

Project: Mustang
 Site: DD Section 30
 Well: Gutteresen State DD30-775
 Wellbore: Gutteresen State DD30-775
 Design: Plan #1

Northern Region - DJ Basin

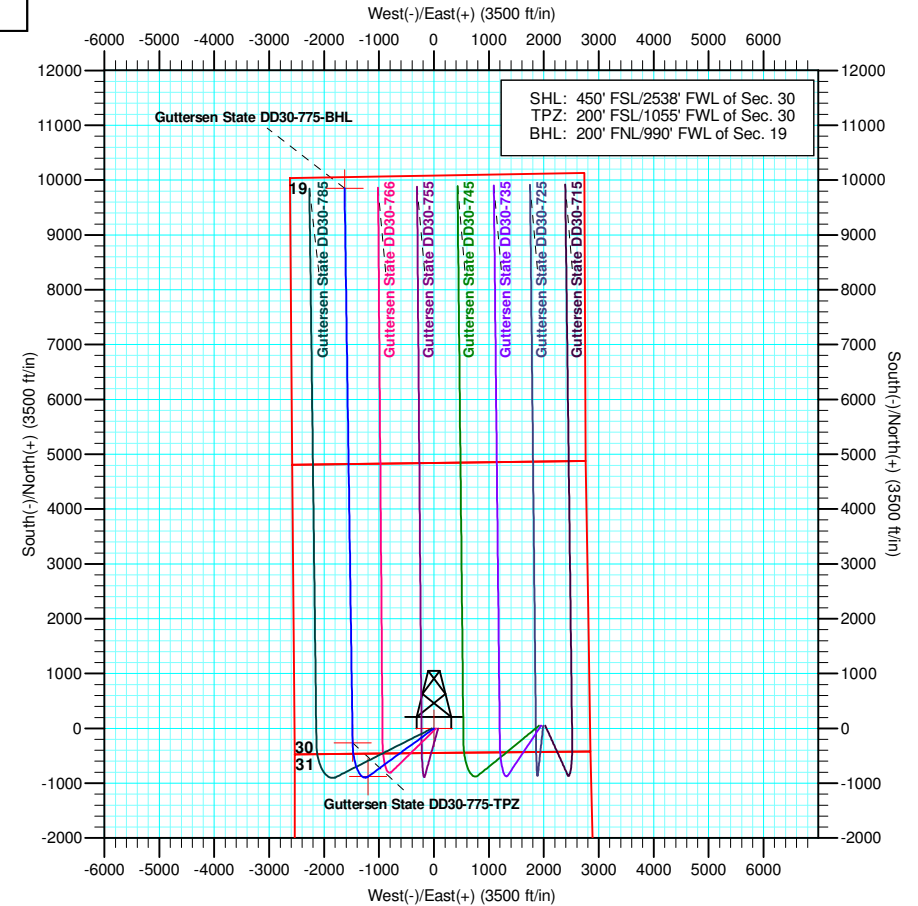
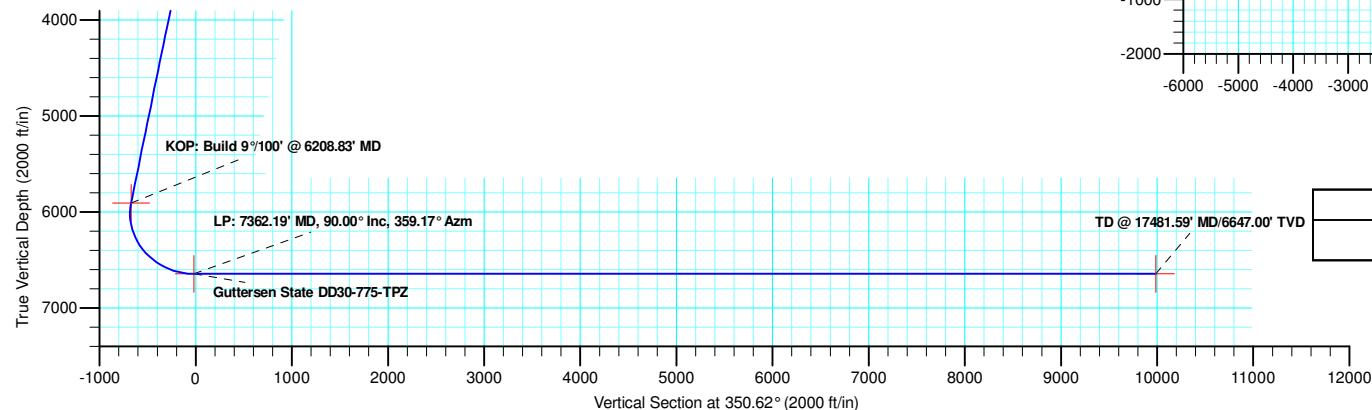
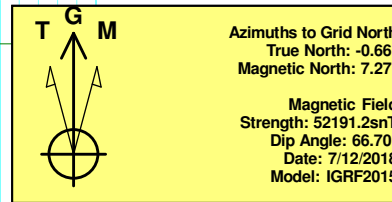
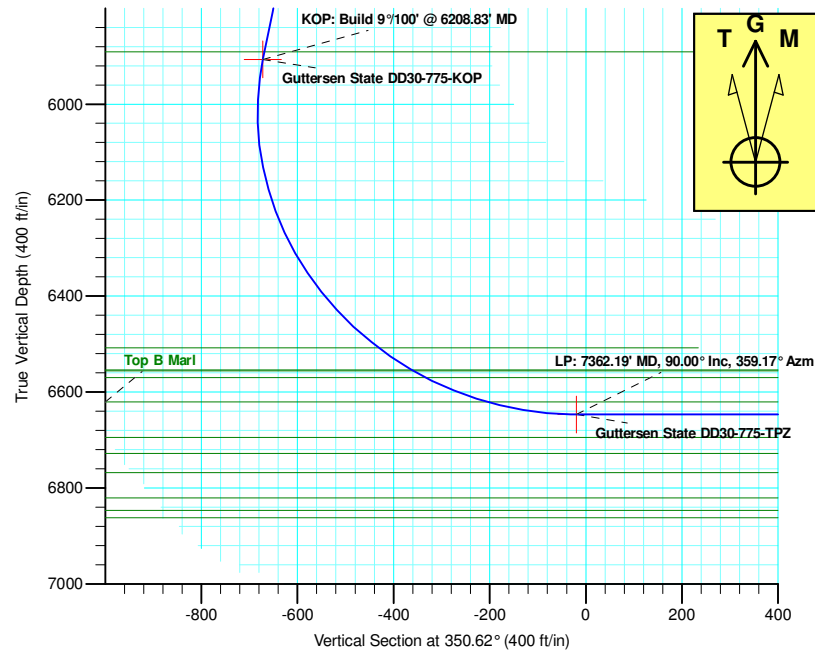
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	
3	3215.92	24.32	233.77	3179.74	-150.25	-205.03	2.00	233.77	-114.83	
4	6208.83	24.32	233.77	5907.10	-878.77	-1199.17	0.00	0.00	-671.64	
5	7362.19	90.00	359.17	6647.00	-264.55	-1480.64	9.00	122.93	-19.76	Gutteresen State DD30-775-TPZ
6	17481.59	90.00	359.17	6647.00	9853.79	-1627.28	0.00	0.00	9987.25	Gutteresen State DD30-775-BHL

WELL DETAILS: Gutteresen State DD30-775

+N/-S	+E/-W	Northing	Ground Level: Easting	4794.00 Latitude	Longitude	Slot
0.00	0.00	1313834.25	3284597.70	40.1903838	-104.4812706	



Plan: Plan #1 (Gutteresen State DD30-775/Gutteresen State DD30-775)

Created By: Keith Noack Date: 12:21, August 28 2018

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-775

Guttersen State DD30-775

Plan: Plan #1

Standard Planning Report

28 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4824.00ft
Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Project	Mustang, Weld County Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	DD Section 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 DD30-775					
Well Position	+N/-S	-2,178.89 ft	Northing:	1,313,834.25 usft	Latitude:	40.1903838
	+E/-W	-149.45 ft	Easting:	3,284,597.71 usft	Longitude:	-104.4812705
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,794.00 ft

Wellbore	Guttersen State DD30-775				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/12/2018	7.93	66.70	52,191.18342393

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	350.62

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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,215.92	24.32	233.77	3,179.74	-150.25	-205.03	2.00	2.00	0.00	233.77	
6,208.83	24.32	233.77	5,907.10	-878.77	-1,199.17	0.00	0.00	0.00	0.00	
7,362.19	90.00	359.17	6,647.00	-264.55	-1,480.64	9.00	5.69	10.87	122.93	Guttersen State DD
17,481.59	90.00	359.17	6,647.00	9,853.79	-1,627.28	0.00	0.00	0.00	0.00	Guttersen State DD

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4824.00ft
Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
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
613.00	0.00	0.00	613.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
687.00	0.00	0.00	687.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
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
1,624.00	0.00	0.00	1,624.00	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
Build: 2°/100'									
2,100.00	2.00	233.77	2,099.98	-1.03	-1.41	-0.79	2.00	2.00	0.00
2,200.00	4.00	233.77	2,199.84	-4.12	-5.63	-3.15	2.00	2.00	0.00
2,300.00	6.00	233.77	2,299.45	-9.28	-12.66	-7.09	2.00	2.00	0.00
2,400.00	8.00	233.77	2,398.70	-16.48	-22.49	-12.60	2.00	2.00	0.00
2,500.00	10.00	233.77	2,497.47	-25.73	-35.11	-19.66	2.00	2.00	0.00
2,600.00	12.00	233.77	2,595.62	-37.00	-50.50	-28.28	2.00	2.00	0.00
2,700.00	14.00	233.77	2,693.06	-50.30	-68.64	-38.44	2.00	2.00	0.00
2,800.00	16.00	233.77	2,789.64	-65.60	-89.51	-50.14	2.00	2.00	0.00
2,900.00	18.00	233.77	2,885.27	-82.88	-113.10	-63.34	2.00	2.00	0.00
3,000.00	20.00	233.77	2,979.82	-102.12	-139.36	-78.05	2.00	2.00	0.00
3,100.00	22.00	233.77	3,073.17	-123.30	-168.26	-94.24	2.00	2.00	0.00
3,200.00	24.00	233.77	3,165.21	-146.40	-199.78	-111.89	2.00	2.00	0.00
3,215.92	24.32	233.77	3,179.74	-150.25	-205.03	-114.83	2.00	2.00	0.00
Hold: 24.32° Inc, 233.77° Azm									
3,300.00	24.32	233.77	3,256.36	-170.72	-232.96	-130.48	0.00	0.00	0.00
3,400.00	24.32	233.77	3,347.49	-195.06	-266.18	-149.08	0.00	0.00	0.00
3,500.00	24.32	233.77	3,438.61	-219.40	-299.39	-167.69	0.00	0.00	0.00
3,600.00	24.32	233.77	3,529.74	-243.74	-332.61	-186.29	0.00	0.00	0.00
3,694.66	24.32	233.77	3,616.00	-266.78	-364.05	-203.90	0.00	0.00	0.00
Parkman									
3,700.00	24.32	233.77	3,620.87	-268.08	-365.83	-204.89	0.00	0.00	0.00
3,800.00	24.32	233.77	3,712.00	-292.42	-399.04	-223.50	0.00	0.00	0.00
3,900.00	24.32	233.77	3,803.12	-316.76	-432.26	-242.10	0.00	0.00	0.00
4,000.00	24.32	233.77	3,894.25	-341.11	-465.47	-260.71	0.00	0.00	0.00
4,100.00	24.32	233.77	3,985.38	-365.45	-498.69	-279.31	0.00	0.00	0.00

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Project:	Mustang	MD Reference:	KB @ 4824.00ft
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Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,157.75	24.32	233.77	4,038.00	-379.50	-517.87	-290.05	0.00	0.00	0.00
Sussex									
4,200.00	24.32	233.77	4,076.50	-389.79	-531.91	-297.91	0.00	0.00	0.00
4,300.00	24.32	233.77	4,167.63	-414.13	-565.12	-316.52	0.00	0.00	0.00
4,360.76	24.32	233.77	4,223.00	-428.92	-585.31	-327.82	0.00	0.00	0.00
Shannon									
4,400.00	24.32	233.77	4,258.76	-438.47	-598.34	-335.12	0.00	0.00	0.00
4,500.00	24.32	233.77	4,349.89	-462.81	-631.56	-353.73	0.00	0.00	0.00
4,600.00	24.32	233.77	4,441.01	-487.16	-664.77	-372.33	0.00	0.00	0.00
4,700.00	24.32	233.77	4,532.14	-511.50	-697.99	-390.93	0.00	0.00	0.00
4,800.00	24.32	233.77	4,623.27	-535.84	-731.21	-409.54	0.00	0.00	0.00
4,900.00	24.32	233.77	4,714.39	-560.18	-764.42	-428.14	0.00	0.00	0.00
5,000.00	24.32	233.77	4,805.52	-584.52	-797.64	-446.75	0.00	0.00	0.00
5,100.00	24.32	233.77	4,896.65	-608.86	-830.86	-465.35	0.00	0.00	0.00
5,200.00	24.32	233.77	4,987.78	-633.20	-864.07	-483.95	0.00	0.00	0.00
5,300.00	24.32	233.77	5,078.90	-657.55	-897.29	-502.56	0.00	0.00	0.00
5,400.00	24.32	233.77	5,170.03	-681.89	-930.51	-521.16	0.00	0.00	0.00
5,500.00	24.32	233.77	5,261.16	-706.23	-963.72	-539.77	0.00	0.00	0.00
5,600.00	24.32	233.77	5,352.28	-730.57	-996.94	-558.37	0.00	0.00	0.00
5,700.00	24.32	233.77	5,443.41	-754.91	-1,030.16	-576.97	0.00	0.00	0.00
5,800.00	24.32	233.77	5,534.54	-779.25	-1,063.37	-595.58	0.00	0.00	0.00
5,900.00	24.32	233.77	5,625.67	-803.59	-1,096.59	-614.18	0.00	0.00	0.00
6,000.00	24.32	233.77	5,716.79	-827.94	-1,129.80	-632.79	0.00	0.00	0.00
6,100.00	24.32	233.77	5,807.92	-852.28	-1,163.02	-651.39	0.00	0.00	0.00
6,191.17	24.32	233.77	5,891.00	-874.47	-1,193.30	-668.35	0.00	0.00	0.00
Teepee Buttes									
6,208.83	24.32	233.77	5,907.10	-878.77	-1,199.17	-671.64	0.00	0.00	0.00
KOP: Build 9°/100' @ 6208.83' MD									
6,250.00	22.51	241.91	5,944.88	-887.49	-1,212.96	-678.00	9.00	-4.40	19.79
6,300.00	20.95	253.34	5,991.35	-894.56	-1,229.98	-682.20	9.00	-3.11	22.86
6,350.00	20.25	266.00	6,038.18	-897.73	-1,247.18	-682.53	9.00	-1.40	25.32
6,400.00	20.49	278.93	6,085.07	-896.98	-1,264.47	-678.96	9.00	0.49	25.87
6,450.00	21.65	291.05	6,131.75	-892.30	-1,281.73	-671.54	9.00	2.31	24.24
6,500.00	23.58	301.64	6,177.92	-883.74	-1,298.87	-660.30	9.00	3.87	21.17
6,550.00	26.13	310.49	6,223.30	-871.34	-1,315.76	-645.31	9.00	5.08	17.71
6,600.00	29.11	317.76	6,267.61	-855.18	-1,332.32	-626.67	9.00	5.98	14.54
6,650.00	32.42	323.73	6,310.58	-835.35	-1,348.44	-604.48	9.00	6.62	11.93
6,700.00	35.97	328.67	6,351.94	-811.99	-1,364.01	-578.90	9.00	7.09	9.88
6,750.00	39.68	332.82	6,391.43	-785.24	-1,378.95	-550.06	9.00	7.43	8.29
6,800.00	43.52	336.35	6,428.82	-755.25	-1,393.15	-518.16	9.00	7.68	7.07
6,850.00	47.46	339.41	6,463.86	-722.22	-1,406.54	-483.39	9.00	7.87	6.13
6,900.00	51.47	342.11	6,496.36	-686.34	-1,419.03	-445.96	9.00	8.01	5.39
6,919.01	53.01	343.06	6,508.00	-672.00	-1,423.53	-431.08	9.00	8.09	4.98
Sharon Springs									
6,950.00	55.53	344.52	6,526.10	-647.85	-1,430.54	-406.11	9.00	8.14	4.72
7,000.00	59.63	346.71	6,552.90	-606.98	-1,441.01	-364.07	9.00	8.21	4.37
7,002.19	59.81	346.80	6,554.00	-605.14	-1,441.44	-362.19	9.00	8.25	4.17
Top A Chalk									
7,006.18	60.14	346.96	6,556.00	-601.77	-1,442.23	-358.74	9.00	8.25	4.15
Top A Marl									
7,035.39	62.56	348.14	6,570.00	-576.75	-1,447.75	-333.15	9.00	8.27	4.04
Top B Chalk									
7,050.00	63.77	348.71	6,576.60	-563.97	-1,450.36	-320.12	9.00	8.30	3.91

Noble Energy, Inc.

Planning Report

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Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,100.00	67.94	350.58	6,597.05	-519.10	-1,458.55	-274.51	9.00	8.33	3.74
7,150.00	72.12	352.35	6,614.12	-472.64	-1,465.51	-227.54	9.00	8.37	3.52
7,173.68	74.11	353.15	6,621.00	-450.16	-1,468.37	-204.89	9.00	8.39	3.40
Top B Marl									
7,200.00	76.32	354.03	6,627.72	-424.87	-1,471.21	-179.48	9.00	8.41	3.33
7,250.00	80.53	355.65	6,637.75	-376.10	-1,475.61	-130.64	9.00	8.42	3.24
7,300.00	84.75	357.23	6,644.15	-326.62	-1,478.69	-81.32	9.00	8.44	3.16
7,350.00	88.97	358.79	6,646.89	-276.74	-1,480.42	-31.83	9.00	8.44	3.12
7,362.19	90.00	359.17	6,647.00	-264.55	-1,480.64	-19.76	9.00	8.45	3.11
LP: 7362.19' MD, 90.00° Inc, 359.17° Azm									
7,400.00	90.00	359.17	6,647.00	-226.74	-1,481.19	17.62	0.00	0.00	0.00
7,500.00	90.00	359.17	6,647.00	-126.75	-1,482.63	116.51	0.00	0.00	0.00
7,600.00	90.00	359.17	6,647.00	-26.76	-1,484.08	215.40	0.00	0.00	0.00
7,700.00	90.00	359.17	6,647.00	73.22	-1,485.53	314.29	0.00	0.00	0.00
7,800.00	90.00	359.17	6,647.00	173.21	-1,486.98	413.18	0.00	0.00	0.00
7,900.00	90.00	359.17	6,647.00	273.20	-1,488.43	512.07	0.00	0.00	0.00
8,000.00	90.00	359.17	6,647.00	373.19	-1,489.88	610.96	0.00	0.00	0.00
8,100.00	90.00	359.17	6,647.00	473.18	-1,491.33	709.85	0.00	0.00	0.00
8,200.00	90.00	359.17	6,647.00	573.17	-1,492.78	808.74	0.00	0.00	0.00
8,300.00	90.00	359.17	6,647.00	673.16	-1,494.23	907.63	0.00	0.00	0.00
8,400.00	90.00	359.17	6,647.00	773.15	-1,495.68	1,006.52	0.00	0.00	0.00
8,500.00	90.00	359.17	6,647.00	873.14	-1,497.13	1,105.41	0.00	0.00	0.00
8,600.00	90.00	359.17	6,647.00	973.13	-1,498.57	1,204.30	0.00	0.00	0.00
8,700.00	90.00	359.17	6,647.00	1,073.12	-1,500.02	1,303.19	0.00	0.00	0.00
8,800.00	90.00	359.17	6,647.00	1,173.11	-1,501.47	1,402.08	0.00	0.00	0.00
8,900.00	90.00	359.17	6,647.00	1,273.10	-1,502.92	1,500.97	0.00	0.00	0.00
9,000.00	90.00	359.17	6,647.00	1,373.09	-1,504.37	1,599.85	0.00	0.00	0.00
9,100.00	90.00	359.17	6,647.00	1,473.08	-1,505.82	1,698.74	0.00	0.00	0.00
9,200.00	90.00	359.17	6,647.00	1,573.07	-1,507.27	1,797.63	0.00	0.00	0.00
9,300.00	90.00	359.17	6,647.00	1,673.06	-1,508.72	1,896.52	0.00	0.00	0.00
9,400.00	90.00	359.17	6,647.00	1,773.05	-1,510.17	1,995.41	0.00	0.00	0.00
9,500.00	90.00	359.17	6,647.00	1,873.04	-1,511.62	2,094.30	0.00	0.00	0.00
9,600.00	90.00	359.17	6,647.00	1,973.03	-1,513.07	2,193.19	0.00	0.00	0.00
9,700.00	90.00	359.17	6,647.00	2,073.01	-1,514.51	2,292.08	0.00	0.00	0.00
9,800.00	90.00	359.17	6,647.00	2,173.00	-1,515.96	2,390.97	0.00	0.00	0.00
9,900.00	90.00	359.17	6,647.00	2,272.99	-1,517.41	2,489.86	0.00	0.00	0.00
10,000.00	90.00	359.17	6,647.00	2,372.98	-1,518.86	2,588.75	0.00	0.00	0.00
10,100.00	90.00	359.17	6,647.00	2,472.97	-1,520.31	2,687.64	0.00	0.00	0.00
10,200.00	90.00	359.17	6,647.00	2,572.96	-1,521.76	2,786.53	0.00	0.00	0.00
10,300.00	90.00	359.17	6,647.00	2,672.95	-1,523.21	2,885.42	0.00	0.00	0.00
10,400.00	90.00	359.17	6,647.00	2,772.94	-1,524.66	2,984.31	0.00	0.00	0.00
10,500.00	90.00	359.17	6,647.00	2,872.93	-1,526.11	3,083.20	0.00	0.00	0.00
10,600.00	90.00	359.17	6,647.00	2,972.92	-1,527.56	3,182.09	0.00	0.00	0.00
10,700.00	90.00	359.17	6,647.00	3,072.91	-1,529.01	3,280.97	0.00	0.00	0.00
10,800.00	90.00	359.17	6,647.00	3,172.90	-1,530.45	3,379.86	0.00	0.00	0.00
10,900.00	90.00	359.17	6,647.00	3,272.89	-1,531.90	3,478.75	0.00	0.00	0.00
11,000.00	90.00	359.17	6,647.00	3,372.88	-1,533.35	3,577.64	0.00	0.00	0.00
11,100.00	90.00	359.17	6,647.00	3,472.87	-1,534.80	3,676.53	0.00	0.00	0.00
11,200.00	90.00	359.17	6,647.00	3,572.86	-1,536.25	3,775.42	0.00	0.00	0.00
11,300.00	90.00	359.17	6,647.00	3,672.85	-1,537.70	3,874.31	0.00	0.00	0.00
11,400.00	90.00	359.17	6,647.00	3,772.84	-1,539.15	3,973.20	0.00	0.00	0.00
11,500.00	90.00	359.17	6,647.00	3,872.83	-1,540.60	4,072.09	0.00	0.00	0.00
11,600.00	90.00	359.17	6,647.00	3,972.82	-1,542.05	4,170.98	0.00	0.00	0.00
11,700.00	90.00	359.17	6,647.00	4,072.80	-1,543.50	4,269.87	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4824.00ft
Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,800.00	90.00	359.17	6,647.00	4,172.79	-1,544.95	4,368.76	0.00	0.00	0.00
11,900.00	90.00	359.17	6,647.00	4,272.78	-1,546.39	4,467.65	0.00	0.00	0.00
12,000.00	90.00	359.17	6,647.00	4,372.77	-1,547.84	4,566.54	0.00	0.00	0.00
12,100.00	90.00	359.17	6,647.00	4,472.76	-1,549.29	4,665.43	0.00	0.00	0.00
12,200.00	90.00	359.17	6,647.00	4,572.75	-1,550.74	4,764.32	0.00	0.00	0.00
12,300.00	90.00	359.17	6,647.00	4,672.74	-1,552.19	4,863.21	0.00	0.00	0.00
12,400.00	90.00	359.17	6,647.00	4,772.73	-1,553.64	4,962.10	0.00	0.00	0.00
12,500.00	90.00	359.17	6,647.00	4,872.72	-1,555.09	5,060.98	0.00	0.00	0.00
12,600.00	90.00	359.17	6,647.00	4,972.71	-1,556.54	5,159.87	0.00	0.00	0.00
12,700.00	90.00	359.17	6,647.00	5,072.70	-1,557.99	5,258.76	0.00	0.00	0.00
12,800.00	90.00	359.17	6,647.00	5,172.69	-1,559.44	5,357.65	0.00	0.00	0.00
12,900.00	90.00	359.17	6,647.00	5,272.68	-1,560.89	5,456.54	0.00	0.00	0.00
13,000.00	90.00	359.17	6,647.00	5,372.67	-1,562.33	5,555.43	0.00	0.00	0.00
13,100.00	90.00	359.17	6,647.00	5,472.66	-1,563.78	5,654.32	0.00	0.00	0.00
13,200.00	90.00	359.17	6,647.00	5,572.65	-1,565.23	5,753.21	0.00	0.00	0.00
13,300.00	90.00	359.17	6,647.00	5,672.64	-1,566.68	5,852.10	0.00	0.00	0.00
13,400.00	90.00	359.17	6,647.00	5,772.63	-1,568.13	5,950.99	0.00	0.00	0.00
13,500.00	90.00	359.17	6,647.00	5,872.62	-1,569.58	6,049.88	0.00	0.00	0.00
13,600.00	90.00	359.17	6,647.00	5,972.61	-1,571.03	6,148.77	0.00	0.00	0.00
13,700.00	90.00	359.17	6,647.00	6,072.60	-1,572.48	6,247.66	0.00	0.00	0.00
13,800.00	90.00	359.17	6,647.00	6,172.58	-1,573.93	6,346.55	0.00	0.00	0.00
13,900.00	90.00	359.17	6,647.00	6,272.57	-1,575.38	6,445.44	0.00	0.00	0.00
14,000.00	90.00	359.17	6,647.00	6,372.56	-1,576.82	6,544.33	0.00	0.00	0.00
14,100.00	90.00	359.17	6,647.00	6,472.55	-1,578.27	6,643.22	0.00	0.00	0.00
14,200.00	90.00	359.17	6,647.00	6,572.54	-1,579.72	6,742.10	0.00	0.00	0.00
14,300.00	90.00	359.17	6,647.00	6,672.53	-1,581.17	6,840.99	0.00	0.00	0.00
14,400.00	90.00	359.17	6,647.00	6,772.52	-1,582.62	6,939.88	0.00	0.00	0.00
14,500.00	90.00	359.17	6,647.00	6,872.51	-1,584.07	7,038.77	0.00	0.00	0.00
14,600.00	90.00	359.17	6,647.00	6,972.50	-1,585.52	7,137.66	0.00	0.00	0.00
14,700.00	90.00	359.17	6,647.00	7,072.49	-1,586.97	7,236.55	0.00	0.00	0.00
14,800.00	90.00	359.17	6,647.00	7,172.48	-1,588.42	7,335.44	0.00	0.00	0.00
14,900.00	90.00	359.17	6,647.00	7,272.47	-1,589.87	7,434.33	0.00	0.00	0.00
15,000.00	90.00	359.17	6,647.00	7,372.46	-1,591.32	7,533.22	0.00	0.00	0.00
15,100.00	90.00	359.17	6,647.00	7,472.45	-1,592.76	7,632.11	0.00	0.00	0.00
15,200.00	90.00	359.17	6,647.00	7,572.44	-1,594.21	7,731.00	0.00	0.00	0.00
15,300.00	90.00	359.17	6,647.00	7,672.43	-1,595.66	7,829.89	0.00	0.00	0.00
15,400.00	90.00	359.17	6,647.00	7,772.42	-1,597.11	7,928.78	0.00	0.00	0.00
15,500.00	90.00	359.17	6,647.00	7,872.41	-1,598.56	8,027.67	0.00	0.00	0.00
15,600.00	90.00	359.17	6,647.00	7,972.40	-1,600.01	8,126.56	0.00	0.00	0.00
15,700.00	90.00	359.17	6,647.00	8,072.39	-1,601.46	8,225.45	0.00	0.00	0.00
15,800.00	90.00	359.17	6,647.00	8,172.37	-1,602.91	8,324.34	0.00	0.00	0.00
15,900.00	90.00	359.17	6,647.00	8,272.36	-1,604.36	8,423.22	0.00	0.00	0.00
16,000.00	90.00	359.17	6,647.00	8,372.35	-1,605.81	8,522.11	0.00	0.00	0.00
16,100.00	90.00	359.17	6,647.00	8,472.34	-1,607.26	8,621.00	0.00	0.00	0.00
16,200.00	90.00	359.17	6,647.00	8,572.33	-1,608.70	8,719.89	0.00	0.00	0.00
16,300.00	90.00	359.17	6,647.00	8,672.32	-1,610.15	8,818.78	0.00	0.00	0.00
16,400.00	90.00	359.17	6,647.00	8,772.31	-1,611.60	8,917.67	0.00	0.00	0.00
16,500.00	90.00	359.17	6,647.00	8,872.30	-1,613.05	9,016.56	0.00	0.00	0.00
16,600.00	90.00	359.17	6,647.00	8,972.29	-1,614.50	9,115.45	0.00	0.00	0.00
16,700.00	90.00	359.17	6,647.00	9,072.28	-1,615.95	9,214.34	0.00	0.00	0.00
16,800.00	90.00	359.17	6,647.00	9,172.27	-1,617.40	9,313.23	0.00	0.00	0.00
16,900.00	90.00	359.17	6,647.00	9,272.26	-1,618.85	9,412.12	0.00	0.00	0.00
17,000.00	90.00	359.17	6,647.00	9,372.25	-1,620.30	9,511.01	0.00	0.00	0.00
17,100.00	90.00	359.17	6,647.00	9,472.24	-1,621.75	9,609.90	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4824.00ft
Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,200.00	90.00	359.17	6,647.00	9,572.23	-1,623.20	9,708.79	0.00	0.00	0.00
17,300.00	90.00	359.17	6,647.00	9,672.22	-1,624.64	9,807.68	0.00	0.00	0.00
17,400.00	90.00	359.17	6,647.00	9,772.21	-1,626.09	9,906.57	0.00	0.00	0.00
17,481.59	90.00	359.17	6,647.00	9,853.79	-1,627.28	9,987.25	0.00	0.00	0.00
TD @ 17481.59' MD/6647.00' TVD									

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 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,313,834.25	3,284,597.71	40.1903838	-104.4812705
Guttersen State DD30 - plan hits target center - Point	0.00	0.00	5,907.09	-878.77	-1,199.17	1,312,955.48	3,283,398.54	40.1880094	-104.4855986
Guttersen State DD30 - plan hits target center - Point	0.00	0.00	6,647.00	-264.55	-1,480.64	1,313,569.70	3,283,117.07	40.1897042	-104.4865809
Guttersen State DD30 - plan misses target center by 0.59ft at 17481.50ft MD (6647.00 TVD, 9853.70 N, -1627.27 E) - Point	0.00	0.00	6,647.00	9,853.69	-1,627.87	1,323,687.92	3,282,969.84	40.2174827	-104.4866940

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
613.00	613.00	Pierre				
687.00	687.00	Upper Pierre Aquifer Top				
1,624.00	1,624.00	Upper Pierre Aquifer Base				
3,694.66	3,616.00	Parkman				
4,157.75	4,038.00	Sussex				
4,360.76	4,223.00	Shannon				
6,191.17	5,891.00	Teepee Buttes				
6,919.01	6,508.00	Sharon Springs				
7,002.19	6,554.00	Top A Chalk				
7,006.18	6,556.00	Top A Marl				
7,035.39	6,570.00	Top B Chalk				
7,173.68	6,621.00	Top B Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4824.00ft
Project:	Mustang	MD Reference:	KB @ 4824.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-775		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,000.00	2,000.00	0.00	0.00	Build: 2°/100'	
3,215.92	3,179.74	-150.25	-205.03	Hold: 24.32° Inc, 233.77° Azm	
6,208.83	5,907.10	-878.77	-1,199.17	KOP: Build 9°/100' @ 6208.83' MD	
7,362.19	6,647.00	-264.55	-1,480.64	LP: 7362.19' MD, 90.00° Inc, 359.17° Azm	
17,481.59	6,647.00	9,853.79	-1,627.28	TD @ 17481.59' MD/6647.00' TVD	

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-775

Guttersen State DD30-775

Plan #1

Anticollision Summary Report

28 August, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 10,000.00 ft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program		Date	8/20/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,481.59	Plan #1 (Gutttersen State DD30-775)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 24						
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	14,045.59	6,601.30	2,636.82	2,552.21	31.167	CC, ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	14,500.00	6,597.96	2,675.68	2,587.52	30.350	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,089.11	6,560.71	3,114.44	3,036.92	40.175	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,560.73	3,114.46	3,036.84	40.125	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,800.00	6,562.26	3,194.54	3,111.80	38.612	SF
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,252.43	6,595.33	1,970.72	1,869.22	19.416	CC, ES
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,500.00	6,594.34	1,986.21	1,882.61	19.172	SF
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,065.02	6,683.91	5,643.70	5,535.67	52.244	CC
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,100.00	6,683.94	5,643.80	5,535.47	52.096	ES
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,481.59	6,684.24	5,659.05	5,547.54	50.747	SF
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,768.43	6,639.68	5,670.50	5,572.66	57.954	CC
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,639.64	5,670.59	5,572.47	57.793	ES
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	17,400.00	6,637.93	5,900.56	5,791.39	54.052	SF
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,066.13	6,582.84	4,323.71	4,215.83	40.080	CC
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,100.00	6,582.90	4,323.84	4,215.66	39.967	ES
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,481.59	6,583.56	4,343.62	4,232.29	39.013	SF
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,836.96	6,586.44	4,284.57	4,186.30	43.600	CC
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,900.00	6,586.61	4,285.04	4,186.20	43.356	ES
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,589.01	4,391.47	4,286.21	41.722	SF
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,397.40	6,619.08	4,958.16	4,855.51	48.303	CC
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,619.10	4,958.16	4,855.49	48.292	ES
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	17,481.59	6,627.65	5,075.31	4,964.72	45.895	SF
Gutttersen 24J (PR) - Wellbore #1 - Gyro Surveys	17,481.59	6,590.92	4,861.41	4,750.61	43.875	CC, ES, SF
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,431.71	6,555.43	3,727.77	3,625.96	36.617	CC, ES
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	17,200.00	6,548.87	3,807.39	3,700.00	35.454	SF
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,924.40	6,603.62	2,280.68	2,190.38	25.258	CC, ES
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	15,300.00	6,601.26	2,311.40	2,218.13	24.783	SF
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,295.52	6,572.90	1,742.28	1,655.69	20.121	CC
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,572.88	1,742.28	1,655.64	20.110	ES
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,500.00	6,572.19	1,754.24	1,665.83	19.842	SF
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,056.47	6,599.92	1,681.86	1,604.61	21.772	CC, ES
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,300.00	6,600.06	1,699.40	1,620.09	21.428	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,589.37	6,600.89	5,625.72	5,536.96	63.386	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,600.00	6,600.93	5,625.73	5,536.88	63.321	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	16,300.00	6,606.63	5,880.04	5,779.43	58.440	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	13,049.03	6,588.00	4,074.25	3,888.06	21.882	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	13,100.00	6,588.00	4,074.57	3,887.95	21.834	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 Guttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 24						
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	13,700.00	6,588.00	4,125.93	3,934.72	21.578	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,573.62	6,535.62	4,208.03	4,113.30	44.421	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,600.00	6,535.88	4,208.12	4,113.15	44.312	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	15,600.00	6,545.89	4,331.39	4,229.22	42.394	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,103.36	6,554.18	2,999.46	2,891.31	27.734	CC, ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,481.59	6,558.50	3,023.21	2,911.98	27.180	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,670.29	6,676.86	3,003.25	2,906.32	30.984	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,700.00	6,676.78	3,003.39	2,906.18	30.896	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,675.44	3,049.60	2,948.64	30.205	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,647.45	6,582.96	1,695.42	1,598.60	17.511	CC, ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,800.00	6,581.44	1,702.27	1,604.02	17.325	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,479.29	6,751.09	5,295.51	5,214.85	65.654	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,500.00	6,751.27	5,295.55	5,214.72	65.514	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	15,200.00	6,765.22	5,568.04	5,475.60	60.239	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 25						
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	9,156.56	6,749.02	5,647.31	5,586.42	92.742	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	9,200.00	6,749.21	5,647.48	5,586.31	92.333	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	11,900.00	6,759.36	6,278.41	6,199.67	79.739	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	7,872.42	6,893.49	5,676.46	5,627.12	115.044	CC, ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	11,200.00	6,915.52	6,579.84	6,515.87	102.851	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	9,150.25	6,797.09	4,323.42	4,264.42	73.285	CC, ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	10,500.00	6,799.33	4,529.21	4,464.36	69.843	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,576.19	6,669.69	4,192.26	4,143.40	85.793	CC, ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	9,200.00	6,676.20	4,495.75	4,442.05	83.713	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	8,512.07	6,904.00	6,132.59	6,078.37	113.095	CC, ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	12,200.00	6,887.01	7,156.06	7,078.29	92.019	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	7,362.19	6,898.28	4,989.04	4,938.49	98.698	ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	7,363.66	6,898.32	4,989.04	4,938.49	98.699	CC
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	9,400.00	6,944.00	5,388.37	5,332.97	97.260	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,308.30	6,659.13	2,283.69	2,234.31	46.248	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,350.00	6,661.60	2,284.53	2,235.14	46.247	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,400.00	6,865.22	1,160.09	1,106.30	21.567	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,474.26	6,863.80	1,157.71	1,104.19	21.631	CC, ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,291.87	6,821.74	1,137.89	1,085.97	21.915	CC
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,300.00	6,822.85	1,137.94	1,085.95	21.889	ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,500.00	6,833.70	1,163.10	1,109.39	21.658	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	9,128.35	6,788.48	3,012.32	2,950.81	48.978	CC, ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	10,000.00	6,793.50	3,135.89	3,068.57	46.586	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	7,555.82	6,620.68	3,195.16	3,146.44	65.586	CC, ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	8,100.00	6,620.12	3,241.17	3,191.53	65.300	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	9,131.70	6,845.99	1,717.90	1,656.92	28.171	CC, ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	9,200.00	6,846.83	1,719.26	1,658.19	28.154	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	7,825.39	6,699.54	1,702.90	1,654.20	34.971	CC, ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	8,000.00	6,699.27	1,711.82	1,662.73	34.870	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,406.49	6,825.72	4,637.31	4,571.24	70.194	CC, ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	13,000.00	6,764.38	4,903.00	4,826.46	64.058	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,484.39	6,898.38	5,838.33	5,777.42	95.857	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,500.00	6,896.79	5,838.35	5,777.35	95.710	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,687.29	6,392.70	6,316.34	83.716	SF
Gutttersen 11-25 (PR) - Wellbore #1 - MWD Surveys	11,840.96	6,709.04	5,631.08	5,563.22	82.978	CC
Gutttersen 11-25 (PR) - Wellbore #1 - MWD Surveys	11,900.00	6,708.59	5,631.39	5,563.08	82.437	ES
Gutttersen 11-25 (PR) - Wellbore #1 - MWD Surveys	14,000.00	6,693.63	6,030.78	5,948.75	73.519	SF
Gutttersen 22-25 (PR) - Wellbore #1 - MWD Surveys	10,566.52	6,666.00	4,215.03	4,155.60	70.928	CC
Gutttersen 22-25 (PR) - Wellbore #1 - MWD Surveys	10,600.00	6,664.59	4,215.16	4,155.50	70.657	ES
Gutttersen 22-25 (PR) - Wellbore #1 - MWD Surveys	12,100.00	6,599.38	4,484.82	4,415.77	64.949	SF
Gutttersen 25E (PR) - Wellbore #1 - MWD Surveys	12,440.69	6,601.13	6,028.73	5,956.57	83.547	CC
Gutttersen 25E (PR) - Wellbore #1 - MWD Surveys	12,500.00	6,600.18	6,029.03	5,956.40	83.016	ES
Gutttersen 25E (PR) - Wellbore #1 - MWD Surveys	14,800.00	6,562.59	6,473.85	6,386.17	73.828	SF
Gutttersen 25KD (PR) - Wellbore #1 - MWD Surveys	9,953.42	6,980.00	4,976.41	4,918.60	86.080	CC
Gutttersen 25KD (PR) - Wellbore #1 - MWD Surveys	10,000.00	6,980.00	4,976.63	4,918.56	85.700	ES
Gutttersen 25KD (PR) - Wellbore #1 - MWD Surveys	12,300.00	7,002.44	5,501.85	5,429.47	76.012	SF
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	10,076.73	6,600.19	3,778.69	3,721.93	66.574	CC
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	10,100.00	6,600.23	3,778.76	3,721.85	66.400	ES
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	11,400.00	6,602.51	4,003.68	3,938.85	61.754	SF
Gutttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,152.75	6,526.03	2,533.55	2,469.27	39.418	CC, ES
Gutttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,700.00	6,520.41	2,591.97	2,523.76	38.001	SF
Gutttersen D25-715 - Wellbore #1 - Plan #1	17,481.59	14,859.15	1,322.40	1,166.57	8.486	CC, ES, SF
Gutttersen D25-724 - Wellbore #1 - Plan #1	17,481.59	14,713.24	1,927.92	1,771.76	12.346	CC, ES, SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 25						
Gutttersen D25-734 - Wellbore #1 - Plan #1	17,481.59	14,730.12	2,568.19	2,414.07	16.663	CC, ES, SF
Gutttersen D25-743 - Wellbore #1 - Plan #1	9,381.36	6,152.12	3,146.61	3,089.70	55.290	CC
Gutttersen D25-743 - Wellbore #1 - Plan #1	17,481.59	14,863.66	3,185.48	3,029.97	20.484	ES, SF
Gutttersen D25-753 - Wellbore #1 - Plan #1	17,481.59	15,049.45	3,792.54	3,636.96	24.377	CC, ES, SF
Gutttersen D25-762 - Wellbore #1 - Plan #1	17,481.59	14,969.26	4,379.03	4,223.54	28.162	CC, ES, SF
Gutttersen D25-772 - Wellbore #1 - Plan #1	9,503.82	6,130.16	5,009.41	4,951.78	86.924	CC
Gutttersen D25-772 - Wellbore #1 - Plan #1	17,481.59	15,118.09	5,049.42	4,894.52	32.597	ES, SF
Gutttersen D25-781 - Wellbore #1 - Plan #1	9,888.22	5,340.34	5,452.15	5,394.77	95.022	CC
Gutttersen D25-781 - Wellbore #1 - Plan #1	9,900.00	5,335.35	5,452.16	5,394.73	94.935	ES
Gutttersen D25-781 - Wellbore #1 - Plan #1	17,481.59	15,138.72	5,665.88	5,511.17	36.623	SF
Gutttersen State D36-714 - Wellbore #1 - Plan #1	7,200.00	9,572.55	1,368.27	1,305.71	21.873	SF
Gutttersen State D36-714 - Wellbore #1 - Plan #1	9,701.89	7,088.21	1,326.67	1,269.07	23.033	CC, ES
Gutttersen State D36-724 - Wellbore #1 - Plan #1	7,100.00	9,608.73	2,005.97	1,943.07	31.891	SF
Gutttersen State D36-724 - Wellbore #1 - Plan #1	9,895.78	6,813.23	1,946.08	1,888.27	33.662	CC
Gutttersen State D36-724 - Wellbore #1 - Plan #1	9,900.00	6,810.02	1,946.08	1,888.25	33.650	ES
Gutttersen State D36-733 - Wellbore #1 - Plan #1	10,151.32	6,450.50	2,543.82	2,484.77	43.080	CC, ES
Gutttersen State D36-733 - Wellbore #1 - Plan #1	10,800.00	6,300.00	2,616.91	2,553.63	41.353	SF
Gutttersen State D36-743 - Wellbore #1 - Plan #1	10,253.24	6,051.51	3,087.70	3,027.81	51.558	CC, ES
Gutttersen State D36-743 - Wellbore #1 - Plan #1	11,100.00	5,939.16	3,199.73	3,134.41	48.987	SF
Gutttersen State D36-752 - Wellbore #1 - Plan #1	7,000.00	9,760.72	3,887.13	3,821.06	58.833	SF
Gutttersen State D36-752 - Wellbore #1 - Plan #1	9,704.24	7,126.43	3,814.09	3,755.17	64.728	CC, ES
Gutttersen State D36-762 - Wellbore #1 - Plan #1	10,172.65	6,528.85	4,391.93	4,332.34	73.702	CC
Gutttersen State D36-762 - Wellbore #1 - Plan #1	10,200.00	6,522.00	4,392.01	4,332.26	73.504	ES
Gutttersen State D36-762 - Wellbore #1 - Plan #1	11,800.00	6,202.70	4,668.11	4,598.91	67.464	SF
Gutttersen State D36-771 - Wellbore #1 - Plan #1	10,356.12	5,889.67	4,927.14	4,867.36	82.423	CC
Gutttersen State D36-771 - Wellbore #1 - Plan #1	10,400.00	5,878.63	4,927.32	4,867.27	82.058	ES
Gutttersen State D36-771 - Wellbore #1 - Plan #1	12,300.00	5,400.40	5,274.08	5,203.11	74.310	SF
Gutttersen State D36-781 - Wellbore #1 - Plan #1	10,570.43	5,163.43	5,347.70	5,288.04	89.644	CC
Gutttersen State D36-781 - Wellbore #1 - Plan #1	10,600.00	5,156.28	5,347.78	5,287.94	89.369	ES
Gutttersen State D36-781 - Wellbore #1 - Plan #1	12,800.00	4,624.32	5,768.73	5,696.37	79.722	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,758.95	6,584.00	3,006.08	2,829.07	16.983	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,800.00	6,584.00	3,006.36	2,829.01	16.952	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,100.00	6,584.00	3,025.37	2,845.69	16.838	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,481.36	6,555.81	1,723.74	1,663.64	28.681	CC
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,500.00	6,555.07	1,723.85	1,663.59	28.610	ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,800.00	6,542.53	1,752.90	1,690.44	28.062	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,486.73	6,601.83	3,049.74	2,989.72	50.816	CC
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,500.00	6,601.62	3,049.77	2,989.66	50.736	ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	11,300.00	6,590.12	3,156.29	3,090.94	48.295	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,716.48	6,565.61	1,727.61	1,659.67	25.430	CC, ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	12,000.00	6,560.19	1,750.71	1,680.48	24.927	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,424.32	6,588.00	2,018.32	1,843.47	11.544	CC, ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,600.00	6,588.00	2,025.95	1,849.65	11.492	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 DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,906.73	6,459.51	1,835.44	1,788.21	38.864	CC, ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,510.65	1,840.03	1,792.53	38.734	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	7,161.38	6,633.33	3,180.55	3,132.13	65.679	CC, ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	7,250.00	6,652.82	3,183.98	3,135.45	65.612	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,650.76	6,237.97	5,353.98	5,268.11	62.344	CC, ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,050.00	6,504.19	5,436.50	5,346.83	60.629	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,792.61	6,526.62	3,572.04	3,525.13	76.144	CC
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,530.87	3,572.06	3,525.12	76.094	ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,629.79	3,594.07	3,546.42	75.418	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	7,178.13	6,731.40	5,751.52	5,702.94	118.385	CC, ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	9,700.00	6,808.73	6,512.58	6,456.57	116.276	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,086.17	6,592.73	4,588.14	4,431.06	29.210	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,100.00	6,598.05	4,588.21	4,431.02	29.188	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,250.00	6,638.75	4,598.69	4,440.58	29.086	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,894.07	6,387.30	6,130.60	6,083.46	130.065	CC
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,950.00	6,131.46	6,082.32	124.770	ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	7,400.00	7,400.00	6,222.93	6,172.02	122.232	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,837.00	6,472.32	4,937.87	4,890.75	104.792	CC, ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	9,600.00	9,600.00	6,351.58	6,287.61	99.289	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,798.75	6,348.99	2,660.27	2,613.63	57.037	CC
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,349.73	2,660.27	2,613.63	57.031	ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,100.00	7,100.00	2,704.97	2,655.35	54.511	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,635.58	6,256.27	6,077.84	6,032.07	132.803	CC, ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,538.40	6,168.89	6,121.23	129.423	SF
DD Section 18						
Guttersten 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,598.21	3,305.74	3,201.40	31.683	CC, ES, SF
Guttersten 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,615.21	1,362.85	1,265.34	13.977	CC, ES, SF
Guttersten 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,634.87	3,262.08	3,167.97	34.661	CC, ES, SF
Guttersten 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,609.59	2,423.75	2,316.27	22.552	CC, ES, SF
Guttersten 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,643.69	4,208.34	4,103.83	40.265	CC, ES, SF
Guttersten 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,481.59	6,614.46	3,732.43	3,623.25	34.187	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,481.59	6,626.97	2,015.61	1,947.49	29.591	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,481.59	6,589.13	2,324.04	2,266.19	40.174	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,481.59	6,617.36	939.41	866.97	12.968	CC, ES, SF
DD Section 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,990.01	6,575.46	3,273.61	3,174.41	32.999	CC
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	16,000.00	6,575.24	3,273.63	3,174.36	32.980	ES
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	16,400.00	6,566.57	3,299.17	3,198.07	32.632	SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,397.83	6,608.00	635.73	446.59	3.361	CC, ES, SF
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,988.93	6,604.74	2,358.13	2,250.86	21.983	CC
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,604.45	2,358.16	2,250.83	21.971	ES
Guttersten 31-19 (PR) - Wellbore #1 - Gyro Surveys	17,100.00	6,601.90	2,360.75	2,252.98	21.906	SF
Guttersten 44-19 (SI) - Wellbore #1 - No Surveys	13,118.52	6,653.00	3,665.97	3,477.97	19.501	CC, ES
Guttersten 44-19 (SI) - Wellbore #1 - No Surveys	13,500.00	6,653.00	3,685.76	3,495.75	19.397	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 DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,790.78	6,668.97	5,226.05	5,119.98	49.271	CC
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,800.00	6,668.85	5,226.06	5,119.93	49.243	ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,481.59	6,660.61	5,271.50	5,161.49	47.916	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,676.55	6,630.16	5,605.62	5,523.68	68.409	CC
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,700.00	6,630.35	5,605.67	5,523.57	68.283	ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	15,200.00	6,642.60	5,808.93	5,718.92	64.532	SF
DD Section 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	2,021.05	2,110.48	7,568.83	7,554.60	531.996	CC, ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	15,900.00	15,900.00	9,127.49	9,006.96	75.732	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,000.00	2,038.01	4,248.68	4,200.99	89.077	CC
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,100.00	2,137.99	4,250.28	4,200.24	84.937	ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	9,200.00	6,685.01	5,699.95	5,536.26	34.822	SF
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	2,024.49	2,122.59	8,070.92	8,056.65	565.601	CC, ES
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	13,900.00	6,922.85	9,503.74	9,394.34	86.875	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
DD Section 30						
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,799.79	6,595.74	391.23	322.81	5.719	CC
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,800.00	6,595.73	391.23	322.81	5.718	ES, SF
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,384.68	6,595.97	480.91	421.50	8.095	CC, ES
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,595.23	481.15	421.53	8.070	SF
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,448.85	6,599.14	928.52	868.89	15.570	CC, ES, SF
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,076.19	6,596.27	332.36	268.75	5.225	CC, ES, SF
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,000.00	2,029.00	2,025.08	2,011.10	144.888	CC, ES
Guttersen State DD30-715 - Guttersen State DD30-715 -	17,481.59	17,383.63	4,017.39	3,839.99	22.646	SF
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,000.00	2,029.00	1,988.08	1,974.10	142.241	CC, ES
Guttersen State DD30-725 - Guttersen State DD30-725 -	17,481.59	17,246.27	3,375.95	3,198.86	19.064	SF
Guttersen State DD30-735 - Guttersen State DD30-735 -	2,000.00	2,029.00	1,950.09	1,936.12	139.523	CC, ES
Guttersen State DD30-735 - Guttersen State DD30-735 -	17,481.59	17,417.82	2,717.77	2,540.37	15.320	SF
Guttersen State DD30-745 - Guttersen State DD30-745 -	3,159.28	3,821.51	1,872.39	1,848.84	79.500	CC
Guttersen State DD30-745 - Guttersen State DD30-745 -	3,200.00	3,862.21	1,872.62	1,848.76	78.463	ES
Guttersen State DD30-745 - Guttersen State DD30-745 -	17,481.59	17,574.30	2,057.18	1,879.81	11.598	SF
Guttersen State DD30-755 - Guttersen State DD30-755 -	2,000.00	1,999.00	75.00	61.13	5.408	CC, ES
Guttersen State DD30-755 - Guttersen State DD30-755 -	2,200.00	2,200.35	78.79	63.58	5.180	SF
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,000.00	2,001.00	38.00	24.12	2.738	CC, ES
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,100.00	2,098.98	39.43	24.86	2.706	SF
Guttersen State DD30-785 - Guttersen State DD30-785 -	1,914.54	1,914.54	37.01	23.75	2.791	CC
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,000.00	1,999.92	37.02	23.15	2.669	ES
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,100.00	2,098.49	37.76	23.22	2.598	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	2,000.00	2,004.00	168.46	154.58	12.131	CC, ES
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	2,300.00	2,304.55	182.57	166.59	11.427	SF
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	2,000.00	2,004.00	154.99	141.11	11.161	CC, ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	2,300.00	2,304.55	167.36	151.38	10.475	SF
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	7,245.51	6,987.49	67.20	14.28	1.270	Level 3, CC, ES, SF
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,000.00	1,997.00	155.23	141.37	11.198	CC, ES
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,400.00	2,393.40	169.76	153.18	10.240	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,259.48	6,599.00	533.37	370.76	3.280	CC, ES, SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	3,404.21	3,309.33	414.73	336.61	5.309	CC
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	3,500.00	3,396.61	416.60	336.35	5.191	ES
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	3,700.00	3,578.87	432.25	347.55	5.103	SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,699.29	6,604.00	632.91	472.48	3.945	CC
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,700.00	6,604.00	632.91	472.48	3.945	ES, SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,446.46	6,637.79	922.33	855.82	13.869	CC, ES, SF
State 19 (PA) - Wellbore #1 - NO Surveys	11,077.13	6,655.00	3,142.69	2,968.77	18.070	CC
State 19 (PA) - Wellbore #1 - NO Surveys	11,100.00	6,655.00	3,142.77	2,968.74	18.058	ES
State 19 (PA) - Wellbore #1 - NO Surveys	11,300.00	6,655.00	3,150.58	2,975.59	18.004	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 31						
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,229.66	10,956.00	2,070.38	1,964.53	19.560	CC
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,250.00	10,956.00	2,070.49	1,964.30	19.498	ES
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,550.00	10,956.00	2,098.02	1,988.02	19.074	SF
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,499.75	11,132.00	1,877.70	1,770.76	17.559	CC
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,550.00	11,132.00	1,878.46	1,770.73	17.436	ES
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,700.00	11,132.00	1,889.70	1,780.19	17.257	SF
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,094.74	11,048.00	2,711.19	2,606.23	25.832	CC
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,100.00	11,048.00	2,711.19	2,606.16	25.813	ES
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,600.00	11,048.00	2,761.58	2,650.99	24.971	SF
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,299.68	11,127.00	2,434.59	2,328.77	23.008	CC
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,350.00	11,127.00	2,435.17	2,328.60	22.850	ES
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,700.00	11,127.00	2,470.26	2,359.81	22.365	SF
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,210.05	5,914.33	3,460.20	3,415.25	76.973	CC, ES
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,198.44	3,536.02	3,488.73	74.761	SF
YY Section 6						
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,276.29	5,881.00	5,164.08	5,118.43	113.136	CC, ES
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,500.00	5,913.00	5,205.69	5,159.05	111.604	SF
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,263.31	5,869.34	5,295.68	5,250.71	117.746	CC, ES
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,600.00	6,010.00	5,382.56	5,335.83	115.169	SF
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,250.34	5,882.00	5,419.59	5,373.76	118.250	CC, ES
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,550.00	5,946.00	5,489.40	5,442.20	116.299	SF
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,224.34	5,777.56	5,564.75	5,517.82	118.577	CC, ES
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,550.00	5,964.92	5,643.10	5,594.32	115.692	SF
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,285.59	6,049.47	5,947.01	5,901.43	130.455	CC, ES
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,374.23	6,072.45	6,024.27	126.038	SF
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,301.33	6,100.00	7,153.99	7,108.23	156.325	CC, ES
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,700.00	7,274.46	7,225.20	147.674	SF
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,356.89	5,889.28	9,115.98	9,071.18	203.506	CC, ES
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,650.00	6,650.00	9,182.72	9,134.26	189.489	SF

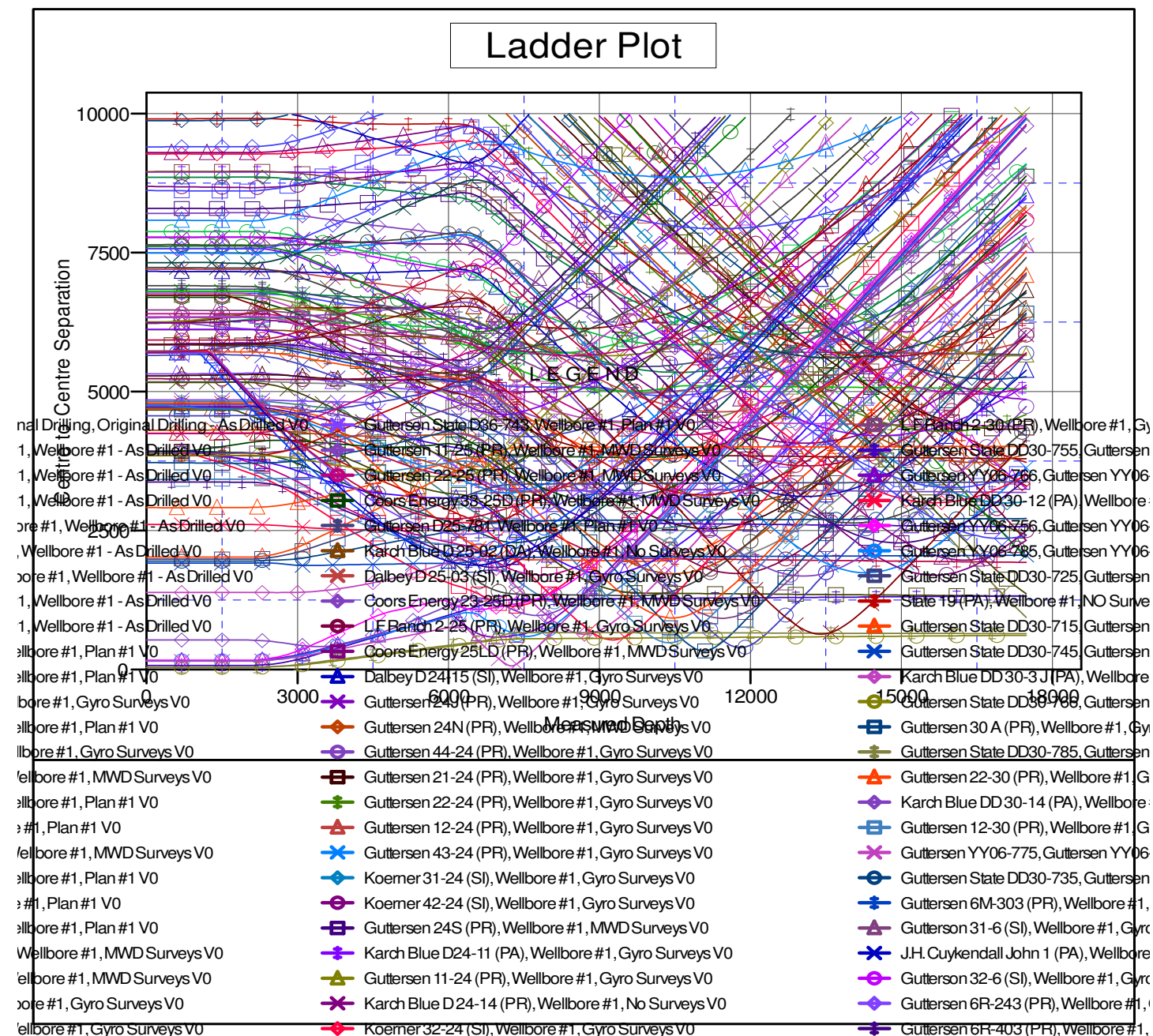
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Guttersen State DD30-775

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.66°



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 DD30-775
Project:	Mustang	TVD Reference:	KB @ 4824.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4824.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-775	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4824.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersten State DD30-775
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

