

Project: Mustang
Site: D Section 21
Well: Vogler State D21-790
Wellbore: Wellbore #1
Design: Plan 1

Northern Region - DJ Basin

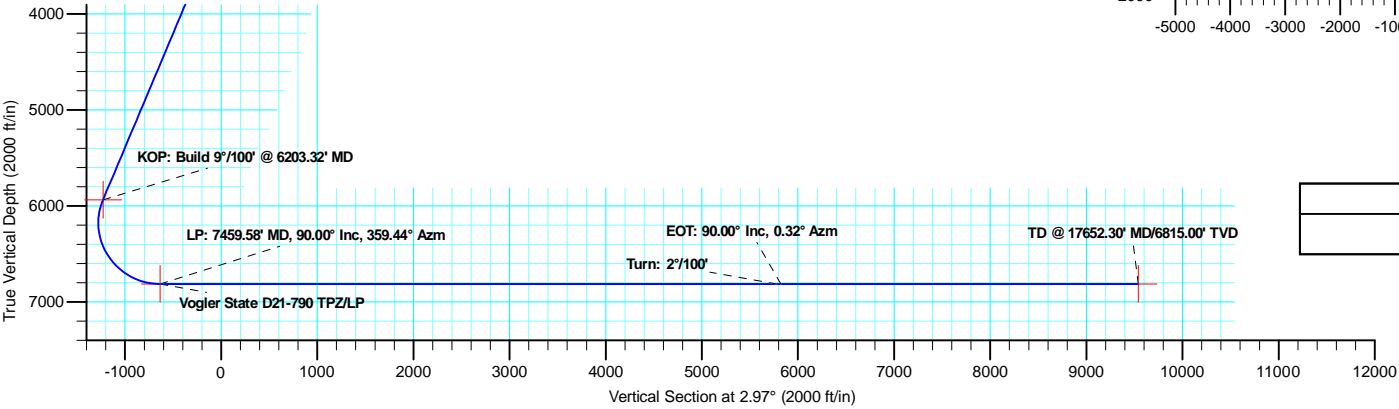
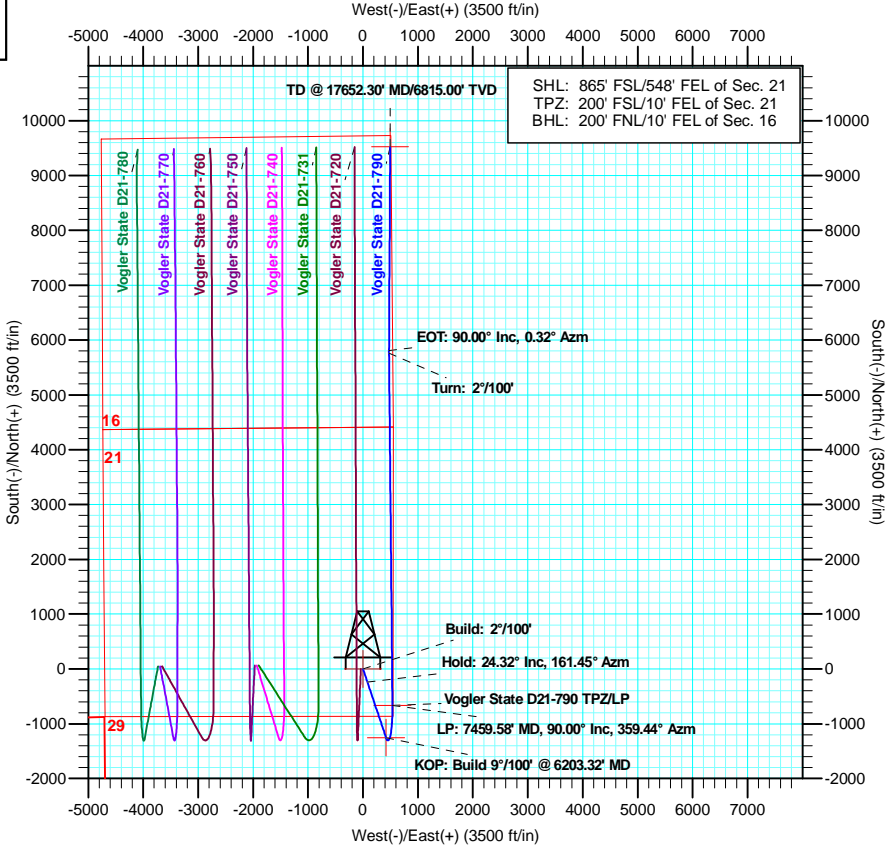
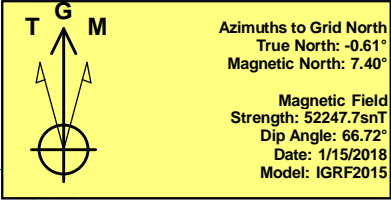
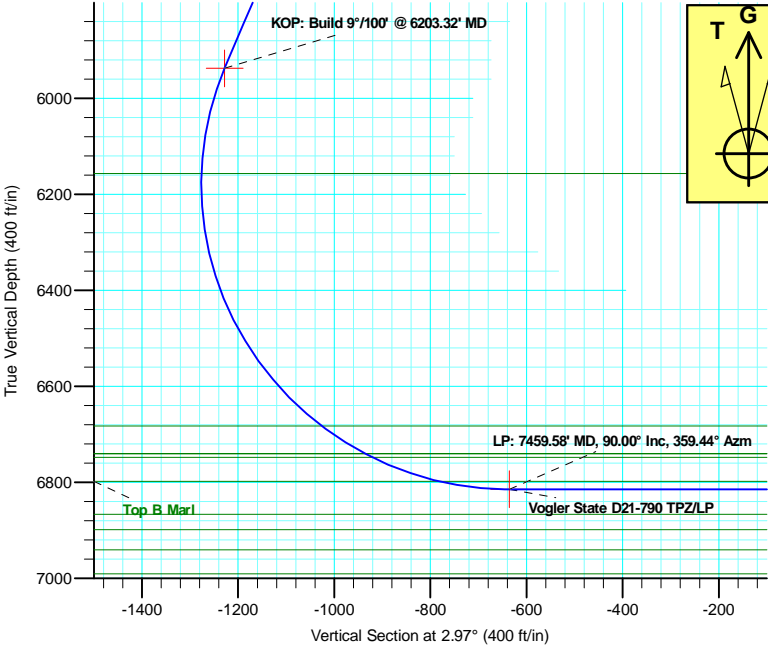
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	0.00
3	3616.12	24.32	161.45	3579.92	-241.07	80.87	2.00	161.45	-236.55
4	6203.32	24.32	161.45	5937.49	-1251.32	419.79	0.00	0.00	-1227.90
5	7459.58	90.00	359.44	6815.00	-664.42	536.53	9.00	-160.39	-635.74
6	13886.76	90.00	359.44	6815.00	5762.46	473.76	0.00	0.00	5779.26
7	13930.51	90.00	0.32	6815.00	5806.20	473.66	2.00	90.00	5822.94
8	17652.30	90.00	0.32	6815.00	9527.94	494.14	0.00	0.00	9540.74

WELL DETAILS: Vogler State D21-790

+N/-S	+E/-W	Northing	Ground Level: Easting	4820.00 3265653.01	Latitude	Longitude
0.00	0.00	1319314.00			40.2060031	-104.5488681



Plan: Plan 1 (Vogler State D21-790/Wellbore #1)
Created By: Keith Noack Date: 15:17, August 08 2018

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-790

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 D21-790
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-790	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 D21-790					
Well Position	+N/-S	-3,727.89 ft	Northing:	1,319,314.00 usft	Latitude:	40.2060031
	+E/-W	4,039.54 ft	Easting:	3,265,653.01 usft	Longitude:	-104.5488681
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,820.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/15/2018	8.02	66.72	52,247.73036103

Design	Plan 1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	2.97

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	
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,616.12	24.32	161.45	3,579.92	-241.07	80.87	2.00	2.00	0.00	161.45	
6,203.32	24.32	161.45	5,937.49	-1,251.32	419.79	0.00	0.00	0.00	0.00	
7,459.58	90.00	359.44	6,815.00	-664.42	536.53	9.00	5.23	-12.90	-160.39	Vogler State D21-790
13,886.77	90.00	359.44	6,815.00	5,762.46	473.76	0.00	0.00	0.00	0.00	Vogler State D21-790
13,930.51	90.00	0.32	6,815.00	5,806.20	473.66	2.00	0.00	2.00	90.00	Vogler State D21-790
17,652.30	90.00	0.32	6,815.00	9,527.94	494.14	0.00	0.00	0.00	0.00	Vogler State D21-790

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-790
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-790	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
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	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
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
2,500.00	2.00	161.45	2,499.98	-1.65	0.56	-1.62	2.00	2.00	0.00
2,600.00	4.00	161.45	2,599.84	-6.62	2.22	-6.49	2.00	2.00	0.00
2,700.00	6.00	161.45	2,699.45	-14.88	4.99	-14.60	2.00	2.00	0.00
2,800.00	8.00	161.45	2,798.70	-26.43	8.87	-25.94	2.00	2.00	0.00
2,900.00	10.00	161.45	2,897.47	-41.26	13.84	-40.49	2.00	2.00	0.00
3,000.00	12.00	161.45	2,995.62	-59.35	19.91	-58.24	2.00	2.00	0.00
3,100.00	14.00	161.45	3,093.06	-80.68	27.07	-79.17	2.00	2.00	0.00
3,200.00	16.00	161.45	3,189.64	-105.21	35.30	-103.24	2.00	2.00	0.00
3,300.00	18.00	161.45	3,285.27	-132.93	44.60	-130.44	2.00	2.00	0.00
3,400.00	20.00	161.45	3,379.82	-163.80	54.95	-160.73	2.00	2.00	0.00
3,500.00	22.00	161.45	3,473.17	-197.77	66.35	-194.07	2.00	2.00	0.00
3,600.00	24.00	161.45	3,565.21	-234.81	78.77	-230.42	2.00	2.00	0.00
3,616.12	24.32	161.45	3,579.92	-241.07	80.87	-236.55	2.00	2.00	0.00
Hold: 24.32° Inc, 161.45° Azm									
3,700.00	24.32	161.45	3,656.36	-273.82	91.86	-268.70	0.00	0.00	0.00
3,800.00	24.32	161.45	3,747.48	-312.87	104.96	-307.01	0.00	0.00	0.00
3,900.00	24.32	161.45	3,838.61	-351.92	118.06	-345.33	0.00	0.00	0.00
4,000.00	24.32	161.45	3,929.73	-390.97	131.16	-383.65	0.00	0.00	0.00
4,100.00	24.32	161.45	4,020.85	-430.01	144.26	-421.97	0.00	0.00	0.00
4,200.00	24.32	161.45	4,111.98	-469.06	157.36	-460.28	0.00	0.00	0.00
4,300.00	24.32	161.45	4,203.10	-508.11	170.46	-498.60	0.00	0.00	0.00
4,400.00	24.32	161.45	4,294.23	-547.16	183.56	-536.92	0.00	0.00	0.00
4,500.00	24.32	161.45	4,385.35	-586.21	196.66	-575.24	0.00	0.00	0.00
4,600.00	24.32	161.45	4,476.48	-625.26	209.76	-613.55	0.00	0.00	0.00
4,700.00	24.32	161.45	4,567.60	-664.30	222.86	-651.87	0.00	0.00	0.00
4,800.00	24.32	161.45	4,658.72	-703.35	235.96	-690.19	0.00	0.00	0.00
4,900.00	24.32	161.45	4,749.85	-742.40	249.06	-728.50	0.00	0.00	0.00
5,000.00	24.32	161.45	4,840.97	-781.45	262.16	-766.82	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-790
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-790	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)
5,100.00	24.32	161.45	4,932.10	-820.50	275.26	-805.14	0.00	0.00	0.00
5,200.00	24.32	161.45	5,023.22	-859.54	288.36	-843.46	0.00	0.00	0.00
5,300.00	24.32	161.45	5,114.35	-898.59	301.45	-881.77	0.00	0.00	0.00
5,400.00	24.32	161.45	5,205.47	-937.64	314.55	-920.09	0.00	0.00	0.00
5,500.00	24.32	161.45	5,296.60	-976.69	327.65	-958.41	0.00	0.00	0.00
5,600.00	24.32	161.45	5,387.72	-1,015.74	340.75	-996.73	0.00	0.00	0.00
5,700.00	24.32	161.45	5,478.84	-1,054.79	353.85	-1,035.04	0.00	0.00	0.00
5,800.00	24.32	161.45	5,569.97	-1,093.83	366.95	-1,073.36	0.00	0.00	0.00
5,900.00	24.32	161.45	5,661.09	-1,132.88	380.05	-1,111.68	0.00	0.00	0.00
6,000.00	24.32	161.45	5,752.22	-1,171.93	393.15	-1,149.99	0.00	0.00	0.00
6,100.00	24.32	161.45	5,843.34	-1,210.98	406.25	-1,188.31	0.00	0.00	0.00
6,203.32	24.32	161.45	5,937.49	-1,251.32	419.79	-1,227.90	0.00	0.00	0.00
KOP: Build 9°/100' @ 6203.32' MD									
6,250.00	20.41	157.41	5,980.65	-1,267.96	425.97	-1,244.20	9.00	-8.38	-8.66
6,300.00	16.37	151.08	6,028.09	-1,282.19	432.73	-1,258.05	9.00	-8.08	-12.67
6,350.00	12.64	140.95	6,076.50	-1,292.61	439.59	-1,268.10	9.00	-7.47	-20.25
6,400.00	9.58	123.62	6,125.57	-1,299.16	446.50	-1,274.29	9.00	-6.13	-34.67
6,450.00	7.99	95.65	6,175.00	-1,301.81	453.43	-1,276.58	9.00	-3.17	-55.93
6,500.00	8.73	64.74	6,224.50	-1,300.53	460.33	-1,274.94	9.00	1.48	-61.83
6,550.00	11.35	43.47	6,273.74	-1,295.34	467.15	-1,269.40	9.00	5.24	-42.54
6,600.00	14.89	31.09	6,322.44	-1,286.26	473.86	-1,259.99	9.00	7.08	-24.75
6,650.00	18.84	23.58	6,370.28	-1,273.35	480.41	-1,246.76	9.00	7.89	-15.02
6,700.00	22.98	18.65	6,416.98	-1,256.69	486.76	-1,229.79	9.00	8.29	-9.87
6,750.00	27.24	15.17	6,462.25	-1,236.39	492.88	-1,209.20	9.00	8.51	-6.96
6,800.00	31.55	12.58	6,505.81	-1,212.56	498.73	-1,185.11	9.00	8.63	-5.19
6,850.00	35.91	10.55	6,547.38	-1,185.37	504.27	-1,157.66	9.00	8.72	-4.05
6,900.00	40.30	8.91	6,586.71	-1,154.96	509.46	-1,127.03	9.00	8.77	-3.28
6,950.00	44.70	7.55	6,623.57	-1,121.54	514.28	-1,093.40	9.00	8.81	-2.73
7,000.00	49.12	6.38	6,657.72	-1,085.30	518.69	-1,056.98	9.00	8.84	-2.34
7,050.00	53.55	5.36	6,688.95	-1,046.47	522.67	-1,018.00	9.00	8.86	-2.04
7,100.00	57.99	4.45	6,717.07	-1,005.30	526.19	-976.70	9.00	8.87	-1.82
7,150.00	62.43	3.62	6,741.91	-962.03	529.23	-933.32	9.00	8.88	-1.65
7,200.00	66.88	2.86	6,763.31	-916.92	531.78	-888.15	9.00	8.89	-1.52
7,250.00	71.33	2.14	6,781.14	-870.27	533.81	-841.45	9.00	8.90	-1.43
7,300.00	75.78	1.47	6,795.30	-822.35	535.32	-793.52	9.00	8.91	-1.35
7,350.00	80.23	0.82	6,805.68	-773.46	536.29	-744.65	9.00	8.91	-1.30
7,400.00	84.69	0.18	6,812.24	-723.91	536.73	-695.14	9.00	8.91	-1.27
7,450.00	89.15	359.56	6,814.93	-674.00	536.61	-645.30	9.00	8.91	-1.25
7,459.58	90.00	359.44	6,815.00	-664.42	536.53	-635.74	9.00	8.91	-1.24
LP: 7459.58' MD, 90.00° Inc, 359.44° Azm									
7,500.00	90.00	359.44	6,815.00	-624.00	536.13	-595.39	0.00	0.00	0.00
7,600.00	90.00	359.44	6,815.00	-524.00	535.16	-495.58	0.00	0.00	0.00
7,700.00	90.00	359.44	6,815.00	-424.01	534.18	-395.77	0.00	0.00	0.00
7,800.00	90.00	359.44	6,815.00	-324.01	533.20	-295.96	0.00	0.00	0.00
7,900.00	90.00	359.44	6,815.00	-224.02	532.23	-196.15	0.00	0.00	0.00
8,000.00	90.00	359.44	6,815.00	-124.02	531.25	-96.34	0.00	0.00	0.00
8,100.00	90.00	359.44	6,815.00	-24.03	530.27	3.47	0.00	0.00	0.00
8,200.00	90.00	359.44	6,815.00	75.97	529.30	103.28	0.00	0.00	0.00
8,300.00	90.00	359.44	6,815.00	175.96	528.32	203.09	0.00	0.00	0.00
8,400.00	90.00	359.44	6,815.00	275.96	527.34	302.90	0.00	0.00	0.00
8,500.00	90.00	359.44	6,815.00	375.95	526.37	402.71	0.00	0.00	0.00
8,600.00	90.00	359.44	6,815.00	475.95	525.39	502.52	0.00	0.00	0.00
8,700.00	90.00	359.44	6,815.00	575.94	524.41	602.33	0.00	0.00	0.00
8,800.00	90.00	359.44	6,815.00	675.94	523.44	702.14	0.00	0.00	0.00

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Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
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Well:	Vogler State D21-790	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)
8,900.00	90.00	359.44	6,815.00	775.93	522.46	801.95	0.00	0.00	0.00
9,000.00	90.00	359.44	6,815.00	875.93	521.48	901.76	0.00	0.00	0.00
9,100.00	90.00	359.44	6,815.00	975.92	520.51	1,001.57	0.00	0.00	0.00
9,200.00	90.00	359.44	6,815.00	1,075.92	519.53	1,101.38	0.00	0.00	0.00
9,300.00	90.00	359.44	6,815.00	1,175.91	518.55	1,201.19	0.00	0.00	0.00
9,400.00	90.00	359.44	6,815.00	1,275.91	517.58	1,301.00	0.00	0.00	0.00
9,500.00	90.00	359.44	6,815.00	1,375.91	516.60	1,400.81	0.00	0.00	0.00
9,600.00	90.00	359.44	6,815.00	1,475.90	515.62	1,500.62	0.00	0.00	0.00
9,700.00	90.00	359.44	6,815.00	1,575.90	514.65	1,600.44	0.00	0.00	0.00
9,800.00	90.00	359.44	6,815.00	1,675.89	513.67	1,700.25	0.00	0.00	0.00
9,900.00	90.00	359.44	6,815.00	1,775.89	512.69	1,800.06	0.00	0.00	0.00
10,000.00	90.00	359.44	6,815.00	1,875.88	511.72	1,899.87	0.00	0.00	0.00
10,100.00	90.00	359.44	6,815.00	1,975.88	510.74	1,999.68	0.00	0.00	0.00
10,200.00	90.00	359.44	6,815.00	2,075.87	509.76	2,099.49	0.00	0.00	0.00
10,300.00	90.00	359.44	6,815.00	2,175.87	508.79	2,199.30	0.00	0.00	0.00
10,400.00	90.00	359.44	6,815.00	2,275.86	507.81	2,299.11	0.00	0.00	0.00
10,500.00	90.00	359.44	6,815.00	2,375.86	506.83	2,398.92	0.00	0.00	0.00
10,600.00	90.00	359.44	6,815.00	2,475.85	505.86	2,498.73	0.00	0.00	0.00
10,700.00	90.00	359.44	6,815.00	2,575.85	504.88	2,598.54	0.00	0.00	0.00
10,800.00	90.00	359.44	6,815.00	2,675.84	503.90	2,698.35	0.00	0.00	0.00
10,900.00	90.00	359.44	6,815.00	2,775.84	502.93	2,798.16	0.00	0.00	0.00
11,000.00	90.00	359.44	6,815.00	2,875.83	501.95	2,897.97	0.00	0.00	0.00
11,100.00	90.00	359.44	6,815.00	2,975.83	500.97	2,997.78	0.00	0.00	0.00
11,200.00	90.00	359.44	6,815.00	3,075.82	500.00	3,097.59	0.00	0.00	0.00
11,300.00	90.00	359.44	6,815.00	3,175.82	499.02	3,197.40	0.00	0.00	0.00
11,400.00	90.00	359.44	6,815.00	3,275.81	498.04	3,297.21	0.00	0.00	0.00
11,500.00	90.00	359.44	6,815.00	3,375.81	497.07	3,397.02	0.00	0.00	0.00
11,600.00	90.00	359.44	6,815.00	3,475.80	496.09	3,496.83	0.00	0.00	0.00
11,700.00	90.00	359.44	6,815.00	3,575.80	495.11	3,596.64	0.00	0.00	0.00
11,800.00	90.00	359.44	6,815.00	3,675.80	494.14	3,696.45	0.00	0.00	0.00
11,900.00	90.00	359.44	6,815.00	3,775.79	493.16	3,796.27	0.00	0.00	0.00
12,000.00	90.00	359.44	6,815.00	3,875.79	492.18	3,896.08	0.00	0.00	0.00
12,100.00	90.00	359.44	6,815.00	3,975.78	491.21	3,995.89	0.00	0.00	0.00
12,200.00	90.00	359.44	6,815.00	4,075.78	490.23	4,095.70	0.00	0.00	0.00
12,300.00	90.00	359.44	6,815.00	4,175.77	489.25	4,195.51	0.00	0.00	0.00
12,400.00	90.00	359.44	6,815.00	4,275.77	488.28	4,295.32	0.00	0.00	0.00
12,500.00	90.00	359.44	6,815.00	4,375.76	487.30	4,395.13	0.00	0.00	0.00
12,600.00	90.00	359.44	6,815.00	4,475.76	486.32	4,494.94	0.00	0.00	0.00
12,700.00	90.00	359.44	6,815.00	4,575.75	485.35	4,594.75	0.00	0.00	0.00
12,800.00	90.00	359.44	6,815.00	4,675.75	484.37	4,694.56	0.00	0.00	0.00
12,900.00	90.00	359.44	6,815.00	4,775.74	483.39	4,794.37	0.00	0.00	0.00
13,000.00	90.00	359.44	6,815.00	4,875.74	482.42	4,894.18	0.00	0.00	0.00
13,100.00	90.00	359.44	6,815.00	4,975.73	481.44	4,993.99	0.00	0.00	0.00
13,200.00	90.00	359.44	6,815.00	5,075.73	480.46	5,093.80	0.00	0.00	0.00
13,300.00	90.00	359.44	6,815.00	5,175.72	479.49	5,193.61	0.00	0.00	0.00
13,400.00	90.00	359.44	6,815.00	5,275.72	478.51	5,293.42	0.00	0.00	0.00
13,500.00	90.00	359.44	6,815.00	5,375.71	477.53	5,393.23	0.00	0.00	0.00
13,600.00	90.00	359.44	6,815.00	5,475.71	476.56	5,493.04	0.00	0.00	0.00
13,700.00	90.00	359.44	6,815.00	5,575.70	475.58	5,592.85	0.00	0.00	0.00
13,800.00	90.00	359.44	6,815.00	5,675.70	474.60	5,692.66	0.00	0.00	0.00
13,886.77	90.00	359.44	6,815.00	5,762.46	473.76	5,779.26	0.00	0.00	0.00
Turn: 2°/100'									
13,900.00	90.00	359.71	6,815.00	5,775.70	473.66	5,792.48	2.00	0.00	2.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-790
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-790	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)
13,930.51	90.00	0.32	6,815.00	5,806.20	473.66	5,822.94	2.00	0.00	2.00
EOT: 90.00° Inc, 0.32° Azm									
14,000.00	90.00	0.32	6,815.00	5,875.69	474.05	5,892.36	0.00	0.00	0.00
14,100.00	90.00	0.32	6,815.00	5,975.69	474.60	5,992.25	0.00	0.00	0.00
14,200.00	90.00	0.32	6,815.00	6,075.69	475.15	6,092.15	0.00	0.00	0.00
14,300.00	90.00	0.32	6,815.00	6,175.69	475.70	6,192.04	0.00	0.00	0.00
14,400.00	90.00	0.32	6,815.00	6,275.69	476.25	6,291.93	0.00	0.00	0.00
14,500.00	90.00	0.32	6,815.00	6,375.69	476.80	6,391.82	0.00	0.00	0.00
14,600.00	90.00	0.32	6,815.00	6,475.69	477.35	6,491.72	0.00	0.00	0.00
14,700.00	90.00	0.32	6,815.00	6,575.68	477.90	6,591.61	0.00	0.00	0.00
14,800.00	90.00	0.32	6,815.00	6,675.68	478.45	6,691.50	0.00	0.00	0.00
14,900.00	90.00	0.32	6,815.00	6,775.68	479.00	6,791.40	0.00	0.00	0.00
15,000.00	90.00	0.32	6,815.00	6,875.68	479.55	6,891.29	0.00	0.00	0.00
15,100.00	90.00	0.32	6,815.00	6,975.68	480.10	6,991.18	0.00	0.00	0.00
15,200.00	90.00	0.32	6,815.00	7,075.68	480.65	7,091.07	0.00	0.00	0.00
15,300.00	90.00	0.32	6,815.00	7,175.67	481.20	7,190.97	0.00	0.00	0.00
15,400.00	90.00	0.32	6,815.00	7,275.67	481.75	7,290.86	0.00	0.00	0.00
15,500.00	90.00	0.32	6,815.00	7,375.67	482.30	7,390.75	0.00	0.00	0.00
15,600.00	90.00	0.32	6,815.00	7,475.67	482.85	7,490.64	0.00	0.00	0.00
15,700.00	90.00	0.32	6,815.00	7,575.67	483.40	7,590.54	0.00	0.00	0.00
15,800.00	90.00	0.32	6,815.00	7,675.67	483.95	7,690.43	0.00	0.00	0.00
15,900.00	90.00	0.32	6,815.00	7,775.67	484.50	7,790.32	0.00	0.00	0.00
16,000.00	90.00	0.32	6,815.00	7,875.66	485.05	7,890.22	0.00	0.00	0.00
16,100.00	90.00	0.32	6,815.00	7,975.66	485.60	7,990.11	0.00	0.00	0.00
16,200.00	90.00	0.32	6,815.00	8,075.66	486.15	8,090.00	0.00	0.00	0.00
16,300.00	90.00	0.32	6,815.00	8,175.66	486.70	8,189.89	0.00	0.00	0.00
16,400.00	90.00	0.32	6,815.00	8,275.66	487.25	8,289.79	0.00	0.00	0.00
16,500.00	90.00	0.32	6,815.00	8,375.66	487.80	8,389.68	0.00	0.00	0.00
16,600.00	90.00	0.32	6,815.00	8,475.66	488.35	8,489.57	0.00	0.00	0.00
16,700.00	90.00	0.32	6,815.00	8,575.65	488.90	8,589.47	0.00	0.00	0.00
16,800.00	90.00	0.32	6,815.00	8,675.65	489.45	8,689.36	0.00	0.00	0.00
16,900.00	90.00	0.32	6,815.00	8,775.65	490.00	8,789.25	0.00	0.00	0.00
17,000.00	90.00	0.32	6,815.00	8,875.65	490.55	8,889.14	0.00	0.00	0.00
17,100.00	90.00	0.32	6,815.00	8,975.65	491.10	8,989.04	0.00	0.00	0.00
17,200.00	90.00	0.32	6,815.00	9,075.65	491.65	9,088.93	0.00	0.00	0.00
17,300.00	90.00	0.32	6,815.00	9,175.64	492.20	9,188.82	0.00	0.00	0.00
17,400.00	90.00	0.32	6,815.00	9,275.64	492.75	9,288.71	0.00	0.00	0.00
17,500.00	90.00	0.32	6,815.00	9,375.64	493.30	9,388.61	0.00	0.00	0.00
17,600.00	90.00	0.32	6,815.00	9,475.64	493.85	9,488.50	0.00	0.00	0.00
17,652.30	90.00	0.32	6,815.00	9,527.94	494.14	9,540.74	0.00	0.00	0.00
TD @ 17652.30' MD/6815.00' TVD									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-790
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4850.00ft
Project:	Mustang	MD Reference:	Well @ 4850.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-790	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(usft)	(usft)		
- Shape									
Vogler State D21-790 - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,319,314.00	3,265,653.01	40.2060031	-104.5488681
Vogler State D21-790 - plan hits target center - Point	0.00	0.00	5,937.49	-1,251.32	419.79	1,318,062.68	3,266,072.80	40.2025559	-104.5474134
Vogler State D21-790 - plan hits target center - Point	0.00	0.00	6,815.00	9,527.94	494.14	1,328,841.92	3,266,147.15	40.2321422	-104.5467323
Vogler State D21-790 - plan hits target center - Point	0.00	0.01	6,815.00	-664.42	536.53	1,318,649.59	3,266,189.54	40.2041635	-104.5469729

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
2,400.00	2,400.00	0.00	0.00	Build: 2°/100'
3,616.12	3,579.92	-241.07	80.87	Hold: 24.32° Inc, 161.45° Azm
6,203.32	5,937.49	-1,251.32	419.79	KOP: Build 9°/100' @ 6203.32' MD
7,459.58	6,815.00	-664.42	536.53	LP: 7459.58' MD, 90.00° Inc, 359.44° Azm
13,886.77	6,815.00	5,762.46	473.76	Turn: 2°/100'
13,930.51	6,815.00	5,806.20	473.66	EOT: 90.00° Inc, 0.32° Azm
17,652.30	6,815.00	9,527.94	494.14	TD @ 17652.30' MD/6815.00' TVD

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-790

Wellbore #1

Plan 1

Anticollision Summary Report

08 August, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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	8/8/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,652.30	Plan 1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 16						
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	13,893.44	6,755.77	1,266.58	1,183.51	15.246	CC
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	13,900.00	6,755.76	1,266.61	1,183.49	15.239	ES
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	13,930.51	6,755.69	1,267.37	1,184.07	15.215	SF
Diggin State D 16-07 (SI) - Wellbore #1 - No Surveys	15,747.51	6,743.00	2,043.83	1,835.15	9.794	CC, ES
Diggin State D 16-07 (SI) - Wellbore #1 - No Surveys	15,900.00	6,743.00	2,049.51	1,839.88	9.777	SF
Diggin State D 16-19J (PR) - Wellbore #1 - No Surveys	16,421.56	6,702.00	3,961.45	3,748.38	18.593	CC, ES
Diggin State D 16-19J (PR) - Wellbore #1 - No Surveys	16,800.00	6,702.00	3,979.49	3,763.87	18.456	SF
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	13,275.81	6,744.01	4,613.59	4,534.94	58.658	CC
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	13,300.00	6,743.92	4,613.65	4,534.83	58.533	ES
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,740.23	4,755.85	4,670.73	55.868	SF
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,115.35	6,756.59	58.05	-34.37	0.628	Level 1, CC, ES, SF
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,066.89	6,741.88	2,536.76	2,444.75	27.571	CC
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,741.78	2,536.97	2,444.72	27.502	ES
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,740.86	2,558.53	2,464.59	27.235	SF
Guttersen ST D 16-22D (SI) - Wellbore #1 - MWD Surve	15,249.16	6,847.58	1,352.62	1,256.95	14.139	CC, ES
Guttersen ST D 16-22D (SI) - Wellbore #1 - MWD Surve	15,300.00	6,847.81	1,353.57	1,257.74	14.124	SF
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	13,946.21	6,717.00	5,190.93	4,996.39	26.683	CC
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,000.00	6,717.00	5,191.21	4,996.28	26.631	ES
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,700.00	6,717.00	5,245.38	5,045.85	26.289	SF
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	16,816.67	6,738.48	148.71	43.25	1.410	Level 3, CC, ES, SF
Guttersen State D 15-33 (SI) - Wellbore #1 - Gyro Survey	13,886.94	6,747.09	30.00	-53.20	0.361	Level 1, CC, ES, SF
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,351.36	6,760.38	1,976.98	1,897.76	24.957	CC, ES
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,600.00	6,759.55	1,992.55	1,912.03	24.745	SF
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,592.32	6,717.00	2,634.98	2,420.29	12.273	CC
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,600.00	6,717.00	2,634.99	2,420.24	12.270	ES
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,800.00	6,717.00	2,643.15	2,427.12	12.235	SF
Guttersen State D 16-20 (SI) - Wellbore #1 - Gyro Survey	15,113.36	6,689.61	3,913.84	3,821.70	42.479	CC, ES
Guttersen State D 16-20 (SI) - Wellbore #1 - Gyro Survey	15,800.00	6,690.05	3,973.61	3,877.28	41.247	SF
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	13,952.84	6,775.05	2,562.19	2,478.39	30.577	CC, ES
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	14,300.00	6,773.45	2,585.60	2,499.77	30.126	SF
Guttersen State D 16-27 (PR) - Wellbore #1 - No Survey	17,612.13	6,713.00	1,347.97	1,125.39	6.056	CC, ES
Guttersen State D 16-27 (PR) - Wellbore #1 - No Survey	17,652.30	6,713.00	1,348.56	1,125.73	6.052	SF
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,446.28	6,713.00	5,053.16	4,839.68	23.671	CC
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,500.00	6,713.00	5,053.44	4,839.56	23.627	ES
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	17,100.00	6,713.00	5,095.27	4,877.40	23.387	SF
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,249.24	6,904.99	5,135.34	5,033.99	50.672	CC
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,300.00	6,905.16	5,135.59	5,033.87	50.487	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 D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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 D 16-32D (SI) - Wellbore #1 - MWD Sur	16,300.00	6,908.63	5,241.73	5,134.11	48.704	SF
Guttersen State D16-63-1HN - Original Drilling - Original	13,515.76	6,667.85	238.78	166.07	3.284	CC, ES, SF
Guttersen State D16-65-1HN - Original Drilling - Original	14,835.98	6,662.19	255.56	173.41	3.111	CC, ES, SF
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,307.47	6,733.09	609.65	500.39	5.580	CC, ES, SF
Spike ST GWS D 16-02 (P&A) - Wellbore #1 - Gyro Surv	17,241.28	6,714.69	2,107.43	1,981.74	16.767	CC, ES
Spike ST GWS D 16-02 (P&A) - Wellbore #1 - Gyro Surv	17,400.00	6,716.01	2,113.40	1,986.72	16.683	SF
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,157.50	6,711.00	3,283.57	3,064.59	14.995	CC
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,200.00	6,711.00	3,283.84	3,064.55	14.975	ES
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,400.00	6,711.00	3,292.51	3,071.89	14.924	SF
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,132.83	6,706.00	4,590.02	4,371.34	20.989	CC
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,200.00	6,706.00	4,590.51	4,371.32	20.943	ES
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,652.30	6,706.00	4,619.32	4,397.15	20.791	SF
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Survey	15,775.53	6,717.43	4,622.30	4,524.97	47.492	CC
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Survey	15,800.00	6,717.45	4,622.36	4,524.85	47.403	ES
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Survey	16,700.00	6,718.33	4,713.84	4,610.87	45.781	SF
Spike ST GWS D 16-06 (SI) - Wellbore #1 - No Surveys	15,835.32	6,719.00	3,262.25	3,053.38	15.618	CC, ES
Spike ST GWS D 16-06 (SI) - Wellbore #1 - No Surveys	16,100.00	6,719.00	3,272.97	3,062.32	15.537	SF
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Survey	15,823.76	6,751.67	441.33	343.54	4.513	CC, ES, SF
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Survey	14,661.06	6,740.70	4,711.37	4,622.45	52.984	CC
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Survey	14,700.00	6,740.44	4,711.53	4,622.33	52.815	ES
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Survey	15,700.00	6,734.16	4,824.56	4,729.37	50.684	SF
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	13,014.38	6,752.00	3,179.75	2,991.35	16.878	CC, ES
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	13,300.00	6,752.00	3,192.55	3,002.36	16.786	SF
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,209.79	6,751.00	594.06	404.26	3.130	CC, ES, SF
Spike State D 16-10 (SI) - Wellbore #1 - Gyro Surveys	14,548.00	6,737.51	1,973.56	1,885.50	22.411	CC, ES
Spike State D 16-10 (SI) - Wellbore #1 - Gyro Surveys	14,700.00	6,737.04	1,979.40	1,890.41	22.241	SF
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	14,605.56	6,761.74	3,189.83	3,101.24	36.003	CC, ES
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	15,100.00	6,760.54	3,227.93	3,136.38	35.260	SF
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	14,502.34	6,745.67	588.91	501.14	6.710	CC, ES, SF
Spike State D16-15 (P&A) - Wellbore #1 - Wellbore #1	13,268.67	6,763.92	1,978.89	1,889.83	22.220	CC, ES
Spike State D16-15 (P&A) - Wellbore #1 - Wellbore #1	13,500.00	6,768.98	1,992.36	1,902.01	22.052	SF
Spike State D16-99HZ - Original Drilling - Original Drilling	14,267.40	6,651.01	287.00	209.81	3.718	CC, ES
Spike State D16-99HZ - Original Drilling - Original Drilling	14,300.00	6,651.01	288.85	210.98	3.709	SF
Spike State GWS D 16-7J (PR) - Wellbore #1 - No Surveys	16,602.88	6,736.00	1,305.93	1,090.77	6.070	CC, ES, SF
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	13,850.65	6,752.36	3,975.90	3,892.99	47.957	CC
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	13,886.77	6,752.03	3,976.06	3,892.90	47.814	ES
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	14,600.00	6,745.70	4,056.25	3,968.98	46.481	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 D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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)	Between Ellipses (ft)	Separation Factor	Warning
D Section 21						
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	2,400.00	2,364.00	2,992.67	2,937.02	53.776	CC
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	2,500.00	2,463.98	2,993.84	2,935.85	51.627	ES
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	9,600.00	6,779.00	3,266.42	3,099.11	19.523	SF
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	100.00	32.17	4,052.82	4,052.64	10,000.000	CC
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	2,400.00	2,308.18	4,063.54	4,047.27	249.660	ES
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	9,300.00	6,828.56	4,798.67	4,745.12	89.613	SF
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	396.94	360.94	2,634.24	2,631.97	1,156.533	CC
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,353.82	2,643.81	2,627.39	160.945	ES
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	8,500.00	6,807.42	3,164.14	3,113.35	62.302	SF
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	1,552.12	1,506.14	3,870.24	3,859.82	371.170	CC
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	2,500.00	2,466.29	3,871.84	3,854.69	225.728	ES
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	10,300.00	6,819.92	4,477.83	4,419.89	77.286	SF
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	11,877.70	6,774.16	1,892.27	1,823.34	27.452	CC
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	11,900.00	6,774.20	1,892.40	1,823.33	27.400	ES
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	12,100.00	6,774.49	1,905.28	1,835.20	27.185	SF
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	10,551.38	6,776.47	590.59	530.17	9.774	CC, ES, SF
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,520.11	6,783.00	1,937.62	1,765.21	11.238	CC, ES
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,600.00	6,783.00	1,939.26	1,766.43	11.220	SF
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	335.50	305.50	1,808.49	1,806.63	970.924	CC
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	1,600.00	1,557.69	1,815.77	1,804.99	168.523	ES
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	9,600.00	6,792.03	1,897.23	1,842.04	34.374	SF
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	100.00	67.18	1,429.94	1,429.70	5,869.790	CC
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	1,300.00	1,260.17	1,433.47	1,424.81	165.576	ES
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	8,200.00	6,850.30	1,870.32	1,819.74	36.974	SF
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	11,926.07	6,778.86	562.08	492.82	8.116	CC, ES, SF
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,193.15	6,776.92	763.22	709.80	14.286	CC, ES
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,200.00	6,776.89	763.25	709.80	14.279	SF
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	0.00	0.00	3,108.43			
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	100.00	57.48	3,108.45	3,108.22	10,000.000	ES
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	12,100.00	7,155.52	5,629.00	5,545.88	67.719	SF
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	11,263.91	6,767.00	1,226.14	1,049.46	6.940	CC, ES
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	11,300.00	6,767.00	1,226.67	1,049.80	6.935	SF
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	735.63	706.08	3,041.63	3,036.98	654.128	CC
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	800.00	751.00	3,041.94	3,036.90	603.238	ES
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	10,800.00	6,968.39	4,030.42	3,961.28	58.295	SF
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surv	9,781.85	7,022.30	2,715.97	2,651.91	42.395	CC, ES
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surv	10,000.00	7,022.58	2,724.72	2,660.23	42.251	SF
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	3,545.44	4,146.97	2,555.80	2,528.57	93.833	CC
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	3,600.00	4,199.99	2,556.17	2,528.52	92.445	ES
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	9,100.00	6,884.91	2,756.24	2,702.16	50.963	SF
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	1,147.58	1,118.60	3,066.54	3,058.86	399.322	CC
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	2,000.00	1,949.39	3,068.89	3,055.19	224.070	ES
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	9,500.00	6,810.89	3,577.53	3,522.68	65.224	SF
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	12,478.31	6,925.52	1,246.17	1,165.55	15.459	CC, ES
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	12,600.00	6,926.20	1,252.09	1,170.92	15.424	SF
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,482.98	7,125.39	2,484.52	2,402.45	30.273	CC
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,500.00	7,125.40	2,484.58	2,402.30	30.199	ES
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	13,000.00	7,125.63	2,537.75	2,450.47	29.077	SF
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	100.00	68.59	3,088.56	3,088.31	10,000.000	CC
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	600.00	549.70	3,090.74	3,087.06	839.845	ES
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	11,300.00	6,938.72	5,810.38	5,743.76	87.216	SF
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	12,461.45	7,082.82	18.18	-63.29	0.223	Level 1, CC, ES, SF
Gutterson 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,361.65	6,815.88	3,710.23	3,644.87	56.763	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 Vogler State D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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						
Gutterson 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,815.91	3,710.43	3,644.83	56.561	ES
Gutterson 18-21 (SI) - Wellbore #1 - Gyro Surveys	12,300.00	6,816.61	3,827.05	3,756.72	54.418	SF
HSR Gutterson B 5-21 (PR) - Wellbore #1 - Gyro Survey	10,598.83	6,780.49	4,529.26	4,468.86	74.996	CC
HSR Gutterson B 5-21 (PR) - Wellbore #1 - Gyro Survey	10,600.00	6,780.49	4,529.26	4,468.86	74.988	ES
HSR Gutterson B 5-21 (PR) - Wellbore #1 - Gyro Survey	12,000.00	6,773.77	4,741.03	4,673.40	70.099	SF
HSR Gutterson 4-21 (PR) - Wellbore #1 - Gyro Surveys	11,814.32	6,820.40	4,592.53	4,524.00	67.015	CC, ES
HSR Gutterson 4-21 (PR) - Wellbore #1 - Gyro Surveys	13,100.00	6,831.91	4,769.08	4,693.43	63.035	SF
HSR-Gutterson 3-21 (SI) - Wellbore #1 - Gyro Surveys	11,786.09	6,961.68	3,122.41	3,052.52	44.676	CC
HSR-Gutterson 3-21 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	6,961.04	3,122.44	3,052.47	44.624	ES
HSR-Gutterson 3-21 (SI) - Wellbore #1 - Gyro Surveys	12,300.00	6,938.07	3,164.33	3,091.82	43.639	SF
HSR-Gutterson 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,586.11	6,770.48	3,190.97	3,130.44	52.715	CC
HSR-Gutterson 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,600.00	6,770.58	3,191.00	3,130.39	52.647	ES
HSR-Gutterson 6-21 (SI) - Wellbore #1 - Gyro Surveys	11,300.00	6,775.70	3,269.84	3,205.72	50.990	SF
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	443.99	412.99	657.60	654.97	250.134	CC
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	2,400.00	2,366.15	667.36	650.89	40.529	ES
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	8,700.00	6,790.62	1,033.87	982.21	20.012	SF
Vogler State D21-720 - Wellbore #1 - Plan 1	2,000.00	2,000.00	38.00	24.13	2.739	CC
Vogler State D21-720 - Wellbore #1 - Plan 1	2,100.00	2,099.90	38.12	23.55	2.616	ES
Vogler State D21-720 - Wellbore #1 - Plan 1	2,200.00	2,199.55	38.95	23.70	2.554	SF
Vogler State D21-731 - Wellbore #1 - Plan 1	13,902.84	14,058.12	1,310.15	1,190.27	10.928	CC
Vogler State D21-731 - Wellbore #1 - Plan 1	17,652.30	17,807.41	1,346.22	1,168.96	7.594	ES, SF
Vogler State D21-740 - Wellbore #1 - Plan 1	3,426.62	3,655.54	1,903.49	1,879.11	78.067	CC
Vogler State D21-740 - Wellbore #1 - Plan 1	17,652.30	17,755.47	1,974.03	1,796.35	11.110	ES, SF
Vogler State D21-750 - Wellbore #1 - Plan 1	2,000.00	2,004.00	1,971.92	1,958.04	141.996	CC
Vogler State D21-750 - Wellbore #1 - Plan 1	2,400.00	2,396.60	1,972.62	1,956.01	118.769	ES
Vogler State D21-750 - Wellbore #1 - Plan 1	17,652.30	17,615.66	2,616.72	2,439.57	14.771	SF
Vogler State D21-760 - Wellbore #1 - Plan 1	13,897.13	14,057.75	3,220.41	3,100.43	26.839	CC
Vogler State D21-760 - Wellbore #1 - Plan 1	17,200.00	17,360.40	3,258.67	3,088.28	19.124	ES
Vogler State D21-760 - Wellbore #1 - Plan 1	17,652.30	17,684.69	3,277.08	3,100.91	18.601	SF
Vogler State D21-770 - Wellbore #1 - Plan 1	2,931.61	3,127.02	3,689.37	3,668.54	177.149	CC
Vogler State D21-770 - Wellbore #1 - Plan 1	3,100.00	3,340.35	3,689.86	3,667.73	166.746	ES
Vogler State D21-770 - Wellbore #1 - Plan 1	17,652.30	17,600.81	3,936.78	3,759.77	22.240	SF
Vogler State D21-780 - Wellbore #1 - Plan 1	2,000.00	1,970.00	3,732.10	3,718.33	271.124	CC
Vogler State D21-780 - Wellbore #1 - Plan 1	2,200.00	2,139.18	3,732.80	3,717.74	247.935	ES
Vogler State D21-780 - Wellbore #1 - Plan 1	17,652.30	17,653.91	4,598.18	4,421.15	25.974	SF
Vogler State D33-711 - Wellbore #1 - Plan 1	7,379.18	6,994.68	93.97	42.88	1.839	CC, ES, SF
Vogler State D33-718 - Wellbore #1 - Plan 1	2,828.07	2,850.65	153.93	134.47	7.910	CC, ES
Vogler State D33-718 - Wellbore #1 - Plan 1	3,000.00	3,022.02	159.15	138.54	7.723	SF
Vogler State D33-728 - Wellbore #1 - Plan 1	7,100.00	7,440.35	1,207.13	1,153.41	22.473	SF
Vogler State D33-728 - Wellbore #1 - Plan 1	7,126.17	7,423.12	1,206.99	1,153.30	22.483	CC, ES
Vogler State D33-738 - Wellbore #1 - Plan 1	6,890.03	7,404.46	1,849.92	1,797.74	35.449	CC, ES, SF
Vogler State D33-752 - Wellbore #1 - Plan 1	2,403.03	2,412.90	1,982.16	1,965.36	118.023	CC
Vogler State D33-752 - Wellbore #1 - Plan 1	2,500.00	2,516.92	1,982.67	1,965.20	113.461	ES
Vogler State D33-752 - Wellbore #1 - Plan 1	6,950.00	7,400.04	2,509.09	2,457.29	48.443	SF
Vogler State D33-759 - Wellbore #1 - Plan 1	6,789.55	7,563.56	3,143.93	3,090.69	59.059	CC, ES
Vogler State D33-759 - Wellbore #1 - Plan 1	6,800.00	7,558.30	3,143.94	3,090.70	59.057	SF
Vogler State D33-769 - Wellbore #1 - Plan 1	3,226.68	3,605.67	3,668.51	3,645.06	156.436	CC
Vogler State D33-769 - Wellbore #1 - Plan 1	3,300.00	3,667.17	3,668.87	3,644.95	153.398	ES
Vogler State D33-769 - Wellbore #1 - Plan 1	6,800.00	7,477.27	3,800.55	3,748.48	72.985	SF
Vogler State D33-779 - Wellbore #1 - Plan 1	2,000.00	1,976.00	3,738.02	3,724.23	271.130	CC
Vogler State D33-779 - Wellbore #1 - Plan 1	2,100.00	2,058.81	3,738.19	3,723.76	259.037	ES
Vogler State D33-779 - Wellbore #1 - Plan 1	6,850.00	7,433.05	4,459.37	4,407.53	86.020	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 D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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
D Section 28						
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,352.93	6,039.36	2,404.61	2,260.01	16.630	CC, ES
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,700.00	6,376.98	2,463.84	2,311.47	16.170	SF
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	6,314.77	5,968.27	5,427.48	5,383.04	122.137	CC, ES
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	7,000.00	6,609.73	5,608.70	5,560.42	116.166	SF
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	4,370.35	4,686.12	3,613.90	3,581.01	109.864	CC
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	4,400.00	4,699.81	3,613.97	3,580.89	109.229	ES
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	7,350.00	6,867.65	3,884.61	3,834.10	76.908	SF
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	849.61	819.67	4,206.70	4,202.45	988.520	CC, ES
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	9,600.00	6,663.45	5,839.50	5,783.72	104.691	SF
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,039.18	5,830.88	2,754.72	2,707.68	58.558	CC
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,100.00	5,880.27	2,754.90	2,707.46	58.073	ES
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,800.00	6,517.72	2,843.53	2,791.99	55.172	SF
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Sur	6,359.36	6,149.75	3,285.06	3,238.95	71.239	CC, ES
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Sur	6,750.00	6,563.46	3,356.54	3,307.93	69.040	SF
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Sur	6,393.52	6,173.63	4,413.22	4,363.95	89.570	CC
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Sur	6,400.00	6,181.01	4,413.24	4,363.93	89.484	ES
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Sur	6,700.00	6,484.90	4,470.54	4,419.45	87.502	SF
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	4,234.23	4,378.15	2,377.82	2,345.08	72.633	CC
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	4,300.00	4,416.43	2,378.28	2,345.06	71.605	ES
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	7,400.00	6,844.94	2,711.76	2,659.80	52.196	SF
Guttersen State D28-79HN - Wellbore #1 - Actual	6,427.90	11,044.63	5,110.49	5,003.80	47.902	CC
Guttersen State D28-79HN - Wellbore #1 - Actual	6,450.00	11,042.98	5,110.54	5,003.76	47.860	ES
Guttersen State D28-79HN - Wellbore #1 - Actual	6,900.00	11,086.00	5,134.52	5,025.36	47.037	SF
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	6,383.78	6,011.46	3,496.27	3,451.75	78.534	CC, ES
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	6,600.00	6,153.26	3,527.13	3,481.41	77.141	SF
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	6,423.98	6,091.39	4,681.02	4,636.49	105.111	CC, ES
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	6,700.00	6,324.34	4,737.82	4,691.70	102.746	SF
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,350.17	6,058.54	2,555.16	2,510.34	57.009	CC, ES
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,900.00	6,741.18	2,683.83	2,635.46	55.489	SF
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,320.16	6,017.75	1,024.85	980.23	22.969	CC, ES
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,194.35	1,039.18	993.29	22.646	SF
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	5,201.61	4,967.03	1,798.96	1,762.86	49.835	CC
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	5,400.00	5,178.51	1,799.10	1,761.40	47.715	ES
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,521.23	1,929.13	1,881.23	40.275	SF
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,427.10	6,129.30	1,654.55	1,609.92	37.076	CC, ES
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,242.99	1,666.05	1,620.62	36.673	SF
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	4,111.18	3,965.65	2,931.24	2,899.21	91.522	CC
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	4,300.00	4,137.07	2,932.31	2,898.22	86.028	ES
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	7,200.00	6,692.56	3,204.41	3,140.32	50.001	SF
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	1,004.72	940.74	4,256.14	4,249.66	656.895	CC
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	3,000.00	2,914.92	4,258.71	4,238.36	209.265	ES
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	7,250.00	6,757.62	4,578.07	4,528.89	93.095	SF
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,346.15	5,875.54	6,260.73	6,216.65	142.029	CC
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,350.00	5,877.59	6,260.74	6,216.63	141.955	ES
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,530.30	6,359.96	6,312.42	133.775	SF
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,151.10	5,875.38	4,805.55	4,762.09	110.549	CC
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,203.32	5,923.32	4,805.62	4,761.74	109.535	ES
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,800.00	4,884.27	4,835.47	100.087	SF
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,285.39	5,969.41	3,234.68	3,190.31	72.896	CC
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,300.00	5,991.48	3,234.74	3,190.23	72.671	ES
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,489.94	3,319.29	3,271.61	69.611	SF
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,359.48	6,024.38	4,007.42	3,962.73	89.679	CC, ES
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,265.35	4,071.16	4,024.61	87.464	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 D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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						
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro St	6,392.84	6,029.88	5,301.60	5,257.06	119.029	CC
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro St	6,400.00	6,036.58	5,301.63	5,257.04	118.895	ES
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro St	6,750.00	6,391.19	5,381.87	5,335.13	115.151	SF
Y Section 03						
Waste Management USX Y03-03 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-04 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-05 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-06 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-11 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-12 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-13 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-14 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-19 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y03-25 - Wellbore #1 - Wellbo						Out of range
Waste Management USX Y3-15 - Wellbore #1 - As Drille						Out of range
Y Section 04						
HSR-Guttersen 01-04 - Original Drilling - Original Drilling						Out of range
HSR-Guttersen 02-04 - Original Drilling - Original Drilling						Out of range
HSR-Guttersen 03-04 - Original Drilling - Original Drilling						Out of range
HSR-Guttersen 05-04 - Original Drilling - Original Drilling						Out of range
HSR-Guttersen 07-04 - Original Drilling - Original Drilling						Out of range
Melvin Y04-04 - Original Drilling - Original Drilling - As Dr						Out of range

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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						
Y Section 10						
Bison Ridge State Y22-786 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-711 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-719 - Original Drilling - Original Drilling						Out of range
Bison Ridge Y22-726 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-734 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-741 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-749 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-756 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-764 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-771 - Original Drilling - As-Drilled						Out of range
Bison Ridge Y22-779 - Original Drilling - As-Drilled						Out of range
Oscar Y10-72-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-72-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-72HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-73-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-73-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-73HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-74-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-74-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-74HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-75-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-75-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-75HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-76-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-76HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-77-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-77HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-78-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-78-1HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-78HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-79-1HC - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-79-1HN - Original Drilling - Original Drilling - A						Out of range
Oscar Y10-79HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y10-79HN - Original Drilling - ST01 - ST01 - As Dr						Out of range
Oscar Y11-79HN - Original Drilling - Original Drilling - As						Out of range
Oscar Y11-79HN - ST01 Original Drilling - ST01 Original						Out of range

Noble Energy, Inc.

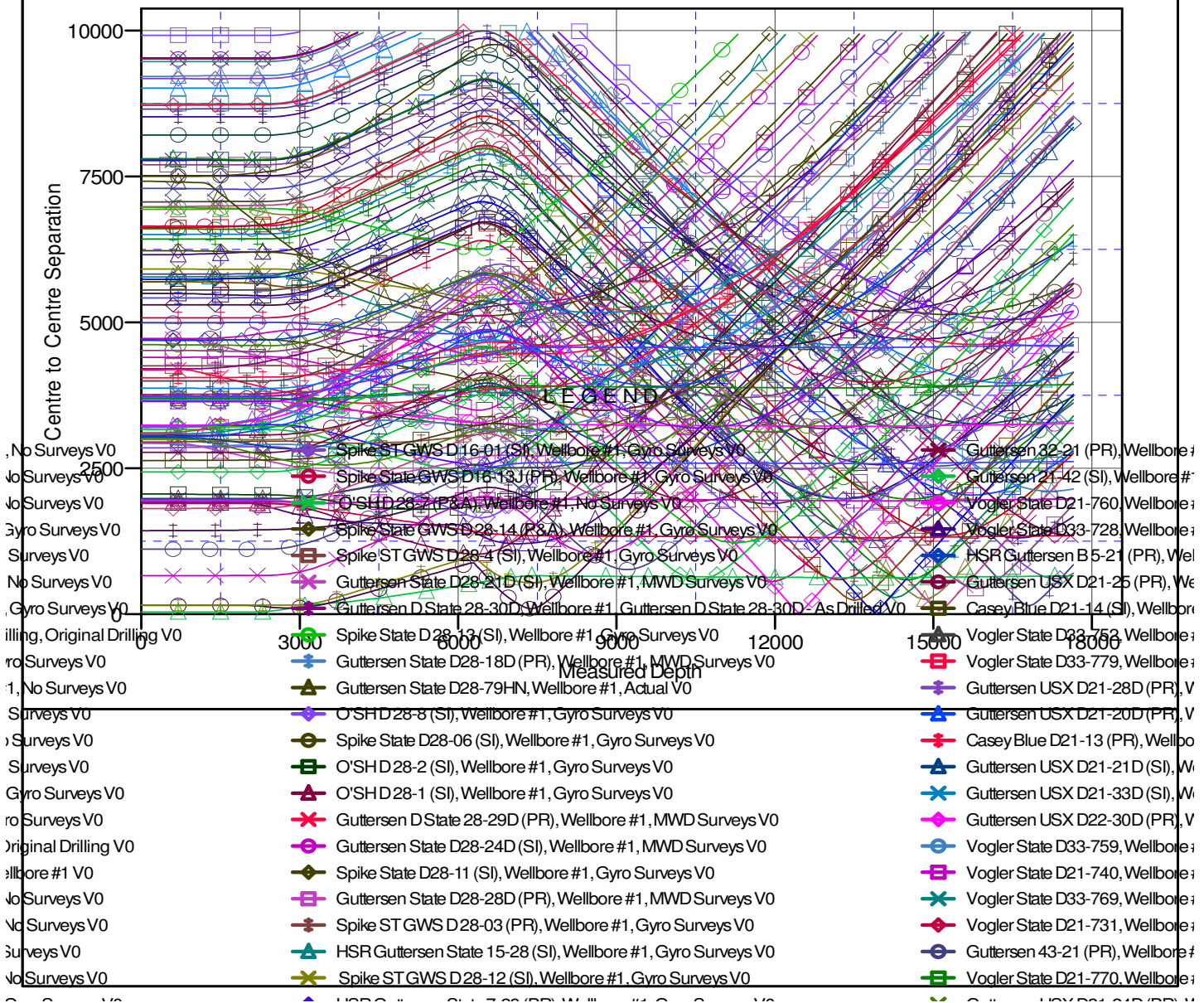
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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 Depths are relative to Well @ 4850.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Vogler State D21-790
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.61°

Ladder Plot



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

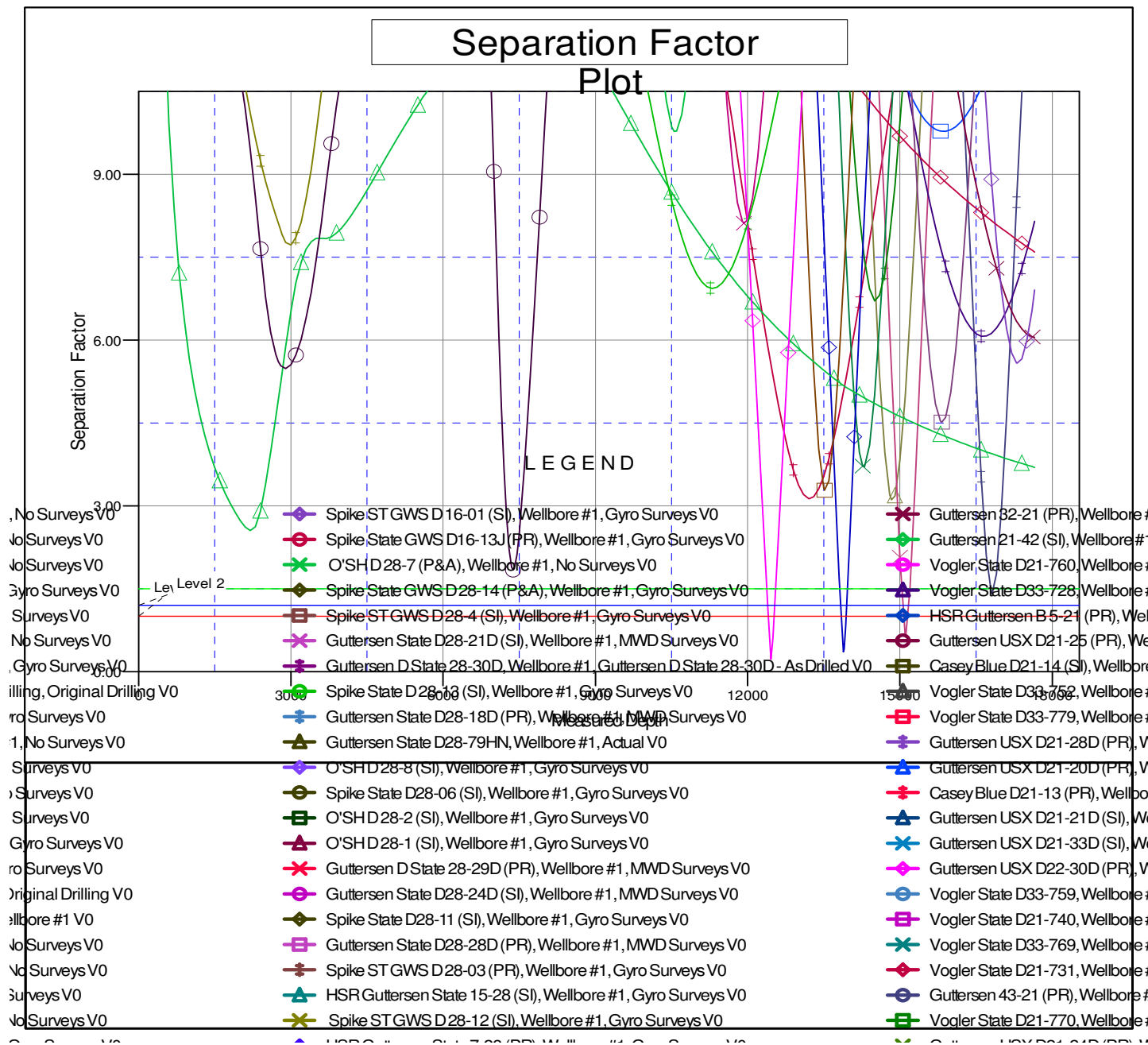
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-790
Project:	Mustang	TVD Reference:	Well @ 4850.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4850.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-790	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 Depths are relative to Well @ 4850.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Vogler State D21-790
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