

Project: Mustang
 Site: DD Section 30
 Well: Gutteresen State DD30-735
 Wellbore: Gutteresen State DD30-735
 Design: Plan #1

Northern Region - DJ Basin

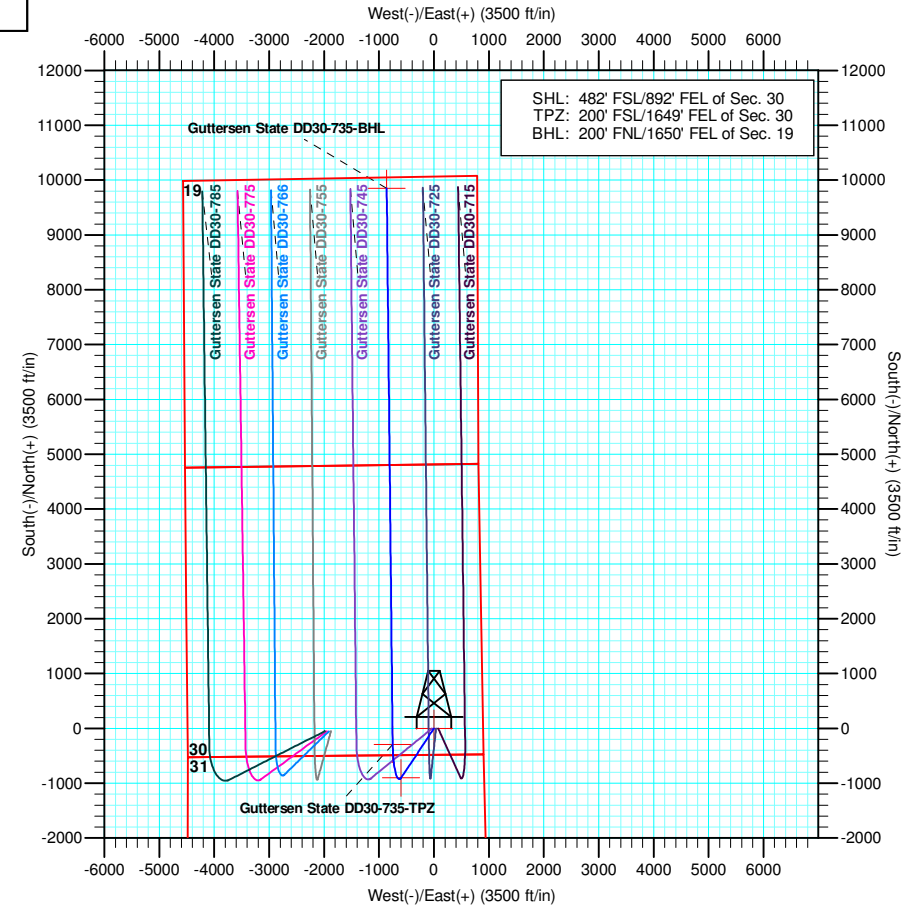
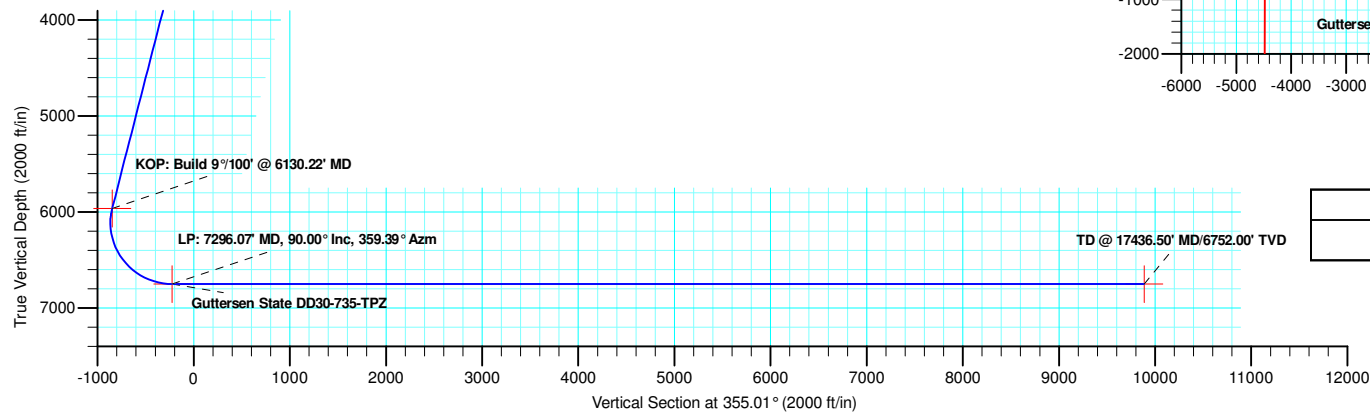
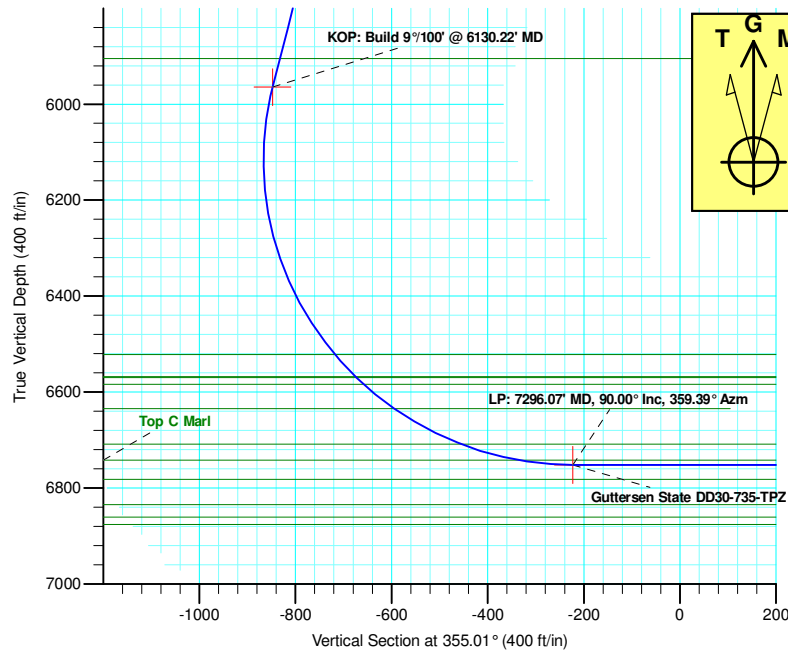
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	3107.62	18.15	213.62	3092.51	-118.73	-78.95	2.00	213.62	-111.41	
4	6130.22	18.15	213.62	5964.68	-902.88	-600.35	0.00	0.00	-847.22	
5	7296.07	90.00	359.39	6752.00	-289.32	-752.13	9.00	144.39	-222.78	Gutteresen State DD30-735-TPZ
6	17436.50	90.00	359.39	6752.00	9850.54	-860.35	0.00	0.00	9888.04	Gutteresen State DD30-735-BHL

WELL DETAILS: Gutteresen State DD30-735

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



Plan: Plan #1 (Gutteresen State DD30-735/Gutteresen State DD30-735)

Created By: Keith Noack Date: 13:10, August 28 2018

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-735

Guttersen State DD30-735

Plan: Plan #1

Standard Planning Report

28 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #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 DD30-735					
Well Position	+N/-S	-2,127.96 ft	Northing:	1,313,885.18 usft	Latitude:	40.1904619
	+E/-W	1,799.98 ft	Easting:	3,286,547.13 usft	Longitude:	-104.4742910
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

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

Design	Plan #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	355.01

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,107.62	18.15	213.62	3,092.51	-118.73	-78.95	2.00	2.00	0.00	213.62	
6,130.22	18.15	213.62	5,964.68	-902.88	-600.35	0.00	0.00	0.00	0.00	
7,296.07	90.00	359.39	6,752.00	-289.32	-752.13	9.00	6.16	12.50	144.39	Guttersen State DD
17,436.50	90.00	359.39	6,752.00	9,850.54	-860.35	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 @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #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
627.00	0.00	0.00	627.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
716.00	0.00	0.00	716.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,653.00	0.00	0.00	1,653.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
2,300.00	2.00	213.62	2,299.98	-1.45	-0.97	-1.36	2.00	2.00	0.00
2,400.00	4.00	213.62	2,399.84	-5.81	-3.86	-5.45	2.00	2.00	0.00
2,500.00	6.00	213.62	2,499.45	-13.07	-8.69	-12.26	2.00	2.00	0.00
2,600.00	8.00	213.62	2,598.70	-23.22	-15.44	-21.78	2.00	2.00	0.00
2,700.00	10.00	213.62	2,697.47	-36.24	-24.10	-34.01	2.00	2.00	0.00
2,800.00	12.00	213.62	2,795.62	-52.13	-34.66	-48.92	2.00	2.00	0.00
2,900.00	14.00	213.62	2,893.06	-70.86	-47.12	-66.49	2.00	2.00	0.00
3,000.00	16.00	213.62	2,989.64	-92.41	-61.45	-86.72	2.00	2.00	0.00
3,107.62	18.15	213.62	3,092.51	-118.73	-78.95	-111.41	2.00	2.00	0.00
Hold: 18.15° Inc, 213.62° Azm									
3,200.00	18.15	213.62	3,180.29	-142.69	-94.88	-133.90	0.00	0.00	0.00
3,300.00	18.15	213.62	3,275.32	-168.63	-112.13	-158.24	0.00	0.00	0.00
3,400.00	18.15	213.62	3,370.34	-194.58	-129.38	-182.58	0.00	0.00	0.00
3,500.00	18.15	213.62	3,465.36	-220.52	-146.63	-206.93	0.00	0.00	0.00
3,600.00	18.15	213.62	3,560.39	-246.46	-163.88	-231.27	0.00	0.00	0.00
3,673.26	18.15	213.62	3,630.00	-265.47	-176.52	-249.10	0.00	0.00	0.00
Parkman									
3,700.00	18.15	213.62	3,655.41	-272.41	-181.13	-255.61	0.00	0.00	0.00
3,800.00	18.15	213.62	3,750.43	-298.35	-198.38	-279.96	0.00	0.00	0.00
3,900.00	18.15	213.62	3,845.46	-324.29	-215.63	-304.30	0.00	0.00	0.00
4,000.00	18.15	213.62	3,940.48	-350.24	-232.88	-328.64	0.00	0.00	0.00
4,100.00	18.15	213.62	4,035.50	-376.18	-250.13	-352.99	0.00	0.00	0.00
4,117.36	18.15	213.62	4,052.00	-380.68	-253.13	-357.21	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Project:	Mustang	MD Reference:	KB @ 4853.00ft
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Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #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)
Sussex									
4,200.00	18.15	213.62	4,130.53	-402.12	-267.38	-377.33	0.00	0.00	0.00
4,300.00	18.15	213.62	4,225.55	-428.06	-284.63	-401.67	0.00	0.00	0.00
4,312.05	18.15	213.62	4,237.00	-431.19	-286.71	-404.61	0.00	0.00	0.00
Shannon									
4,400.00	18.15	213.62	4,320.57	-454.01	-301.89	-426.02	0.00	0.00	0.00
4,500.00	18.15	213.62	4,415.60	-479.95	-319.14	-450.36	0.00	0.00	0.00
4,600.00	18.15	213.62	4,510.62	-505.89	-336.39	-474.71	0.00	0.00	0.00
4,700.00	18.15	213.62	4,605.64	-531.84	-353.64	-499.05	0.00	0.00	0.00
4,800.00	18.15	213.62	4,700.66	-557.78	-370.89	-523.39	0.00	0.00	0.00
4,900.00	18.15	213.62	4,795.69	-583.72	-388.14	-547.74	0.00	0.00	0.00
5,000.00	18.15	213.62	4,890.71	-609.66	-405.39	-572.08	0.00	0.00	0.00
5,100.00	18.15	213.62	4,985.73	-635.61	-422.64	-596.42	0.00	0.00	0.00
5,200.00	18.15	213.62	5,080.76	-661.55	-439.89	-620.77	0.00	0.00	0.00
5,300.00	18.15	213.62	5,175.78	-687.49	-457.14	-645.11	0.00	0.00	0.00
5,400.00	18.15	213.62	5,270.80	-713.44	-474.39	-669.45	0.00	0.00	0.00
5,500.00	18.15	213.62	5,365.83	-739.38	-491.64	-693.80	0.00	0.00	0.00
5,600.00	18.15	213.62	5,460.85	-765.32	-508.89	-718.14	0.00	0.00	0.00
5,700.00	18.15	213.62	5,555.87	-791.26	-526.14	-742.48	0.00	0.00	0.00
5,800.00	18.15	213.62	5,650.90	-817.21	-543.39	-766.83	0.00	0.00	0.00
5,900.00	18.15	213.62	5,745.92	-843.15	-560.64	-791.17	0.00	0.00	0.00
6,000.00	18.15	213.62	5,840.94	-869.09	-577.89	-815.51	0.00	0.00	0.00
6,067.41	18.15	213.62	5,905.00	-886.58	-589.52	-831.93	0.00	0.00	0.00
Teepee Buttes									
6,100.00	18.15	213.62	5,935.97	-895.04	-595.14	-839.86	0.00	0.00	0.00
6,130.22	18.15	213.62	5,964.68	-902.88	-600.35	-847.22	0.00	0.00	0.00
KOP: Build 9°/100' @ 6130.22' MD									
6,150.00	16.74	217.22	5,983.55	-907.71	-603.78	-851.73	9.00	-7.16	18.20
6,200.00	13.53	229.41	6,031.82	-917.25	-612.59	-860.47	9.00	-6.41	24.38
6,250.00	11.23	247.60	6,080.68	-922.92	-621.54	-865.34	9.00	-4.60	36.38
6,300.00	10.46	271.34	6,129.81	-924.67	-630.58	-866.30	9.00	-1.56	47.47
6,350.00	11.51	294.48	6,178.91	-922.49	-639.66	-863.34	9.00	2.11	46.28
6,400.00	13.99	311.63	6,227.69	-916.41	-648.72	-856.49	9.00	4.96	34.31
6,450.00	17.29	323.05	6,275.85	-906.45	-657.71	-845.78	9.00	6.60	22.85
6,500.00	21.03	330.72	6,323.08	-892.68	-666.57	-831.29	9.00	7.48	15.33
6,550.00	25.01	336.10	6,369.09	-875.18	-675.24	-813.11	9.00	7.96	10.76
6,600.00	29.14	340.07	6,413.60	-854.06	-683.68	-791.33	9.00	8.25	7.93
6,650.00	33.35	343.11	6,456.35	-829.45	-691.83	-766.11	9.00	8.43	6.09
6,700.00	37.63	345.54	6,497.05	-801.51	-699.63	-737.59	9.00	8.55	4.86
6,732.11	40.39	346.87	6,522.00	-781.88	-704.44	-717.62	9.00	8.62	4.12
Sharon Springs									
6,750.00	41.94	347.54	6,535.47	-770.39	-707.05	-705.95	9.00	8.65	3.77
6,795.16	45.86	349.08	6,568.00	-739.73	-713.38	-674.86	9.00	8.69	3.40
Top A Chalk									
6,798.04	46.11	349.17	6,570.00	-737.70	-713.77	-672.80	9.00	8.71	3.16
Top A Marl									
6,800.00	46.29	349.23	6,571.36	-736.31	-714.03	-671.39	9.00	8.71	3.13
6,818.57	47.90	349.80	6,584.00	-722.93	-716.51	-657.85	9.00	8.72	3.04
Top B Chalk									
6,850.00	50.65	350.69	6,604.50	-699.46	-720.54	-634.12	9.00	8.74	2.84
6,900.00	55.03	351.98	6,634.70	-660.08	-726.53	-594.36	9.00	8.76	2.57
6,900.53	55.08	351.99	6,635.00	-659.65	-726.59	-593.92	9.00	8.78	2.43
Top B Marl									

Noble Energy, Inc.

Planning Report

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Project:	Mustang	MD Reference:	KB @ 4853.00ft
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Well:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Gutttersen State DD30-735		
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)
6,950.00	59.43	353.13	6,661.75	-618.40	-731.97	-552.37	9.00	8.79	2.31
7,000.00	63.83	354.19	6,685.51	-574.69	-736.82	-508.40	9.00	8.81	2.11
7,050.00	68.24	355.17	6,705.81	-529.20	-741.05	-462.72	9.00	8.82	1.96
7,058.75	69.01	355.33	6,709.00	-521.09	-741.72	-454.57	9.00	8.83	1.88
Top C Chalk									
7,100.00	72.66	356.09	6,722.54	-482.24	-744.63	-415.62	9.00	8.83	1.83
7,150.00	77.08	356.96	6,735.59	-434.07	-747.55	-367.38	9.00	8.84	1.75
7,182.13	79.92	357.51	6,742.00	-402.63	-749.07	-335.92	9.00	8.84	1.70
Top C Marl									
7,200.00	81.50	357.81	6,744.89	-385.01	-749.79	-318.31	9.00	8.85	1.68
7,250.00	85.92	358.64	6,750.36	-335.34	-751.33	-268.70	9.00	8.85	1.65
7,296.07	90.00	359.39	6,752.00	-289.32	-752.13	-222.78	9.00	8.85	1.64
LP: 7296.07' MD, 90.00° Inc, 359.39° Azm									
7,300.00	90.00	359.39	6,752.00	-285.39	-752.17	-218.86	0.00	0.00	0.00
7,400.00	90.00	359.39	6,752.00	-185.40	-753.23	-119.15	0.00	0.00	0.00
7,500.00	90.00	359.39	6,752.00	-85.40	-754.30	-19.45	0.00	0.00	0.00
7,600.00	90.00	359.39	6,752.00	14.59	-755.37	80.26	0.00	0.00	0.00
7,700.00	90.00	359.39	6,752.00	114.59	-756.44	179.97	0.00	0.00	0.00
7,800.00	90.00	359.39	6,752.00	214.58	-757.50	279.68	0.00	0.00	0.00
7,900.00	90.00	359.39	6,752.00	314.58	-758.57	379.39	0.00	0.00	0.00
8,000.00	90.00	359.39	6,752.00	414.57	-759.64	479.09	0.00	0.00	0.00
8,100.00	90.00	359.39	6,752.00	514.56	-760.71	578.80	0.00	0.00	0.00
8,200.00	90.00	359.39	6,752.00	614.56	-761.77	678.51	0.00	0.00	0.00
8,300.00	90.00	359.39	6,752.00	714.55	-762.84	778.22	0.00	0.00	0.00
8,400.00	90.00	359.39	6,752.00	814.55	-763.91	877.92	0.00	0.00	0.00
8,500.00	90.00	359.39	6,752.00	914.54	-764.97	977.63	0.00	0.00	0.00
8,600.00	90.00	359.39	6,752.00	1,014.54	-766.04	1,077.34	0.00	0.00	0.00
8,700.00	90.00	359.39	6,752.00	1,114.53	-767.11	1,177.05	0.00	0.00	0.00
8,800.00	90.00	359.39	6,752.00	1,214.52	-768.18	1,276.76	0.00	0.00	0.00
8,900.00	90.00	359.39	6,752.00	1,314.52	-769.24	1,376.46	0.00	0.00	0.00
9,000.00	90.00	359.39	6,752.00	1,414.51	-770.31	1,476.17	0.00	0.00	0.00
9,100.00	90.00	359.39	6,752.00	1,514.51	-771.38	1,575.88	0.00	0.00	0.00
9,200.00	90.00	359.39	6,752.00	1,614.50	-772.45	1,675.59	0.00	0.00	0.00
9,300.00	90.00	359.39	6,752.00	1,714.50	-773.51	1,775.30	0.00	0.00	0.00
9,400.00	90.00	359.39	6,752.00	1,814.49	-774.58	1,875.00	0.00	0.00	0.00
9,500.00	90.00	359.39	6,752.00	1,914.48	-775.65	1,974.71	0.00	0.00	0.00
9,600.00	90.00	359.39	6,752.00	2,014.48	-776.71	2,074.42	0.00	0.00	0.00
9,700.00	90.00	359.39	6,752.00	2,114.47	-777.78	2,174.13	0.00	0.00	0.00
9,800.00	90.00	359.39	6,752.00	2,214.47	-778.85	2,273.84	0.00	0.00	0.00
9,900.00	90.00	359.39	6,752.00	2,314.46	-779.92	2,373.54	0.00	0.00	0.00
10,000.00	90.00	359.39	6,752.00	2,414.46	-780.98	2,473.25	0.00	0.00	0.00
10,100.00	90.00	359.39	6,752.00	2,514.45	-782.05	2,572.96	0.00	0.00	0.00
10,200.00	90.00	359.39	6,752.00	2,614.44	-783.12	2,672.67	0.00	0.00	0.00
10,300.00	90.00	359.39	6,752.00	2,714.44	-784.19	2,772.38	0.00	0.00	0.00
10,400.00	90.00	359.39	6,752.00	2,814.43	-785.25	2,872.08	0.00	0.00	0.00
10,500.00	90.00	359.39	6,752.00	2,914.43	-786.32	2,971.79	0.00	0.00	0.00
10,600.00	90.00	359.39	6,752.00	3,014.42	-787.39	3,071.50	0.00	0.00	0.00
10,700.00	90.00	359.39	6,752.00	3,114.42	-788.45	3,171.21	0.00	0.00	0.00
10,800.00	90.00	359.39	6,752.00	3,214.41	-789.52	3,270.92	0.00	0.00	0.00
10,900.00	90.00	359.39	6,752.00	3,314.40	-790.59	3,370.62	0.00	0.00	0.00
11,000.00	90.00	359.39	6,752.00	3,414.40	-791.66	3,470.33	0.00	0.00	0.00
11,100.00	90.00	359.39	6,752.00	3,514.39	-792.72	3,570.04	0.00	0.00	0.00
11,200.00	90.00	359.39	6,752.00	3,614.39	-793.79	3,669.75	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #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)
11,300.00	90.00	359.39	6,752.00	3,714.38	-794.86	3,769.46	0.00	0.00	0.00
11,400.00	90.00	359.39	6,752.00	3,814.38	-795.93	3,869.16	0.00	0.00	0.00
11,500.00	90.00	359.39	6,752.00	3,914.37	-796.99	3,968.87	0.00	0.00	0.00
11,600.00	90.00	359.39	6,752.00	4,014.36	-798.06	4,068.58	0.00	0.00	0.00
11,700.00	90.00	359.39	6,752.00	4,114.36	-799.13	4,168.29	0.00	0.00	0.00
11,800.00	90.00	359.39	6,752.00	4,214.35	-800.19	4,267.99	0.00	0.00	0.00
11,900.00	90.00	359.39	6,752.00	4,314.35	-801.26	4,367.70	0.00	0.00	0.00
12,000.00	90.00	359.39	6,752.00	4,414.34	-802.33	4,467.41	0.00	0.00	0.00
12,100.00	90.00	359.39	6,752.00	4,514.34	-803.40	4,567.12	0.00	0.00	0.00
12,200.00	90.00	359.39	6,752.00	4,614.33	-804.46	4,666.83	0.00	0.00	0.00
12,300.00	90.00	359.39	6,752.00	4,714.32	-805.53	4,766.53	0.00	0.00	0.00
12,400.00	90.00	359.39	6,752.00	4,814.32	-806.60	4,866.24	0.00	0.00	0.00
12,500.00	90.00	359.39	6,752.00	4,914.31	-807.67	4,965.95	0.00	0.00	0.00
12,600.00	90.00	359.39	6,752.00	5,014.31	-808.73	5,065.66	0.00	0.00	0.00
12,700.00	90.00	359.39	6,752.00	5,114.30	-809.80	5,165.37	0.00	0.00	0.00
12,800.00	90.00	359.39	6,752.00	5,214.30	-810.87	5,265.07	0.00	0.00	0.00
12,900.00	90.00	359.39	6,752.00	5,314.29	-811.93	5,364.78	0.00	0.00	0.00
13,000.00	90.00	359.39	6,752.00	5,414.29	-813.00	5,464.49	0.00	0.00	0.00
13,100.00	90.00	359.39	6,752.00	5,514.28	-814.07	5,564.20	0.00	0.00	0.00
13,200.00	90.00	359.39	6,752.00	5,614.27	-815.14	5,663.91	0.00	0.00	0.00
13,300.00	90.00	359.39	6,752.00	5,714.27	-816.20	5,763.61	0.00	0.00	0.00
13,400.00	90.00	359.39	6,752.00	5,814.26	-817.27	5,863.32	0.00	0.00	0.00
13,500.00	90.00	359.39	6,752.00	5,914.26	-818.34	5,963.03	0.00	0.00	0.00
13,600.00	90.00	359.39	6,752.00	6,014.25	-819.41	6,062.74	0.00	0.00	0.00
13,700.00	90.00	359.39	6,752.00	6,114.25	-820.47	6,162.45	0.00	0.00	0.00
13,800.00	90.00	359.39	6,752.00	6,214.24	-821.54	6,262.15	0.00	0.00	0.00
13,900.00	90.00	359.39	6,752.00	6,314.23	-822.61	6,361.86	0.00	0.00	0.00
14,000.00	90.00	359.39	6,752.00	6,414.23	-823.67	6,461.57	0.00	0.00	0.00
14,100.00	90.00	359.39	6,752.00	6,514.22	-824.74	6,561.28	0.00	0.00	0.00
14,200.00	90.00	359.39	6,752.00	6,614.22	-825.81	6,660.99	0.00	0.00	0.00
14,300.00	90.00	359.39	6,752.00	6,714.21	-826.88	6,760.69	0.00	0.00	0.00
14,400.00	90.00	359.39	6,752.00	6,814.21	-827.94	6,860.40	0.00	0.00	0.00
14,500.00	90.00	359.39	6,752.00	6,914.20	-829.01	6,960.11	0.00	0.00	0.00
14,600.00	90.00	359.39	6,752.00	7,014.19	-830.08	7,059.82	0.00	0.00	0.00
14,700.00	90.00	359.39	6,752.00	7,114.19	-831.14	7,159.53	0.00	0.00	0.00
14,800.00	90.00	359.39	6,752.00	7,214.18	-832.21	7,259.23	0.00	0.00	0.00
14,900.00	90.00	359.39	6,752.00	7,314.18	-833.28	7,358.94	0.00	0.00	0.00
15,000.00	90.00	359.39	6,752.00	7,414.17	-834.35	7,458.65	0.00	0.00	0.00
15,100.00	90.00	359.39	6,752.00	7,514.17	-835.41	7,558.36	0.00	0.00	0.00
15,200.00	90.00	359.39	6,752.00	7,614.16	-836.48	7,658.06	0.00	0.00	0.00
15,300.00	90.00	359.39	6,752.00	7,714.15	-837.55	7,757.77	0.00	0.00	0.00
15,400.00	90.00	359.39	6,752.00	7,814.15	-838.62	7,857.48	0.00	0.00	0.00
15,500.00	90.00	359.39	6,752.00	7,914.14	-839.68	7,957.19	0.00	0.00	0.00
15,600.00	90.00	359.39	6,752.00	8,014.14	-840.75	8,056.90	0.00	0.00	0.00
15,700.00	90.00	359.39	6,752.00	8,114.13	-841.82	8,156.60	0.00	0.00	0.00
15,800.00	90.00	359.39	6,752.00	8,214.13	-842.88	8,256.31	0.00	0.00	0.00
15,900.00	90.00	359.39	6,752.00	8,314.12	-843.95	8,356.02	0.00	0.00	0.00
16,000.00	90.00	359.39	6,752.00	8,414.11	-845.02	8,455.73	0.00	0.00	0.00
16,100.00	90.00	359.39	6,752.00	8,514.11	-846.09	8,555.44	0.00	0.00	0.00
16,200.00	90.00	359.39	6,752.00	8,614.10	-847.15	8,655.14	0.00	0.00	0.00
16,300.00	90.00	359.39	6,752.00	8,714.10	-848.22	8,754.85	0.00	0.00	0.00
16,400.00	90.00	359.39	6,752.00	8,814.09	-849.29	8,854.56	0.00	0.00	0.00
16,500.00	90.00	359.39	6,752.00	8,914.09	-850.36	8,954.27	0.00	0.00	0.00
16,600.00	90.00	359.39	6,752.00	9,014.08	-851.42	9,053.98	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #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)
16,700.00	90.00	359.39	6,752.00	9,114.07	-852.49	9,153.68	0.00	0.00	0.00
16,800.00	90.00	359.39	6,752.00	9,214.07	-853.56	9,253.39	0.00	0.00	0.00
16,900.00	90.00	359.39	6,752.00	9,314.06	-854.62	9,353.10	0.00	0.00	0.00
17,000.00	90.00	359.39	6,752.00	9,414.06	-855.69	9,452.81	0.00	0.00	0.00
17,100.00	90.00	359.39	6,752.00	9,514.05	-856.76	9,552.52	0.00	0.00	0.00
17,200.00	90.00	359.39	6,752.00	9,614.05	-857.83	9,652.22	0.00	0.00	0.00
17,300.00	90.00	359.39	6,752.00	9,714.04	-858.89	9,751.93	0.00	0.00	0.00
17,400.00	90.00	359.39	6,752.00	9,814.03	-859.96	9,851.64	0.00	0.00	0.00
17,436.50	90.00	359.39	6,752.00	9,850.54	-860.35	9,888.04	0.00	0.00	0.00
TD @ 17436.50' MD/6752.00' TVD									

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									
Guttersen State DD30C - plan hits target center - Point	0.00	0.01	0.00	0.00	0.00	1,313,885.18	3,286,547.13	40.1904619	-104.4742910
Guttersen State DD30C - plan hits target center - Point	0.00	0.00	5,964.68	-902.88	-600.35	1,312,982.30	3,285,946.78	40.1880027	-104.4764771
Guttersen State DD30C - plan misses target center by 0.08ft at 17436.50ft MD (6752.00 TVD, 9850.53 N, -860.35 E) - Point	0.00	0.00	6,752.00	9,850.53	-860.43	1,323,735.69	3,285,686.70	40.2175282	-104.4769639
Guttersen State DD30C - plan hits target center - Point	0.00	0.00	6,752.00	-289.32	-752.13	1,313,595.86	3,285,795.01	40.1896916	-104.4769950

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
627.00	627.00	Pierre				
716.00	716.00	Upper Pierre Aquifer Top				
1,653.00	1,653.00	Upper Pierre Aquifer Base				
3,673.26	3,630.00	Parkman				
4,117.36	4,052.00	Sussex				
4,312.05	4,237.00	Shannon				
6,067.41	5,905.00	Teepee Buttes				
6,732.11	6,522.00	Sharon Springs				
6,795.16	6,568.00	Top A Chalk				
6,798.04	6,570.00	Top A Marl				
6,818.57	6,584.00	Top B Chalk				
6,900.53	6,635.00	Top B Marl				
7,058.75	6,709.00	Top C Chalk				
7,182.13	6,742.00	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-735		
Design:	Plan #1		

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	Build: 2°/100'	
3,107.62	3,092.51	-118.73	-78.95	Hold: 18.15° Inc, 213.62° Azm	
6,130.22	5,964.68	-902.88	-600.35	KOP: Build 9°/100' @ 6130.22' MD	
7,296.07	6,752.00	-289.32	-752.13	LP: 7296.07' MD, 90.00° Inc, 359.39° Azm	
17,436.50	6,752.00	9,850.54	-860.35	TD @ 17436.50' MD/6752.00' TVD	

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-735

Guttersen State DD30-735

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 DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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	17,436.50	Plan #1 (Gutttersen State DD30-735)	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	13,971.48	6,699.65	5,339.78	5,254.66	62.735	CC
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	14,000.00	6,699.67	5,339.85	5,254.51	62.571	ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	15,500.00	6,700.79	5,554.24	5,459.29	58.495	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,013.74	6,629.15	5,814.71	5,736.91	74.741	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,629.71	5,815.35	5,736.89	74.119	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	15,000.00	6,642.63	6,144.59	6,054.27	68.033	SF
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,180.68	6,693.82	4,682.12	4,580.01	45.855	CC
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,693.72	4,682.16	4,579.89	45.784	ES
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	17,200.00	6,688.34	4,791.79	4,682.97	44.037	SF
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	16,979.72	6,813.42	8,356.95	8,248.54	77.088	CC
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,813.42	8,356.97	8,248.40	76.971	ES
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,813.46	8,369.42	8,257.41	74.717	SF
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,682.86	6,735.03	8,379.84	8,281.61	85.309	CC
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,700.00	6,735.00	8,379.85	8,281.49	85.190	ES
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,731.68	8,561.36	8,450.59	77.291	SF
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	16,985.93	6,645.72	7,038.73	6,930.43	64.992	CC
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,645.73	7,038.74	6,930.32	64.923	ES
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,646.31	7,053.13	6,941.29	63.063	SF
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,757.01	6,667.22	6,994.74	6,896.01	70.851	CC
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,667.28	6,994.87	6,895.80	70.604	ES
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,669.47	7,193.54	7,083.30	65.253	SF
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,315.59	6,724.13	7,669.85	7,566.68	74.337	CC
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,724.90	7,670.32	7,566.46	73.854	ES
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,734.35	7,751.32	7,639.82	69.519	SF
Gutttersen 24J (PR) - Wellbore #1 - Gyro Surveys	17,436.50	6,682.55	7,575.94	7,464.08	67.729	CC, ES, SF
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,347.11	6,601.91	6,440.91	6,338.83	63.097	CC
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,400.00	6,601.63	6,441.13	6,338.62	62.835	ES
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	17,436.50	6,596.06	6,532.38	6,422.48	59.435	SF
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,851.29	6,695.12	4,986.64	4,895.74	54.864	CC
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,900.00	6,694.82	4,986.87	4,895.59	54.631	ES
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	16,100.00	6,687.53	5,140.60	5,041.57	51.913	SF
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,224.93	6,628.79	4,447.34	4,360.42	51.169	CC, ES
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,624.29	4,575.43	4,481.49	48.706	SF
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,986.42	6,710.45	4,380.95	4,303.15	56.315	CC
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,000.00	6,710.42	4,380.97	4,303.07	56.240	ES
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	14,200.00	6,708.16	4,545.93	4,460.45	53.178	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,504.24	6,690.79	8,331.16	8,242.12	93.571	CC

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,600.00	6,690.82	8,331.71	8,241.92	92.793	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	17,436.50	6,691.80	8,832.12	8,724.00	81.688	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,969.73	6,664.00	6,774.00	6,586.25	36.079	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	13,000.00	6,664.00	6,774.07	6,586.09	36.035	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,400.00	6,664.00	6,923.35	6,725.63	35.015	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,494.33	6,587.76	6,914.17	6,819.03	72.678	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,500.00	6,587.82	6,914.17	6,818.99	72.644	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	16,800.00	6,610.75	7,288.44	7,178.37	66.219	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,028.75	6,602.34	5,715.20	5,606.68	52.666	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,100.00	6,603.33	5,715.64	5,606.54	52.387	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,436.50	6,607.76	5,729.72	5,618.01	51.290	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,594.98	6,831.11	5,709.22	5,611.41	58.367	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,600.00	6,831.11	5,709.22	5,611.37	58.343	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	17,100.00	6,832.71	5,904.26	5,796.66	54.874	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,576.41	6,661.60	4,405.12	4,307.82	45.271	CC
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,600.00	6,661.33	4,405.19	4,307.69	45.182	ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	16,500.00	6,651.08	4,500.89	4,397.46	43.514	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,396.52	6,883.00	7,994.16	7,912.82	98.282	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,500.00	6,882.15	7,994.83	7,912.70	97.347	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	16,700.00	6,900.31	8,649.78	8,547.78	84.800	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	Database:	EDMP
Reference Design:	Plan #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	100.00	58.09	8,200.96	8,200.73	10,000.000	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	300.00	209.56	8,201.24	8,199.81	5,732.323	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	13,900.00	6,790.31	9,630.91	9,541.40	107.590	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	100.00	60.98	8,184.31	8,184.08	10,000.000	CC
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	900.00	847.76	8,185.06	8,180.55	1,813.724	ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	13,200.00	7,030.03	9,954.07	9,879.56	133.602	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	9,070.12	6,859.76	7,008.35	6,949.58	119.250	CC
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	9,100.00	6,859.78	7,008.41	6,949.52	119.002	ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	12,400.00	6,862.12	7,759.19	7,684.91	104.463	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,496.72	6,758.03	6,870.52	6,822.05	141.752	CC
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,500.00	6,758.04	6,870.52	6,822.05	141.743	ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	11,700.00	6,764.38	8,054.28	7,989.14	123.641	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,176.34			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	100.00	35.58	8,176.35	8,176.16	10,000.000	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	13,100.00	6,979.51	9,977.64	9,894.90	120.587	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	7,292.82	7,023.72	7,662.86	7,612.54	152.290	CC, ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	12,200.00	7,105.00	9,103.17	9,034.75	133.034	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,243.53	6,727.79	4,960.69	4,911.88	101.632	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	9,200.00	6,749.81	5,358.96	5,304.98	99.284	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,404.51	6,969.58	3,839.07	3,785.69	71.920	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	9,300.00	6,958.19	3,942.11	3,886.68	71.122	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,241.10	6,880.00	3,814.72	3,763.65	74.689	CC
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,250.00	6,881.07	3,814.74	3,763.64	74.648	ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	8,800.00	6,926.25	4,141.95	4,083.59	70.973	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	9,053.47	6,862.04	5,697.38	5,636.13	93.024	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	9,100.00	6,862.22	5,697.57	5,636.06	92.628	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	11,500.00	6,865.53	6,200.46	6,125.16	82.346	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	7,479.91	6,686.23	5,874.08	5,825.87	121.841	CC, ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	10,600.00	6,688.49	6,651.30	6,591.82	111.819	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	9,062.30	6,923.55	4,402.83	4,342.01	72.387	CC, ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	10,100.00	6,934.03	4,523.45	4,459.23	70.436	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	7,755.01	6,794.46	4,382.21	4,333.83	90.588	CC, ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	9,600.00	6,792.91	4,754.75	4,699.55	86.134	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,320.24	6,924.14	7,325.83	7,259.19	109.932	CC, ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	14,700.00	6,839.19	8,067.08	7,980.36	93.033	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,392.31	7,097.04	8,522.16	8,459.84	136.761	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	7,096.26	8,522.17	8,459.82	136.667	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,700.00	9,731.90	9,644.46	111.306	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,754.61	6,828.55	8,324.74	8,256.47	121.953	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,800.00	6,828.03	8,324.86	8,256.28	121.383	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	15,800.00	6,787.27	9,255.51	9,162.87	99.905	SF
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,482.29	6,771.83	6,904.17	6,844.51	115.733	CC
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,500.00	6,771.14	6,904.19	6,844.43	115.520	ES
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	13,800.00	6,632.83	7,658.73	7,580.15	97.461	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,352.78	6,692.23	8,726.32	8,653.95	120.584	CC
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,400.00	6,691.43	8,726.45	8,653.74	120.013	ES
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	16,500.00	6,618.80	9,661.49	9,563.84	98.940	SF
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	100.00	26.46	7,534.36	7,534.18	10,000.000	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	300.00	191.83	7,534.96	7,533.78	6,348.136	ES
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	14,300.00	7,129.51	8,848.02	8,763.96	105.255	SF
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	9,998.61	6,666.58	6,467.35	6,410.60	113.978	CC
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	10,000.00	6,666.59	6,467.35	6,410.60	113.962	ES
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	13,100.00	6,668.57	7,172.53	7,098.28	96.597	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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						
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,079.32	6,528.84	5,227.14	5,163.08	81.603	CC
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,100.00	6,528.65	5,227.18	5,162.98	81.422	ES
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	13,000.00	6,511.66	5,568.80	5,493.21	73.671	SF
Guttersen D25-715 - Wellbore #1 - Plan #1	17,436.50	14,886.60	4,035.18	3,878.27	25.716	CC, ES, SF
Guttersen D25-724 - Wellbore #1 - Plan #1	17,436.50	14,746.32	4,644.99	4,487.98	29.583	CC, ES, SF
Guttersen D25-734 - Wellbore #1 - Plan #1	17,436.50	14,761.47	5,276.59	5,120.69	33.845	CC, ES, SF
Guttersen D25-743 - Wellbore #1 - Plan #1	9,505.44	5,551.57	5,772.37	5,718.79	107.740	CC, ES
Guttersen D25-743 - Wellbore #1 - Plan #1	17,436.50	14,905.87	5,901.81	5,745.12	37.667	SF
Guttersen D25-753 - Wellbore #1 - Plan #1	17,436.50	15,083.58	6,506.91	6,350.33	41.556	CC, ES, SF
Guttersen D25-762 - Wellbore #1 - Plan #1	17,436.50	15,007.46	7,095.34	6,938.89	45.353	CC, ES, SF
Guttersen D25-772 - Wellbore #1 - Plan #1	9,625.08	5,684.82	7,665.89	7,610.70	138.912	CC
Guttersen D25-772 - Wellbore #1 - Plan #1	17,436.50	15,149.61	7,764.19	7,608.17	49.761	ES, SF
Guttersen D25-781 - Wellbore #1 - Plan #1	10,149.82	4,527.84	8,035.66	7,982.26	150.472	CC
Guttersen D25-781 - Wellbore #1 - Plan #1	10,200.00	4,506.52	8,035.79	7,982.17	149.868	ES
Guttersen D25-781 - Wellbore #1 - Plan #1	17,436.50	15,185.43	8,382.22	8,226.42	53.801	SF
Guttersen State D36-714 - Wellbore #1 - Plan #1	9,571.95	7,150.00	4,009.52	3,951.64	69.272	CC
Guttersen State D36-714 - Wellbore #1 - Plan #1	9,600.00	7,133.61	4,009.55	3,951.56	69.147	ES
Guttersen State D36-714 - Wellbore #1 - Plan #1	11,400.00	6,600.00	4,282.60	4,215.94	64.244	SF
Guttersen State D36-724 - Wellbore #1 - Plan #1	9,719.76	6,928.23	4,632.95	4,575.36	80.450	CC
Guttersen State D36-724 - Wellbore #1 - Plan #1	9,800.00	6,876.91	4,633.23	4,575.35	80.061	ES
Guttersen State D36-724 - Wellbore #1 - Plan #1	11,700.00	6,369.02	4,925.94	4,858.63	73.185	SF
Guttersen State D36-733 - Wellbore #1 - Plan #1	9,500.00	9,500.00	5,257.73	5,191.78	79.723	SF
Guttersen State D36-733 - Wellbore #1 - Plan #1	10,128.63	6,308.67	5,229.04	5,171.00	90.092	CC, ES
Guttersen State D36-743 - Wellbore #1 - Plan #1	10,248.19	5,526.01	5,726.66	5,669.91	100.916	CC
Guttersen State D36-743 - Wellbore #1 - Plan #1	10,300.00	5,519.09	5,726.89	5,669.83	100.371	ES
Guttersen State D36-743 - Wellbore #1 - Plan #1	12,700.00	5,201.35	6,220.84	6,150.54	88.496	SF
Guttersen State D36-752 - Wellbore #1 - Plan #1	9,576.79	7,176.07	6,499.59	6,440.78	110.517	CC
Guttersen State D36-752 - Wellbore #1 - Plan #1	9,600.00	7,164.47	6,499.61	6,440.72	110.370	ES
Guttersen State D36-752 - Wellbore #1 - Plan #1	13,200.00	6,450.00	7,238.68	7,161.94	94.317	SF
Guttersen State D36-762 - Wellbore #1 - Plan #1	10,103.48	6,500.00	7,081.17	7,022.21	120.098	CC, ES
Guttersen State D36-762 - Wellbore #1 - Plan #1	13,600.00	5,731.09	7,856.98	7,779.86	101.884	SF
Guttersen State D36-771 - Wellbore #1 - Plan #1	10,380.66	5,466.68	7,585.61	7,528.21	132.156	CC
Guttersen State D36-771 - Wellbore #1 - Plan #1	10,400.00	5,461.79	7,585.63	7,528.13	131.913	ES
Guttersen State D36-771 - Wellbore #1 - Plan #1	14,300.00	4,477.55	8,480.82	8,403.17	109.218	SF
Guttersen State D36-781 - Wellbore #1 - Plan #1	10,677.07	4,382.38	7,928.78	7,873.30	142.926	CC
Guttersen State D36-781 - Wellbore #1 - Plan #1	10,700.00	4,376.80	7,928.81	7,873.20	142.587	ES
Guttersen State D36-781 - Wellbore #1 - Plan #1	14,900.00	3,356.40	8,924.46	8,846.81	114.933	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,683.74	6,660.00	5,700.91	5,522.41	31.937	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,700.00	6,660.00	5,700.94	5,522.31	31.916	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,800.00	6,660.00	5,809.17	5,623.12	31.224	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,410.12	6,582.50	4,414.69	4,354.76	73.668	CC, ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	11,900.00	6,501.96	4,658.88	4,590.41	68.040	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,410.68	6,671.64	5,739.58	5,679.46	95.466	CC, ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	12,800.00	6,657.78	6,217.03	6,143.08	84.074	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,645.37	6,600.00	4,423.07	4,355.07	65.048	CC
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,700.00	6,600.00	4,423.41	4,355.01	64.675	ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	13,000.00	6,575.37	4,625.77	4,549.43	60.598	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,352.89	6,664.00	4,711.88	4,535.54	26.721	CC
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,400.00	6,664.00	4,712.11	4,535.45	26.672	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	12,100.00	6,664.00	4,770.74	4,589.39	26.306	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 DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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						
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,888.84	6,522.33	4,439.40	4,392.43	94.504	CC
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,900.00	6,531.07	4,439.43	4,392.41	94.416	ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	7,900.00	7,900.00	4,645.22	4,592.35	87.875	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	7,088.09	6,703.36	5,842.15	5,794.15	121.722	CC, ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	9,900.00	6,818.84	6,631.72	6,575.57	118.102	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,531.61	6,207.59	7,659.06	7,574.25	90.302	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,224.38	7,659.18	7,574.13	90.052	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,100.00	6,577.82	7,768.35	7,678.46	86.421	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,707.37	6,549.38	6,059.33	6,012.74	130.056	CC, ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,700.00	6,105.12	6,057.44	128.051	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	7,074.72	6,826.20	8,411.32	8,363.09	174.416	CC, ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	11,900.00	6,942.61	9,980.69	9,914.30	150.335	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	6,980.96	6,648.86	7,232.67	7,075.20	45.931	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,000.00	6,657.51	7,232.74	7,075.08	45.875	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,250.00	6,722.36	7,248.69	7,089.52	45.540	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,720.04	6,272.81	8,700.16	8,654.29	189.649	CC, ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	7,021.54	9,995.36	9,936.61	170.142	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,706.60	6,452.58	7,466.26	7,419.87	160.946	CC, ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	8,400.00	8,400.00	7,945.94	7,890.10	142.287	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,733.68	6,353.71	5,202.12	5,156.03	112.876	CC, ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,200.00	6,860.83	5,252.91	5,204.38	108.238	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,512.41	6,285.68	8,325.22	8,280.08	184.421	CC, ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,612.24	8,449.74	8,402.43	178.599	SF
DD Section 18						
Gutttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,729.34	1,483.66	1,428.83	27.059	CC, ES, SF
Gutttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,724.22	1,836.79	1,734.98	18.040	CC, ES, SF
Gutttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,723.80	2,258.99	2,205.46	42.195	CC, ES, SF
Gutttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,709.25	899.99	830.51	12.953	CC, ES, SF
Gutttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,732.81	2,381.07	2,312.55	34.752	CC, ES, SF
Gutttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,436.50	6,709.11	1,252.43	1,161.44	13.764	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,436.50	6,676.65	2,770.85	2,681.28	30.933	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling	17,436.50	6,688.71	3,896.10	3,795.61	38.770	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,436.50	6,756.91	3,315.37	3,206.02	30.317	CC, ES, SF
DD Section 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,934.02	6,708.17	564.94	464.81	5.642	CC, ES, SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,336.51	6,684.00	2,065.39	1,874.53	10.822	CC, ES
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,500.00	6,684.00	2,071.85	1,879.76	10.786	SF
Gutttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,932.44	6,699.37	356.07	248.07	3.297	CC, ES, SF
Gutttersen 44-19 (SI) - Wellbore #1 - No Surveys	13,068.77	6,729.00	965.89	776.11	5.090	CC, ES
Gutttersen 44-19 (SI) - Wellbore #1 - No Surveys	13,100.00	6,729.00	966.40	776.48	5.088	SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,746.10	6,734.24	2,511.65	2,405.05	23.561	CC, ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,000.00	6,730.79	2,524.45	2,416.48	23.380	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,634.99	6,719.80	2,903.94	2,821.30	35.137	CC, ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	14,100.00	6,723.42	2,940.94	2,855.77	34.530	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	11,351.14	6,900.01	5,238.34	5,171.14	77.958	CC
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	11,400.00	6,900.01	5,238.57	5,171.06	77.605	ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	16,200.00	16,200.00	7,137.35	7,021.49	61.599	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,200.00	2,209.01	2,360.56	2,308.72	45.541	CC
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	2,300.00	2,308.99	2,361.98	2,307.81	43.599	ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,600.00	6,761.01	2,973.92	2,810.97	18.251	SF
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,432.29	6,998.65	6,169.56	6,077.60	67.091	CC, ES
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	12,300.00	6,940.93	6,445.81	6,344.37	63.541	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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 30						
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,733.21	6,686.30	3,085.82	3,017.03	44.855	CC, ES
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,400.00	6,677.30	3,157.03	3,084.00	43.229	SF
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,315.87	6,661.44	3,170.52	3,110.97	53.245	CC, ES
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	11,100.00	6,631.40	3,265.86	3,201.76	50.955	SF
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,383.82	6,745.88	1,758.87	1,698.84	29.302	CC
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,745.58	1,758.94	1,698.81	29.250	ES
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	11,500.00	2,083.03	2,002.39	25.830	SF
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,014.01	6,708.29	2,358.94	2,294.94	36.858	CC, ES
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,710.42	2,408.49	2,341.53	35.970	SF
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,300.00	2,298.89	76.70	60.71	4.799	SF
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,200.00	2,200.00	38.02	22.71	2.484	CC, ES
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,300.00	2,300.12	38.80	22.82	2.427	SF
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,200.00	2,200.00	37.00	21.70	2.417	CC
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,300.00	2,299.00	37.37	21.39	2.338	ES
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,400.00	2,397.99	38.49	21.87	2.316	SF
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,430.40	17,390.13	1,398.60	1,220.98	7.874	CC, ES
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,436.50	17,383.05	1,398.65	1,221.01	7.874	SF
Guttersen State DD30-766 - Guttersen State DD30-766 -	3,187.49	2,810.26	1,911.16	1,890.75	93.611	CC
Guttersen State DD30-766 - Guttersen State DD30-766 -	3,200.00	2,818.69	1,911.19	1,890.70	93.304	ES
Guttersen State DD30-766 - Guttersen State DD30-766 -	17,436.50	17,329.34	2,107.37	1,930.58	11.920	SF
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,000.00	1,971.00	1,950.09	1,936.32	141.630	CC
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,100.00	2,045.53	1,950.56	1,936.17	135.579	ES
Guttersen State DD30-775 - Guttersen State DD30-775 -	17,436.50	17,481.59	2,717.83	2,540.23	15.303	SF
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,000.00	1,971.00	1,987.07	1,973.30	144.316	CC, ES
Guttersen State DD30-785 - Guttersen State DD30-785 -	17,436.50	17,796.63	3,357.15	3,180.14	18.966	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	7,150.00	6,675.38	1,512.05	1,464.00	31.473	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	7,358.18	6,506.99	1,505.40	1,457.80	31.625	CC, ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	3,167.39	2,842.95	1,889.89	1,869.27	91.669	CC
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	3,200.00	2,862.51	1,890.01	1,869.22	90.940	ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	7,600.00	6,336.26	2,029.91	1,981.75	42.151	SF
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,100.00	2,068.00	1,951.44	1,936.96	134.814	CC
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,200.00	2,140.92	1,951.91	1,936.82	129.357	ES
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	7,900.00	5,968.02	2,632.27	2,584.25	54.816	SF
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,000.00	1,968.00	1,989.37	1,975.61	144.596	CC
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,100.00	2,040.31	1,989.84	1,975.47	138.465	ES
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	8,400.00	5,584.77	3,098.19	3,049.79	64.014	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,193.73	6,675.00	3,218.68	3,054.87	19.649	CC
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,200.00	6,675.00	3,218.68	3,054.85	19.646	ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,500.00	6,675.00	3,233.21	3,067.85	19.552	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,691.13	6,681.00	1,705.90	1,546.98	10.735	CC, ES
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,700.00	6,681.00	1,705.92	1,546.99	10.734	SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,637.99	6,680.00	2,050.26	1,888.74	12.693	CC, ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,700.00	6,680.00	2,051.20	1,889.42	12.679	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,386.00	6,651.68	1,772.38	1,705.89	26.658	CC
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	6,651.49	1,772.43	1,705.84	26.616	ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,648.71	1,785.24	1,717.30	26.274	SF
State 19 (PA) - Wellbore #1 - NO Surveys	11,025.40	6,731.00	450.41	274.91	2.566	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 DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Gutttersen State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-735	Database:	EDMP
Reference Design:	Plan #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
DD Section 31						
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,750.00	10,956.00	561.31	460.52	5.569	ES, SF
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,757.08	10,956.00	561.25	460.53	5.573	CC
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,873.43	11,132.00	869.09	767.68	8.571	CC, ES, SF
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,738.93	11,048.00	336.43	266.47	4.809	CC
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,750.00	11,048.00	336.70	266.16	4.774	ES
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,800.00	11,048.00	344.34	271.99	4.760	SF
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,800.00	11,127.00	421.51	357.77	6.613	SF
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,822.29	11,127.00	420.55	356.96	6.614	CC, ES
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,315.73	6,103.53	2,816.12	2,772.31	64.288	CC, ES
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,317.09	2,858.63	2,813.40	63.196	SF
YY Section 6						
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,300.00	5,894.80	4,962.93	4,919.07	113.156	CC, ES
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,450.00	5,913.00	4,984.80	4,940.38	112.208	SF
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,293.71	5,956.17	4,924.13	4,880.75	113.511	CC, ES
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,500.00	6,010.00	4,961.07	4,916.83	112.138	SF
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,277.76	5,914.00	4,894.33	4,850.16	110.819	CC, ES
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,450.00	5,946.00	4,920.21	4,875.36	109.700	SF
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,264.52	5,887.53	4,900.14	4,854.17	106.607	CC, ES
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,500.00	6,010.00	4,945.00	4,897.89	104.964	SF
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,308.00	6,147.05	5,554.28	5,510.32	126.338	CC, ES
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,434.86	5,644.78	5,598.90	123.041	SF
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,304.45	6,147.90	6,831.34	6,787.36	155.320	CC, ES
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,957.11	7,122.05	7,072.80	144.594	SF
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,317.34	5,938.84	9,536.60	9,493.37	220.557	CC, ES
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,850.00	7,033.14	9,727.82	9,679.91	203.050	SF

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

Noble Energy, Inc.

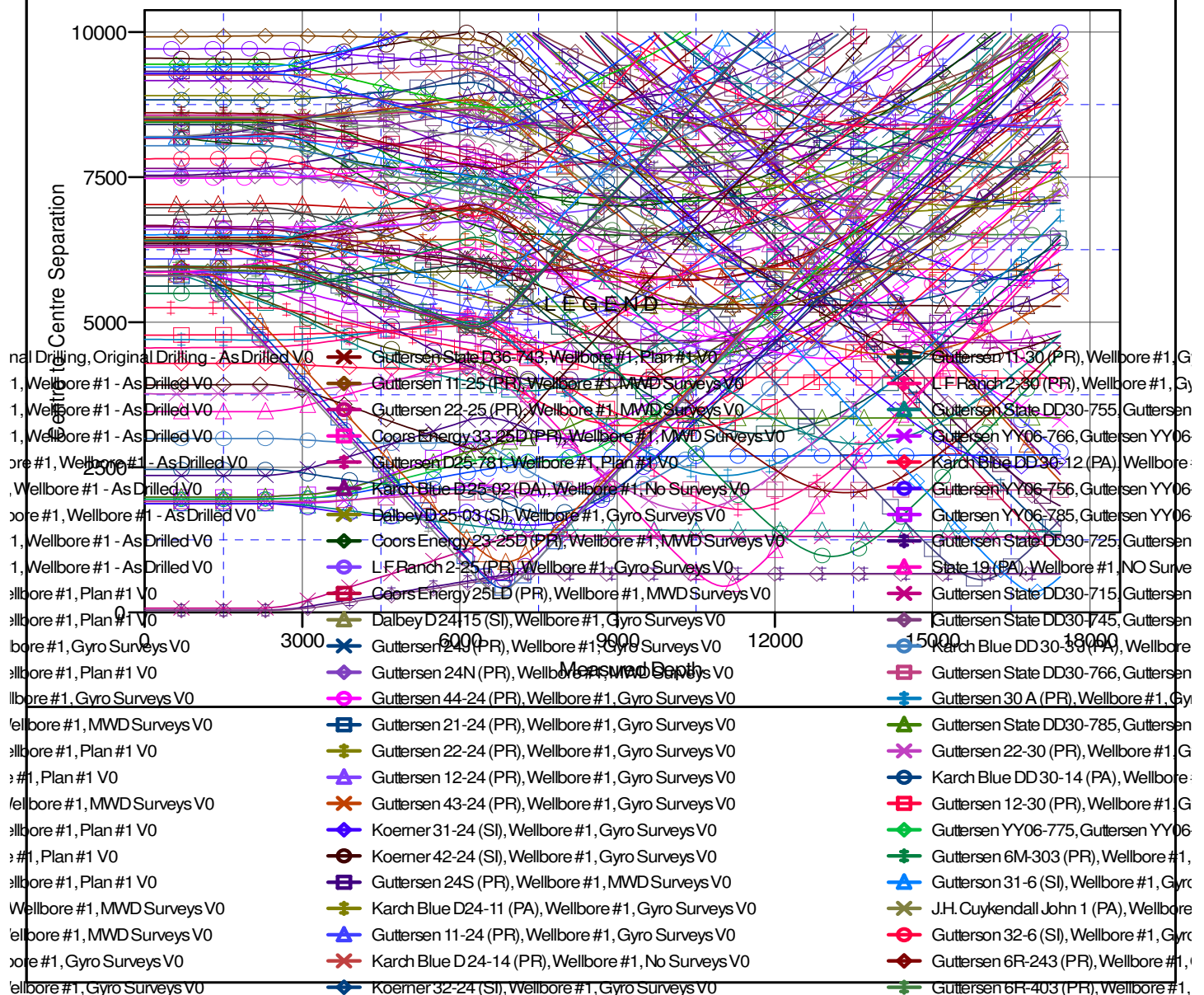
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-735
Project:	Mustang	TVD Reference:	KB @ 4853.00ft
Reference Site:	DD Section 30	MD Reference:	KB @ 4853.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Guttersten State DD30-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-735	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4853.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersten State DD30-735
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

Ladder Plot



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

Anticollision Summary Report

Company:	Northern Region - DJ Basin
Project:	Mustang
Reference Site:	DD Section 30
Site Error:	0.00 ft
Reference Well:	Guttersen State DD30-735
Well Error:	0.00 ft
Reference Wellbore	Guttersen State DD30-735
Reference Design:	Plan #1

Local Co-ordinate Reference:	Well Guttersen State DD30-735
TVD Reference:	KB @ 4853.00ft
MD Reference:	KB @ 4853.00ft
North Reference:	Grid
Survey Calculation Method:	Minimum Curvature
Output errors are at	2.00 sigma
Database:	EDMP
Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4853.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Gutteresen State DD30-735
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

