.17	8,216.48	8,158.00	140.500	ES
Guttersten 22-25 (PA) - Wellbore #1 - MWD Surveys	14,300.00	6,581.53	9,239.67	9,158.62	113.992	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys						Out of range
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	100.00	26.43	7,605.78	7,605.61	10,000.000	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	300.00	191.58	7,606.39	7,605.20	6,410.675	ES

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

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

**Summary**

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 25						
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	13,800.00	7,133.58	9,967.80	9,885.55	121.188	SF
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	1,584.78	1,516.79	7,585.66	7,576.21	802.785	CC
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	2,200.00	2,123.61	7,586.24	7,572.48	551.110	ES
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	13,700.00	6,638.61	8,801.29	8,724.07	113.978	SF
Guttersten D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,664.32	6,477.69	6,537.07	6,474.92	105.173	CC
Guttersten D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,700.00	6,477.26	6,537.17	6,474.79	104.792	ES
Guttersten D 25-17 (SI) - Wellbore #1 - Gyro Surveys	13,400.00	6,445.85	7,086.34	7,008.95	91.566	SF
Guttersten D25-715 - Wellbore #1 - Plan #3	17,018.82	12,571.47	5,348.29	5,200.68	36.233	CC, ES, SF
Guttersten D25-724 - Wellbore #1 - Plan #3	17,018.82	12,460.59	5,948.21	5,800.69	40.322	CC, ES, SF
Guttersten D25-734 - Wellbore #1 - Plan #5	2,004.64	1,953.64	6,426.61	6,412.89	468.299	CC
Guttersten D25-734 - Wellbore #1 - Plan #5	2,100.00	2,000.00	6,426.80	6,412.57	451.606	ES
Guttersten D25-734 - Wellbore #1 - Plan #5	17,018.82	12,509.65	6,578.14	6,430.08	44.429	SF
Guttersten D25-743 - Wellbore #1 - Plan #3	2,004.64	1,953.64	6,460.01	6,446.29	470.733	CC
Guttersten D25-743 - Wellbore #1 - Plan #3	2,100.00	2,000.00	6,460.20	6,445.97	453.953	ES
Guttersten D25-743 - Wellbore #1 - Plan #3	17,018.82	12,607.51	7,200.09	7,051.76	48.544	SF
Guttersten D25-753 - Wellbore #1 - Plan #3	17,018.82	12,549.24	7,807.80	7,662.75	53.828	CC, ES, SF
Guttersten D25-762 - Wellbore #1 - Plan #3	17,018.82	12,385.10	8,441.39	8,297.07	58.493	CC, ES, SF
Guttersten D25-772 - Wellbore #1 - Plan #3	2,009.91	1,972.91	8,604.05	8,590.24	622.974	CC
Guttersten D25-772 - Wellbore #1 - Plan #3	2,100.00	2,000.00	8,604.28	8,590.05	604.614	ES
Guttersten D25-772 - Wellbore #1 - Plan #3	17,018.82	12,606.79	9,052.86	8,907.89	62.448	SF
Guttersten D25-781 - Wellbore #1 - Plan #3	2,007.41	1,971.41	8,638.91	8,625.11	626.148	CC
Guttersten D25-781 - Wellbore #1 - Plan #3	2,100.00	2,000.00	8,639.14	8,624.91	607.065	ES
Guttersten D25-781 - Wellbore #1 - Plan #3	17,018.82	12,726.87	9,695.47	9,549.89	66.602	SF
Guttersten State D36-714 - Wellbore #1 - Plan #1	6,276.58	9,710.05	5,325.12	5,264.10	87.268	ES
Guttersten State D36-714 - Wellbore #1 - Plan #1	9,169.82	7,135.70	5,323.31	5,266.71	94.049	CC
Guttersten State D36-714 - Wellbore #1 - Plan #1	11,800.00	6,550.00	5,794.58	5,726.31	84.870	SF
Guttersten State D36-724 - Wellbore #1 - Plan #1	6,200.04	9,643.02	5,946.29	5,885.96	98.569	CC, ES
Guttersten State D36-724 - Wellbore #1 - Plan #1	12,300.00	6,300.00	6,512.94	6,443.41	93.659	SF
Guttersten State D36-733 - Wellbore #1 - Plan #1	2,200.00	2,149.00	6,496.38	6,481.26	429.544	CC
Guttersten State D36-733 - Wellbore #1 - Plan #1	9,800.00	6,177.85	6,535.50	6,479.68	117.087	ES
Guttersten State D36-733 - Wellbore #1 - Plan #1	12,700.00	5,801.78	7,166.32	7,096.37	102.453	SF
Guttersten State D36-743 - Wellbore #1 - Plan #1	2,200.00	2,149.00	6,529.42	6,514.30	431.728	CC, ES
Guttersten State D36-743 - Wellbore #1 - Plan #1	13,300.00	4,750.20	7,780.01	7,710.82	112.446	SF
Guttersten State D36-752 - Wellbore #1 - Plan #1	5,972.52	9,701.87	7,799.22	7,737.26	125.875	CC
Guttersten State D36-752 - Wellbore #1 - Plan #1	6,000.00	9,702.66	7,799.27	7,737.20	125.648	ES
Guttersten State D36-752 - Wellbore #1 - Plan #1	13,600.00	6,422.17	8,771.38	8,692.99	111.893	SF
Guttersten State D36-762 - Wellbore #1 - Plan #1	9,707.77	6,450.00	8,391.48	8,334.47	147.194	CC
Guttersten State D36-762 - Wellbore #1 - Plan #1	9,800.00	6,450.00	8,391.98	8,334.44	145.848	ES
Guttersten State D36-762 - Wellbore #1 - Plan #1	14,100.00	5,436.89	9,416.59	9,339.13	121.564	SF
Guttersten State D36-771 - Wellbore #1 - Plan #1	2,200.00	2,164.00	8,549.73	8,534.56	563.309	CC, ES
Guttersten State D36-771 - Wellbore #1 - Plan #1	14,800.00	3,990.51	9,996.58	9,920.62	131.588	SF
Guttersten State D36-781 - Wellbore #1 - Plan #1	2,007.41	1,971.41	8,584.81	8,571.01	622.227	CC
Guttersten State D36-781 - Wellbore #1 - Plan #1	2,100.00	2,027.27	8,584.95	8,570.62	599.305	ES
Guttersten State D36-781 - Wellbore #1 - Plan #1	14,400.00	3,100.00	9,966.41	9,895.37	140.304	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,268.98	6,635.00	7,010.89	6,834.35	39.712	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,300.00	6,635.00	7,010.96	6,834.21	39.666	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,900.00	6,635.00	7,198.11	7,011.27	38.525	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	9,995.55	6,516.98	5,726.07	5,668.01	98.628	CC
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,000.00	6,516.67	5,726.07	5,667.99	98.585	ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	12,300.00	6,412.50	6,171.48	6,101.41	88.077	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	9,996.11	6,652.05	7,051.78	6,993.17	120.303	CC
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,000.00	6,652.02	7,051.78	6,993.14	120.256	ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	13,300.00	6,620.38	7,787.33	7,710.81	101.771	SF

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



**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersen State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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						
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,229.15	6,566.49	5,732.66	5,666.39	86.502	CC
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,565.38	5,733.10	5,666.36	85.902	ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	13,300.00	6,536.58	6,095.12	6,017.20	78.227	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	10,936.41	6,639.00	6,022.43	5,848.07	34.540	CC
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,000.00	6,639.00	6,022.77	5,847.99	34.460	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	12,100.00	6,639.00	6,133.81	5,952.22	33.778	SF
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	2,136.94	2,071.98	5,318.43	5,303.94	367.031	CC
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,119.55	5,318.52	5,303.64	357.362	ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	8,100.00	8,100.00	6,096.29	6,042.33	112.986	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	2,267.30	2,339.00	6,679.46	6,663.16	409.734	CC
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	2,300.00	2,363.13	6,679.60	6,663.11	404.974	ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	10,900.00	6,822.28	8,488.35	8,428.02	140.708	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	2,191.60	2,168.76	8,662.24	8,629.59	265.332	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,173.59	8,662.24	8,629.55	264.939	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,538.31	9,092.55	9,003.48	102.078	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	0.00	0.00	7,047.16			
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,292.77	7,047.99	7,032.17	445.362	ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,700.00	7,452.68	7,405.41	157.662	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	2,217.24	2,235.59	9,233.55	9,218.20	601.444	CC, ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	8,400.00	6,885.93	9,977.18	9,926.22	195.789	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	2,200.00	2,172.00	8,117.31	8,066.21	158.872	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	2,300.00	2,271.95	8,118.39	8,064.96	151.934	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,100.00	6,695.41	8,590.86	8,432.82	54.358	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	334.64	323.66	9,520.47	9,518.54	4,937.817	CC
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	1,000.00	941.77	9,522.09	9,515.62	1,471.812	ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,600.00	9,981.78	9,935.55	215.915	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	674.00	654.03	8,261.24	8,256.94	1,922.306	CC
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	900.00	828.14	8,262.15	8,256.44	1,445.142	ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	8,800.00	8,800.00	9,487.39	9,428.87	162.124	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	313.68	259.68	6,161.46	6,159.84	3,792.686	CC
State 09 (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,258.41	6,169.87	6,154.16	392.697	ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,881.94	6,608.09	6,559.69	136.529	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	0.00	0.00	9,353.41			
State 30 (SI) - Wellbore #1 - Gyro Surveys	1,900.00	1,840.06	9,356.44	9,343.61	729.143	ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,560.58	9,740.51	9,693.77	208.359	SF
DD Section 06						
Guttersen DD18-715 - Guttersen DD18-715 - Plan #1	17,018.82	17,440.37	403.14	340.58	6.443	CC, ES, SF
Guttersen DD18-725 - Guttersen DD18-725 - Plan #1	17,018.82	17,276.88	774.65	618.59	4.964	CC, ES, SF
Guttersen DD18-730 - Guttersen DD18-730 - Plan #1	17,018.82	17,467.47	1,086.73	917.28	6.413	CC, ES, SF
Guttersen DD18-735 - Guttersen DD18-735 - Plan #1	17,018.82	17,393.03	1,388.83	1,214.79	7.980	CC, ES, SF
Guttersen DD18-746 - Guttersen DD18-746 - Plan #1	17,018.82	17,388.93	2,032.58	1,854.42	11.409	CC, ES, SF
Guttersen DD18-750 - Guttersen DD18-750 - Plan #1	17,018.82	17,652.14	2,366.87	2,187.97	13.231	CC, ES, SF
Guttersen DD18-754 - Guttersen DD18-754 - Plan #1	17,018.82	17,462.94	2,689.10	2,510.88	15.089	CC, ES, SF
Guttersen DD18-765 - Guttersen DD18-765 - Plan #1	17,018.82	17,287.24	3,347.06	3,168.61	18.757	CC, ES, SF
Guttersen DD18-770 - Guttersen DD18-770 - Plan #1	17,018.82	17,473.14	3,681.85	3,502.97	20.582	CC, ES, SF
Guttersen DD18-775 - Guttersen DD18-775 - Plan #1	17,018.82	17,369.80	4,009.01	3,829.86	22.377	CC, ES, SF
Guttersen DD18-785 - Guttersen DD18-785 - Plan #1	17,018.82	17,360.03	4,670.47	4,490.54	25.958	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
DD Section 17						
Guttersten 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,711.20	3,226.03	3,140.16	37.567	CC, ES, SF
Guttersten State DD17-78HN - Original Drilling - Original D	17,018.82	6,713.73	1,042.92	937.34	9.878	CC, ES, SF
Guttersten State DD17-78HN - Original Drilling - ST01 - S	17,018.82	6,424.44	1,145.29	1,046.84	11.633	CC, ES, SF
Guttersten State DD17-79-1HN - Original Drilling - Original	17,018.82	6,401.00	883.40	788.83	9.341	CC, ES, SF
Guttersten State DD17-79HN - Original Drilling - Original D	17,018.82	6,448.00	665.92	579.07	7.668	CC, ES, SF
Guttersten USX DD17-19 - Original Drilling - Original Dri	17,018.82	6,664.28	4,624.46	4,563.05	75.309	CC, ES, SF
DD Section 18						
Guttersten 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,703.48	1,801.78	1,722.31	22.672	CC, ES, SF
Guttersten 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,685.99	3,053.43	2,946.11	28.451	CC, ES, SF
Guttersten 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,675.90	2,770.84	2,690.03	34.289	CC, ES, SF
Guttersten 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,663.79	1,899.12	1,796.15	18.443	CC, ES, SF
Guttersten 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,686.91	2,264.98	2,206.48	38.721	CC, ES, SF
Guttersten 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,018.82	6,668.56	933.99	866.90	13.923	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,018.82	6,622.65	3,824.44	3,723.52	37.896	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,018.82	6,647.81	5,008.29	4,901.35	46.832	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dri	17,018.82	6,763.79	4,588.90	4,478.88	41.708	CC, ES, SF
SPIKE STATE GWS DD #18-1J(PA) - SPIKE STATE GW	17,018.82	6,663.82	4,290.26	4,122.06	25.507	CC, ES, SF
DD Section 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,508.03	6,710.40	737.93	639.09	7.466	CC, ES, SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	12,915.45	6,659.00	3,372.51	3,183.65	17.857	CC, ES
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,300.00	6,659.00	3,394.36	3,203.07	17.745	SF
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,508.93	6,665.66	1,657.26	1,550.75	15.560	CC, ES
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,600.00	6,662.43	1,659.75	1,552.73	15.508	SF
Guttersten 44-19 (SI) - Wellbore #1 - No Surveys	12,642.46	6,704.00	341.69	153.95	1.820	CC, ES, SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,317.76	6,688.85	1,210.61	1,105.57	11.526	CC, ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,400.00	6,686.34	1,213.40	1,107.79	11.490	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,205.19	6,703.98	1,597.19	1,516.10	19.695	CC, ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,400.00	6,705.68	1,609.03	1,526.68	19.538	SF

**Noble Energy, Inc.**  
Anticollision Summary Report

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersen State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersen State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersen State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	10,916.59	6,852.94	3,928.99	3,863.84	60.305	CC, ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro S	12,000.00	6,866.80	4,075.60	4,003.95	56.881	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	7,971.50	6,736.01	1,651.60	1,491.04	10.287	CC, ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,000.00	6,736.01	1,651.84	1,491.20	10.283	SF
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	9,999.32	6,922.76	4,859.37	4,770.48	54.666	CC
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,000.00	6,922.74	4,859.37	4,770.48	54.664	ES
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,882.65	5,030.28	4,934.19	52.349	SF
Guttersen Federal YY5-715 - Guttersen Federal YY5-715	2,977.56	2,500.00	4,852.20	4,833.35	257.349	CC
Guttersen Federal YY5-715 - Guttersen Federal YY5-715	3,000.00	2,500.00	4,852.26	4,833.33	256.394	ES
Guttersen Federal YY5-715 - Guttersen Federal YY5-715	9,900.00	5,708.73	5,843.11	5,788.98	107.944	SF
Guttersen Federal YY5-725 - Guttersen Federal YY5-725	7,113.78	6,275.85	4,585.91	4,539.86	99.596	CC, ES
Guttersen Federal YY5-725 - Guttersen Federal YY5-725	9,000.00	6,159.21	4,953.73	4,902.54	96.770	SF
Guttersen Federal YY5-735 - Guttersen Federal YY5-735	6,846.55	7,031.94	4,047.48	3,999.74	84.781	CC
Guttersen Federal YY5-735 - Guttersen Federal YY5-735	6,850.00	7,030.14	4,047.48	3,999.74	84.777	ES
Guttersen Federal YY5-735 - Guttersen Federal YY5-735	6,950.00	6,978.11	4,049.39	4,001.60	84.724	SF
Guttersen Federal YY5-745 - Guttersen Federal YY5-745	6,871.03	7,030.13	3,390.58	3,342.04	69.859	CC, ES
Guttersen Federal YY5-745 - Guttersen Federal YY5-745	6,950.00	7,000.00	3,391.91	3,343.33	69.829	SF
Guttersen Federal YY5-755 - Guttersen Federal YY5-755	7,000.00	6,561.54	2,712.12	2,665.31	57.933	SF
Guttersen Federal YY5-755 - Guttersen Federal YY5-755	7,009.03	6,558.10	2,712.11	2,665.29	57.933	CC, ES
Guttersen Federal YY5-765 - Guttersen Federal YY5-765	6,816.82	6,823.75	2,087.69	2,040.33	44.087	CC, ES
Guttersen Federal YY5-765 - Guttersen Federal YY5-765	6,850.00	6,810.03	2,087.97	2,040.60	44.077	SF
Guttersen Federal YY5-775 - Guttersen Federal YY5-775	6,815.47	7,010.07	1,444.18	1,395.56	29.700	CC, ES
Guttersen Federal YY5-775 - Guttersen Federal YY5-775	6,850.00	7,000.00	1,444.65	1,396.00	29.694	SF
Guttersen Federal YY5-785 - Guttersen Federal YY5-785	6,738.85	7,173.32	800.44	750.63	16.068	CC, ES, SF
Guttersen State DD29-715 - Wellbore #1 - Plan #1	2,992.68	2,465.15	4,858.03	4,839.32	259.670	CC
Guttersen State DD29-715 - Wellbore #1 - Plan #1	3,000.00	2,468.54	4,858.03	4,839.29	259.180	ES
Guttersen State DD29-715 - Wellbore #1 - Plan #1	17,018.82	17,385.70	5,322.66	5,146.55	30.222	SF
Guttersen State DD29-725 - Wellbore #1 - Plan #1	7,376.62	7,569.16	4,639.95	4,590.60	94.019	CC
Guttersen State DD29-725 - Wellbore #1 - Plan #1	17,018.82	17,198.06	4,663.89	4,487.37	26.421	ES, SF
Guttersen State DD29-735 - Wellbore #1 - Plan #1	6,959.11	7,124.07	3,997.53	3,949.26	82.819	CC
Guttersen State DD29-735 - Wellbore #1 - Plan #1	17,018.82	17,336.04	4,002.72	3,826.16	22.671	ES, SF
Guttersen State DD29-745 - Wellbore #1 - Plan #1	7,161.34	7,482.77	3,336.49	3,287.45	68.039	CC
Guttersen State DD29-745 - Wellbore #1 - Plan #1	17,018.82	17,340.01	3,343.71	3,167.74	19.002	ES, SF
Guttersen State DD29-755 - Wellbore #1 - Plan #1	7,157.32	7,495.65	2,641.92	2,592.93	53.927	CC
Guttersen State DD29-755 - Wellbore #1 - Plan #1	17,018.82	17,356.89	2,660.33	2,483.72	15.063	ES, SF
Guttersen State DD29-765 - Wellbore #1 - Plan #1	7,157.18	7,526.74	1,981.94	1,932.81	40.341	CC
Guttersen State DD29-765 - Wellbore #1 - Plan #1	17,018.82	17,388.13	2,000.28	1,823.80	11.334	ES, SF
Guttersen State DD29-775 - Wellbore #1 - Plan #1	7,156.74	7,637.54	1,321.99	1,272.23	26.564	CC
Guttersen State DD29-775 - Wellbore #1 - Plan #1	17,018.82	17,499.37	1,340.22	1,164.10	7.610	ES, SF
Guttersen State DD29-785 - Wellbore #1 - Plan #1	7,159.01	7,861.26	662.12	611.03	12.960	CC
Guttersen State DD29-785 - Wellbore #1 - Plan #1	17,018.82	17,720.81	681.24	504.83	3.862	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	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	11,314.16	6,667.60	4,395.83	4,328.54	65.330	CC, ES
Guttersten 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,500.00	6,649.82	4,552.94	4,478.98	61.565	SF
Guttersten 12-30 (PR) - Wellbore #1 - Gyro Surveys	9,897.77	6,640.87	4,482.81	4,424.82	77.302	CC
Guttersten 12-30 (PR) - Wellbore #1 - Gyro Surveys	9,900.00	6,640.79	4,482.81	4,424.81	77.285	ES
Guttersten 12-30 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	6,591.31	4,696.65	4,631.45	72.038	SF
Guttersten 22-30 (PR) - Wellbore #1 - Gyro Surveys	9,961.90	6,771.84	3,071.21	3,012.27	52.109	CC, ES
Guttersten 22-30 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	11,400.00	3,391.12	3,309.89	41.749	SF
Guttersten 30 A (PR) - Wellbore #1 - Gyro Surveys	10,593.42	6,699.83	3,670.31	3,607.70	58.622	CC
Guttersten 30 A (PR) - Wellbore #1 - Gyro Surveys	10,600.00	6,699.85	3,670.31	3,607.66	58.584	ES
Guttersten 30 A (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,703.62	3,780.61	3,713.08	55.979	SF
Guttersten State DD30-725 - Guttersten State DD30-725 -	2,200.00	2,200.00	37.00	21.70	2.417	CC, ES, SF
Guttersten State DD30-735 - Guttersten State DD30-735 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES, SF
Guttersten State DD30-745 - Guttersten State DD30-745 -	2,200.00	2,200.00	112.02	96.71	7.318	CC, ES
Guttersten State DD30-745 - Guttersten State DD30-745 -	2,300.00	2,294.96	115.68	99.71	7.247	SF
Guttersten State DD30-755 - Guttersten State DD30-755 -	2,200.00	2,170.00	1,950.09	1,934.89	128.302	CC, ES
Guttersten State DD30-755 - Guttersten State DD30-755 -	17,018.82	16,672.17	2,697.48	2,524.18	15.565	SF
Guttersten State DD30-766 - Guttersten State DD30-766 -	2,100.00	2,070.00	1,987.08	1,972.60	137.208	CC, ES
Guttersten State DD30-766 - Guttersten State DD30-766 -	17,018.82	16,747.49	3,407.57	3,234.64	19.704	SF
Guttersten State DD30-775 - Guttersten State DD30-775 -	2,000.00	1,971.00	2,025.08	2,011.31	147.076	CC, ES
Guttersten State DD30-775 - Guttersten State DD30-775 -	17,018.82	16,877.58	4,017.82	3,844.73	23.211	SF
Guttersten State DD30-785 - Guttersten State DD30-785 -	2,000.00	1,971.00	2,062.06	2,048.29	149.762	CC, ES
Guttersten State DD30-785 - Guttersten State DD30-785 -	17,018.82	17,131.52	4,658.03	4,484.70	26.873	SF
Guttersten YY06-756 - Guttersten YY06-756 - Plan #1	2,200.00	2,167.00	1,951.44	1,936.25	128.482	CC, ES
Guttersten YY06-756 - Guttersten YY06-756 - Plan #1	7,000.00	6,184.06	2,786.48	2,741.84	62.428	SF
Guttersten YY06-766 - Guttersten YY06-766 - Plan #1	2,200.00	2,167.00	1,989.38	1,974.19	130.980	CC, ES
Guttersten YY06-766 - Guttersten YY06-766 - Plan #1	7,500.00	6,013.38	3,326.96	3,281.94	73.904	SF
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	2,100.00	2,068.00	2,026.37	2,011.90	139.990	CC
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	2,200.00	2,140.29	2,026.84	2,011.75	134.341	ES
Guttersten YY06-775 - Guttersten YY06-775 - Plan #1	8,100.00	5,423.65	3,945.83	3,902.25	90.546	SF
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	2,000.00	1,968.00	2,064.31	2,050.55	150.043	CC
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	2,100.00	2,039.70	2,064.77	2,050.41	143.700	ES
Guttersten YY06-785 - Guttersten YY06-785 - Plan #1	9,000.00	4,907.17	4,513.10	4,468.94	102.197	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	2,200.00	2,123.00	4,359.98	4,309.86	87.002	CC
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	2,300.00	2,222.95	4,362.13	4,309.68	83.161	ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,400.00	6,650.00	4,575.90	4,411.03	27.756	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	2,200.00	2,129.00	2,538.68	2,488.44	50.538	CC
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	2,300.00	2,228.95	2,540.22	2,487.65	48.317	ES
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,400.00	6,656.00	3,025.61	2,868.01	19.197	SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	2,200.00	2,128.00	3,069.89	3,019.67	61.137	CC
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	2,300.00	2,227.95	3,072.00	3,019.45	58.454	ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,500.00	6,655.00	3,377.41	3,216.63	21.007	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	10,965.15	6,614.82	3,082.08	3,017.44	47.678	CC
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,000.00	6,614.32	3,082.28	3,017.41	47.519	ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,600.00	3,146.77	3,078.71	46.234	SF
State 19 (PA) - Wellbore #1 - NO Surveys	10,599.99	6,706.00	860.71	687.24	4.962	CC
State 19 (PA) - Wellbore #1 - NO Surveys	10,600.00	6,706.00	860.71	687.24	4.962	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

<b>Company:</b>	Northern Region - DJ Basin	<b>Local Co-ordinate Reference:</b>	Well Guttersten State DD30-715
<b>Project:</b>	Mustang	<b>TVD Reference:</b>	KB @ 4853.00ft
<b>Reference Site:</b>	DD Section 30	<b>MD Reference:</b>	KB @ 4853.00ft
<b>Site Error:</b>	0.00 ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Guttersten State DD30-715	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Guttersten State DD30-715	<b>Database:</b>	EDMP
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
DD Section 31						
Guttersten 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,389.88	10,956.00	1,812.51	1,707.03	17.183	CC
Guttersten 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,400.00	10,956.00	1,812.56	1,707.00	17.170	ES
Guttersten 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,450.00	10,956.00	1,814.18	1,708.30	17.135	SF
Guttersten 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,490.33	11,132.00	2,130.04	2,023.72	20.035	CC
Guttersten 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,500.00	11,132.00	2,130.08	2,023.69	20.021	ES
Guttersten 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,600.00	11,132.00	2,135.05	2,028.09	19.961	SF
Guttersten 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,473.35	11,048.00	1,229.10	1,130.08	12.412	CC, ES
Guttersten 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,500.00	11,048.00	1,229.62	1,130.47	12.402	SF
Guttersten 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,511.58	11,127.00	1,563.36	1,461.16	15.296	CC, ES
Guttersten 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,550.00	11,127.00	1,564.23	1,461.81	15.273	SF
Guttersten 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,134.30	6,038.71	3,470.89	3,428.07	81.062	CC, ES
Guttersten 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,450.00	6,312.69	3,540.14	3,495.39	79.111	SF
YY Section 06						
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,163.72	6,132.21	9,502.09	9,245.28	37.000	CC
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,200.00	6,168.25	9,503.13	9,244.75	36.779	ES
Cuykendall #2-6 (PA) - Wellbore #1 - No Surveys	6,500.00	6,548.38	9,588.77	9,314.34	34.942	SF
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,172.39	6,290.39	9,092.03	9,048.36	208.181	CC, ES
Guttersten #6D South (PA) - Wellbore #1 - As-Drilled	6,700.00	6,796.13	9,295.80	9,249.10	199.056	SF
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,121.62	5,881.00	5,556.31	5,513.43	129.572	CC, ES
Guttersten 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,350.00	5,913.00	5,597.96	5,554.24	128.021	SF
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,130.84	5,913.00	5,452.47	5,410.11	128.717	CC, ES
Guttersten 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,400.00	6,010.00	5,509.61	5,466.07	126.529	SF
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,131.16	5,897.57	5,357.89	5,314.71	124.084	CC, ES
Guttersten 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,400.00	5,946.00	5,417.48	5,373.32	122.690	SF
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,128.13	5,867.90	5,297.79	5,252.88	117.970	CC, ES
Guttersten 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,350.00	6,010.00	5,336.40	5,290.31	115.775	SF
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,153.84	6,102.30	6,037.08	5,994.09	140.422	CC, ES
Guttersten 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,433.58	6,153.67	6,108.41	135.961	SF
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,154.31	6,100.00	7,282.55	7,239.57	169.448	CC, ES
Guttersten 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	7,035.89	7,605.27	7,555.74	153.579	SF
J.H. Cuykendall 1 (PA) - Wellbore #1 - Gyro Surveys						Out of range