

Project: Mustang
Site: D Section 21
Well: Vogler State D21-770
Wellbore: Wellbore #1
Design: Plan 1

Northern Region - DJ Basin

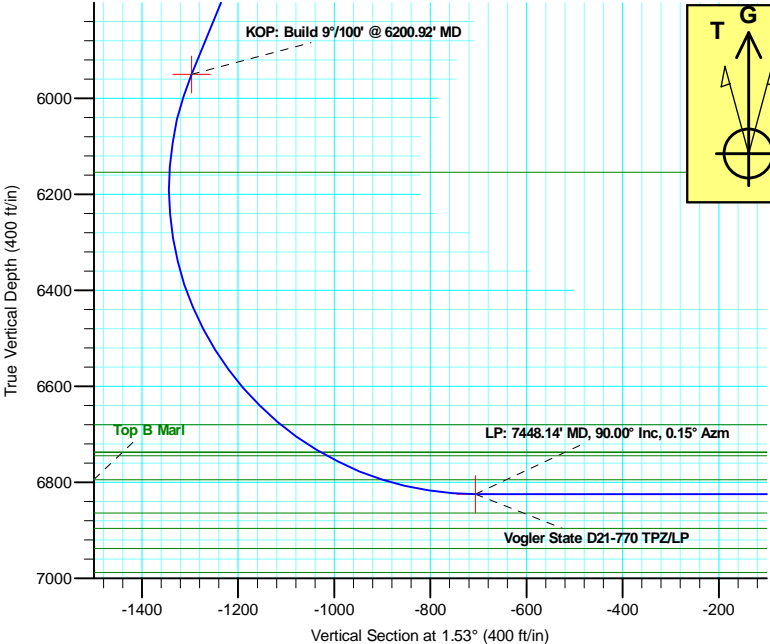
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
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	3333.60	22.67	169.36	3304.24	-217.57	40.87	2.00	169.36	-216.39
4	6200.92	22.67	169.36	5950.00	-1303.79	244.90	0.00	0.00	-1296.77
5	7448.14	90.00	0.15	6825.00	-714.75	314.89	9.00	-168.33	-706.07
6	9769.26	90.00	0.15	6825.00	1606.36	321.04	0.00	0.00	1614.37
7	9798.62	90.00	359.56	6825.00	1635.72	320.97	2.00	-90.00	1643.72
8	15128.29	90.00	359.56	6825.00	6965.23	280.47	0.00	0.00	6970.24
9	15138.86	90.00	359.35	6825.00	6975.81	280.37	2.00	-90.00	6980.81
10	17600.63	90.00	359.35	6825.00	9437.42	252.58	0.00	0.00	9440.80

WELL DETAILS: Vogler State D21-770

+N/-S	+E/-W	Northing	Ground Level: Easting	4792.00	Latitude	Longitude
0.00	0.00	1319359.90	3261958.23		40.2062371	-104.5620940



T

G

M

Azimuths to Grid North

True North: -0.61°

Magnetic North: 7.42°

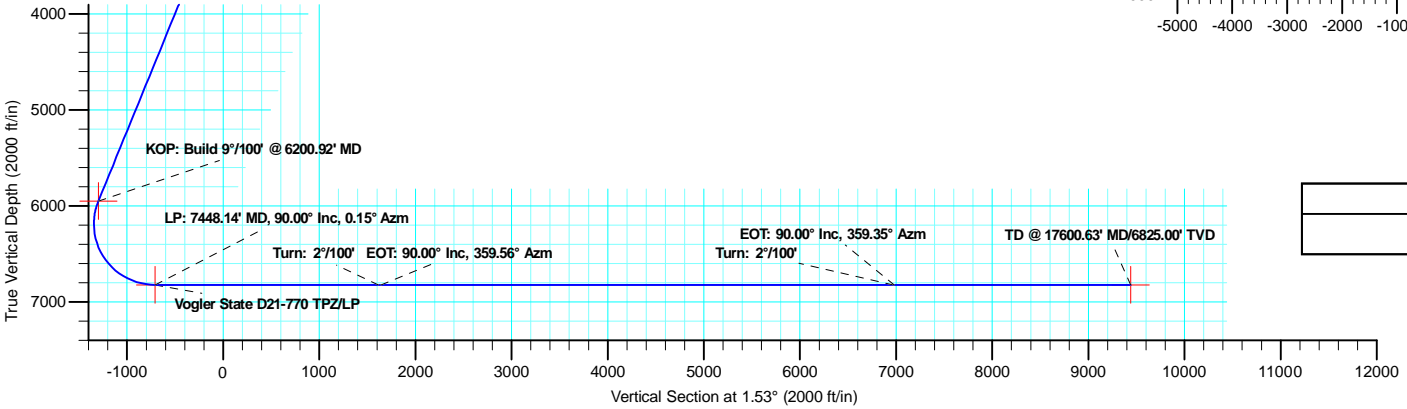
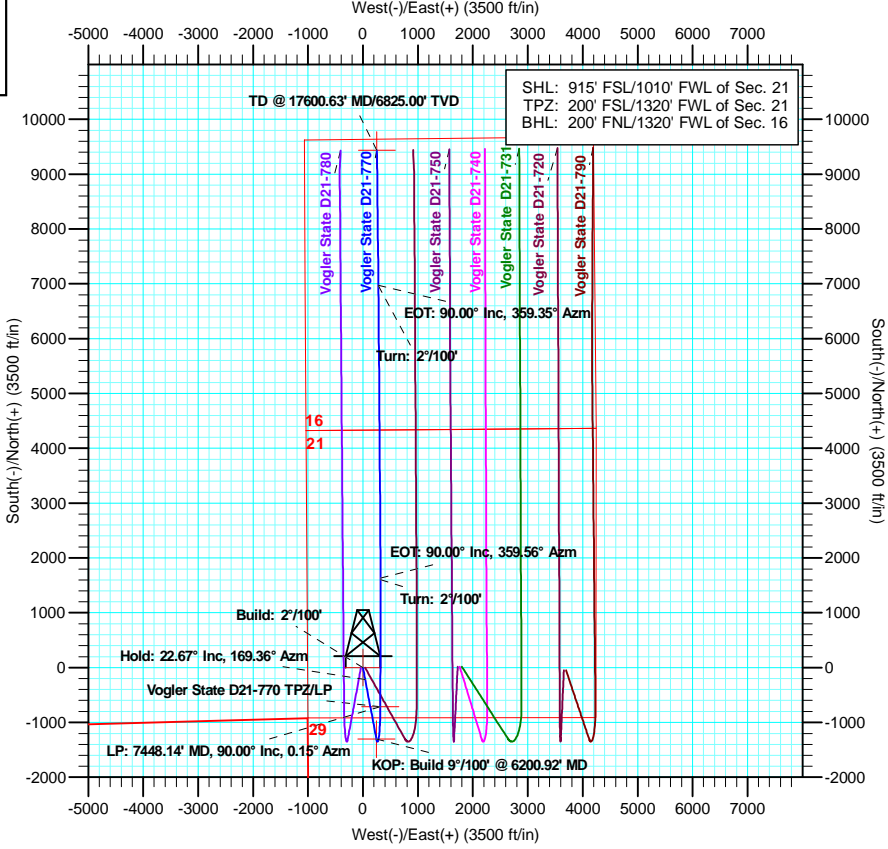
Magnetic Field

Strength: 52246.7snT

Dip Angle: 66.72°

Date: 1/15/2018

Model: IGRF2015



Plan: Plan 1 (Vogler State D21-770/Wellbore #1)
Created By: Keith Noack Date: 13:34, August 08 2018

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-770

Wellbore #1

Plan: Plan 1

Standard Planning Report

08 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-770
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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	D Section 21				
Site Position:		Northing:	1,323,041.88 usft	Latitude:	40.2163540
From:	Lat/Long	Easting:	3,261,613.48 usft	Longitude:	-104.5631890
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.61 °

Well	Vogler State D21-770					
Well Position	+N/-S	-3,681.99 ft	Northing:	1,319,359.90 usft	Latitude:	40.2062371
	+E/-W	344.76 ft	Easting:	3,261,958.24 usft	Longitude:	-104.5620940
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,792.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/15/2018	8.03	66.72	52,246.70326953

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	1.53

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	
3,333.60	22.67	169.36	3,304.24	-217.57	40.87	2.00	2.00	0.00	169.36	
6,200.92	22.67	169.36	5,950.00	-1,303.79	244.90	0.00	0.00	0.00	0.00	
7,448.14	90.00	0.15	6,825.00	-714.75	314.89	9.00	5.40	-13.57	-168.33	Vogler State D21-7
9,769.26	90.00	0.15	6,825.00	1,606.36	321.04	0.00	0.00	0.00	0.00	Vogler State D21-7
9,798.62	90.00	359.56	6,825.00	1,635.72	320.97	2.00	0.00	-2.00	-90.00	Vogler State D21-7
15,128.29	90.00	359.56	6,825.00	6,965.23	280.47	0.00	0.00	0.00	0.00	Vogler State D21-7
15,138.86	90.00	359.35	6,825.00	6,975.81	280.37	2.00	0.00	-2.00	-90.00	Vogler State D21-7
17,600.63	90.00	359.35	6,825.00	9,437.42	252.58	0.00	0.00	0.00	0.00	Vogler State D21-7

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
627.00	0.00	0.00	627.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
762.00	0.00	0.00	762.00	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
1,629.00	0.00	0.00	1,629.00	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	169.36	2,299.98	-1.72	0.32	-1.71	2.00	2.00	0.00
2,400.00	4.00	169.36	2,399.84	-6.86	1.29	-6.82	2.00	2.00	0.00
2,500.00	6.00	169.36	2,499.45	-15.42	2.90	-15.34	2.00	2.00	0.00
2,600.00	8.00	169.36	2,598.70	-27.40	5.15	-27.25	2.00	2.00	0.00
2,700.00	10.00	169.36	2,697.47	-42.77	8.03	-42.54	2.00	2.00	0.00
2,800.00	12.00	169.36	2,795.62	-61.53	11.56	-61.20	2.00	2.00	0.00
2,900.00	14.00	169.36	2,893.06	-83.63	15.71	-83.18	2.00	2.00	0.00
3,000.00	16.00	169.36	2,989.64	-109.07	20.49	-108.48	2.00	2.00	0.00
3,100.00	18.00	169.36	3,085.27	-137.80	25.88	-137.06	2.00	2.00	0.00
3,200.00	20.00	169.36	3,179.82	-169.80	31.89	-168.88	2.00	2.00	0.00
3,300.00	22.00	169.36	3,273.17	-205.02	38.51	-203.91	2.00	2.00	0.00
3,333.60	22.67	169.36	3,304.24	-217.57	40.87	-216.39	2.00	2.00	0.00
Hold: 22.67° Inc, 169.36° Azm									
3,400.00	22.67	169.36	3,365.52	-242.72	45.59	-241.41	0.00	0.00	0.00
3,500.00	22.67	169.36	3,457.79	-280.60	52.71	-279.09	0.00	0.00	0.00
3,600.00	22.67	169.36	3,550.06	-318.49	59.82	-316.77	0.00	0.00	0.00
3,700.00	22.67	169.36	3,642.34	-356.37	66.94	-354.45	0.00	0.00	0.00
3,800.00	22.67	169.36	3,734.61	-394.25	74.06	-392.13	0.00	0.00	0.00
3,900.00	22.67	169.36	3,826.88	-432.14	81.17	-429.81	0.00	0.00	0.00
3,925.06	22.67	169.36	3,850.00	-441.63	82.95	-439.25	0.00	0.00	0.00
Parkman									
4,000.00	22.67	169.36	3,919.15	-470.02	88.29	-467.49	0.00	0.00	0.00
4,100.00	22.67	169.36	4,011.43	-507.90	95.40	-505.17	0.00	0.00	0.00

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Planning Report

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Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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)
4,177.57	22.67	169.36	4,083.00	-537.29	100.92	-534.39	0.00	0.00	0.00
Sussex									
4,200.00	22.67	169.36	4,103.70	-545.78	102.52	-542.85	0.00	0.00	0.00
4,300.00	22.67	169.36	4,195.97	-583.67	109.64	-580.52	0.00	0.00	0.00
4,400.00	22.67	169.36	4,288.24	-621.55	116.75	-618.20	0.00	0.00	0.00
4,500.00	22.67	169.36	4,380.52	-659.43	123.87	-655.88	0.00	0.00	0.00
4,600.00	22.67	169.36	4,472.79	-697.32	130.98	-693.56	0.00	0.00	0.00
4,700.00	22.67	169.36	4,565.06	-735.20	138.10	-731.24	0.00	0.00	0.00
4,800.00	22.67	169.36	4,657.33	-773.08	145.21	-768.92	0.00	0.00	0.00
4,900.00	22.67	169.36	4,749.61	-810.96	152.33	-806.60	0.00	0.00	0.00
5,000.00	22.67	169.36	4,841.88	-848.85	159.45	-844.28	0.00	0.00	0.00
5,100.00	22.67	169.36	4,934.15	-886.73	166.56	-881.96	0.00	0.00	0.00
5,200.00	22.67	169.36	5,026.43	-924.61	173.68	-919.64	0.00	0.00	0.00
5,207.12	22.67	169.36	5,033.00	-927.31	174.18	-922.32	0.00	0.00	0.00
Shannon									
5,300.00	22.67	169.36	5,118.70	-962.50	180.79	-957.31	0.00	0.00	0.00
5,400.00	22.67	169.36	5,210.97	-1,000.38	187.91	-994.99	0.00	0.00	0.00
5,500.00	22.67	169.36	5,303.24	-1,038.26	195.03	-1,032.67	0.00	0.00	0.00
5,600.00	22.67	169.36	5,395.52	-1,076.14	202.14	-1,070.35	0.00	0.00	0.00
5,700.00	22.67	169.36	5,487.79	-1,114.03	209.26	-1,108.03	0.00	0.00	0.00
5,800.00	22.67	169.36	5,580.06	-1,151.91	216.37	-1,145.71	0.00	0.00	0.00
5,900.00	22.67	169.36	5,672.33	-1,189.79	223.49	-1,183.39	0.00	0.00	0.00
6,000.00	22.67	169.36	5,764.61	-1,227.68	230.60	-1,221.07	0.00	0.00	0.00
6,100.00	22.67	169.36	5,856.88	-1,265.56	237.72	-1,258.75	0.00	0.00	0.00
6,200.92	22.67	169.36	5,950.00	-1,303.79	244.90	-1,296.77	0.00	0.00	0.00
KOP: Build 9°/100' @ 6200.92' MD									
6,250.00	18.37	166.53	5,995.96	-1,320.61	248.45	-1,313.49	9.00	-8.77	-5.77
6,300.00	14.05	161.94	6,043.96	-1,334.05	252.17	-1,326.83	9.00	-8.63	-9.17
6,350.00	9.89	153.51	6,092.87	-1,343.67	255.97	-1,336.34	9.00	-8.32	-16.87
6,400.00	6.22	134.33	6,142.37	-1,349.41	259.83	-1,341.98	9.00	-7.34	-38.36
6,411.69	5.54	126.47	6,154.00	-1,350.19	260.73	-1,342.73	9.00	-5.81	-67.21
Teepee Buttes									
6,450.00	4.47	88.00	6,192.18	-1,351.24	263.72	-1,343.70	9.00	-2.79	-100.41
6,500.00	6.46	43.83	6,241.97	-1,349.14	267.61	-1,341.50	9.00	3.97	-88.34
6,550.00	10.19	25.94	6,291.44	-1,343.13	271.50	-1,335.38	9.00	7.46	-35.79
6,600.00	14.37	17.93	6,340.29	-1,333.24	275.35	-1,325.40	9.00	8.35	-16.02
6,650.00	18.69	13.52	6,388.21	-1,319.54	279.13	-1,311.60	9.00	8.65	-8.82
6,700.00	23.08	10.73	6,434.92	-1,302.12	282.83	-1,294.08	9.00	8.78	-5.58
6,750.00	27.51	8.79	6,480.11	-1,281.06	286.42	-1,272.94	9.00	8.85	-3.87
6,800.00	31.95	7.36	6,523.52	-1,256.52	289.88	-1,248.32	9.00	8.89	-2.87
6,850.00	36.41	6.24	6,564.88	-1,228.64	293.19	-1,220.35	9.00	8.91	-2.23
6,900.00	40.87	5.34	6,603.92	-1,197.58	296.32	-1,189.23	9.00	8.93	-1.81
6,950.00	45.34	4.58	6,640.42	-1,163.55	299.27	-1,155.13	9.00	8.94	-1.51
7,000.00	49.82	3.94	6,674.14	-1,126.75	302.00	-1,118.27	9.00	8.95	-1.29
7,009.16	50.64	3.83	6,680.00	-1,119.73	302.48	-1,111.23	9.00	8.95	-1.19
Sharon Springs									
7,050.00	54.29	3.37	6,704.88	-1,087.41	304.51	-1,078.88	9.00	8.96	-1.12
7,100.00	58.77	2.87	6,732.44	-1,045.78	306.78	-1,037.19	9.00	8.96	-1.01
7,108.90	59.57	2.78	6,737.00	-1,038.15	307.15	-1,029.56	9.00	8.96	-0.95
Top A Chalk									
7,110.88	59.75	2.77	6,738.00	-1,036.44	307.24	-1,027.85	9.00	8.96	-0.94
Top A Marl									
7,125.04	61.02	2.63	6,745.00	-1,024.14	307.82	-1,015.54	9.00	8.96	-0.93

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-770
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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)
Top B Chalk									
7,150.00	63.26	2.41	6,756.66	-1,002.10	308.79	-993.48	9.00	8.96	-0.90
7,200.00	67.74	1.99	6,777.40	-956.64	310.53	-947.99	9.00	8.97	-0.85
7,250.00	72.22	1.59	6,794.51	-909.70	311.99	-901.03	9.00	8.97	-0.80
7,251.62	72.37	1.58	6,795.00	-908.16	312.03	-899.49	9.00	8.97	-0.77
Top B Marl									
7,300.00	76.71	1.21	6,807.89	-861.55	313.17	-852.87	9.00	8.97	-0.76
7,350.00	81.19	0.85	6,817.47	-812.50	314.04	-803.81	9.00	8.97	-0.73
7,400.00	85.68	0.49	6,823.19	-762.84	314.62	-754.15	9.00	8.97	-0.71
7,448.14	90.00	0.15	6,825.00	-714.75	314.89	-706.07	9.00	8.97	-0.70
LP: 7448.14' MD, 90.00° Inc, 0.15° Azm									
7,500.00	90.00	0.15	6,825.00	-662.89	315.03	-654.22	0.00	0.00	0.00
7,600.00	90.00	0.15	6,825.00	-562.89	315.29	-554.25	0.00	0.00	0.00
7,700.00	90.00	0.15	6,825.00	-462.89	315.56	-454.28	0.00	0.00	0.00
7,800.00	90.00	0.15	6,825.00	-362.89	315.82	-354.31	0.00	0.00	0.00
7,900.00	90.00	0.15	6,825.00	-262.89	316.09	-254.34	0.00	0.00	0.00
8,000.00	90.00	0.15	6,825.00	-162.89	316.35	-154.37	0.00	0.00	0.00
8,100.00	90.00	0.15	6,825.00	-62.89	316.62	-54.40	0.00	0.00	0.00
8,200.00	90.00	0.15	6,825.00	37.11	316.88	45.57	0.00	0.00	0.00
8,300.00	90.00	0.15	6,825.00	137.11	317.15	145.54	0.00	0.00	0.00
8,400.00	90.00	0.15	6,825.00	237.11	317.41	245.51	0.00	0.00	0.00
8,500.00	90.00	0.15	6,825.00	337.11	317.68	345.48	0.00	0.00	0.00
8,600.00	90.00	0.15	6,825.00	437.11	317.94	445.46	0.00	0.00	0.00
8,700.00	90.00	0.15	6,825.00	537.11	318.21	545.43	0.00	0.00	0.00
8,800.00	90.00	0.15	6,825.00	637.11	318.47	645.40	0.00	0.00	0.00
8,900.00	90.00	0.15	6,825.00	737.10	318.74	745.37	0.00	0.00	0.00
9,000.00	90.00	0.15	6,825.00	837.10	319.00	845.34	0.00	0.00	0.00
9,100.00	90.00	0.15	6,825.00	937.10	319.27	945.31	0.00	0.00	0.00
9,200.00	90.00	0.15	6,825.00	1,037.10	319.53	1,045.28	0.00	0.00	0.00
9,300.00	90.00	0.15	6,825.00	1,137.10	319.80	1,145.25	0.00	0.00	0.00
9,400.00	90.00	0.15	6,825.00	1,237.10	320.06	1,245.22	0.00	0.00	0.00
9,500.00	90.00	0.15	6,825.00	1,337.10	320.33	1,345.19	0.00	0.00	0.00
9,600.00	90.00	0.15	6,825.00	1,437.10	320.59	1,445.16	0.00	0.00	0.00
9,700.00	90.00	0.15	6,825.00	1,537.10	320.86	1,545.14	0.00	0.00	0.00
9,769.26	90.00	0.15	6,825.00	1,606.36	321.04	1,614.37	0.00	0.00	0.00
Turn: 2°/100'									
9,798.62	90.00	359.56	6,825.00	1,635.72	320.97	1,643.72	2.00	0.00	-2.00
EOT: 90.00° Inc, 359.56° Azm									
9,800.00	90.00	359.56	6,825.00	1,637.10	320.96	1,645.10	0.00	0.00	0.00
9,900.00	90.00	359.56	6,825.00	1,737.10	320.20	1,745.04	0.00	0.00	0.00
10,000.00	90.00	359.56	6,825.00	1,837.10	319.44	1,844.98	0.00	0.00	0.00
10,100.00	90.00	359.56	6,825.00	1,937.09	318.68	1,944.93	0.00	0.00	0.00
10,200.00	90.00	359.56	6,825.00	2,037.09	317.92	2,044.87	0.00	0.00	0.00
10,300.00	90.00	359.56	6,825.00	2,137.09	317.16	2,144.81	0.00	0.00	0.00
10,400.00	90.00	359.56	6,825.00	2,237.08	316.40	2,244.75	0.00	0.00	0.00
10,500.00	90.00	359.56	6,825.00	2,337.08	315.64	2,344.69	0.00	0.00	0.00
10,600.00	90.00	359.56	6,825.00	2,437.08	314.88	2,444.63	0.00	0.00	0.00
10,700.00	90.00	359.56	6,825.00	2,537.08	314.12	2,544.57	0.00	0.00	0.00
10,800.00	90.00	359.56	6,825.00	2,637.07	313.36	2,644.51	0.00	0.00	0.00
10,900.00	90.00	359.56	6,825.00	2,737.07	312.60	2,744.45	0.00	0.00	0.00
11,000.00	90.00	359.56	6,825.00	2,837.07	311.84	2,844.39	0.00	0.00	0.00
11,100.00	90.00	359.56	6,825.00	2,937.06	311.08	2,944.34	0.00	0.00	0.00
11,200.00	90.00	359.56	6,825.00	3,037.06	310.32	3,044.28	0.00	0.00	0.00

Noble Energy, Inc.
Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-770
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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	359.56	6,825.00	3,137.06	309.56	3,144.22	0.00	0.00	0.00
11,400.00	90.00	359.56	6,825.00	3,237.06	308.80	3,244.16	0.00	0.00	0.00
11,500.00	90.00	359.56	6,825.00	3,337.05	308.04	3,344.10	0.00	0.00	0.00
11,600.00	90.00	359.56	6,825.00	3,437.05	307.28	3,444.04	0.00	0.00	0.00
11,700.00	90.00	359.56	6,825.00	3,537.05	306.52	3,543.98	0.00	0.00	0.00
11,800.00	90.00	359.56	6,825.00	3,637.04	305.76	3,643.92	0.00	0.00	0.00
11,900.00	90.00	359.56	6,825.00	3,737.04	305.00	3,743.86	0.00	0.00	0.00
12,000.00	90.00	359.56	6,825.00	3,837.04	304.24	3,843.80	0.00	0.00	0.00
12,100.00	90.00	359.56	6,825.00	3,937.04	303.48	3,943.75	0.00	0.00	0.00
12,200.00	90.00	359.56	6,825.00	4,037.03	302.72	4,043.69	0.00	0.00	0.00
12,300.00	90.00	359.56	6,825.00	4,137.03	301.96	4,143.63	0.00	0.00	0.00
12,400.00	90.00	359.56	6,825.00	4,237.03	301.20	4,243.57	0.00	0.00	0.00
12,500.00	90.00	359.56	6,825.00	4,337.02	300.44	4,343.51	0.00	0.00	0.00
12,600.00	90.00	359.56	6,825.00	4,437.02	299.68	4,443.45	0.00	0.00	0.00
12,700.00	90.00	359.56	6,825.00	4,537.02	298.92	4,543.39	0.00	0.00	0.00
12,800.00	90.00	359.56	6,825.00	4,637.01	298.16	4,643.33	0.00	0.00	0.00
12,900.00	90.00	359.56	6,825.00	4,737.01	297.40	4,743.27	0.00	0.00	0.00
13,000.00	90.00	359.56	6,825.00	4,837.01	296.64	4,843.21	0.00	0.00	0.00
13,100.00	90.00	359.56	6,825.00	4,937.01	295.88	4,943.15	0.00	0.00	0.00
13,200.00	90.00	359.56	6,825.00	5,037.00	295.12	5,043.10	0.00	0.00	0.00
13,300.00	90.00	359.56	6,825.00	5,137.00	294.36	5,143.04	0.00	0.00	0.00
13,400.00	90.00	359.56	6,825.00	5,237.00	293.60	5,242.98	0.00	0.00	0.00
13,500.00	90.00	359.56	6,825.00	5,336.99	292.84	5,342.92	0.00	0.00	0.00
13,600.00	90.00	359.56	6,825.00	5,436.99	292.08	5,442.86	0.00	0.00	0.00
13,700.00	90.00	359.56	6,825.00	5,536.99	291.32	5,542.80	0.00	0.00	0.00
13,800.00	90.00	359.56	6,825.00	5,636.99	290.56	5,642.74	0.00	0.00	0.00
13,900.00	90.00	359.56	6,825.00	5,736.98	289.80	5,742.68	0.00	0.00	0.00
14,000.00	90.00	359.56	6,825.00	5,836.98	289.04	5,842.62	0.00	0.00	0.00
14,100.00	90.00	359.56	6,825.00	5,936.98	288.28	5,942.56	0.00	0.00	0.00
14,200.00	90.00	359.56	6,825.00	6,036.97	287.52	6,042.51	0.00	0.00	0.00
14,300.00	90.00	359.56	6,825.00	6,136.97	286.76	6,142.45	0.00	0.00	0.00
14,400.00	90.00	359.56	6,825.00	6,236.97	286.00	6,242.39	0.00	0.00	0.00
14,500.00	90.00	359.56	6,825.00	6,336.97	285.24	6,342.33	0.00	0.00	0.00
14,600.00	90.00	359.56	6,825.00	6,436.96	284.48	6,442.27	0.00	0.00	0.00
14,700.00	90.00	359.56	6,825.00	6,536.96	283.72	6,542.21	0.00	0.00	0.00
14,800.00	90.00	359.56	6,825.00	6,636.96	282.96	6,642.15	0.00	0.00	0.00
14,900.00	90.00	359.56	6,825.00	6,736.95	282.20	6,742.09	0.00	0.00	0.00
15,000.00	90.00	359.56	6,825.00	6,836.95	281.44	6,842.03	0.00	0.00	0.00
15,100.00	90.00	359.56	6,825.00	6,936.95	280.68	6,941.97	0.00	0.00	0.00
15,128.29	90.00	359.56	6,825.00	6,965.23	280.47	6,970.24	0.00	0.00	0.00
Turn: 2°/100'									
15,138.86	90.00	359.35	6,825.00	6,975.81	280.37	6,980.81	2.00	0.00	-2.00
EOT: 90.00° Inc, 359.35° Azm									
15,200.00	90.00	359.35	6,825.00	7,036.94	279.68	7,041.91	0.00	0.00	0.00
15,300.00	90.00	359.35	6,825.00	7,136.94	278.55	7,141.83	0.00	0.00	0.00
15,400.00	90.00	359.35	6,825.00	7,236.93	277.42	7,241.76	0.00	0.00	0.00
15,500.00	90.00	359.35	6,825.00	7,336.92	276.29	7,341.69	0.00	0.00	0.00
15,600.00	90.00	359.35	6,825.00	7,436.92	275.16	7,441.62	0.00	0.00	0.00
15,700.00	90.00	359.35	6,825.00	7,536.91	274.03	7,541.55	0.00	0.00	0.00
15,800.00	90.00	359.35	6,825.00	7,636.91	272.90	7,641.47	0.00	0.00	0.00
15,900.00	90.00	359.35	6,825.00	7,736.90	271.78	7,741.40	0.00	0.00	0.00
16,000.00	90.00	359.35	6,825.00	7,836.89	270.65	7,841.33	0.00	0.00	0.00
16,100.00	90.00	359.35	6,825.00	7,936.89	269.52	7,941.26	0.00	0.00	0.00
16,200.00	90.00	359.35	6,825.00	8,036.88	268.39	8,041.18	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-770
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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)	
16,300.00	90.00	359.35	6,825.00	8,136.87	267.26	8,141.11	0.00	0.00	0.00	
16,400.00	90.00	359.35	6,825.00	8,236.87	266.13	8,241.04	0.00	0.00	0.00	
16,500.00	90.00	359.35	6,825.00	8,336.86	265.00	8,340.97	0.00	0.00	0.00	
16,600.00	90.00	359.35	6,825.00	8,436.85	263.87	8,440.89	0.00	0.00	0.00	
16,700.00	90.00	359.35	6,825.00	8,536.85	262.74	8,540.82	0.00	0.00	0.00	
16,800.00	90.00	359.35	6,825.00	8,636.84	261.61	8,640.75	0.00	0.00	0.00	
16,900.00	90.00	359.35	6,825.00	8,736.84	260.49	8,740.68	0.00	0.00	0.00	
17,000.00	90.00	359.35	6,825.00	8,836.83	259.36	8,840.60	0.00	0.00	0.00	
17,100.00	90.00	359.35	6,825.00	8,936.82	258.23	8,940.53	0.00	0.00	0.00	
17,200.00	90.00	359.35	6,825.00	9,036.82	257.10	9,040.46	0.00	0.00	0.00	
17,300.00	90.00	359.35	6,825.00	9,136.81	255.97	9,140.39	0.00	0.00	0.00	
17,400.00	90.00	359.35	6,825.00	9,236.80	254.84	9,240.31	0.00	0.00	0.00	
17,500.00	90.00	359.35	6,825.00	9,336.80	253.71	9,340.24	0.00	0.00	0.00	
17,600.63	90.00	359.35	6,825.00	9,437.42	252.58	9,440.80	0.00	0.00	0.00	
TD @ 17600.63' MD/6825.00' 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										
Vogler State D21-770	0.00	0.01	0.00	0.00	0.00	1,319,359.90	3,261,958.24	40.2062371	-104.5620940	
- plan hits target center										
- Point										
Vogler State D21-770	0.00	0.00	5,950.00	-1,303.79	244.90	1,318,056.11	3,262,203.14	40.2026512	-104.5612666	
- plan hits target center										
- Point										
Vogler State D21-770	0.00	0.00	6,825.00	-714.75	314.89	1,318,645.15	3,262,273.13	40.2042660	-104.5609937	
- plan hits target center										
- Point										
Vogler State D21-770	0.00	0.01	6,825.00	9,437.42	252.58	1,328,797.30	3,262,210.81	40.2321350	-104.5608319	
- plan hits target center										
- Point										

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-770
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4822.00ft
Project:	Mustang	MD Reference:	Well @ 4822.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
627.00	627.00	Pierre				
762.00	762.00	Upper Pierre Aquifer Top				
1,629.00	1,629.00	Upper Pierre Aquifer Base				
3,925.06	3,850.00	Parkman				
4,177.57	4,083.00	Sussex				
5,207.12	5,033.00	Shannon				
6,411.69	6,154.00	Teepee Buttes				
7,009.16	6,680.00	Sharon Springs				
7,108.90	6,737.00	Top A Chalk				
7,110.88	6,738.00	Top A Marl				
7,125.04	6,745.00	Top B Chalk				
7,251.62	6,795.00	Top B Marl				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
3,333.60	3,304.24	-217.57	40.87	Hold: 22.67° Inc, 169.36° Azm	
6,200.92	5,950.00	-1,303.79	244.90	KOP: Build 9°/100' @ 6200.92' MD	
7,448.14	6,825.00	-714.75	314.89	LP: 7448.14' MD, 90.00° Inc, 0.15° Azm	
9,769.26	6,825.00	1,606.36	321.04	Turn: 2°/100'	
9,798.62	6,825.00	1,635.72	320.97	EOT: 90.00° Inc, 359.56° Azm	
15,128.29	6,825.00	6,965.23	280.47	Turn: 2°/100'	
15,138.86	6,825.00	6,975.81	280.37	EOT: 90.00° Inc, 359.35° Azm	
17,600.63	6,825.00	9,437.42	252.58	TD @ 17600.63' MD/6825.00' TVD	

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-770

Wellbore #1

Plan 1

Anticollision Summary Report

01 August, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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	8/1/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,600.35	Plan 1 (Wellbore #1)	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
D Section 16						
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	13,856.66	6,777.70	2,612.00	2,529.16	31.529	CC, ES
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	14,300.00	6,776.71	2,649.36	2,563.78	30.958	SF
Diggin State D 16-07 (SI) - Wellbore #1 - No Surveys	15,730.32	6,781.00	1,861.07	1,651.70	8.889	CC, ES
Diggin State D 16-07 (SI) - Wellbore #1 - No Surveys	15,800.00	6,781.00	1,862.37	1,652.47	8.872	SF
Diggin State D 16-19J (PR) - Wellbore #1 - No Surveys	16,436.47	6,740.00	44.96	-169.06	0.210	Level 1, CC, ES, SF
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	13,228.74	6,767.74	733.70	655.29	9.356	CC, ES, SF
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,079.03	6,796.81	3,836.25	3,743.94	41.557	CC
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,796.86	3,836.31	3,743.83	41.484	ES
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,800.00	6,798.87	3,905.83	3,808.91	40.301	SF
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,063.02	6,766.75	1,357.16	1,265.05	14.735	CC, ES
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,138.58	6,766.59	1,359.28	1,266.64	14.672	SF
Guttersen ST D 16-22D (SI) - Wellbore #1 - MWD Surve	15,220.57	6,877.82	2,543.90	2,448.39	26.636	CC, ES
Guttersen ST D 16-22D (SI) - Wellbore #1 - MWD Surve	15,600.00	6,879.70	2,572.04	2,473.52	26.108	SF
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	13,977.26	6,755.00	1,311.57	1,116.02	6.707	CC, ES
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,000.00	6,755.00	1,311.77	1,116.07	6.703	SF
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	16,767.50	6,775.53	3,773.88	3,668.59	35.842	CC
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	16,800.00	6,775.54	3,774.02	3,668.47	35.754	ES
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	17,400.00	6,775.83	3,826.52	3,717.14	34.982	SF
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	13,850.11	6,741.34	3,908.65	3,825.73	47.138	CC
Guttersen State D 15-33 (SI) - Wellbore #1 - Gyro Survey	13,900.00	6,740.87	3,908.97	3,825.67	46.928	ES
Guttersen State D 15-33 (SI) - Wellbore #1 - Gyro Survey	14,700.00	6,733.25	3,999.97	3,911.75	45.339	SF
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,310.02	6,811.39	1,902.51	1,823.39	24.046	CC, ES
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,500.00	6,811.19	1,911.97	1,831.61	23.790	SF
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,584.94	6,755.00	1,284.19	1,068.71	5.960	CC
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,600.00	6,755.00	1,284.28	1,068.68	5.957	ES, SF
Guttersen State D 16-20 (SI) - Wellbore #1 - Gyro Survey	15,127.58	6,763.12	20.00	-72.55	0.216	Level 1, CC, ES, SF
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	13,949.41	6,786.00	1,317.20	1,233.38	15.715	CC, ES
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	14,100.00	6,785.31	1,325.78	1,241.06	15.648	SF
Guttersen State D 16-27 (PR) - Wellbore #1 - No Survey	17,583.00	6,751.00	2,588.15	2,364.93	11.595	CC
Guttersen State D 16-27 (PR) - Wellbore #1 - No Survey	17,600.35	6,751.00	2,588.21	2,364.84	11.587	ES, SF
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,479.52	6,751.00	1,136.10	921.52	5.295	CC, ES
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,500.00	6,751.00	1,136.28	921.58	5.292	SF
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,284.15	6,948.80	1,238.40	1,136.63	12.169	CC, ES
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,300.00	6,948.83	1,238.51	1,136.64	12.158	SF
Guttersen State D16-63-1HN - Original Drilling - Original	13,487.42	10,438.58	52.81	-31.02	0.630	Level 1, CC
Guttersen State D16-63-1HN - Original Drilling - Original	13,500.00	10,438.30	54.29	-33.29	0.620	Level 1, ES, SF
Guttersen State D16-65-1HN - Original Drilling - Original	14,800.00	10,441.75	56.05	-38.28	0.594	Level 1, 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 Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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 16						
Guttersen State D16-65-1HN - Original Drilling - Original	14,801.41	10,441.78	56.03	-37.98	0.596	Level 1, CC
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,266.14	6,827.28	3,321.22	3,211.88	30.376	CC
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,300.00	6,827.07	3,321.39	3,211.78	30.302	ES
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,600.35	6,825.30	3,337.99	3,226.31	29.888	SF
Spike ST GWS D 16-02 (P&A) - Wellbore #1 - Gyro Surv	17,225.38	6,766.65	1,822.41	1,696.32	14.454	CC, ES
Spike ST GWS D 16-02 (P&A) - Wellbore #1 - Gyro Surv	17,400.00	6,768.12	1,830.75	1,703.53	14.390	SF
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,160.93	6,749.00	645.19	425.32	2.934	CC, ES, SF
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,158.20	6,744.00	661.50	441.76	3.010	CC, ES, SF
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Survey	15,801.65	6,756.70	716.60	618.87	7.333	CC, ES, SF
Spike ST GWS D 16-06 (SI) - Wellbore #1 - No Surveys	15,838.57	6,757.00	644.30	434.57	3.072	CC, ES, SF
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Survey	15,779.14	6,810.55	3,464.39	3,366.68	35.454	CC
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Survey	15,800.00	6,810.35	3,464.46	3,366.58	35.395	ES
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Survey	16,400.00	6,804.68	3,519.58	3,417.95	34.631	SF
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Survey	14,685.48	6,774.05	822.67	733.41	9.217	CC, ES
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Survey	14,700.00	6,773.90	822.80	733.45	9.210	SF
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	12,970.54	6,790.00	700.62	511.74	3.709	CC, ES
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	13,000.00	6,790.00	701.24	512.14	3.708	SF
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,171.56	6,789.00	3,285.88	3,095.57	17.266	CC
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,200.00	6,789.00	3,286.01	3,095.48	17.247	ES
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,500.00	6,789.00	3,302.26	3,109.68	17.148	SF
Spike State D 16-10 (SI) - Wellbore #1 - Gyro Surveys	14,536.70	6,782.42	1,913.34	1,825.18	21.703	CC, ES
Spike State D 16-10 (SI) - Wellbore #1 - Gyro Surveys	14,700.00	6,781.78	1,920.29	1,831.02	21.511	SF
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	14,610.33	6,767.73	698.17	609.49	7.873	CC, ES, SF
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	14,473.08	6,752.97	3,297.52	3,209.92	37.646	CC
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,753.05	3,297.63	3,209.83	37.557	ES
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,754.81	3,356.58	3,265.08	36.681	SF
Spike State D16-15 (P&A) - Wellbore #1 - Wellbore #1	13,228.06	6,792.40	1,901.00	1,811.98	21.353	CC, ES
Spike State D16-15 (P&A) - Wellbore #1 - Wellbore #1	13,400.00	6,796.16	1,908.76	1,818.56	21.161	SF
Spike State D16-99HZ - Original Drilling - Original Drilling	14,000.00	10,411.66	41.59	-71.50	0.368	Level 1, ES
Spike State D16-99HZ - Original Drilling - Original Drilling	14,034.21	10,408.59	23.85	-64.34	0.270	Level 1, CC, SF
Spike State GWS D 16-7J (PR) - Wellbore #1 - No Surve	16,573.18	6,774.00	2,613.24	2,397.47	12.111	CC
Spike State GWS D 16-7J (PR) - Wellbore #1 - No Surve	16,600.00	6,774.00	2,613.37	2,397.39	12.100	ES
Spike State GWS D 16-7J (PR) - Wellbore #1 - No Surve	16,800.00	6,774.00	2,623.06	2,405.69	12.067	SF
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	13,804.93	6,768.03	97.19	14.54	1.176	Level 2, CC, ES, SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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 21						
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	9,323.03	6,817.00	635.41	468.50	3.807	CC, ES, SF
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	3,417.51	3,342.98	433.03	409.72	18.582	CC, ES
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	7,869.47	6,804.04	685.93	636.12	13.770	SF
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	7,954.95	6,811.74	787.35	737.66	15.845	CC, ES, SF
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	8,896.59	6,812.37	369.97	317.59	7.063	CC, ES
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	8,900.00	6,812.36	369.99	317.60	7.062	SF
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	11,836.67	6,779.74	1,990.74	1,922.05	28.978	CC, ES
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	12,100.00	6,780.13	2,008.08	1,937.77	28.557	SF
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	10,513.13	6,801.67	3,295.20	3,234.87	54.619	CC, ES
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	11,300.00	6,800.50	3,387.85	3,323.23	52.429	SF
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,478.98	6,821.00	1,948.16	1,775.18	11.263	CC
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,500.00	6,821.00	1,948.27	1,775.17	11.255	ES
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,600.00	6,821.00	1,951.91	1,778.23	11.238	SF
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	9,323.66	6,818.28	2,013.34	1,959.10	37.120	CC, ES
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	9,600.00	6,817.40	2,032.22	1,976.80	36.670	SF
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	8,030.28	6,762.42	2,044.00	1,994.03	40.910	CC, ES
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	8,200.00	6,765.31	2,051.03	2,000.72	40.770	SF
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	11,887.89	6,802.14	3,320.77	3,251.67	48.054	CC
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	11,900.00	6,802.11	3,320.80	3,251.61	47.996	ES
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,800.62	3,396.27	3,322.90	46.290	SF
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,186.25	6,956.36	3,130.87	3,076.92	58.026	CC
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,200.00	6,956.39	3,130.90	3,076.89	57.965	ES
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,900.00	6,957.99	3,212.36	3,155.37	56.367	SF
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	1,374.46	1,393.29	778.17	767.86	75.438	CC
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	1,600.00	1,622.89	779.57	766.87	61.382	ES
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	10,100.00	7,185.40	1,303.38	1,232.49	18.387	SF
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	11,224.31	6,805.00	2,658.02	2,480.79	14.998	CC, ES
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	11,500.00	6,805.00	2,672.27	2,493.34	14.934	SF
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	9,766.76	6,974.67	19.88	-43.80	0.312	Level 1, CC, SF
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	9,768.97	6,974.68	20.00	-43.90	0.313	Level 1, ES
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	159.39	159.62	824.89	824.27	1,320.759	CC
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	200.00	194.64	824.98	824.06	894.043	ES
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	9,900.00	7,029.26	1,182.59	1,117.01	18.033	SF
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	253.30	251.30	831.82	830.51	635.540	CC
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	1,000.00	986.69	835.11	828.50	126.428	ES
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	8,700.00	6,897.26	1,197.95	1,145.25	22.734	SF
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surve	8,683.37	6,822.26	408.84	356.78	7.852	CC, ES
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surve	8,700.00	6,822.19	409.18	357.06	7.851	SF
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	12,438.95	6,968.31	2,635.31	2,554.82	32.741	CC, ES
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	12,800.00	6,971.05	2,659.93	2,577.30	32.189	SF
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,400.00	7,142.26	1,397.74	1,315.86	17.071	SF
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,440.66	7,142.26	1,397.15	1,315.33	17.077	CC, ES
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surve	2,665.76	2,803.39	495.82	474.33	23.070	CC, ES
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surve	3,000.00	3,090.37	540.20	514.82	21.281	SF
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	12,424.50	7,068.56	3,899.90	3,818.69	48.018	CC
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	12,500.00	7,068.83	3,900.63	3,818.65	47.579	ES
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	13,600.00	7,072.71	4,073.21	3,982.09	44.703	SF
Guttersen 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,316.67	6,811.92	173.91	108.82	2.672	CC, ES, SF
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	10,551.96	6,806.43	643.55	583.41	10.702	CC, ES
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	10,600.00	6,806.20	645.34	585.03	10.700	SF
HSR Guttersen 4-21 (PR) - Wellbore #1 - Gyro Surveys	11,767.43	6,820.18	709.37	641.13	10.396	CC, ES
HSR Guttersen 4-21 (PR) - Wellbore #1 - Gyro Surveys	11,800.00	6,820.47	710.12	641.74	10.385	SF
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	11,751.42	6,764.78	755.80	687.43	11.055	CC, 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 Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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 21						
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	6,762.56	757.36	688.65	11.022	SF
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,542.53	6,806.98	694.68	634.27	11.500	CC, ES
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,600.00	6,807.40	697.05	636.33	11.479	SF
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	8,599.37	6,804.34	2,872.49	2,821.02	55.808	CC
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	8,600.00	6,804.33	2,872.49	2,821.01	55.806	ES
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	9,200.00	6,802.43	2,934.61	2,881.13	54.869	SF
Vogler State D21-720 - Wellbore #1 - Plan 1	9,788.47	9,845.61	3,251.23	3,185.42	49.402	CC
Vogler State D21-720 - Wellbore #1 - Plan 1	17,600.35	17,657.39	3,287.19	3,110.24	18.576	ES, SF
Vogler State D21-731 - Wellbore #1 - Plan 1	2,492.53	2,494.07	1,797.42	1,780.12	103.868	CC
Vogler State D21-731 - Wellbore #1 - Plan 1	2,600.00	2,574.73	1,797.89	1,779.98	100.365	ES
Vogler State D21-731 - Wellbore #1 - Plan 1	17,600.35	17,778.69	2,590.55	2,413.99	14.672	SF
Vogler State D21-740 - Wellbore #1 - Plan 1	2,100.25	2,133.25	1,760.90	1,746.19	119.709	CC
Vogler State D21-740 - Wellbore #1 - Plan 1	2,300.00	2,313.36	1,761.34	1,745.31	109.886	ES
Vogler State D21-740 - Wellbore #1 - Plan 1	17,600.35	17,739.18	1,968.50	1,792.04	11.156	SF
Vogler State D21-750 - Wellbore #1 - Plan 1	9,797.87	9,807.65	1,296.48	1,230.68	19.705	CC
Vogler State D21-750 - Wellbore #1 - Plan 1	17,600.35	17,605.35	1,320.03	1,143.24	7.467	ES, SF
Vogler State D21-760 - Wellbore #1 - Plan 1	2,400.05	2,401.88	37.35	20.66	2.238	CC, ES
Vogler State D21-760 - Wellbore #1 - Plan 1	2,500.00	2,501.28	38.57	21.21	2.222	SF
Vogler State D21-780 - Wellbore #1 - Plan 1	2,000.00	1,998.00	37.00	23.14	2.669	CC
Vogler State D21-780 - Wellbore #1 - Plan 1	2,100.00	2,097.73	37.34	22.78	2.564	ES
Vogler State D21-780 - Wellbore #1 - Plan 1	2,200.00	2,197.22	38.83	23.59	2.548	SF
Vogler State D21-790 - Wellbore #1 - Plan 1	3,127.33	2,931.60	3,689.33	3,668.50	177.139	CC
Vogler State D21-790 - Wellbore #1 - Plan 1	3,332.92	3,077.41	3,689.73	3,667.71	167.549	ES
Vogler State D21-790 - Wellbore #1 - Plan 1	17,600.35	17,585.45	3,936.22	3,759.69	22.297	SF
Vogler State D33-711 - Wellbore #1 - Plan 1	1,904.34	1,931.34	3,696.40	3,683.12	278.264	CC
Vogler State D33-711 - Wellbore #1 - Plan 1	2,000.00	2,015.95	3,696.44	3,682.51	265.411	ES
Vogler State D33-711 - Wellbore #1 - Plan 1	6,900.00	7,352.02	3,865.61	3,814.15	75.124	SF
Vogler State D33-718 - Wellbore #1 - Plan 1	7,000.00	7,329.66	3,393.73	3,342.33	66.021	SF
Vogler State D33-718 - Wellbore #1 - Plan 1	7,426.79	6,935.83	3,373.79	3,323.31	66.836	CC, ES
Vogler State D33-728 - Wellbore #1 - Plan 1	1,907.09	1,944.09	1,806.74	1,793.40	135.444	CC
Vogler State D33-728 - Wellbore #1 - Plan 1	2,000.00	2,024.51	1,806.87	1,792.91	129.459	ES
Vogler State D33-728 - Wellbore #1 - Plan 1	7,900.00	6,322.48	2,607.56	2,558.09	52.708	SF
Vogler State D33-738 - Wellbore #1 - Plan 1	2,529.26	2,549.04	1,767.58	1,749.95	100.252	CC
Vogler State D33-738 - Wellbore #1 - Plan 1	2,600.00	2,600.00	1,767.88	1,749.85	98.030	ES
Vogler State D33-738 - Wellbore #1 - Plan 1	7,050.00	7,220.83	2,066.35	2,014.87	40.134	SF
Vogler State D33-752 - Wellbore #1 - Plan 1	7,250.00	7,116.13	1,406.51	1,355.39	27.514	SF
Vogler State D33-752 - Wellbore #1 - Plan 1	7,384.72	7,006.34	1,403.06	1,352.22	27.594	CC, ES
Vogler State D33-759 - Wellbore #1 - Plan 1	2,292.85	2,302.64	150.94	135.02	9.479	CC
Vogler State D33-759 - Wellbore #1 - Plan 1	2,300.00	2,309.86	150.95	134.97	9.451	ES
Vogler State D33-759 - Wellbore #1 - Plan 1	2,500.00	2,510.87	156.87	139.56	9.063	SF
Vogler State D33-769 - Wellbore #1 - Plan 1	7,366.84	7,001.64	94.06	43.06	1.844	CC, ES, SF
Vogler State D33-779 - Wellbore #1 - Plan 1	2,551.89	2,574.08	132.47	114.91	7.544	CC, ES
Vogler State D33-779 - Wellbore #1 - Plan 1	2,700.00	2,721.80	136.52	117.96	7.356	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 Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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 28						
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,513.41	6,243.56	2,534.00	2,385.26	17.036	CC
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,550.00	6,279.72	2,534.65	2,385.08	16.947	ES
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,800.00	6,511.76	2,573.82	2,419.14	16.639	SF
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	6,430.75	6,134.30	2,990.61	2,946.09	67.180	CC, ES
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	6,650.00	6,345.28	3,026.88	2,981.05	66.042	SF
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	7,327.31	6,865.17	32.98	-17.60	0.652	Level 1, CC, ES, SF
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	4,204.85	4,017.53	1,124.49	1,093.71	36.527	CC, ES
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	7,300.00	6,881.90	1,424.27	1,373.92	28.289	SF
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,544.29	6,354.83	1,398.27	1,350.74	29.418	CC
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,550.00	6,360.43	1,398.29	1,350.73	29.400	ES
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	6,700.00	6,501.67	1,408.82	1,360.58	29.209	SF
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	6,485.41	6,303.23	2,427.98	2,380.06	50.661	CC, ES
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	6,650.00	6,460.50	2,445.98	2,397.15	50.096	SF
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	6,457.92	6,247.82	3,813.32	3,767.77	83.711	CC, ES
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	6,700.00	6,472.00	3,856.14	3,809.23	82.202	SF
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	7,420.59	6,862.90	1,205.24	1,153.19	23.154	CC, ES
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	7,447.85	6,863.59	1,205.59	1,153.48	23.134	SF
Guttersen State D28-79HN - Wellbore #1 - Actual	6,836.97	11,086.00	1,261.78	1,155.53	11.875	CC
Guttersen State D28-79HN - Wellbore #1 - Actual	6,850.00	11,086.00	1,261.88	1,155.52	11.864	ES
Guttersen State D28-79HN - Wellbore #1 - Actual	6,900.00	11,086.00	1,264.10	1,157.47	11.855	SF
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	6,476.22	6,177.35	3,337.76	3,292.98	74.534	CC, ES
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	6,600.00	6,600.00	3,346.61	3,300.11	71.976	SF
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	6,460.37	6,104.63	5,002.90	4,958.42	112.470	CC, ES
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	7,000.00	7,000.00	5,199.86	5,151.34	107.188	SF
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,491.15	6,168.04	2,319.31	2,274.12	51.323	CC
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,500.00	6,175.28	2,319.36	2,274.11	51.263	ES
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,750.00	6,410.78	2,353.57	2,306.96	50.496	SF
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,688.97	6,432.59	3,056.08	3,008.98	64.890	CC
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,442.61	3,056.10	3,008.95	64.810	ES
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,723.00	3,084.46	3,035.84	63.440	SF
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	6,779.43	6,497.66	2,024.45	1,976.88	42.557	CC
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,513.82	2,024.53	1,976.87	42.475	ES
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	7,050.00	6,703.25	2,041.46	1,992.85	41.995	SF
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,516.37	6,176.32	3,710.40	3,664.80	81.374	CC, ES
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,511.80	3,748.82	3,701.38	79.022	SF
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	6,749.67	6,453.89	778.35	716.83	12.652	CC
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	6,750.00	6,454.18	778.35	716.83	12.651	ES
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	6,850.00	6,539.25	781.54	719.25	12.546	SF
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	6,173.82	5,898.83	580.81	537.12	13.295	CC
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	6,200.78	5,923.10	580.92	537.03	13.236	ES
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,261.84	600.33	554.01	12.963	SF
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,461.22	6,334.80	4,407.83	4,362.78	97.826	CC, ES
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,500.00	4,453.17	4,406.88	96.219	SF
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,427.29	6,157.20	1,555.63	1,510.81	34.710	CC, ES
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,280.61	1,565.99	1,520.38	34.334	SF
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,491.60	6,230.86	1,703.06	1,658.09	37.873	CC
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,238.75	1,703.10	1,658.08	37.829	ES
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,395.63	1,719.40	1,673.50	37.464	SF
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,471.22	6,219.03	2,836.23	2,791.56	63.490	CC, ES
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,349.78	2,861.28	2,815.63	62.679	SF
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,441.20	6,048.07	4,478.50	4,434.38	101.490	CC
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,450.00	6,058.41	4,478.56	4,434.37	101.345	ES
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,750.00	6,345.58	4,550.17	4,504.31	99.215	SF

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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-770
Project:	Mustang	TVD Reference:	Well @ 4822.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-770	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	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						

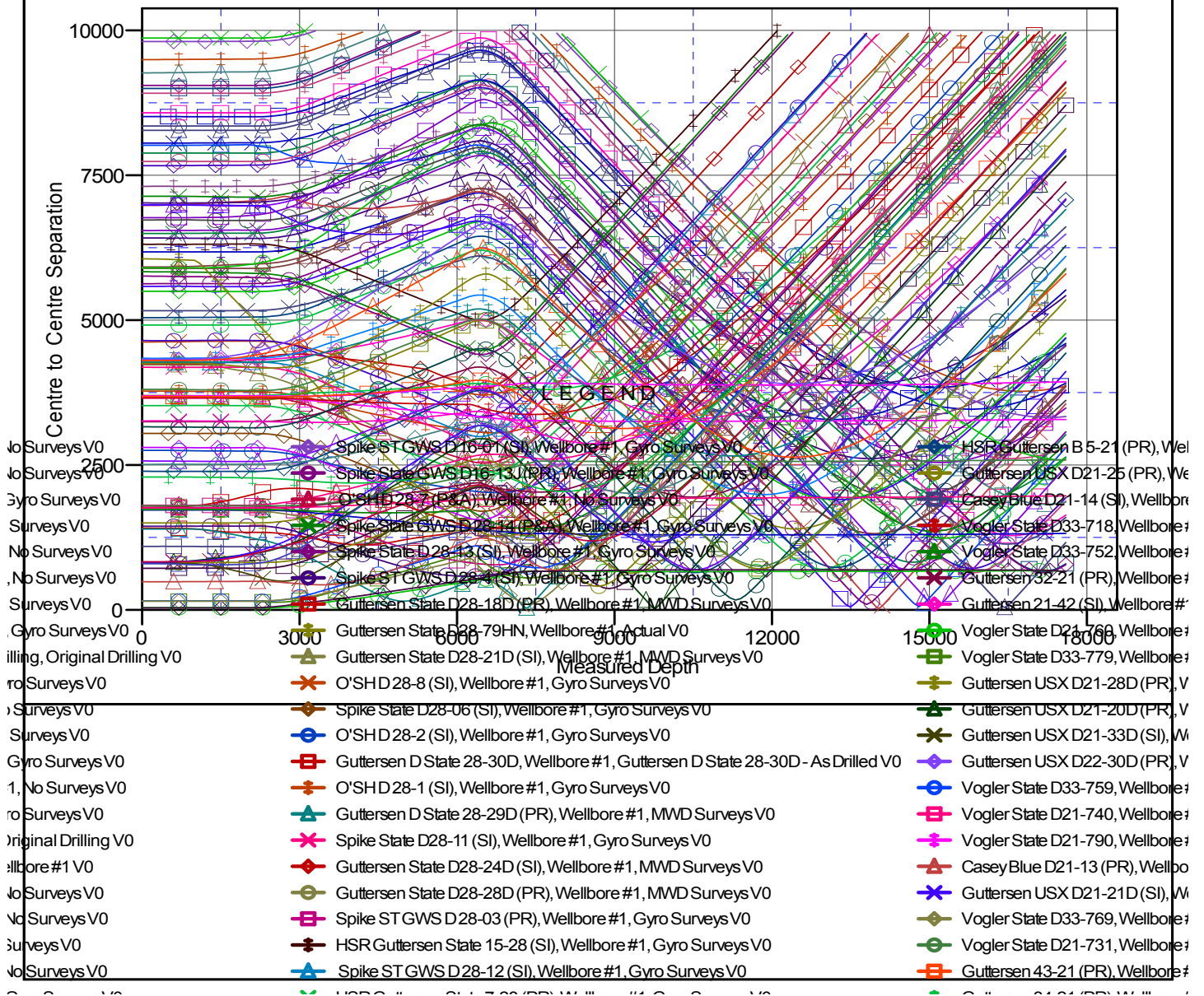
Noble Energy, Inc.
Anticollision Summary Report

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Reference Wellbore	Wellbore #1	Database:	EDMP
Reference Design:	Plan 1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4822.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Vogler State D21-770
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°

Ladder Plot



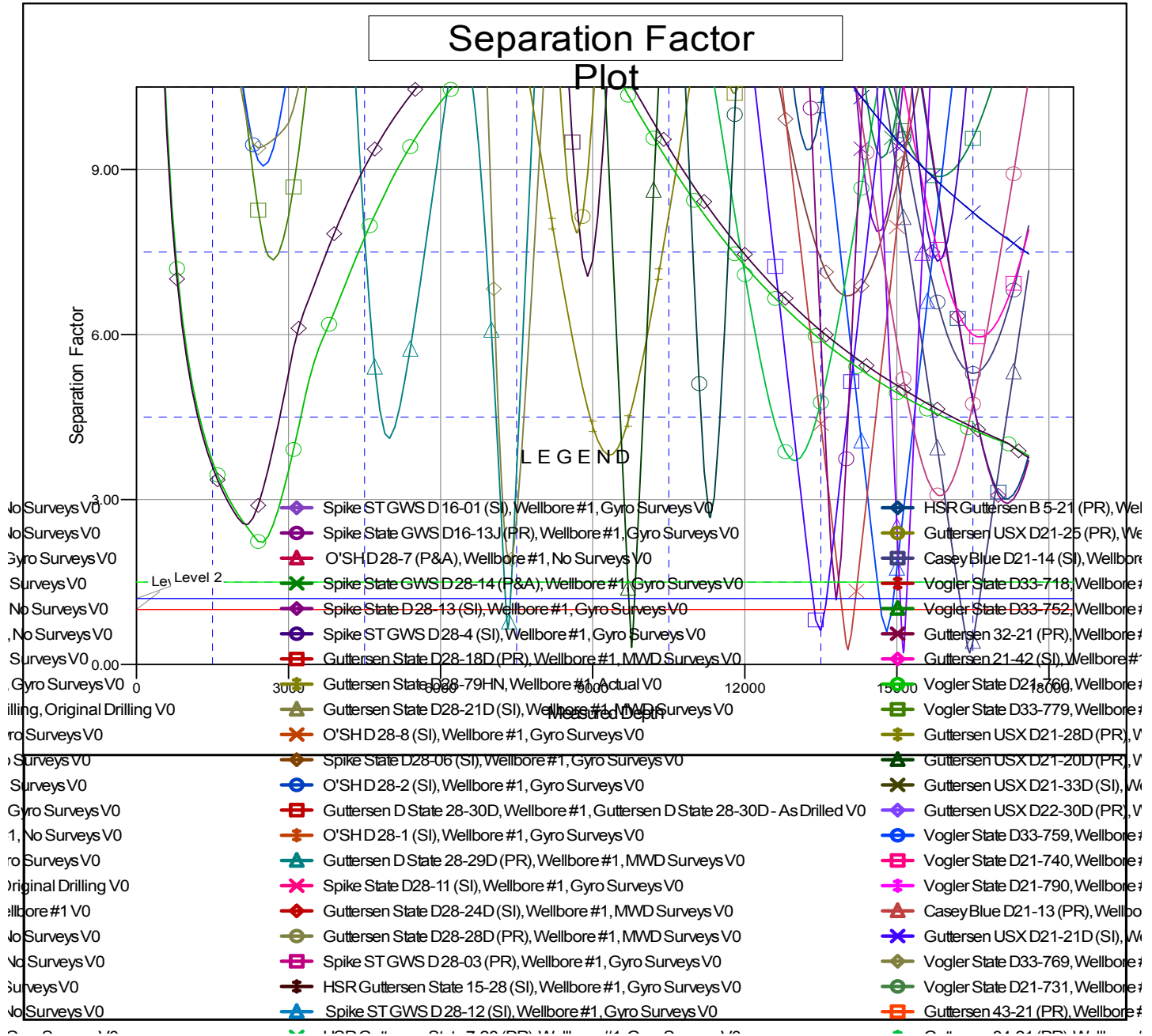
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Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-770
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Reference Site:	D Section 21	MD Reference:	Well @ 4822.00ft
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Reference Wellbore	Wellbore #1	Database:	EDMP
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Reference Depths are relative to Well @ 4822.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Vogler State D21-770
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°



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