

Project: Mustang
Site: DD Section 30
Well: Gutteresen State DD30-725
Wellbore: Gutteresen State DD30-725
Design: Plan #1

Northern Region - DJ Basin

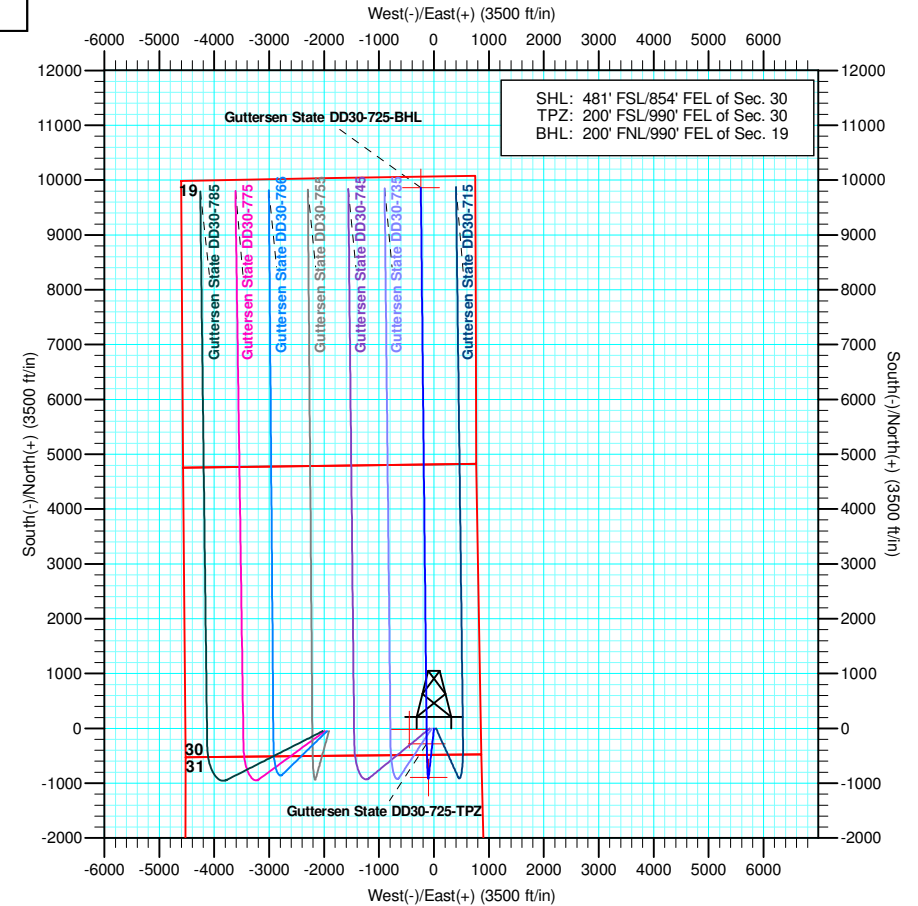
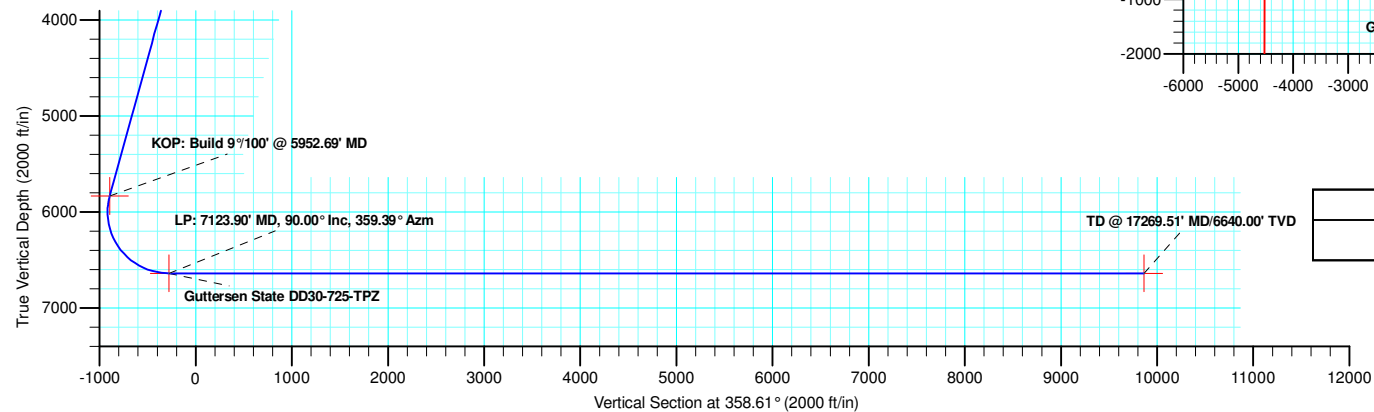
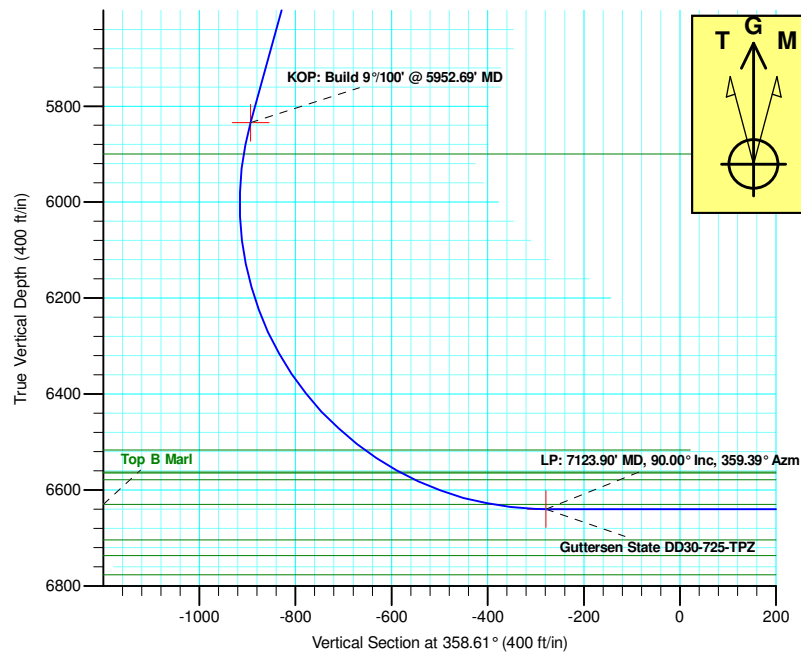
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	2976.10	15.52	186.24	2966.64	-103.87	-11.36	2.00	186.24	-103.56	
4	5952.69	15.52	186.24	5834.67	-895.71	-97.93	0.00	0.00	-893.07	
5	7123.90	90.00	359.39	6640.00	-282.29	-131.15	9.00	172.89	-279.02	Gutteresen State DD30-725-TPZ
6	17269.51	90.00	359.39	6640.00	9862.74	-239.40	0.00	0.00	9865.65	Gutteresen State DD30-725-BHL

WELL DETAILS: Gutteresen State DD30-725

+N/-S	+E/-W	Northing	Ground Level: Easting	4823.00 Latitude	Longitude	Slot
0.00	0.00	1313884.55	3286585.14	40.1904590	-104.4741550	



Plan: Plan #1 (Gutteresen State DD30-725/Gutteresen State DD30-725)

Created By: Keith Noack Date: 13:22, August 28 2018

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-725

Guttersen State DD30-725

Plan: Plan #1

Standard Planning Report

28 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
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 DD30-725					
Well Position	+N/-S	-2,128.59 ft	Northing:	1,313,884.55 usft	Latitude:	40.1904590
	+E/-W	1,838.00 ft	Easting:	3,286,585.15 usft	Longitude:	-104.4741550
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,823.00 ft

Wellbore	Guttersen State DD30-725				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/12/2018	7.92	66.70	52,191.77185476

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	358.61

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,976.10	15.52	186.24	2,966.64	-103.87	-11.36	2.00	2.00	0.00	186.24	
5,952.70	15.52	186.24	5,834.67	-895.71	-97.93	0.00	0.00	0.00	0.00	
7,123.90	90.00	359.39	6,640.00	-282.29	-131.15	9.00	6.36	14.78	172.89	Guttersen State DD
17,269.51	90.00	359.39	6,640.00	9,862.74	-239.40	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 DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
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	186.24	2,299.98	-1.73	-0.19	-1.73	2.00	2.00	0.00
2,400.00	4.00	186.24	2,399.84	-6.94	-0.76	-6.92	2.00	2.00	0.00
2,500.00	6.00	186.24	2,499.45	-15.60	-1.71	-15.55	2.00	2.00	0.00
2,600.00	8.00	186.24	2,598.70	-27.71	-3.03	-27.63	2.00	2.00	0.00
2,700.00	10.00	186.24	2,697.47	-43.26	-4.73	-43.14	2.00	2.00	0.00
2,800.00	12.00	186.24	2,795.62	-62.23	-6.80	-62.05	2.00	2.00	0.00
2,900.00	14.00	186.24	2,893.06	-84.59	-9.25	-84.34	2.00	2.00	0.00
2,976.10	15.52	186.24	2,966.64	-103.87	-11.36	-103.56	2.00	2.00	0.00
Hold: 15.52° Inc, 186.24° Azm									
3,000.00	15.52	186.24	2,989.67	-110.22	-12.05	-109.90	0.00	0.00	0.00
3,100.00	15.52	186.24	3,086.02	-136.83	-14.96	-136.42	0.00	0.00	0.00
3,200.00	15.52	186.24	3,182.38	-163.43	-17.87	-162.95	0.00	0.00	0.00
3,300.00	15.52	186.24	3,278.73	-190.03	-20.78	-189.47	0.00	0.00	0.00
3,400.00	15.52	186.24	3,375.08	-216.63	-23.68	-215.99	0.00	0.00	0.00
3,500.00	15.52	186.24	3,471.43	-243.24	-26.59	-242.52	0.00	0.00	0.00
3,600.00	15.52	186.24	3,567.79	-269.84	-29.50	-269.04	0.00	0.00	0.00
3,659.38	15.52	186.24	3,625.00	-285.63	-31.23	-284.79	0.00	0.00	0.00
Parkman									
3,700.00	15.52	186.24	3,664.14	-296.44	-32.41	-295.57	0.00	0.00	0.00
3,800.00	15.52	186.24	3,760.49	-323.04	-35.32	-322.09	0.00	0.00	0.00
3,900.00	15.52	186.24	3,856.85	-349.64	-38.23	-348.61	0.00	0.00	0.00
4,000.00	15.52	186.24	3,953.20	-376.25	-41.13	-375.14	0.00	0.00	0.00
4,097.35	15.52	186.24	4,047.00	-402.14	-43.97	-400.96	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
Site:	DD Section 30	North Reference:	Grid
Well:	Guttersen State DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
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									
4,100.00	15.52	186.24	4,049.55	-402.85	-44.04	-401.66	0.00	0.00	0.00
4,200.00	15.52	186.24	4,145.90	-429.45	-46.95	-428.19	0.00	0.00	0.00
4,289.36	15.52	186.24	4,232.00	-453.22	-49.55	-451.89	0.00	0.00	0.00
Shannon									
4,300.00	15.52	186.24	4,242.26	-456.05	-49.86	-454.71	0.00	0.00	0.00
4,400.00	15.52	186.24	4,338.61	-482.66	-52.77	-481.23	0.00	0.00	0.00
4,500.00	15.52	186.24	4,434.96	-509.26	-55.68	-507.76	0.00	0.00	0.00
4,600.00	15.52	186.24	4,531.31	-535.86	-58.58	-534.28	0.00	0.00	0.00
4,700.00	15.52	186.24	4,627.67	-562.46	-61.49	-560.80	0.00	0.00	0.00
4,800.00	15.52	186.24	4,724.02	-589.06	-64.40	-587.33	0.00	0.00	0.00
4,900.00	15.52	186.24	4,820.37	-615.67	-67.31	-613.85	0.00	0.00	0.00
5,000.00	15.52	186.24	4,916.73	-642.27	-70.22	-640.38	0.00	0.00	0.00
5,100.00	15.52	186.24	5,013.08	-668.87	-73.13	-666.90	0.00	0.00	0.00
5,200.00	15.52	186.24	5,109.43	-695.47	-76.03	-693.42	0.00	0.00	0.00
5,300.00	15.52	186.24	5,205.78	-722.08	-78.94	-719.95	0.00	0.00	0.00
5,400.00	15.52	186.24	5,302.14	-748.68	-81.85	-746.47	0.00	0.00	0.00
5,500.00	15.52	186.24	5,398.49	-775.28	-84.76	-772.99	0.00	0.00	0.00
5,600.00	15.52	186.24	5,494.84	-801.88	-87.67	-799.52	0.00	0.00	0.00
5,700.00	15.52	186.24	5,591.20	-828.48	-90.58	-826.04	0.00	0.00	0.00
5,800.00	15.52	186.24	5,687.55	-855.09	-93.48	-852.57	0.00	0.00	0.00
5,900.00	15.52	186.24	5,783.90	-881.69	-96.39	-879.09	0.00	0.00	0.00
5,952.70	15.52	186.24	5,834.67	-895.71	-97.93	-893.07	0.00	0.00	0.00
KOP: Build 9°/100' @ 5952.69' MD									
6,000.00	11.31	188.92	5,880.68	-906.59	-99.33	-903.91	9.00	-8.91	5.68
6,019.65	9.57	190.72	5,900.00	-910.09	-99.94	-907.40	9.00	-8.85	9.14
Teepee Buttes									
6,050.00	6.92	195.24	5,930.04	-914.34	-100.89	-911.62	9.00	-8.75	14.90
6,100.00	2.87	220.79	5,979.85	-918.19	-102.50	-915.43	9.00	-8.09	51.09
6,150.00	3.02	320.48	6,029.81	-918.12	-104.15	-915.32	9.00	0.30	199.39
6,200.00	7.11	343.98	6,079.61	-914.13	-105.84	-911.29	9.00	8.17	46.99
6,250.00	11.50	350.02	6,128.94	-906.24	-107.56	-903.37	9.00	8.80	12.09
6,300.00	15.96	352.74	6,177.50	-894.51	-109.30	-891.59	9.00	8.91	5.43
6,350.00	20.43	354.29	6,224.99	-879.00	-111.04	-876.04	9.00	8.95	3.10
6,400.00	24.92	355.30	6,271.11	-859.81	-112.77	-856.82	9.00	8.97	2.02
6,450.00	29.40	356.02	6,315.58	-837.05	-114.48	-834.03	9.00	8.98	1.44
6,500.00	33.90	356.56	6,358.14	-810.88	-116.17	-807.82	9.00	8.98	1.09
6,550.00	38.39	356.99	6,398.50	-781.44	-117.83	-778.35	9.00	8.99	0.86
6,600.00	42.88	357.34	6,436.44	-748.93	-119.43	-745.81	9.00	8.99	0.70
6,650.00	47.38	357.64	6,471.70	-713.53	-120.97	-710.39	9.00	8.99	0.59
6,700.00	51.87	357.90	6,504.08	-675.48	-122.45	-672.31	9.00	8.99	0.51
6,721.38	53.80	358.00	6,517.00	-658.45	-123.06	-655.27	9.00	8.99	0.47
Sharon Springs									
6,750.00	56.37	358.13	6,533.38	-635.00	-123.86	-631.81	9.00	8.99	0.44
6,800.00	60.87	358.33	6,559.41	-592.35	-125.17	-589.14	9.00	8.99	0.41
6,807.45	61.54	358.36	6,563.00	-585.82	-125.36	-582.60	9.00	8.99	0.39
Top A Chalk									
6,811.68	61.92	358.38	6,565.00	-582.10	-125.47	-578.89	9.00	8.99	0.38
Top A Marl									
6,842.86	64.72	358.49	6,579.00	-554.25	-126.23	-551.03	9.00	8.99	0.37
Top B Chalk									
6,850.00	65.36	358.52	6,582.01	-547.78	-126.40	-544.55	9.00	8.99	0.36
6,900.00	69.86	358.69	6,601.05	-501.57	-127.52	-498.33	9.00	8.99	0.35

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4853.00ft
Project:	Mustang	MD Reference:	KB @ 4853.00ft
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Well:	Guttersen State DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
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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)
6,950.00	74.36	358.86	6,616.41	-454.01	-128.54	-450.76	9.00	8.99	0.33
7,000.00	78.86	359.01	6,627.99	-405.40	-129.44	-402.14	9.00	8.99	0.32
7,010.88	79.83	359.05	6,630.00	-394.70	-129.62	-391.44	9.00	8.99	0.31
Top B Marl									
7,050.00	83.35	359.17	6,635.72	-356.02	-130.22	-352.75	9.00	8.99	0.30
7,100.00	87.85	359.32	6,639.55	-306.18	-130.88	-302.91	9.00	9.00	0.30
7,123.90	90.00	359.39	6,640.00	-282.29	-131.15	-279.02	9.00	9.00	0.30
LP: 7123.90' MD, 90.00° Inc, 359.39° Azm									
7,200.00	90.00	359.39	6,640.00	-206.19	-131.96	-202.93	0.00	0.00	0.00
7,300.00	90.00	359.39	6,640.00	-106.20	-133.03	-102.94	0.00	0.00	0.00
7,400.00	90.00	359.39	6,640.00	-6.20	-134.10	-2.95	0.00	0.00	0.00
7,500.00	90.00	359.39	6,640.00	93.79	-135.17	97.04	0.00	0.00	0.00
7,600.00	90.00	359.39	6,640.00	193.79	-136.23	197.03	0.00	0.00	0.00
7,700.00	90.00	359.39	6,640.00	293.78	-137.30	297.03	0.00	0.00	0.00
7,800.00	90.00	359.39	6,640.00	393.77	-138.37	397.02	0.00	0.00	0.00
7,900.00	90.00	359.39	6,640.00	493.77	-139.43	497.01	0.00	0.00	0.00
8,000.00	90.00	359.39	6,640.00	593.76	-140.50	597.00	0.00	0.00	0.00
8,100.00	90.00	359.39	6,640.00	693.76	-141.57	696.99	0.00	0.00	0.00
8,200.00	90.00	359.39	6,640.00	793.75	-142.63	796.98	0.00	0.00	0.00
8,300.00	90.00	359.39	6,640.00	893.75	-143.70	896.97	0.00	0.00	0.00
8,400.00	90.00	359.39	6,640.00	993.74	-144.77	996.96	0.00	0.00	0.00
8,500.00	90.00	359.39	6,640.00	1,093.73	-145.84	1,096.95	0.00	0.00	0.00
8,600.00	90.00	359.39	6,640.00	1,193.73	-146.90	1,196.94	0.00	0.00	0.00
8,700.00	90.00	359.39	6,640.00	1,293.72	-147.97	1,296.93	0.00	0.00	0.00
8,800.00	90.00	359.39	6,640.00	1,393.72	-149.04	1,396.92	0.00	0.00	0.00
8,900.00	90.00	359.39	6,640.00	1,493.71	-150.10	1,496.91	0.00	0.00	0.00
9,000.00	90.00	359.39	6,640.00	1,593.71	-151.17	1,596.90	0.00	0.00	0.00
9,100.00	90.00	359.39	6,640.00	1,693.70	-152.24	1,696.90	0.00	0.00	0.00
9,200.00	90.00	359.39	6,640.00	1,793.69	-153.30	1,796.89	0.00	0.00	0.00
9,300.00	90.00	359.39	6,640.00	1,893.69	-154.37	1,896.88	0.00	0.00	0.00
9,400.00	90.00	359.39	6,640.00	1,993.68	-155.44	1,996.87	0.00	0.00	0.00
9,500.00	90.00	359.39	6,640.00	2,093.68	-156.50	2,096.86	0.00	0.00	0.00
9,600.00	90.00	359.39	6,640.00	2,193.67	-157.57	2,196.85	0.00	0.00	0.00
9,700.00	90.00	359.39	6,640.00	2,293.67	-158.64	2,296.84	0.00	0.00	0.00
9,800.00	90.00	359.39	6,640.00	2,393.66	-159.71	2,396.83	0.00	0.00	0.00
9,900.00	90.00	359.39	6,640.00	2,493.65	-160.77	2,496.82	0.00	0.00	0.00
10,000.00	90.00	359.39	6,640.00	2,593.65	-161.84	2,596.81	0.00	0.00	0.00
10,100.00	90.00	359.39	6,640.00	2,693.64	-162.91	2,696.80	0.00	0.00	0.00
10,200.00	90.00	359.39	6,640.00	2,793.64	-163.97	2,796.79	0.00	0.00	0.00
10,300.00	90.00	359.39	6,640.00	2,893.63	-165.04	2,896.78	0.00	0.00	0.00
10,400.00	90.00	359.39	6,640.00	2,993.63	-166.11	2,996.78	0.00	0.00	0.00
10,500.00	90.00	359.39	6,640.00	3,093.62	-167.17	3,096.77	0.00	0.00	0.00
10,600.00	90.00	359.39	6,640.00	3,193.61	-168.24	3,196.76	0.00	0.00	0.00
10,700.00	90.00	359.39	6,640.00	3,293.61	-169.31	3,296.75	0.00	0.00	0.00
10,800.00	90.00	359.39	6,640.00	3,393.60	-170.38	3,396.74	0.00	0.00	0.00
10,900.00	90.00	359.39	6,640.00	3,493.60	-171.44	3,496.73	0.00	0.00	0.00
11,000.00	90.00	359.39	6,640.00	3,593.59	-172.51	3,596.72	0.00	0.00	0.00
11,100.00	90.00	359.39	6,640.00	3,693.59	-173.58	3,696.71	0.00	0.00	0.00
11,200.00	90.00	359.39	6,640.00	3,793.58	-174.64	3,796.70	0.00	0.00	0.00
11,300.00	90.00	359.39	6,640.00	3,893.57	-175.71	3,896.69	0.00	0.00	0.00
11,400.00	90.00	359.39	6,640.00	3,993.57	-176.78	3,996.68	0.00	0.00	0.00
11,500.00	90.00	359.39	6,640.00	4,093.56	-177.84	4,096.67	0.00	0.00	0.00
11,600.00	90.00	359.39	6,640.00	4,193.56	-178.91	4,196.66	0.00	0.00	0.00
11,700.00	90.00	359.39	6,640.00	4,293.55	-179.98	4,296.66	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,800.00	90.00	359.39	6,640.00	4,393.55	-181.05	4,396.65	0.00	0.00	0.00
11,900.00	90.00	359.39	6,640.00	4,493.54	-182.11	4,496.64	0.00	0.00	0.00
12,000.00	90.00	359.39	6,640.00	4,593.54	-183.18	4,596.63	0.00	0.00	0.00
12,100.00	90.00	359.39	6,640.00	4,693.53	-184.25	4,696.62	0.00	0.00	0.00
12,200.00	90.00	359.39	6,640.00	4,793.52	-185.31	4,796.61	0.00	0.00	0.00
12,300.00	90.00	359.39	6,640.00	4,893.52	-186.38	4,896.60	0.00	0.00	0.00
12,400.00	90.00	359.39	6,640.00	4,993.51	-187.45	4,996.59	0.00	0.00	0.00
12,500.00	90.00	359.39	6,640.00	5,093.51	-188.51	5,096.58	0.00	0.00	0.00
12,600.00	90.00	359.39	6,640.00	5,193.50	-189.58	5,196.57	0.00	0.00	0.00
12,700.00	90.00	359.39	6,640.00	5,293.50	-190.65	5,296.56	0.00	0.00	0.00
12,800.00	90.00	359.39	6,640.00	5,393.49	-191.72	5,396.55	0.00	0.00	0.00
12,900.00	90.00	359.39	6,640.00	5,493.48	-192.78	5,496.54	0.00	0.00	0.00
13,000.00	90.00	359.39	6,640.00	5,593.48	-193.85	5,596.54	0.00	0.00	0.00
13,100.00	90.00	359.39	6,640.00	5,693.47	-194.92	5,696.53	0.00	0.00	0.00
13,200.00	90.00	359.39	6,640.00	5,793.47	-195.98	5,796.52	0.00	0.00	0.00
13,300.00	90.00	359.39	6,640.00	5,893.46	-197.05	5,896.51	0.00	0.00	0.00
13,400.00	90.00	359.39	6,640.00	5,993.46	-198.12	5,996.50	0.00	0.00	0.00
13,500.00	90.00	359.39	6,640.00	6,093.45	-199.18	6,096.49	0.00	0.00	0.00
13,600.00	90.00	359.39	6,640.00	6,193.44	-200.25	6,196.48	0.00	0.00	0.00
13,700.00	90.00	359.39	6,640.00	6,293.44	-201.32	6,296.47	0.00	0.00	0.00
13,800.00	90.00	359.39	6,640.00	6,393.43	-202.39	6,396.46	0.00	0.00	0.00
13,900.00	90.00	359.39	6,640.00	6,493.43	-203.45	6,496.45	0.00	0.00	0.00
14,000.00	90.00	359.39	6,640.00	6,593.42	-204.52	6,596.44	0.00	0.00	0.00
14,100.00	90.00	359.39	6,640.00	6,693.42	-205.59	6,696.43	0.00	0.00	0.00
14,200.00	90.00	359.39	6,640.00	6,793.41	-206.65	6,796.42	0.00	0.00	0.00
14,300.00	90.00	359.39	6,640.00	6,893.40	-207.72	6,896.41	0.00	0.00	0.00
14,400.00	90.00	359.39	6,640.00	6,993.40	-208.79	6,996.41	0.00	0.00	0.00
14,500.00	90.00	359.39	6,640.00	7,093.39	-209.85	7,096.40	0.00	0.00	0.00
14,600.00	90.00	359.39	6,640.00	7,193.39	-210.92	7,196.39	0.00	0.00	0.00
14,700.00	90.00	359.39	6,640.00	7,293.38	-211.99	7,296.38	0.00	0.00	0.00
14,800.00	90.00	359.39	6,640.00	7,393.38	-213.06	7,396.37	0.00	0.00	0.00
14,900.00	90.00	359.39	6,640.00	7,493.37	-214.12	7,496.36	0.00	0.00	0.00
15,000.00	90.00	359.39	6,640.00	7,593.36	-215.19	7,596.35	0.00	0.00	0.00
15,100.00	90.00	359.39	6,640.00	7,693.36	-216.26	7,696.34	0.00	0.00	0.00
15,200.00	90.00	359.39	6,640.00	7,793.35	-217.32	7,796.33	0.00	0.00	0.00
15,300.00	90.00	359.39	6,640.00	7,893.35	-218.39	7,896.32	0.00	0.00	0.00
15,400.00	90.00	359.39	6,640.00	7,993.34	-219.46	7,996.31	0.00	0.00	0.00
15,500.00	90.00	359.39	6,640.00	8,093.34	-220.52	8,096.30	0.00	0.00	0.00
15,600.00	90.00	359.39	6,640.00	8,193.33	-221.59	8,196.29	0.00	0.00	0.00
15,700.00	90.00	359.39	6,640.00	8,293.32	-222.66	8,296.29	0.00	0.00	0.00
15,800.00	90.00	359.39	6,640.00	8,393.32	-223.73	8,396.28	0.00	0.00	0.00
15,900.00	90.00	359.39	6,640.00	8,493.31	-224.79	8,496.27	0.00	0.00	0.00
16,000.00	90.00	359.39	6,640.00	8,593.31	-225.86	8,596.26	0.00	0.00	0.00
16,100.00	90.00	359.39	6,640.00	8,693.30	-226.93	8,696.25	0.00	0.00	0.00
16,200.00	90.00	359.39	6,640.00	8,793.30	-227.99	8,796.24	0.00	0.00	0.00
16,300.00	90.00	359.39	6,640.00	8,893.29	-229.06	8,896.23	0.00	0.00	0.00
16,400.00	90.00	359.39	6,640.00	8,993.28	-230.13	8,996.22	0.00	0.00	0.00
16,500.00	90.00	359.39	6,640.00	9,093.28	-231.19	9,096.21	0.00	0.00	0.00
16,600.00	90.00	359.39	6,640.00	9,193.27	-232.26	9,196.20	0.00	0.00	0.00
16,700.00	90.00	359.39	6,640.00	9,293.27	-233.33	9,296.19	0.00	0.00	0.00
16,800.00	90.00	359.39	6,640.00	9,393.26	-234.39	9,396.18	0.00	0.00	0.00
16,900.00	90.00	359.39	6,640.00	9,493.26	-235.46	9,496.17	0.00	0.00	0.00
17,000.00	90.00	359.39	6,640.00	9,593.25	-236.53	9,596.17	0.00	0.00	0.00
17,100.00	90.00	359.39	6,640.00	9,693.24	-237.60	9,696.16	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen State DD30-725		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,200.00	90.00	359.39	6,640.00	9,793.24	-238.66	9,796.15	0.00	0.00	0.00
17,269.51	90.00	359.39	6,640.00	9,862.74	-239.40	9,865.65	0.00	0.00	0.00
TD @ 17269.51' MD/6640.00' 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	-22.33	-445.68	1,313,862.22	3,286,139.46	40.1904119	-104.4757511
- plan misses target center by 446.24ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Point									
Guttersen State DD30C	0.00	0.00	5,834.67	-895.71	-97.93	1,312,988.84	3,286,487.22	40.1880035	-104.4745425
- plan hits target center									
- Point									
Guttersen State DD30C	0.00	0.00	6,640.00	9,862.76	-238.49	1,323,747.29	3,286,346.66	40.2175391	-104.4746003
- plan misses target center by 0.92ft at 17269.51ft MD (6640.00 TVD, 9862.74 N, -239.40 E)									
- Point									
Guttersen State DD30C	0.00	0.00	6,640.00	-282.29	-131.15	1,313,602.26	3,286,453.99	40.1896883	-104.4746361
- 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				
3,659.38	3,625.00	Parkman				
4,097.35	4,047.00	Sussex				
4,289.36	4,232.00	Shannon				
6,019.65	5,900.00	Teepee Buttes				
6,721.38	6,517.00	Sharon Springs				
6,807.45	6,563.00	Top A Chalk				
6,811.68	6,565.00	Top A Marl				
6,842.86	6,579.00	Top B Chalk				
7,010.88	6,630.00	Top B Marl				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'
2,976.10	2,966.64	-103.87	-11.36	Hold: 15.52° Inc, 186.24° Azm
5,952.70	5,834.67	-895.71	-97.93	KOP: Build 9°/100' @ 5952.69' MD
7,123.90	6,640.00	-282.29	-131.15	LP: 7123.90' MD, 90.00° Inc, 359.39° Azm
17,269.51	6,640.00	9,862.74	-239.40	TD @ 17269.51' MD/6640.00' TVD

Northern Region - DJ Basin

Mustang

DD Section 30

Guttersen State DD30-725

Guttersen State DD30-725

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 DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-725	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	17,269.51	Plan #1 (Gutttersen State DD30-725)	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	13,800.33	6,584.30	5,999.58	5,914.67	70.654	CC, ES
Dalbey D 24-10 (PR) - Wellbore #1 - Gyro Surveys	15,600.00	6,569.88	6,263.68	6,167.69	65.253	SF
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,841.89	6,506.03	6,473.14	6,395.68	83.576	CC
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	12,900.00	6,505.97	6,473.40	6,395.51	83.117	ES
Dalbey D 24-15 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,503.14	6,855.69	6,764.47	75.155	SF
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	16,009.63	6,583.89	5,341.93	5,239.92	52.367	CC, ES
Glazier 2-24 (SI) - Wellbore #1 - Gyro Surveys	17,269.51	6,579.18	5,488.48	5,378.64	49.965	SF
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	16,808.14	6,713.40	9,017.92	8,909.24	82.976	CC
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	16,900.00	6,713.40	9,018.39	8,908.98	82.431	ES
Gutttersen 11-24 (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,713.44	9,029.71	8,917.48	80.452	SF
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,511.46	6,635.92	9,039.86	8,941.59	91.989	CC
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	15,600.00	6,635.84	9,040.29	8,941.33	91.352	ES
Gutttersen 12-24 (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,634.24	9,209.22	9,098.55	83.212	SF
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	16,814.20	6,548.17	7,697.90	7,589.67	71.129	CC
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	16,900.00	6,548.50	7,698.37	7,589.47	70.691	ES
Gutttersen 21-24 (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,549.90	7,711.35	7,599.64	69.031	SF
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,585.21	6,558.24	7,654.10	7,555.51	77.636	CC
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	15,600.00	6,558.29	7,654.12	7,555.41	77.545	ES
Gutttersen 22-24 (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,563.40	7,837.23	7,727.19	71.222	SF
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,143.11	6,615.28	8,329.92	8,226.79	80.774	CC
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	16,200.00	6,615.82	8,330.11	8,226.54	80.426	ES
Gutttersen 24A (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,622.00	8,405.73	8,294.38	75.492	SF
Gutttersen 24J (PR) - Wellbore #1 - Gyro Surveys	17,269.51	6,564.86	8,235.09	8,123.26	73.636	CC, ES, SF
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,176.27	6,500.97	7,099.23	6,997.29	69.641	CC
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	16,200.00	6,500.77	7,099.27	6,997.14	69.515	ES
Gutttersen 24N (PR) - Wellbore #1 - MWD Surveys	17,269.51	6,491.67	7,182.90	7,073.26	65.511	SF
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,680.35	6,608.91	5,646.83	5,556.00	62.169	CC
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	14,700.00	6,608.80	5,646.87	5,555.88	62.066	ES
Gutttersen 24S (PR) - Wellbore #1 - MWD Surveys	16,200.00	6,600.49	5,847.73	5,747.50	58.345	SF
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,053.79	6,520.83	5,105.53	5,018.85	58.905	CC
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	14,100.00	6,520.64	5,105.74	5,018.71	58.668	ES
Gutttersen 43-24 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,515.16	5,280.02	5,185.05	55.594	SF
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	12,814.76	6,594.98	5,040.89	4,963.34	65.003	CC, ES
Gutttersen 44-24 (PR) - Wellbore #1 - Gyro Surveys	14,300.00	6,596.13	5,255.14	5,168.61	60.736	SF
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,332.50	6,571.40	8,990.43	8,901.50	101.103	CC
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	14,400.00	6,571.53	8,990.68	8,901.24	100.520	ES
Karch Blue D 24-12 (PA) - Wellbore #1 - Gyro Surveys	17,269.51	6,577.63	9,458.00	9,349.99	87.563	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 DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 24						
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,798.17	6,552.00	7,433.04	7,247.42	40.046	CC
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	12,900.00	6,552.00	7,433.74	7,247.37	39.887	ES
Karch Blue D 24-14 (PR) - Wellbore #1 - No Surveys	14,500.00	6,552.00	7,625.37	7,428.29	38.692	SF
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,321.59	6,469.98	7,572.20	7,477.69	80.119	CC
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	14,400.00	6,470.77	7,572.61	7,477.49	79.612	ES
Karch Blue D24-11 (PA) - Wellbore #1 - Gyro Surveys	17,000.00	6,496.69	8,031.90	7,920.68	72.217	SF
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,856.03	6,511.47	6,373.48	6,265.07	58.786	CC
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	16,900.00	6,512.20	6,373.64	6,264.87	58.599	ES
Koerner 31-24 (SI) - Wellbore #1 - Gyro Surveys	17,269.51	6,518.19	6,386.88	6,275.32	57.250	SF
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,423.33	6,760.03	6,371.47	6,273.49	65.026	CC
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	15,500.00	6,759.95	6,371.93	6,273.36	64.639	ES
Koerner 32-24 (SI) - Wellbore #1 - Gyro Surveys	17,200.00	6,740.15	6,614.54	6,505.57	60.700	SF
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	15,406.04	6,546.07	5,064.14	4,967.00	52.132	CC, ES
Koerner 42-24 (SI) - Wellbore #1 - Gyro Surveys	16,600.00	6,534.14	5,202.97	5,098.43	49.770	SF
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,224.17	6,787.64	8,655.72	8,574.47	106.536	CC
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	13,300.00	6,788.15	8,656.05	8,574.24	105.799	ES
LF Ranch 1-24 (SI) - Wellbore #1 - Gyro Surveys	16,900.00	6,815.49	9,403.84	9,300.17	90.701	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-725	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	58.07	8,238.97	8,238.74	10,000.000	CC
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	300.00	209.47	8,239.26	8,237.82	5,760.129	ES
Coors Energy 13-25D (PR) - Wellbore #1 - MWD Survey	13,200.00	6,697.43	9,966.06	9,879.71	115.409	SF
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	100.00	60.97	8,222.33	8,222.10	10,000.000	CC
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	900.00	847.70	8,223.08	8,218.56	1,822.196	ES
Coors Energy 14-25D (PR) - Wellbore #1 - MWD Survey	11,900.00	6,945.47	9,981.58	9,913.20	145.985	SF
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	8,898.41	6,763.05	7,667.31	7,609.19	131.929	CC
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	8,900.00	6,763.05	7,667.31	7,609.18	131.914	ES
Coors Energy 23-25D (PR) - Wellbore #1 - MWD Survey	12,700.00	6,769.06	8,558.01	8,482.12	112.759	SF
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	7,324.86	6,651.20	7,530.30	7,482.92	158.941	CC, ES
Coors Energy 24-25 (PR) - Wellbore #1 - Gyro Surveys	12,100.00	6,673.99	8,916.67	8,849.74	133.236	SF
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	0.00	0.00	8,214.36			
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	100.00	35.51	8,214.37	8,214.18	10,000.000	ES
Coors Energy 25HD (PR) - Wellbore #1 - MWD Surveys	11,400.00	6,883.37	9,983.04	9,910.61	137.825	SF
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	100.00	59.50	8,221.88	8,221.65	10,000.000	CC
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	900.00	827.29	8,223.69	8,219.21	1,836.614	ES
Coors Energy 25LD (PR) - Wellbore #1 - MWD Surveys	12,600.00	7,068.34	9,970.93	9,900.41	141.384	SF
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	7,023.95	6,608.48	5,618.72	5,571.11	118.022	CC, ES
Coors Energy 25TD (PR) - Wellbore #1 - MWD Surveys	9,700.00	6,645.93	6,234.53	6,178.83	111.919	SF
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	8,234.64	6,861.00	4,499.23	4,446.64	85.548	CC, ES
Coors Energy 25XD (PR) - Wellbore #1 - MWD Surveys	9,700.00	6,826.39	4,731.74	4,674.98	83.354	SF
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,025.54	6,759.99	4,472.32	4,422.49	89.748	CC
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	7,050.00	6,763.68	4,472.40	4,422.49	89.604	ES
Coors Energy 25YD (PR) - Wellbore #1 - MWD Surveys	10,000.00	10,000.00	5,379.76	5,309.11	76.143	SF
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	100.00	31.17	5,899.35	5,899.17	10,000.000	CC
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	300.00	194.61	5,900.11	5,898.84	4,638.356	ES
Coors Energy 33-25D (PR) - Wellbore #1 - MWD Survey	11,800.00	6,748.86	6,994.00	6,917.07	90.912	SF
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	7,308.39	6,600.00	6,532.95	6,485.79	138.533	CC, ES
Coors Energy 34-25 (PR) - Wellbore #1 - Gyro Surveys	11,100.00	6,600.00	7,553.52	7,491.97	122.713	SF
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	8,889.30	6,797.14	5,061.62	5,001.52	84.224	CC
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	8,900.00	6,797.28	5,061.63	5,001.50	84.175	ES
Coors Energy 43-25D (PR) - Wellbore #1 - MWD Survey	10,300.00	6,815.52	5,254.50	5,189.47	80.800	SF
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	7,583.66	6,679.99	5,041.88	4,994.56	106.558	CC
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	7,600.00	6,679.97	5,041.91	4,994.56	106.485	ES
Coors Energy 44-25D (PR) - Wellbore #1 - MWD Survey	10,000.00	6,676.91	5,591.00	5,534.23	98.487	SF
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,149.63	6,900.00	7,988.43	7,921.76	119.830	CC
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	11,200.00	6,900.00	7,988.59	7,921.58	119.219	ES
Dalbey D 25-03 (SI) - Wellbore #1 - Gyro Surveys	14,900.00	6,787.15	8,823.55	8,735.22	99.899	SF
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,214.94	7,015.73	9,185.54	9,123.78	148.722	CC
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	10,300.00	7,007.11	9,185.93	9,123.69	147.601	ES
Dalbey D 25-05 (SI) - Wellbore #1 - Gyro Surveys	14,100.00	6,699.52	9,966.28	9,882.83	119.429	SF
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,584.05	6,724.07	8,985.40	8,917.40	132.145	CC
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	11,600.00	6,723.94	8,985.41	8,917.30	131.929	ES
Guttersten 11-25 (PR) - Wellbore #1 - MWD Surveys	15,900.00	6,693.25	9,968.14	9,874.45	106.401	SF
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,314.87	6,672.46	7,564.52	7,505.26	127.656	CC
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	10,400.00	6,668.98	7,564.99	7,505.21	126.537	ES
Guttersten 22-25 (PR) - Wellbore #1 - MWD Surveys	14,000.00	6,508.38	8,412.86	8,333.08	105.445	SF
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,183.28	6,532.69	9,384.97	9,313.06	130.512	CC
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	12,300.00	6,530.46	9,385.70	9,312.95	129.017	ES
Guttersten 25E (PR) - Wellbore #1 - MWD Surveys	15,600.00	6,479.08	9,987.44	9,893.72	106.566	SF
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	100.00	26.44	7,570.70	7,570.52	10,000.000	CC
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	300.00	191.70	7,571.30	7,570.12	6,379.966	ES
Guttersten 25KD (PR) - Wellbore #1 - MWD Surveys	14,700.00	7,076.00	9,709.01	9,622.51	112.244	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 DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 25						
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	9,826.97	6,544.87	7,125.98	7,069.90	127.064	CC
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	9,900.00	6,544.93	7,126.35	7,069.84	126.097	ES
Gutttersen 25O (PR) - Wellbore #1 - MWD Surveys	13,400.00	6,548.24	7,971.58	7,895.75	105.117	SF
Gutttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	10,909.17	6,402.69	5,883.03	5,819.61	92.757	CC, ES
Gutttersen D 25-17 (SI) - Wellbore #1 - Gyro Surveys	13,200.00	6,385.25	6,313.28	6,236.58	82.304	SF
Gutttersen D25-715 - Wellbore #1 - Plan #1	17,269.51	14,906.73	4,696.15	4,538.61	29.808	CC, ES, SF
Gutttersen D25-724 - Wellbore #1 - Plan #1	17,269.51	14,754.36	5,303.67	5,146.31	33.706	CC, ES, SF
Gutttersen D25-734 - Wellbore #1 - Plan #1	9,304.40	6,162.58	5,935.24	5,881.15	109.731	CC
Gutttersen D25-734 - Wellbore #1 - Plan #1	17,269.51	14,769.09	5,939.35	5,782.99	37.984	ES, SF
Gutttersen D25-743 - Wellbore #1 - Plan #1	9,427.96	5,268.85	6,385.38	6,333.94	124.129	CC, ES
Gutttersen D25-743 - Wellbore #1 - Plan #1	17,269.51	14,901.53	6,561.28	6,404.48	41.845	SF
Gutttersen D25-753 - Wellbore #1 - Plan #1	17,269.51	15,108.13	7,167.72	7,010.53	45.600	CC, ES, SF
Gutttersen D25-762 - Wellbore #1 - Plan #1	17,269.51	15,016.73	7,754.72	7,597.92	49.453	CC, ES, SF
Gutttersen D25-772 - Wellbore #1 - Plan #1	9,570.88	5,428.34	8,294.26	8,240.75	155.008	CC
Gutttersen D25-772 - Wellbore #1 - Plan #1	9,600.00	5,415.01	8,294.30	8,240.69	154.718	ES
Gutttersen D25-772 - Wellbore #1 - Plan #1	17,269.51	15,157.27	8,424.88	8,268.50	53.875	SF
Gutttersen D25-781 - Wellbore #1 - Plan #1	2,007.43	1,971.43	8,604.96	8,591.16	623.681	CC
Gutttersen D25-781 - Wellbore #1 - Plan #1	10,200.00	4,155.65	8,629.71	8,578.32	167.900	ES
Gutttersen D25-781 - Wellbore #1 - Plan #1	17,269.51	15,203.23	9,041.39	8,885.28	57.918	SF
Gutttersen State D36-714 - Wellbore #1 - Plan #1	9,415.76	7,134.55	4,670.62	4,612.91	80.940	CC, ES
Gutttersen State D36-714 - Wellbore #1 - Plan #1	11,400.00	6,575.46	4,957.12	4,890.18	74.045	SF
Gutttersen State D36-724 - Wellbore #1 - Plan #1	9,615.83	6,855.17	5,292.92	5,235.48	92.147	CC, ES
Gutttersen State D36-724 - Wellbore #1 - Plan #1	11,900.00	6,321.69	5,662.41	5,594.04	82.812	SF
Gutttersen State D36-733 - Wellbore #1 - Plan #1	9,982.10	6,154.23	5,876.65	5,819.63	103.066	CC
Gutttersen State D36-733 - Wellbore #1 - Plan #1	10,000.00	6,151.88	5,876.68	5,819.56	102.885	ES
Gutttersen State D36-733 - Wellbore #1 - Plan #1	12,400.00	5,837.36	6,346.72	6,277.05	91.094	SF
Gutttersen State D36-743 - Wellbore #1 - Plan #1	10,111.04	5,268.32	6,344.43	6,289.72	115.963	CC, ES
Gutttersen State D36-743 - Wellbore #1 - Plan #1	12,900.00	4,904.06	6,920.36	6,850.70	99.343	SF
Gutttersen State D36-752 - Wellbore #1 - Plan #1	9,416.53	7,164.71	7,159.98	7,101.41	122.253	CC
Gutttersen State D36-752 - Wellbore #1 - Plan #1	9,500.00	7,121.91	7,160.21	7,101.36	121.663	ES
Gutttersen State D36-752 - Wellbore #1 - Plan #1	13,300.00	6,424.39	7,944.71	7,867.19	102.482	SF
Gutttersen State D36-762 - Wellbore #1 - Plan #1	9,954.62	6,428.53	7,734.89	7,676.50	132.485	CC
Gutttersen State D36-762 - Wellbore #1 - Plan #1	10,000.00	6,422.61	7,735.01	7,676.38	131.921	ES
Gutttersen State D36-762 - Wellbore #1 - Plan #1	13,900.00	5,485.34	8,631.54	8,553.76	110.977	SF
Gutttersen State D36-771 - Wellbore #1 - Plan #1	10,269.06	5,229.07	8,213.30	8,157.53	147.261	CC
Gutttersen State D36-771 - Wellbore #1 - Plan #1	10,300.00	5,221.26	8,213.36	8,157.42	146.827	ES
Gutttersen State D36-771 - Wellbore #1 - Plan #1	14,700.00	4,110.82	9,265.05	9,187.28	119.135	SF
Gutttersen State D36-781 - Wellbore #1 - Plan #1	10,583.38	4,061.82	8,520.53	8,467.49	160.662	CC
Gutttersen State D36-781 - Wellbore #1 - Plan #1	10,600.00	4,057.78	8,520.54	8,467.41	160.378	ES
Gutttersen State D36-781 - Wellbore #1 - Plan #1	15,700.00	3,100.00	9,864.98	9,785.58	124.242	SF
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,512.18	6,548.00	6,359.95	6,183.68	36.081	CC
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	11,600.00	6,548.00	6,360.55	6,183.67	35.959	ES
Karch Blue D 25-02 (DA) - Wellbore #1 - No Surveys	12,900.00	6,548.00	6,509.60	6,324.28	35.126	SF
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,244.96	6,414.00	5,070.96	5,011.83	85.752	CC
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	10,300.00	6,411.65	5,071.26	5,011.79	85.268	ES
Karch Blue D 25-08 (SI) - Wellbore #1 - Gyro Surveys	12,100.00	6,361.19	5,399.33	5,329.89	77.754	SF
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,240.19	6,573.21	6,398.83	6,339.20	107.299	CC
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	10,300.00	6,572.41	6,399.11	6,339.10	106.638	ES
Karch Blue D25-07 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,543.80	7,008.75	6,933.13	92.687	SF
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,475.76	6,507.32	5,080.76	5,013.15	75.150	CC
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,509.18	5,080.82	5,013.03	74.956	ES
L F Ranch 2-25 (PR) - Wellbore #1 - Gyro Surveys	13,100.00	6,482.39	5,334.01	5,256.81	69.093	SF
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,181.33	6,552.00	5,370.91	5,196.85	30.857	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 DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten State DD30-725	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						
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	11,200.00	6,552.00	5,370.94	5,196.75	30.834	ES
LF Ranches 1 (PA) - Wellbore #1 - No Surveys	12,200.00	6,552.00	5,466.66	5,286.05	30.268	SF
D Section 36						
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,379.01	6,175.06	5,062.67	5,018.41	114.383	CC
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	6,400.00	6,191.16	5,062.71	5,018.34	114.100	ES
Kanga State D 36-1JI (SI) - Wellbore #1 - Gyro Surveys	10,200.00	10,200.00	6,444.57	6,377.12	95.546	SF
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	6,721.81	6,536.67	6,491.60	6,445.23	139.992	CC
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	6,750.00	6,549.80	6,491.67	6,445.21	139.722	ES
Kanga State D 36-2JI - Wellbore #1 - Gyro Surveys	10,400.00	6,683.30	7,537.87	7,479.96	130.181	SF
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,150.15	5,875.53	8,199.15	8,119.39	102.799	CC
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,200.00	5,925.20	8,199.85	8,119.38	101.897	ES
Kanga State D36-11JI (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,461.03	8,368.64	8,280.72	95.191	SF
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,237.07	6,125.44	6,649.03	6,605.38	152.327	CC
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,250.00	6,140.23	6,649.06	6,605.32	152.016	ES
Rhoo State D36-07JI (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,628.07	6,738.60	6,691.83	144.095	SF
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	6,665.44	6,618.14	9,059.61	9,013.20	195.227	CC
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	6,700.00	6,639.18	9,059.71	9,013.17	194.672	ES
Spike State D 36-04 (SI) - Gyro Surveys - Wellbore #1	10,500.00	6,819.87	9,966.94	9,907.03	166.370	SF
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	6,454.98	6,291.92	7,867.13	7,718.23	52.837	CC
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	6,550.00	6,370.50	7,867.78	7,717.10	52.218	ES
Spike State D 36-3 (SI) - Wellbore #1 - No Surveys	7,100.00	6,611.55	7,904.74	7,748.49	50.592	SF
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,150.06	5,781.09	9,286.86	9,244.58	219.604	CC
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	6,200.00	5,832.66	9,287.18	9,244.56	217.889	ES
Spike State D36-05 (SI) - Wellbore #1 - Gyro Surveys	8,900.00	6,880.12	9,968.12	9,915.83	190.644	SF
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,130.89	5,750.56	8,050.29	8,008.16	191.109	CC
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	6,150.00	5,782.36	8,050.33	8,008.03	190.324	ES
Spike State D36-06 (PA) - Wellbore #1 - Gyro Surveys	10,600.00	10,600.00	9,716.95	9,645.55	136.100	SF
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,222.63	5,991.99	5,798.74	5,755.57	134.334	CC
State 09 (SI) - Wellbore #1 - Gyro Surveys	6,250.00	6,013.76	5,798.84	5,755.51	133.851	ES
State 09 (SI) - Wellbore #1 - Gyro Surveys	7,900.00	6,807.94	6,155.14	6,106.34	126.138	SF
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,150.13	5,888.98	8,854.12	8,811.61	208.281	CC, ES
State 30 (SI) - Wellbore #1 - Gyro Surveys	6,900.00	6,479.73	9,018.93	8,972.80	195.541	SF
DD Section 18						
Guttersten 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,630.72	1,520.82	1,462.87	26.241	CC, ES, SF
Guttersten 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,615.91	2,443.71	2,337.22	22.949	CC, ES, SF
Guttersten 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,613.45	2,447.24	2,380.07	36.433	CC, ES, SF
Guttersten 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,599.34	1,343.40	1,247.78	14.050	CC, ES, SF
Guttersten 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,623.99	2,230.46	2,177.34	41.992	CC, ES, SF
Guttersten 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,269.51	6,604.76	890.14	831.99	15.310	CC, ES, SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,269.51	6,573.62	3,282.54	3,185.20	33.722	CC, ES, SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,269.51	6,582.43	4,447.65	4,343.10	42.541	CC, ES, SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,269.51	6,677.92	3,960.82	3,850.18	35.801	CC, ES, 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 DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-725	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 19						
Champlin 366 Amoco B1 (PR) - Wellbore #1 - Gyro Surv	15,766.13	6,610.14	96.41	-3.74	0.963	Level 1, CC, ES, SF
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,164.97	6,572.00	2,724.42	2,535.68	14.435	CC
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,200.00	6,572.00	2,724.65	2,535.64	14.416	ES
Champlin 366 Amoco D1 (PA) - Wellbore #1 - No Survey	13,400.00	6,572.00	2,734.54	2,544.19	14.366	SF
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,762.87	6,592.69	1,015.93	907.98	9.411	CC, ES
Guttersen 31-19 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,591.99	1,016.61	908.41	9.396	SF
Guttersen 44-19 (SI) - Wellbore #1 - No Surveys	12,897.24	6,617.00	306.86	119.21	1.635	CC
Guttersen 44-19 (SI) - Wellbore #1 - No Surveys	12,900.00	6,617.00	306.87	119.21	1.635	ES, SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,575.99	6,618.77	1,853.06	1,746.49	17.387	CC
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,600.00	6,618.53	1,853.22	1,746.46	17.359	ES
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	16,700.00	6,617.54	1,857.21	1,749.85	17.299	SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,462.55	6,614.69	2,244.21	2,161.76	27.219	CC, ES
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	13,700.00	6,616.68	2,256.74	2,172.80	26.886	SF
DD Section 29						
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	11,178.05	6,811.28	4,583.03	4,516.32	68.704	CC
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	11,200.00	6,811.70	4,583.08	4,516.22	68.552	ES
Champlin 366 Amoco C UT 1 (PR) - Wellbore #1 - Gyro	12,600.00	6,823.80	4,798.53	4,723.73	64.149	SF
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,229.73	6,649.01	2,308.25	2,148.72	14.469	CC, ES
Champlin Amoco 1 (PA) - Wellbore #1 - No Surveys	8,300.00	6,649.01	2,309.32	2,149.54	14.453	SF
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,265.02	6,861.00	5,515.40	5,425.81	61.562	CC
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	10,300.00	6,859.92	5,515.51	5,425.72	61.425	ES
Guttersen 42-29 (PR) - Wellbore #1 - Gyro Surveys	11,800.00	6,813.56	5,724.82	5,626.94	58.491	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-725	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	11,563.39	6,573.72	3,745.39	3,676.95	54.721	CC
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,573.03	3,745.57	3,676.87	54.521	ES
Guttersen 11-30 (PR) - Wellbore #1 - Gyro Surveys	12,500.00	6,556.01	3,860.69	3,786.75	52.216	SF
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	10,148.82	6,569.53	3,829.63	3,770.56	64.835	CC, ES
Guttersen 12-30 (PR) - Wellbore #1 - Gyro Surveys	11,200.00	6,521.37	3,970.98	3,906.19	61.295	SF
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,215.86	6,622.73	2,420.49	2,360.85	40.585	CC, ES
Guttersen 22-30 (PR) - Wellbore #1 - Gyro Surveys	10,700.00	6,588.10	2,468.25	2,406.07	39.699	SF
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	10,842.17	6,584.39	3,019.09	2,955.52	47.491	CC, ES
Guttersen 30 A (PR) - Wellbore #1 - Gyro Surveys	11,500.00	6,585.50	3,089.93	3,022.58	45.885	SF
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,200.00	2,200.00	37.00	21.70	2.417	CC, ES
Guttersen State DD30-715 - Guttersen State DD30-715 -	2,300.00	2,299.47	37.91	21.93	2.372	SF
Guttersen State DD30-735 - Guttersen State DD30-735 -	2,200.00	2,200.00	38.02	22.71	2.484	CC, ES
Guttersen State DD30-735 - Guttersen State DD30-735 -	2,300.00	2,299.28	38.80	22.81	2.427	SF
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,200.00	2,200.00	75.02	59.71	4.901	CC, ES
Guttersen State DD30-745 - Guttersen State DD30-745 -	2,300.00	2,298.01	76.15	60.18	4.766	SF
Guttersen State DD30-755 - Guttersen State DD30-755 -	2,000.00	1,970.00	1,913.09	1,899.32	138.979	CC
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,258.12	17,391.05	2,063.46	1,885.50	11.595	ES
Guttersen State DD30-755 - Guttersen State DD30-755 -	17,269.51	17,383.05	2,063.52	1,885.54	11.594	SF
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,100.00	2,070.00	1,950.08	1,935.60	134.653	CC
Guttersen State DD30-766 - Guttersen State DD30-766 -	2,200.00	2,146.71	1,950.50	1,935.39	129.109	ES
Guttersen State DD30-766 - Guttersen State DD30-766 -	17,269.51	17,329.34	2,769.17	2,592.39	15.664	SF
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,000.00	1,971.00	1,988.08	1,974.31	144.389	CC
Guttersen State DD30-775 - Guttersen State DD30-775 -	2,100.00	2,045.22	1,988.54	1,974.15	138.229	ES
Guttersen State DD30-775 - Guttersen State DD30-775 -	17,269.51	17,481.59	3,376.03	3,198.71	19.040	SF
Guttersen State DD30-785 - Guttersen State DD30-785 -	2,000.00	1,971.00	2,025.06	2,011.29	147.075	CC, ES
Guttersen State DD30-785 - Guttersen State DD30-785 -	17,269.51	17,796.63	4,018.35	3,841.45	22.715	SF
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	2,989.66	2,946.71	1,911.45	1,890.86	92.837	CC
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	3,200.00	3,149.38	1,912.28	1,890.24	86.759	ES
Guttersen YY06-756 - Guttersen YY06-756 - Plan #1	6,750.00	6,750.00	2,177.58	2,130.67	46.421	SF
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	2,456.27	2,413.84	1,951.87	1,934.96	115.388	CC
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	2,500.00	2,440.13	1,952.05	1,934.90	113.838	ES
Guttersen YY06-766 - Guttersen YY06-766 - Plan #1	7,700.00	6,080.16	2,665.36	2,618.99	57.476	SF
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,100.00	2,068.00	1,989.44	1,974.96	137.439	CC
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	2,200.00	2,140.60	1,989.91	1,974.82	131.884	ES
Guttersen YY06-775 - Guttersen YY06-775 - Plan #1	8,200.00	5,607.37	3,287.58	3,241.40	71.200	SF
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,000.00	1,968.00	2,027.37	2,013.61	147.358	CC
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	2,100.00	2,040.00	2,027.84	2,013.47	141.120	ES
Guttersen YY06-785 - Guttersen YY06-785 - Plan #1	8,800.00	5,148.07	3,772.41	3,725.79	80.917	SF
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,022.19	6,563.00	3,877.70	3,716.50	24.054	CC, ES
Karch Blue DD 30-12 (PA) - Wellbore #1 - No Surveys	9,500.00	6,563.00	3,907.03	3,743.42	23.880	SF
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,519.58	6,569.00	2,364.92	2,208.94	15.162	CC, ES
Karch Blue DD 30-14 (PA) - Wellbore #1 - No Surveys	7,600.00	6,569.00	2,366.29	2,210.15	15.155	SF
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,466.45	6,568.00	2,709.29	2,550.48	17.060	CC, ES
Karch Blue DD 30-3 J (PA) - Wellbore #1 - No Surveys	8,700.00	6,568.00	2,719.34	2,559.57	17.021	SF
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,216.53	6,557.95	2,429.50	2,363.48	36.803	CC, ES
L F Ranch 2-30 (PR) - Wellbore #1 - Gyro Surveys	11,600.00	6,550.39	2,459.56	2,391.27	36.018	SF
State 19 (PA) - Wellbore #1 - NO Surveys	10,853.86	6,619.00	208.62	35.43	1.205	Level 3, CC, ES, 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 Gutttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen State DD30-725	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	6,616.08	10,956.00	1,172.35	1,066.19	11.044	CC, ES, SF
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,709.94	11,132.00	1,490.76	1,384.99	14.094	CC, ES
Gutttersen 31Q-401 (PR) - Wellbore #1 - MWD Surveys	6,750.00	11,132.00	1,491.73	1,385.87	14.091	SF
Gutttersen 31T-301 (PR) - Wellbore #1 - MWD Surveys	6,643.74	11,048.00	611.45	521.95	6.832	CC, ES, SF
Gutttersen 31T-441 (PR) - Wellbore #1 - MWD Surveys	6,693.98	11,127.00	935.75	838.01	9.574	CC, ES, SF
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,138.29	6,005.65	2,965.82	2,923.33	69.805	CC, ES
Gutttersen 33-31 (PR) - Wellbore #1 - Gyro Surveys	6,350.00	6,190.94	2,999.85	2,956.12	68.596	SF
YY Section 6						
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,116.93	5,881.00	5,088.76	5,046.01	119.040	CC, ES
Gutttersen 6M-303 (PR) - Wellbore #1 - Wellbore #1	6,300.00	5,913.00	5,116.81	5,073.37	117.797	SF
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,117.27	5,881.64	5,013.43	4,971.36	119.155	CC, ES
Gutttersen 6M-423 (PR) - Wellbore #1 - MWD Surveys	6,300.00	5,978.00	5,040.35	4,997.38	117.291	SF
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,114.05	5,882.00	4,947.20	4,904.20	115.075	CC, ES
Gutttersen 6R-243 (PR) - Wellbore #1 - Gyro Surveys	6,300.00	5,914.00	4,976.35	4,932.68	113.935	SF
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,101.93	5,820.00	4,915.99	4,871.33	110.077	CC, ES
Gutttersen 6R-403 (PR) - Wellbore #1 - MWD Surveys	6,300.00	5,979.00	4,947.45	4,901.68	108.093	SF
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,133.03	6,038.29	5,624.06	5,581.52	132.218	CC, ES
Gutterson 31-6 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,356.74	5,726.53	5,682.00	128.621	SF
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,130.90	6,051.21	6,888.16	6,845.58	161.750	CC, ES
Gutterson 32-6 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,894.74	7,200.23	7,152.79	151.787	SF
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,120.18	5,836.38	9,716.00	9,674.09	231.831	CC, ES
J.H. Cuykendall John 1 (PA) - Wellbore #1 - Gyro Survey	6,700.00	6,978.56	9,944.50	9,897.71	212.547	SF

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

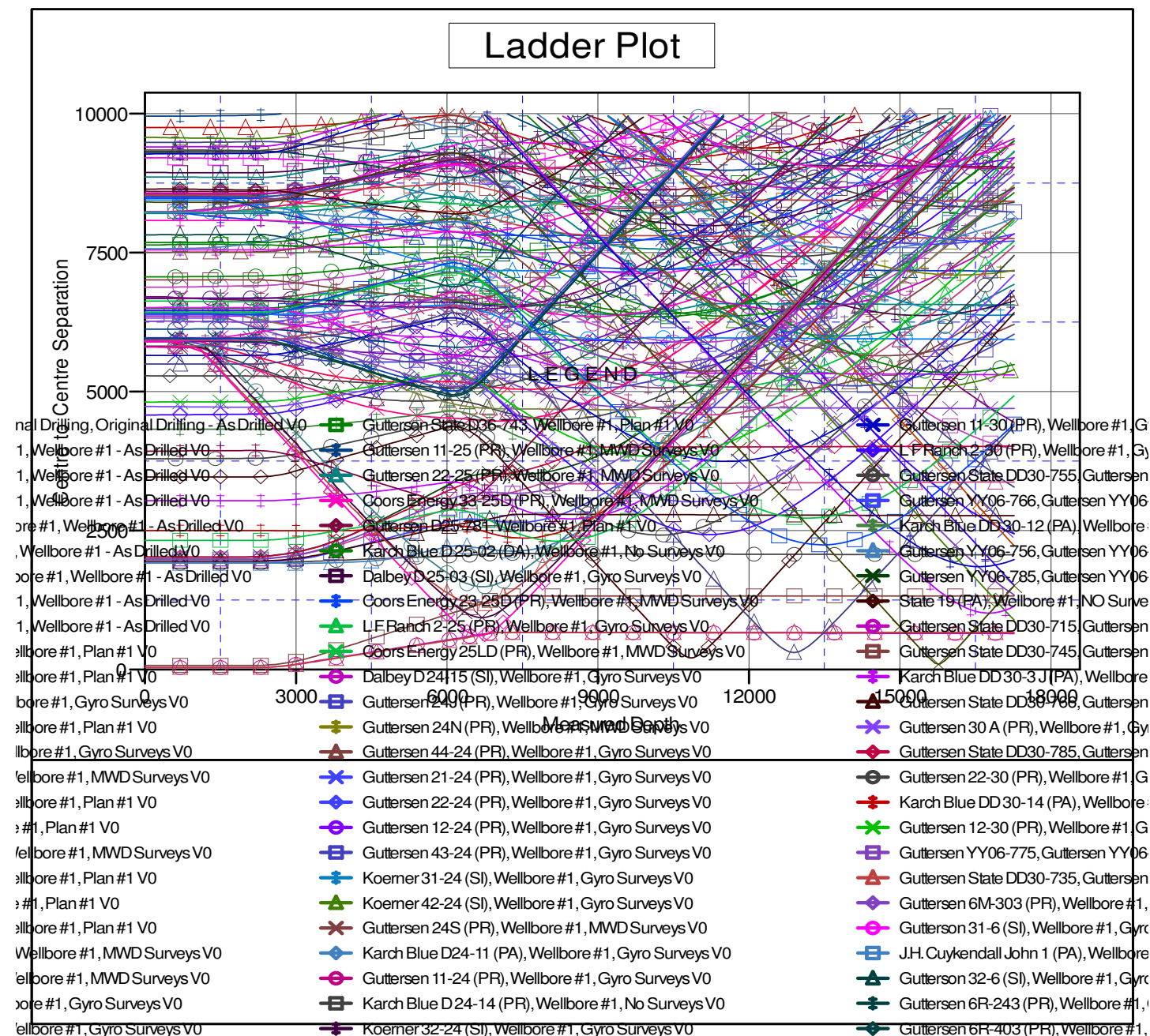
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersen State DD30-725	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Guttersen State DD30-725

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
Project:	Mustang
Reference Site:	DD Section 30
Site Error:	0.00 ft
Reference Well:	Guttersen State DD30-725
Well Error:	0.00 ft
Reference Wellbore	Guttersen State DD30-725
Reference Design:	Plan #1

Local Co-ordinate Reference:	Well Guttersen State DD30-725
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 DD30-725
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.66°

