

Project: Mustang
 Site: DD Section 30
 Well: Gutteresen State DD30-715
 Wellbore: Gutteresen State DD30-715
 Design: Plan #1

Northern Region - DJ Basin

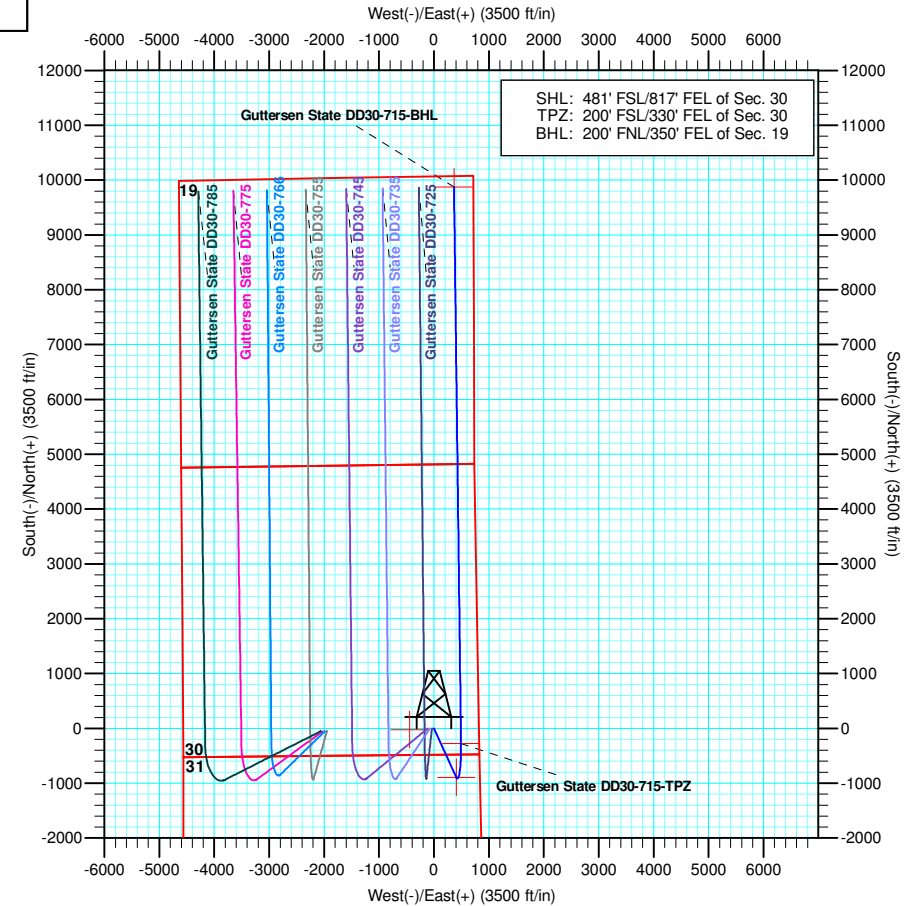
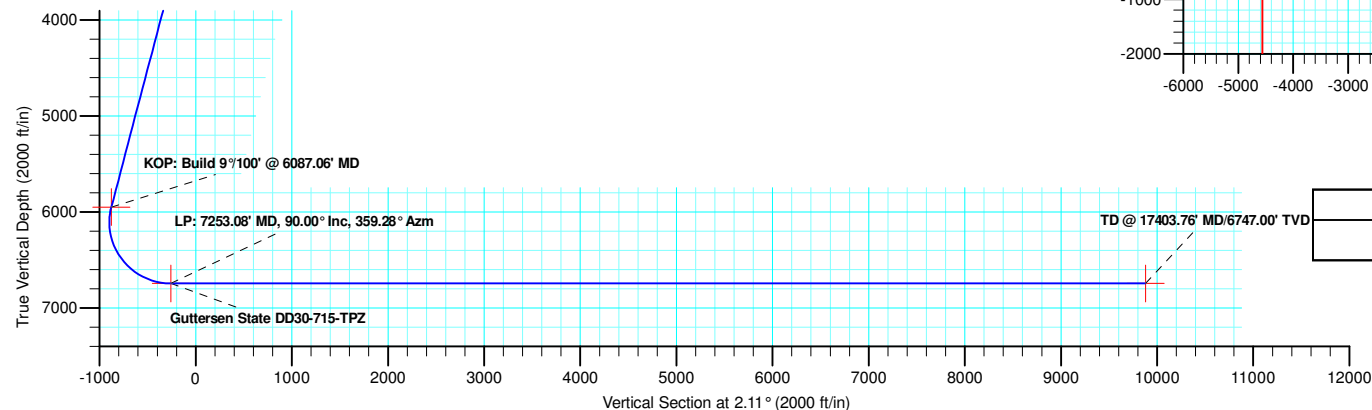
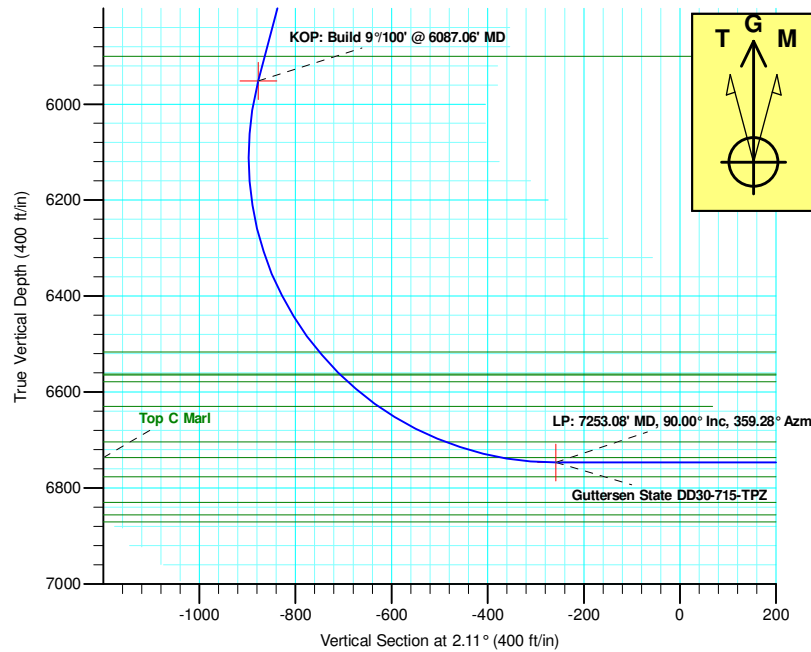
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	3017.87	16.36	155.56	3006.80	-105.56	47.98	2.00	155.56	-103.72	
4	6087.06	16.36	155.56	5951.77	-892.46	405.65	0.00	0.00	-876.89	
5	7253.08	90.00	359.28	6747.00	-276.23	491.84	9.00	-155.39	-257.90	Gutteresen State DD30-715-TPZ
6	17403.76	90.00	359.28	6747.00	9873.66	364.47	0.00	0.00	9880.38	Gutteresen State DD30-715-BHL

WELL DETAILS: Gutteresen State DD30-715

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



Plan: Plan #1 (Gutteresen State DD30-715/Gutteresen State DD30-715)

Created By: Keith Noack Date: 13:32, August 28 2018

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-715

Guttersen State DD30-715

Plan: Plan #1

Standard Planning Report

28 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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 DD30-715					
Well Position	+N/-S	-2,128.23 ft	Northing:	1,313,884.91 usft	Latitude:	40.1904588
	+E/-W	1,875.00 ft	Easting:	3,286,622.15 usft	Longitude:	-104.4740225
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

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

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	2.11

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	
3,017.87	16.36	155.56	3,006.80	-105.56	47.98	2.00	2.00	0.00	155.56	
6,087.06	16.36	155.56	5,951.77	-892.46	405.65	0.00	0.00	0.00	0.00	
7,253.08	90.00	359.28	6,747.00	-276.23	491.84	9.00	6.32	-13.40	-155.39	Guttersen State DD
17,403.77	90.00	359.28	6,747.00	9,873.66	364.47	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 DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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
622.00	0.00	0.00	622.00	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	155.56	2,299.98	-1.59	0.72	-1.56	2.00	2.00	0.00
2,400.00	4.00	155.56	2,399.84	-6.35	2.89	-6.24	2.00	2.00	0.00
2,500.00	6.00	155.56	2,499.45	-14.29	6.49	-14.04	2.00	2.00	0.00
2,600.00	8.00	155.56	2,598.70	-25.38	11.54	-24.94	2.00	2.00	0.00
2,700.00	10.00	155.56	2,697.47	-39.62	18.01	-38.93	2.00	2.00	0.00
2,800.00	12.00	155.56	2,795.62	-56.99	25.90	-56.00	2.00	2.00	0.00
2,900.00	14.00	155.56	2,893.06	-77.47	35.21	-76.12	2.00	2.00	0.00
3,000.00	16.00	155.56	2,989.64	-101.03	45.92	-99.27	2.00	2.00	0.00
3,017.87	16.36	155.56	3,006.80	-105.56	47.98	-103.72	2.00	2.00	0.00
Hold: 16.36° Inc, 155.56° Azm									
3,100.00	16.36	155.56	3,085.61	-126.62	57.55	-124.41	0.00	0.00	0.00
3,200.00	16.36	155.56	3,181.56	-152.26	69.21	-149.60	0.00	0.00	0.00
3,300.00	16.36	155.56	3,277.52	-177.90	80.86	-174.79	0.00	0.00	0.00
3,400.00	16.36	155.56	3,373.47	-203.54	92.51	-199.98	0.00	0.00	0.00
3,500.00	16.36	155.56	3,469.42	-229.17	104.17	-225.18	0.00	0.00	0.00
3,600.00	16.36	155.56	3,565.37	-254.81	115.82	-250.37	0.00	0.00	0.00
3,662.14	16.36	155.56	3,625.00	-270.75	123.06	-266.02	0.00	0.00	0.00
Parkman									
3,700.00	16.36	155.56	3,661.33	-280.45	127.47	-275.56	0.00	0.00	0.00
3,800.00	16.36	155.56	3,757.28	-306.09	139.13	-300.75	0.00	0.00	0.00
3,900.00	16.36	155.56	3,853.23	-331.73	150.78	-325.94	0.00	0.00	0.00
4,000.00	16.36	155.56	3,949.18	-357.37	162.44	-351.13	0.00	0.00	0.00
4,100.00	16.36	155.56	4,045.13	-383.01	174.09	-376.32	0.00	0.00	0.00

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Project:	Mustang	MD Reference:	KB @ 4853.00ft
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Well:	Guttersen State DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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)
4,101.94	16.36	155.56	4,047.00	-383.50	174.32	-376.81	0.00	0.00	0.00
Sussex									
4,200.00	16.36	155.56	4,141.09	-408.64	185.74	-401.51	0.00	0.00	0.00
4,294.75	16.36	155.56	4,232.00	-432.94	196.78	-425.38	0.00	0.00	0.00
Shannon									
4,300.00	16.36	155.56	4,237.04	-434.28	197.40	-426.71	0.00	0.00	0.00
4,400.00	16.36	155.56	4,332.99	-459.92	209.05	-451.90	0.00	0.00	0.00
4,500.00	16.36	155.56	4,428.94	-485.56	220.70	-477.09	0.00	0.00	0.00
4,600.00	16.36	155.56	4,524.90	-511.20	232.36	-502.28	0.00	0.00	0.00
4,700.00	16.36	155.56	4,620.85	-536.84	244.01	-527.47	0.00	0.00	0.00
4,800.00	16.36	155.56	4,716.80	-562.48	255.66	-552.66	0.00	0.00	0.00
4,900.00	16.36	155.56	4,812.75	-588.11	267.32	-577.85	0.00	0.00	0.00
5,000.00	16.36	155.56	4,908.71	-613.75	278.97	-603.04	0.00	0.00	0.00
5,100.00	16.36	155.56	5,004.66	-639.39	290.62	-628.24	0.00	0.00	0.00
5,200.00	16.36	155.56	5,100.61	-665.03	302.28	-653.43	0.00	0.00	0.00
5,300.00	16.36	155.56	5,196.56	-690.67	313.93	-678.62	0.00	0.00	0.00
5,400.00	16.36	155.56	5,292.52	-716.31	325.59	-703.81	0.00	0.00	0.00
5,500.00	16.36	155.56	5,388.47	-741.95	337.24	-729.00	0.00	0.00	0.00
5,600.00	16.36	155.56	5,484.42	-767.58	348.89	-754.19	0.00	0.00	0.00
5,700.00	16.36	155.56	5,580.37	-793.22	360.55	-779.38	0.00	0.00	0.00
5,800.00	16.36	155.56	5,676.32	-818.86	372.20	-804.57	0.00	0.00	0.00
5,900.00	16.36	155.56	5,772.28	-844.50	383.85	-829.77	0.00	0.00	0.00
6,000.00	16.36	155.56	5,868.23	-870.14	395.51	-854.96	0.00	0.00	0.00
6,033.11	16.36	155.56	5,900.00	-878.63	399.37	-863.30	0.00	0.00	0.00
Teepee Buttes									
6,087.06	16.36	155.56	5,951.77	-892.46	405.65	-876.89	0.00	0.00	0.00
KOP: Build 9°/100' @ 6087.06' MD									
6,100.00	15.31	153.72	5,964.21	-895.65	407.16	-880.02	9.00	-8.12	-14.20
6,150.00	11.45	143.60	6,012.86	-905.57	413.03	-889.71	9.00	-7.72	-20.23
6,200.00	8.25	124.75	6,062.13	-911.61	418.93	-895.53	9.00	-6.39	-37.70
6,250.00	6.74	91.64	6,111.72	-913.74	424.81	-897.45	9.00	-3.02	-66.23
6,300.00	7.94	57.08	6,161.33	-911.94	430.65	-895.44	9.00	2.41	-69.11
6,350.00	11.00	36.67	6,210.66	-906.24	436.40	-889.52	9.00	6.12	-40.82
6,400.00	14.81	25.80	6,259.39	-896.65	442.04	-879.73	9.00	7.62	-21.74
6,450.00	18.92	19.43	6,307.24	-883.24	447.52	-866.13	9.00	8.22	-12.75
6,500.00	23.17	15.30	6,353.89	-866.10	452.81	-848.81	9.00	8.50	-8.27
6,550.00	27.50	12.39	6,399.07	-845.33	457.89	-827.86	9.00	8.65	-5.81
6,600.00	31.87	10.23	6,442.50	-821.05	462.71	-803.42	9.00	8.74	-4.33
6,650.00	36.27	8.54	6,483.91	-793.42	467.26	-775.65	9.00	8.80	-3.38
6,692.07	39.99	7.38	6,517.00	-767.70	470.84	-749.81	9.00	8.84	-2.77
Sharon Springs									
6,700.00	40.69	7.18	6,523.04	-762.61	471.49	-744.70	9.00	8.85	-2.52
6,750.00	45.12	6.03	6,559.66	-728.80	475.39	-710.77	9.00	8.87	-2.28
6,754.75	45.54	5.94	6,563.00	-725.44	475.74	-707.40	9.00	8.88	-2.09
Top A Chalk									
6,757.61	45.80	5.88	6,565.00	-723.41	475.95	-705.36	9.00	8.88	-2.06
Top A Marl									
6,778.03	47.61	5.47	6,579.00	-708.62	477.42	-690.53	9.00	8.88	-1.99
Top B Chalk									
6,800.00	49.56	5.06	6,593.53	-692.21	478.93	-674.08	9.00	8.89	-1.88
6,850.00	54.01	4.20	6,624.45	-653.07	482.09	-634.84	9.00	8.90	-1.71
6,859.54	54.86	4.05	6,630.00	-645.33	482.65	-627.09	9.00	8.91	-1.60
Top B Marl									

Noble Energy, Inc.

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Project:	Mustang	MD Reference:	KB @ 4853.00ft
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Well:	Guttersen State DD30-715	Survey Calculation Method:	Minimum Curvature
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Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,900.00	58.47	3.44	6,652.23	-611.60	484.85	-593.30	9.00	8.91	-1.51
6,950.00	62.93	2.74	6,676.70	-568.07	487.20	-549.71	9.00	8.92	-1.39
7,000.00	67.39	2.10	6,697.70	-522.75	489.11	-504.35	9.00	8.92	-1.28
7,016.93	68.90	1.89	6,704.00	-507.05	489.65	-488.64	9.00	8.93	-1.23
Top C Chalk									
7,050.00	71.85	1.50	6,715.11	-475.92	490.57	-457.49	9.00	8.93	-1.19
7,100.00	76.32	0.93	6,728.81	-427.85	491.59	-409.43	9.00	8.93	-1.14
7,139.70	79.87	0.49	6,737.00	-389.02	492.07	-370.60	9.00	8.94	-1.10
Top C Marl									
7,150.00	80.79	0.38	6,738.73	-378.86	492.15	-360.45	9.00	8.94	-1.09
7,200.00	85.26	359.84	6,744.80	-329.25	492.24	-310.87	9.00	8.94	-1.07
7,253.08	90.00	359.28	6,747.00	-276.23	491.84	-257.90	9.00	8.94	-1.06
LP: 7253.08' MD, 90.00° Inc, 359.28° Azm									
7,300.00	90.00	359.28	6,747.00	-229.31	491.25	-211.04	0.00	0.00	0.00
7,400.00	90.00	359.28	6,747.00	-129.32	489.99	-111.16	0.00	0.00	0.00
7,500.00	90.00	359.28	6,747.00	-29.33	488.74	-11.28	0.00	0.00	0.00
7,600.00	90.00	359.28	6,747.00	70.66	487.48	88.60	0.00	0.00	0.00
7,700.00	90.00	359.28	6,747.00	170.65	486.23	188.47	0.00	0.00	0.00
7,800.00	90.00	359.28	6,747.00	270.65	484.97	288.35	0.00	0.00	0.00
7,900.00	90.00	359.28	6,747.00	370.64	483.72	388.23	0.00	0.00	0.00
8,000.00	90.00	359.28	6,747.00	470.63	482.46	488.11	0.00	0.00	0.00
8,100.00	90.00	359.28	6,747.00	570.62	481.21	587.99	0.00	0.00	0.00
8,200.00	90.00	359.28	6,747.00	670.62	479.95	687.86	0.00	0.00	0.00
8,300.00	90.00	359.28	6,747.00	770.61	478.70	787.74	0.00	0.00	0.00
8,400.00	90.00	359.28	6,747.00	870.60	477.45	887.62	0.00	0.00	0.00
8,500.00	90.00	359.28	6,747.00	970.59	476.19	987.50	0.00	0.00	0.00
8,600.00	90.00	359.28	6,747.00	1,070.58	474.94	1,087.37	0.00	0.00	0.00
8,700.00	90.00	359.28	6,747.00	1,170.58	473.68	1,187.25	0.00	0.00	0.00
8,800.00	90.00	359.28	6,747.00	1,270.57	472.43	1,287.13	0.00	0.00	0.00
8,900.00	90.00	359.28	6,747.00	1,370.56	471.17	1,387.01	0.00	0.00	0.00
9,000.00	90.00	359.28	6,747.00	1,470.55	469.92	1,486.89	0.00	0.00	0.00
9,100.00	90.00	359.28	6,747.00	1,570.54	468.66	1,586.76	0.00	0.00	0.00
9,200.00	90.00	359.28	6,747.00	1,670.54	467.41	1,686.64	0.00	0.00	0.00
9,300.00	90.00	359.28	6,747.00	1,770.53	466.15	1,786.52	0.00	0.00	0.00
9,400.00	90.00	359.28	6,747.00	1,870.52	464.90	1,886.40	0.00	0.00	0.00
9,500.00	90.00	359.28	6,747.00	1,970.51	463.64	1,986.28	0.00	0.00	0.00
9,600.00	90.00	359.28	6,747.00	2,070.51	462.39	2,086.15	0.00	0.00	0.00
9,700.00	90.00	359.28	6,747.00	2,170.50	461.13	2,186.03	0.00	0.00	0.00
9,800.00	90.00	359.28	6,747.00	2,270.49	459.88	2,285.91	0.00	0.00	0.00
9,900.00	90.00	359.28	6,747.00	2,370.48	458.62	2,385.79	0.00	0.00	0.00
10,000.00	90.00	359.28	6,747.00	2,470.47	457.37	2,485.66	0.00	0.00	0.00
10,100.00	90.00	359.28	6,747.00	2,570.47	456.11	2,585.54	0.00	0.00	0.00
10,200.00	90.00	359.28	6,747.00	2,670.46	454.86	2,685.42	0.00	0.00	0.00
10,300.00	90.00	359.28	6,747.00	2,770.45	453.61	2,785.30	0.00	0.00	0.00
10,400.00	90.00	359.28	6,747.00	2,870.44	452.35	2,885.18	0.00	0.00	0.00
10,500.00	90.00	359.28	6,747.00	2,970.43	451.10	2,985.05	0.00	0.00	0.00
10,600.00	90.00	359.28	6,747.00	3,070.43	449.84	3,084.93	0.00	0.00	0.00
10,700.00	90.00	359.28	6,747.00	3,170.42	448.59	3,184.81	0.00	0.00	0.00
10,800.00	90.00	359.28	6,747.00	3,270.41	447.33	3,284.69	0.00	0.00	0.00
10,900.00	90.00	359.28	6,747.00	3,370.40	446.08	3,384.56	0.00	0.00	0.00
11,000.00	90.00	359.28	6,747.00	3,470.40	444.82	3,484.44	0.00	0.00	0.00
11,100.00	90.00	359.28	6,747.00	3,570.39	443.57	3,584.32	0.00	0.00	0.00
11,200.00	90.00	359.28	6,747.00	3,670.38	442.31	3,684.20	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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	359.28	6,747.00	3,770.37	441.06	3,784.08	0.00	0.00	0.00
11,400.00	90.00	359.28	6,747.00	3,870.36	439.80	3,883.95	0.00	0.00	0.00
11,500.00	90.00	359.28	6,747.00	3,970.36	438.55	3,983.83	0.00	0.00	0.00
11,600.00	90.00	359.28	6,747.00	4,070.35	437.29	4,083.71	0.00	0.00	0.00
11,700.00	90.00	359.28	6,747.00	4,170.34	436.04	4,183.59	0.00	0.00	0.00
11,800.00	90.00	359.28	6,747.00	4,270.33	434.78	4,283.46	0.00	0.00	0.00
11,900.00	90.00	359.28	6,747.00	4,370.32	433.53	4,383.34	0.00	0.00	0.00
12,000.00	90.00	359.28	6,747.00	4,470.32	432.28	4,483.22	0.00	0.00	0.00
12,100.00	90.00	359.28	6,747.00	4,570.31	431.02	4,583.10	0.00	0.00	0.00
12,200.00	90.00	359.28	6,747.00	4,670.30	429.77	4,682.98	0.00	0.00	0.00
12,300.00	90.00	359.28	6,747.00	4,770.29	428.51	4,782.85	0.00	0.00	0.00
12,400.00	90.00	359.28	6,747.00	4,870.28	427.26	4,882.73	0.00	0.00	0.00
12,500.00	90.00	359.28	6,747.00	4,970.28	426.00	4,982.61	0.00	0.00	0.00
12,600.00	90.00	359.28	6,747.00	5,070.27	424.75	5,082.49	0.00	0.00	0.00
12,700.00	90.00	359.28	6,747.00	5,170.26	423.49	5,182.36	0.00	0.00	0.00
12,800.00	90.00	359.28	6,747.00	5,270.25	422.24	5,282.24	0.00	0.00	0.00
12,900.00	90.00	359.28	6,747.00	5,370.25	420.98	5,382.12	0.00	0.00	0.00
13,000.00	90.00	359.28	6,747.00	5,470.24	419.73	5,482.00	0.00	0.00	0.00
13,100.00	90.00	359.28	6,747.00	5,570.23	418.47	5,581.88	0.00	0.00	0.00
13,200.00	90.00	359.28	6,747.00	5,670.22	417.22	5,681.75	0.00	0.00	0.00
13,300.00	90.00	359.28	6,747.00	5,770.21	415.96	5,781.63	0.00	0.00	0.00
13,400.00	90.00	359.28	6,747.00	5,870.21	414.71	5,881.51	0.00	0.00	0.00
13,500.00	90.00	359.28	6,747.00	5,970.20	413.45	5,981.39	0.00	0.00	0.00
13,600.00	90.00	359.28	6,747.00	6,070.19	412.20	6,081.26	0.00	0.00	0.00
13,700.00	90.00	359.28	6,747.00	6,170.18	410.94	6,181.14	0.00	0.00	0.00
13,800.00	90.00	359.28	6,747.00	6,270.17	409.69	6,281.02	0.00	0.00	0.00
13,900.00	90.00	359.28	6,747.00	6,370.17	408.44	6,380.90	0.00	0.00	0.00
14,000.00	90.00	359.28	6,747.00	6,470.16	407.18	6,480.78	0.00	0.00	0.00
14,100.00	90.00	359.28	6,747.00	6,570.15	405.93	6,580.65	0.00	0.00	0.00
14,200.00	90.00	359.28	6,747.00	6,670.14	404.67	6,680.53	0.00	0.00	0.00
14,300.00	90.00	359.28	6,747.00	6,770.14	403.42	6,780.41	0.00	0.00	0.00
14,400.00	90.00	359.28	6,747.00	6,870.13	402.16	6,880.29	0.00	0.00	0.00
14,500.00	90.00	359.28	6,747.00	6,970.12	400.91	6,980.16	0.00	0.00	0.00
14,600.00	90.00	359.28	6,747.00	7,070.11	399.65	7,080.04	0.00	0.00	0.00
14,700.00	90.00	359.28	6,747.00	7,170.10	398.40	7,179.92	0.00	0.00	0.00
14,800.00	90.00	359.28	6,747.00	7,270.10	397.14	7,279.80	0.00	0.00	0.00
14,900.00	90.00	359.28	6,747.00	7,370.09	395.89	7,379.68	0.00	0.00	0.00
15,000.00	90.00	359.28	6,747.00	7,470.08	394.63	7,479.55	0.00	0.00	0.00
15,100.00	90.00	359.28	6,747.00	7,570.07	393.38	7,579.43	0.00	0.00	0.00
15,200.00	90.00	359.28	6,747.00	7,670.06	392.12	7,679.31	0.00	0.00	0.00
15,300.00	90.00	359.28	6,747.00	7,770.06	390.87	7,779.19	0.00	0.00	0.00
15,400.00	90.00	359.28	6,747.00	7,870.05	389.61	7,879.06	0.00	0.00	0.00
15,500.00	90.00	359.28	6,747.00	7,970.04	388.36	7,978.94	0.00	0.00	0.00
15,600.00	90.00	359.28	6,747.00	8,070.03	387.11	8,078.82	0.00	0.00	0.00
15,700.00	90.00	359.28	6,747.00	8,170.03	385.85	8,178.70	0.00	0.00	0.00
15,800.00	90.00	359.28	6,747.00	8,270.02	384.60	8,278.58	0.00	0.00	0.00
15,900.00	90.00	359.28	6,747.00	8,370.01	383.34	8,378.45	0.00	0.00	0.00
16,000.00	90.00	359.28	6,747.00	8,470.00	382.09	8,478.33	0.00	0.00	0.00
16,100.00	90.00	359.28	6,747.00	8,569.99	380.83	8,578.21	0.00	0.00	0.00
16,200.00	90.00	359.28	6,747.00	8,669.99	379.58	8,678.09	0.00	0.00	0.00
16,300.00	90.00	359.28	6,747.00	8,769.98	378.32	8,777.96	0.00	0.00	0.00
16,400.00	90.00	359.28	6,747.00	8,869.97	377.07	8,877.84	0.00	0.00	0.00
16,500.00	90.00	359.28	6,747.00	8,969.96	375.81	8,977.72	0.00	0.00	0.00
16,600.00	90.00	359.28	6,747.00	9,069.95	374.56	9,077.60	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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	359.28	6,747.00	9,169.95	373.30	9,177.48	0.00	0.00	0.00
16,800.00	90.00	359.28	6,747.00	9,269.94	372.05	9,277.35	0.00	0.00	0.00
16,900.00	90.00	359.28	6,747.00	9,369.93	370.79	9,377.23	0.00	0.00	0.00
17,000.00	90.00	359.28	6,747.00	9,469.92	369.54	9,477.11	0.00	0.00	0.00
17,100.00	90.00	359.28	6,747.00	9,569.91	368.28	9,576.99	0.00	0.00	0.00
17,200.00	90.00	359.28	6,747.00	9,669.91	367.03	9,676.86	0.00	0.00	0.00
17,300.00	90.00	359.28	6,747.00	9,769.90	365.77	9,776.74	0.00	0.00	0.00
17,403.77	90.00	359.28	6,747.00	9,873.66	364.47	9,880.38	0.00	0.00	0.00
TD @ 17403.76' MD/6747.00' 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	0.00	0.01	0.00	-23.32	-444.66	1,313,861.59	3,286,177.48	40.1904089	-104.4756150
- plan misses target center by 445.28ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Guttersen State DD30C	0.00	0.00	5,951.77	-892.46	405.65	1,312,992.45	3,287,027.80	40.1879962	-104.4726076
- plan hits target center									
- Point									
Guttersen State DD30C	0.00	0.00	6,747.00	9,873.66	364.47	1,323,758.54	3,286,986.62	40.2175497	-104.4723084
- plan hits target center									
- Point									
Guttersen State DD30C	0.00	0.01	6,747.00	-276.23	491.84	1,313,608.67	3,287,113.98	40.1896849	-104.4722736
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
622.00	622.00	Pierre				
716.00	716.00	Upper Pierre Aquifer Top				
1,653.00	1,653.00	Upper Pierre Aquifer Base				
3,662.14	3,625.00	Parkman				
4,101.94	4,047.00	Sussex				
4,294.75	4,232.00	Shannon				
6,033.11	5,900.00	Teepee Buttes				
6,692.07	6,517.00	Sharon Springs				
6,754.75	6,563.00	Top A Chalk				
6,757.61	6,565.00	Top A Marl				
6,778.03	6,579.00	Top B Chalk				
6,859.54	6,630.00	Top B Marl				
7,016.93	6,704.00	Top C Chalk				
7,139.70	6,737.00	Top C Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-715		
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'	
3,017.87	3,006.80	-105.56	47.98	Hold: 16.36° Inc, 155.56° Azm	
6,087.06	5,951.77	-892.46	405.65	KOP: Build 9°/100' @ 6087.06' MD	
7,253.08	6,747.00	-276.23	491.84	LP: 7253.08' MD, 90.00° Inc, 359.28° Azm	
17,403.77	6,747.00	9,873.66	364.47	TD @ 17403.76' MD/6747.00' TVD	

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-715

Guttersen State DD30-715

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 DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-715	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	17,403.77	Plan #1 (Gutttersen State DD30-715)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 24						
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	13,942.23	6,704.71	6,646.29	6,560.77	77.714	CC
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	14,000.00	6,704.77	6,646.54	6,560.59	77.333	ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	16,100.00	6,707.42	6,987.79	6,889.45	71.062	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,985.30	6,614.26	7,122.98	7,044.98	91.320	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	13,000.00	6,614.36	7,122.99	7,044.89	91.196	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	15,600.00	6,632.73	7,587.70	7,494.20	81.144	SF
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,150.16	6,699.01	5,984.49	5,881.95	58.361	CC
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,698.73	5,984.70	5,881.78	58.150	ES
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	17,403.77	6,692.08	6,114.38	6,003.98	55.386	SF
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	16,956.11	6,832.03	9,657.69	9,548.68	88.597	CC
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,832.03	9,657.79	9,548.44	88.324	ES
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,832.05	9,668.06	9,555.67	86.023	SF
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,659.29	6,741.33	9,683.13	9,584.42	98.101	CC
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,700.00	6,741.25	9,683.21	9,584.20	97.794	ES
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,737.97	9,839.01	9,728.12	88.729	SF
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	16,959.84	6,641.81	8,339.58	8,230.91	76.742	CC
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,641.86	8,339.68	8,230.70	76.525	ES
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,642.34	8,351.39	8,239.39	74.571	SF
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,730.85	6,665.68	8,297.91	8,198.79	83.719	CC
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,665.78	8,298.19	8,198.55	83.280	ES
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,667.93	8,464.86	8,354.45	76.667	SF
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,290.77	6,731.83	8,971.95	8,868.28	86.540	CC
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,732.83	8,972.62	8,868.11	85.854	ES
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,741.96	9,040.72	8,929.04	80.951	SF
Gutttersen 24J (PR) - Wellbore #1 - Gyro Surveys	17,403.77	6,682.50	8,875.48	8,763.15	79.017	CC, ES, SF
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,319.98	6,589.23	7,742.89	7,640.56	75.663	CC
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,400.00	6,588.80	7,743.30	7,640.36	75.220	ES
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	17,403.77	6,583.30	7,818.37	7,708.48	71.149	SF
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,821.33	6,700.27	6,291.49	6,200.17	68.893	CC
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,900.00	6,699.81	6,291.98	6,200.08	68.462	ES
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	16,600.00	6,689.88	6,538.07	6,436.11	64.122	SF
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,194.06	6,609.36	5,753.29	5,666.21	66.071	CC
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,200.00	6,609.34	5,753.30	5,666.17	66.037	ES
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,602.83	5,973.22	5,876.59	61.816	SF
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,955.37	6,706.63	5,689.31	5,611.18	72.815	CC
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	13,000.00	6,706.55	5,689.49	5,611.03	72.522	ES
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	6,703.37	5,950.80	5,862.46	67.362	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 DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-715	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 24						
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,480.59	6,689.17	9,636.67	9,547.24	107.757	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,600.00	6,689.21	9,637.41	9,547.09	106.699	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	17,100.00	6,690.06	9,986.33	9,879.58	93.549	SF
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,943.16	6,659.00	8,082.39	7,894.42	43.000	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	13,000.00	6,659.00	8,082.59	7,894.22	42.907	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,900.00	6,659.00	8,315.90	8,115.14	41.422	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,467.85	6,571.48	8,219.60	8,124.31	86.258	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,500.00	6,571.80	8,219.67	8,124.13	86.039	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	17,403.77	6,600.80	8,728.15	8,614.87	77.050	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,000.02	6,589.19	7,015.89	6,907.13	64.508	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,100.00	6,590.18	7,016.60	6,907.08	64.063	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,403.77	6,593.18	7,027.50	6,915.74	62.883	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,566.44	6,867.27	7,012.20	6,913.61	71.131	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,600.00	6,867.30	7,012.28	6,913.44	70.950	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	17,403.77	6,869.12	7,248.91	7,138.92	65.909	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,545.45	6,656.57	5,708.63	5,611.01	58.477	CC
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,600.00	6,655.94	5,708.89	5,610.86	58.237	ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	17,000.00	6,639.88	5,891.00	5,784.75	55.446	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,372.46	6,899.42	9,301.49	9,219.52	113.485	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,400.00	6,899.64	9,301.53	9,219.36	113.207	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	17,000.00	6,929.24	9,983.78	9,879.54	95.779	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-715	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						
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	100.00	58.05	8,275.93	8,275.70	10,000.000	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	300.00	209.38	8,276.21	8,274.78	5,787.216	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	11,600.00	6,767.44	9,980.36	9,904.06	130.799	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	100.00	60.97	8,259.30	8,259.07	10,000.000	CC
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	900.00	847.64	8,260.05	8,255.54	1,830.435	ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	10,300.00	7,028.83	9,999.05	9,939.54	168.012	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	2,514.61	2,989.80	8,119.13	8,098.54	394.394	CC, ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	13,300.00	6,857.09	9,348.96	9,270.58	119.272	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	7,676.52			
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	2,300.00	2,354.81	7,679.28	7,663.22	478.102	ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	12,800.00	6,767.76	9,770.75	9,700.87	139.805	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,251.32			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	100.00	35.45	8,251.34	8,251.15	10,000.000	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	6,000.00	6,000.00	9,885.87	9,841.15	221.032	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	100.00	59.49	8,258.85	8,258.62	10,000.000	CC
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	900.00	827.13	8,260.66	8,256.19	1,844.988	ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	11,600.00	7,105.00	9,974.43	9,908.05	150.243	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	2,631.69	2,941.90	5,904.86	5,886.40	319.957	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	10,400.00	6,752.94	7,074.65	7,016.06	120.758	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,372.34	6,978.59	5,156.00	5,102.55	96.459	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	10,300.00	6,955.44	5,504.51	5,445.12	92.693	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	5,081.84	5,795.06	5,002.86	4,961.84	121.975	CC
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	5,100.00	5,802.36	5,002.88	4,961.78	121.711	ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	9,800.00	6,938.53	5,775.65	5,713.06	92.284	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	100.00	31.13	5,936.32	5,936.14	10,000.000	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	300.00	194.40	5,937.07	5,935.80	4,670.223	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	12,400.00	6,859.93	7,782.99	7,703.46	97.860	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	1,061.09	1,008.15	6,720.93	6,714.00	970.697	CC
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	2,300.00	2,251.55	6,725.56	6,709.87	428.739	ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	11,800.00	6,681.21	8,404.98	8,340.53	130.412	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	2,868.37	3,678.35	5,708.89	5,682.25	214.309	CC
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	9,031.23	6,916.84	5,718.54	5,657.70	93.990	ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	10,800.00	6,935.30	5,985.81	5,918.72	89.211	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	3,853.30	4,596.00	5,478.97	5,450.00	189.136	CC, ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	10,600.00	6,792.10	6,384.82	6,325.39	107.435	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,293.60	6,938.72	8,636.85	8,569.60	128.439	CC
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,936.46	8,637.50	8,569.56	127.130	ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	15,500.00	6,843.16	9,605.62	9,514.72	105.672	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	513.07	473.08	9,785.61	9,782.52	3,171.650	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	7,070.00	9,834.72	9,771.78	156.268	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	12,100.00	6,973.25	9,987.30	9,914.43	137.068	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,730.77	6,843.92	9,635.32	9,566.57	140.143	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,800.00	6,843.08	9,635.57	9,566.34	139.195	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	14,400.00	6,814.16	9,998.16	9,912.25	116.379	SF
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,455.58	6,781.30	8,217.19	8,157.18	136.945	CC
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,500.00	6,779.60	8,217.31	8,157.04	136.346	ES
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	14,600.00	6,606.47	9,201.59	9,119.23	111.732	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys						Out of range
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	100.00	26.43	7,605.78	7,605.61	10,000.000	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	300.00	191.58	7,606.39	7,605.20	6,410.675	ES
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	14,200.00	7,146.73	9,974.11	9,890.20	118.862	SF
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	1,584.78	1,516.79	7,585.66	7,576.21	802.785	CC
Guttersten 25O (PR) - Wellbore #1 - MWD Surveys	2,200.00	2,123.61	7,586.24	7,572.48	551.110	ES

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 DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-715	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 25						
Guttersen 25O (PR) - Wellbore #1 - MWD Surveys	14,000.00	6,659.76	8,762.27	8,683.78	111.630	SF
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,050.20	6,499.19	6,538.49	6,474.58	102.304	CC
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	11,100.00	6,498.58	6,538.68	6,474.45	101.796	ES
Guttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	13,700.00	6,467.72	7,054.95	6,976.21	89.593	SF
Guttersen D25-715 - Wellbore #1 - Plan #1	17,403.77	14,900.22	5,335.16	5,177.73	33.890	CC, ES, SF
Guttersen D25-724 - Wellbore #1 - Plan #1	17,403.77	14,762.19	5,944.76	5,787.39	37.774	CC, ES, SF
Guttersen D25-734 - Wellbore #1 - Plan #1	2,250.69	2,288.14	6,425.58	6,409.87	408.946	CC
Guttersen D25-734 - Wellbore #1 - Plan #1	2,300.00	2,358.78	6,425.83	6,409.72	398.838	ES
Guttersen D25-734 - Wellbore #1 - Plan #1	17,403.77	14,776.51	6,576.21	6,419.55	41.978	SF
Guttersen D25-743 - Wellbore #1 - Plan #1	2,004.65	1,953.65	6,460.01	6,446.29	470.731	CC
Guttersen D25-743 - Wellbore #1 - Plan #1	2,200.00	2,115.63	6,460.40	6,445.42	431.211	ES
Guttersen D25-743 - Wellbore #1 - Plan #1	17,403.77	14,908.75	7,201.73	7,044.72	45.868	SF
Guttersen D25-753 - Wellbore #1 - Plan #1	17,403.77	15,100.05	7,806.84	7,649.68	49.677	CC, ES, SF
Guttersen D25-762 - Wellbore #1 - Plan #1	17,403.77	15,025.77	8,395.23	8,238.31	53.500	CC, ES, SF
Guttersen D25-772 - Wellbore #1 - Plan #1	2,223.44	2,238.31	8,603.56	8,588.10	556.571	CC, ES
Guttersen D25-772 - Wellbore #1 - Plan #1	17,403.77	15,164.73	9,064.14	8,907.55	57.884	SF
Guttersen D25-781 - Wellbore #1 - Plan #1	2,007.43	1,971.43	8,638.91	8,625.11	626.142	CC
Guttersen D25-781 - Wellbore #1 - Plan #1	2,200.00	2,100.00	8,639.58	8,624.65	578.660	ES
Guttersen D25-781 - Wellbore #1 - Plan #1	17,403.77	15,207.82	9,682.03	9,525.74	61.947	SF
Guttersen State D36-714 - Wellbore #1 - Plan #1	6,305.87	10,017.20	5,324.26	5,260.66	83.707	ES
Guttersen State D36-714 - Wellbore #1 - Plan #1	9,555.72	7,136.29	5,324.26	5,266.17	91.652	CC
Guttersen State D36-714 - Wellbore #1 - Plan #1	11,800.00	6,600.00	5,663.85	5,595.54	82.906	SF
Guttersen State D36-724 - Wellbore #1 - Plan #1	6,225.30	9,943.31	5,944.96	5,882.11	94.585	CC
Guttersen State D36-724 - Wellbore #1 - Plan #1	6,250.00	9,943.88	5,945.01	5,882.06	94.439	ES
Guttersen State D36-724 - Wellbore #1 - Plan #1	12,500.00	6,321.75	6,443.42	6,372.97	91.450	SF
Guttersen State D36-733 - Wellbore #1 - Plan #1	2,200.00	2,149.00	6,496.38	6,481.26	429.544	CC
Guttersen State D36-733 - Wellbore #1 - Plan #1	10,117.30	6,206.42	6,537.84	6,480.71	114.437	ES
Guttersen State D36-733 - Wellbore #1 - Plan #1	13,000.00	5,829.08	7,135.19	7,063.78	99.919	SF
Guttersen State D36-743 - Wellbore #1 - Plan #1	2,200.00	2,149.00	6,529.42	6,514.30	431.728	CC, ES
Guttersen State D36-743 - Wellbore #1 - Plan #1	13,500.00	4,805.94	7,707.33	7,636.79	109.270	SF
Guttersen State D36-752 - Wellbore #1 - Plan #1	5,980.45	9,972.91	7,796.71	7,732.48	121.387	CC
Guttersen State D36-752 - Wellbore #1 - Plan #1	6,000.00	9,977.93	7,796.74	7,732.39	121.170	ES
Guttersen State D36-752 - Wellbore #1 - Plan #1	13,800.00	6,450.00	8,692.36	8,613.07	109.622	SF
Guttersen State D36-762 - Wellbore #1 - Plan #1	10,089.20	6,466.06	8,393.36	8,334.73	143.142	CC
Guttersen State D36-762 - Wellbore #1 - Plan #1	10,100.00	6,464.41	8,393.37	8,334.68	143.008	ES
Guttersen State D36-762 - Wellbore #1 - Plan #1	14,400.00	5,476.92	9,382.57	9,303.59	118.794	SF
Guttersen State D36-771 - Wellbore #1 - Plan #1	2,200.00	2,164.00	8,549.73	8,534.56	563.309	CC, ES
Guttersen State D36-771 - Wellbore #1 - Plan #1	15,100.00	4,030.95	9,964.64	9,886.90	128.188	SF
Guttersen State D36-781 - Wellbore #1 - Plan #1	2,007.41	1,971.41	8,584.81	8,571.01	622.227	CC
Guttersen State D36-781 - Wellbore #1 - Plan #1	2,100.00	2,027.27	8,584.95	8,570.62	599.305	ES
Guttersen State D36-781 - Wellbore #1 - Plan #1	14,800.00	3,100.00	9,979.69	9,906.39	136.156	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,655.16	6,655.00	7,011.71	6,833.05	39.246	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,700.00	6,655.00	7,011.86	6,832.89	39.181	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	13,200.00	6,655.00	7,179.88	6,991.41	38.097	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,380.60	6,541.72	5,727.51	5,667.74	95.830	CC
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	6,540.72	5,727.54	5,667.66	95.650	ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	12,600.00	6,434.74	6,141.61	6,070.19	85.992	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,382.19	6,668.11	7,052.77	6,992.47	116.963	CC
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	6,668.03	7,052.79	6,992.39	116.756	ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	13,600.00	6,646.08	7,752.12	7,674.29	99.600	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,614.84	6,581.05	5,733.75	5,665.72	84.284	CC, ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	13,600.00	6,551.08	6,067.57	5,988.31	76.557	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,322.46	6,659.00	6,023.30	5,846.84	34.134	CC

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-715	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 25						
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,400.00	6,659.00	6,023.80	5,846.83	34.039	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	12,500.00	6,659.00	6,137.32	5,953.54	33.395	SF
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	2,136.94	2,071.98	5,318.43	5,303.94	367.031	CC
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,119.55	5,318.52	5,303.64	357.362	ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	8,000.00	8,000.00	5,943.05	5,889.52	111.037	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	2,331.72	2,386.57	6,678.87	6,662.20	400.550	CC
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	2,400.00	2,460.43	6,679.11	6,661.96	389.624	ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	11,200.00	6,840.59	8,443.10	8,381.68	137.463	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	3,263.39	3,160.46	8,660.74	8,618.30	204.078	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	4,200.00	4,012.91	8,668.24	8,616.98	169.101	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	7,050.00	6,549.18	8,962.25	8,872.54	99.899	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	2,566.44	2,610.69	7,046.87	7,029.07	395.806	CC
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	2,700.00	2,736.19	7,047.20	7,028.51	377.181	ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,700.00	7,377.88	7,330.05	154.260	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	2,246.66	2,271.09	9,233.50	9,217.92	592.788	CC
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	2,300.00	2,328.02	9,233.62	9,217.67	578.657	ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	8,800.00	6,906.19	9,981.49	9,929.14	190.672	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	2,200.00	2,172.00	8,117.31	8,066.21	158.872	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	2,500.00	2,471.45	8,121.30	8,063.23	139.845	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,200.00	6,716.80	8,556.49	8,397.50	53.815	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	334.64	323.66	9,520.47	9,518.54	4,937.819	CC
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	1,000.00	941.77	9,522.09	9,515.62	1,471.812	ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,887.82	9,994.79	9,946.35	206.310	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	674.00	654.03	8,261.23	8,256.94	1,922.306	CC
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	900.00	828.14	8,262.15	8,256.43	1,445.142	ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	8,900.00	8,900.00	9,368.09	9,308.96	158.447	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	313.68	259.68	6,161.46	6,159.84	3,792.687	CC
State 09 (SI) - Wellbore #1 - Gyro Surveys	2,500.00	2,482.06	6,170.00	6,152.86	359.997	ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,200.00	6,891.03	6,541.98	6,492.99	133.538	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	0.00	0.00	9,353.40			
State 30 (SI) - Wellbore #1 - Gyro Surveys	5,700.00	5,540.81	9,358.97	9,319.11	234.836	ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,583.08	9,620.99	9,573.59	202.994	SF
DD Section 18						
Guttersten 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,750.63	1,800.71	1,720.09	22.335	CC, ES, SF
Guttersten 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,735.50	3,052.88	2,943.73	27.969	CC, ES, SF
Guttersten 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,723.33	2,770.46	2,688.50	33.805	CC, ES, SF
Guttersten 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,710.64	1,899.09	1,794.42	18.144	CC, ES, SF
Guttersten 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,734.09	2,264.73	2,205.57	38.276	CC, ES, SF
Guttersten 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,403.77	6,715.06	933.93	866.09	13.767	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,403.77	6,661.49	3,824.78	3,722.27	37.313	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,403.77	6,694.99	5,008.01	4,899.10	45.983	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,403.77	6,783.39	4,587.93	4,476.14	41.040	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-715	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)	Between Ellipses (ft)	Separation Factor	Warning	
Offset Well - Wellbore - Design							
DD Section 19							
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,892.68	6,733.64	737.65	636.96	7.326	CC	
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,900.00	6,733.32	737.68	636.95	7.323	ES, SF	
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,301.12	6,679.00	3,373.09	3,182.08	17.659	CC, ES	
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,600.00	6,679.00	3,386.31	3,193.36	17.550	SF	
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,893.75	6,704.11	1,657.04	1,548.66	15.289	CC	
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,900.00	6,704.00	1,657.06	1,548.63	15.283	ES	
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	17,000.00	6,702.37	1,660.45	1,551.48	15.239	SF	
Guttersen 44-19 (SI) - Wellbore #1 - No Surveys	13,027.70	6,724.00	342.32	152.43	1.803	CC, ES, SF	
DD Section 20							
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,702.26	6,723.87	1,210.36	1,103.55	11.332	CC, ES	
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,800.00	6,722.54	1,214.30	1,106.86	11.301	SF	
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,590.31	6,723.67	1,596.79	1,513.87	19.257	CC	
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,600.00	6,723.75	1,596.81	1,513.82	19.239	ES	
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,700.00	6,724.53	1,600.55	1,516.84	19.120	SF	
DD Section 29							
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	11,301.46	6,867.22	3,927.53	3,860.63	58.710	CC, ES	
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	12,400.00	6,881.47	4,078.23	4,004.82	55.554	SF	
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,356.44	6,756.01	1,650.30	1,488.17	10.179	CC, ES	
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,400.00	6,756.01	1,650.88	1,488.59	10.173	SF	
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,383.20	6,942.74	4,857.59	4,766.79	53.496	CC	
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,942.22	4,857.62	4,766.72	53.439	ES	
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,905.22	5,007.53	4,909.95	51.315	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 Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-715	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	11,699.70	6,688.19	4,396.54	4,327.47	63.651	CC
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,700.00	6,688.19	4,396.54	4,327.47	63.649	ES
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,900.00	6,671.49	4,557.41	4,481.64	60.142	SF
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,282.89	6,654.91	4,483.86	4,424.22	75.173	CC
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,300.00	6,654.29	4,483.90	4,424.15	75.050	ES
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	11,800.00	6,605.27	4,733.15	4,665.78	70.258	SF
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,347.30	6,793.00	3,071.52	3,010.92	50.692	CC, ES
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	11,300.00	11,300.00	3,215.85	3,135.05	39.798	SF
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	10,979.24	6,726.75	3,670.93	3,606.54	57.011	CC
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,000.00	6,726.88	3,670.99	3,606.47	56.897	ES
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,900.00	6,733.43	3,784.64	3,715.28	54.558	SF
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,200.00	2,200.00	37.00	21.70	2.417	CC, ES
Guttersen State DD30-725 - Guttersen State DD30-725 -	2,300.00	2,299.84	37.91	21.93	2.372	SF
Guttersen State DD30-735 - Guttersen State DD30-735 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES
Guttersen State DD30-735 - Guttersen State DD30-735 -	2,300.00	2,298.55	76.69	60.71	4.799	SF
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,200.00	2,200.00	112.02	96.71	7.318	CC, ES
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,300.00	2,297.02	114.05	98.07	7.139	SF
Guttersen State DD30-755 - Guttersen State DD30-755 -	2,000.00	1,970.00	1,950.09	1,936.32	141.667	CC
Guttersen State DD30-755 - Guttersen State DD30-755 -	2,100.00	2,058.38	1,950.29	1,935.86	135.160	ES
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,403.77	17,383.05	2,698.22	2,519.89	15.131	SF
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,100.00	2,070.00	1,987.08	1,972.60	137.208	CC
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,200.00	2,146.42	1,987.50	1,972.39	131.566	ES
Guttersen State DD30-766 - Guttersen State DD30-766 -	17,403.77	17,329.34	3,407.41	3,230.25	19.233	SF
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,000.00	1,971.00	2,025.08	2,011.31	147.076	CC
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,100.00	2,044.92	2,025.53	2,011.15	140.811	ES
Guttersen State DD30-775 - Guttersen State DD30-775 -	17,403.77	17,481.59	4,017.44	3,839.86	22.623	SF
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,000.00	1,971.00	2,062.06	2,048.29	149.762	CC, ES
Guttersen State DD30-785 - Guttersen State DD30-785 -	17,403.77	17,796.63	4,657.19	4,479.80	26.253	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	2,200.00	2,167.00	1,951.44	1,936.25	128.482	CC, ES
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	7,000.00	7,000.00	2,816.71	2,768.52	58.448	SF
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	2,200.00	2,167.00	1,989.38	1,974.19	130.980	CC, ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	8,100.00	6,022.56	3,364.02	3,317.46	72.240	SF
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,100.00	2,068.00	2,026.37	2,011.90	139.990	CC
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,200.00	2,140.29	2,026.84	2,011.75	134.341	ES
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	8,700.00	5,427.88	4,014.31	3,968.50	87.624	SF
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,000.00	1,968.00	2,064.31	2,050.55	150.043	CC
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,100.00	2,039.70	2,064.77	2,050.41	143.700	ES
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	9,500.00	4,905.17	4,570.30	4,523.67	98.000	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	2,200.00	2,123.00	4,359.98	4,309.86	87.002	CC
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	2,300.00	2,222.98	4,361.22	4,308.77	83.144	ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,800.00	6,670.00	4,579.02	4,412.16	27.442	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	2,200.00	2,129.00	2,538.68	2,488.44	50.538	CC
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	2,300.00	2,228.98	2,539.46	2,486.88	48.303	ES
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,800.00	6,676.00	3,027.66	2,868.69	19.045	SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	2,200.00	2,128.00	3,069.89	3,019.67	61.137	CC
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	2,300.00	2,227.98	3,071.10	3,018.55	58.437	ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,900.00	6,675.00	3,379.89	3,217.31	20.789	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,350.51	6,627.89	3,083.32	3,016.94	46.453	CC, ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	12,000.00	6,618.90	3,150.97	3,081.08	45.087	SF
State 19 (PA) - Wellbore #1 - NO Surveys	10,985.30	6,726.00	861.63	686.08	4.908	CC, ES
State 19 (PA) - Wellbore #1 - NO Surveys	11,000.00	6,726.00	861.75	686.13	4.907	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 DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-715	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	6,536.30	10,956.00	1,764.63	1,655.90	16.229	CC
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,550.00	10,956.00	1,764.70	1,655.86	16.215	ES
Gutttersen 31Q-221 (PR) - Wellbore #1 - MWD Surveys	6,650.00	10,956.00	1,769.07	1,659.75	16.183	SF
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,662.55	11,132.00	2,082.20	1,973.24	19.109	CC, ES
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,750.00	11,132.00	2,084.69	1,975.21	19.043	SF
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,644.03	11,048.00	1,146.00	1,039.27	10.737	CC
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,650.00	11,048.00	1,146.02	1,039.27	10.735	ES, SF
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,688.79	11,127.00	1,494.19	1,386.84	13.920	CC, ES
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,750.00	11,127.00	1,495.96	1,388.39	13.907	SF
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,212.84	6,048.21	3,207.17	3,163.73	73.830	CC, ES
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,500.00	6,302.81	3,263.21	3,218.03	72.222	SF
YY Section 6						
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,200.68	5,881.00	5,277.68	5,234.23	121.472	CC, ES
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,400.00	5,913.00	5,309.27	5,265.07	120.102	SF
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,210.63	5,913.00	5,167.54	5,124.63	120.432	CC, ES
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,450.00	6,010.00	5,212.35	5,168.35	118.477	SF
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,208.89	5,901.54	5,068.27	5,024.56	115.939	CC, ES
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,450.00	5,946.00	5,115.37	5,070.77	114.697	SF
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,211.31	5,895.17	5,004.55	4,959.02	109.921	CC, ES
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,400.00	6,010.00	5,032.62	4,986.11	108.201	SF
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,236.60	6,114.42	5,746.85	5,703.31	131.982	CC, ES
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,426.37	5,845.03	5,799.44	128.215	SF
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,237.05	6,106.88	6,989.19	6,945.69	160.667	CC, ES
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,900.00	7,025.40	7,282.57	7,232.96	146.785	SF
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,207.79	5,886.60	9,927.01	9,884.19	231.841	CC, ES
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,500.00	6,500.00	9,987.37	9,941.57	218.042	SF

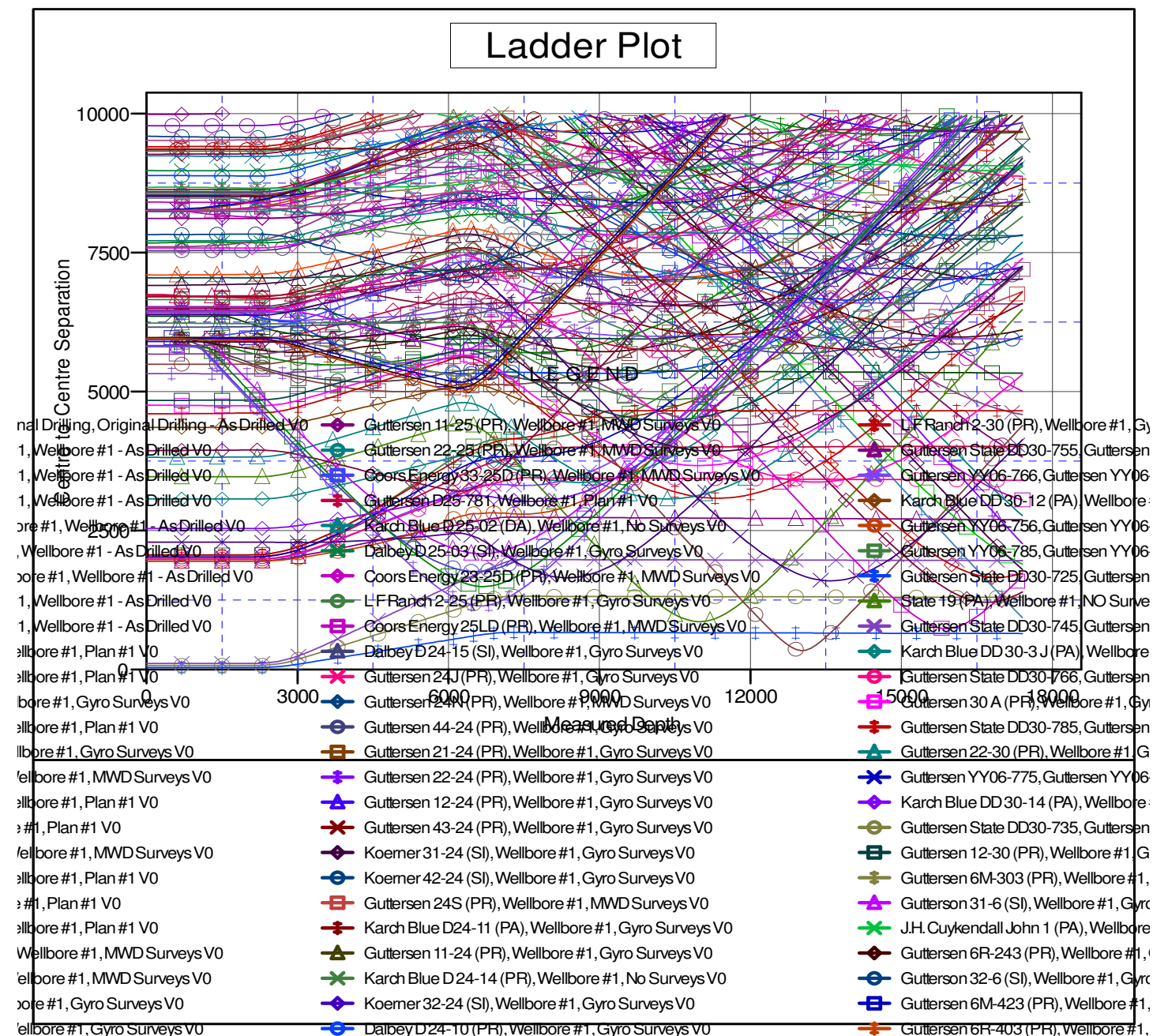
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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 DD30-715	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-715	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Guttersen State DD30-715

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.66°



Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-715
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Reference Wellbore	Guttersen State DD30-715	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: Guttarsen State DD30-715
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

