Project: Mustang
Site: D Section 21
Well: Vogler State D33-779
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

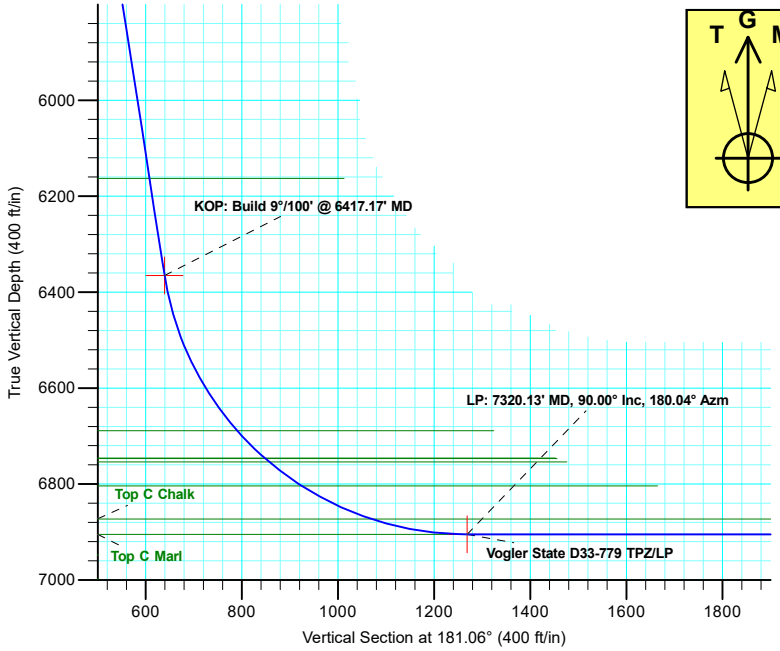
SECTION DETAILS

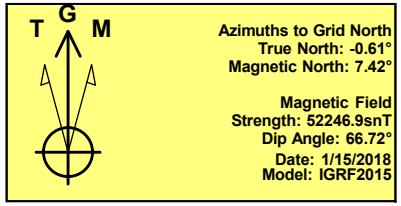
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	
3	2454.20	9.08	195.94	2452.30	-34.55	-9.87	2.00	195.94	34.73	
4	6417.17	9.08	195.94	6365.56	-636.17	-181.74	0.00	0.00	639.42	
5	7320.13	90.00	180.04	6905.00	-1265.39	-205.79	9.00	-16.10	1268.98	Vogler State D33-779 TPZ/LP
6	17541.47	90.00	180.04	6905.00	-11486.73	-212.59	0.00	0.00	11488.70	Vogler State D33-779 BHL

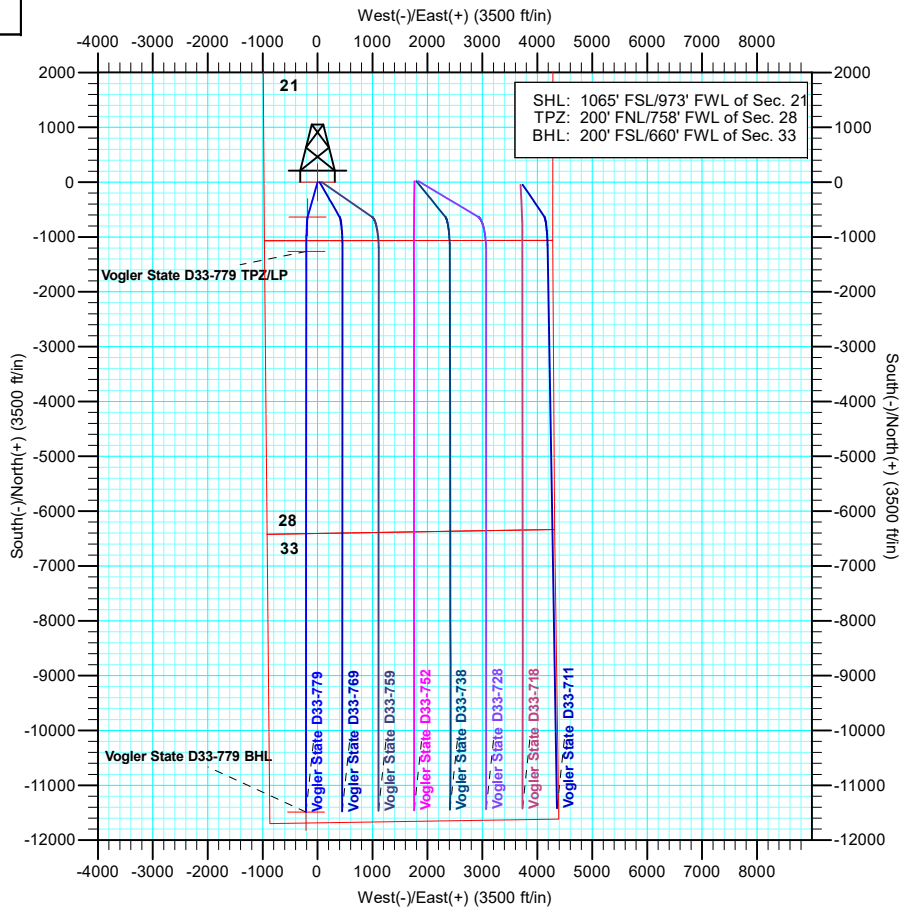
WELL DETAILS: Vogler State D33-779

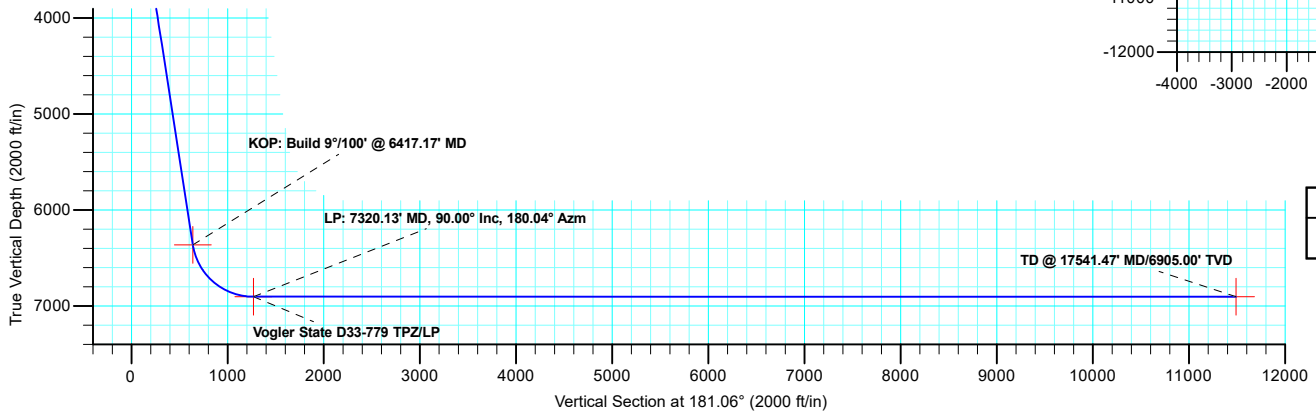
Ground Level: 4796.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1319509.90	3261920.14	40.2066499	-104.5622247	









Plan: Plan 1 (Vogler State D33-779/Wellbore #1)

Created By: Shelly C. Peterkin Date: 14:28, August 07 2018

Northern Region - DJ Basin

Mustang
D Section 21
Vogler State D33-779

Wellbore #1

Plan: Plan 1

Standard Planning Report

07 August, 2018

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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 D33-779

Well Position	**+N/-S**	-3,531.99 ft	**Northing:**	1,319,509.90 usft	**Latitude:**	40.2066500
	+E/-W	306.66 ft	**Easting:**	3,261,920.14 usft	**Longitude:**	-104.5622247
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	4,796.00 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/15/2018	8.03	66.72	52,246.87233728

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	181.06

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	
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,454.20	9.08	195.94	2,452.30	-34.55	-9.87	2.00	2.00	0.00	195.94	
6,417.17	9.08	195.94	6,365.56	-636.17	-181.74	0.00	0.00	0.00	0.00	
7,320.13	90.00	180.04	6,905.00	-1,265.39	-205.79	9.00	8.96	-1.76	-16.10	Vogler State D33-779
17,541.47	90.00	180.04	6,905.00	-11,486.73	-212.59	0.00	0.00	0.00	0.00	Vogler State D33-779

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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
636.00	0.00	0.00	636.00	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
771.00	0.00	0.00	771.00	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
1,638.00	0.00	0.00	1,638.00	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
Build 2°/100'									
2,100.00	2.00	195.94	2,099.98	-1.68	-0.48	1.69	2.00	2.00	0.00
2,200.00	4.00	195.94	2,199.84	-6.71	-1.92	6.74	2.00	2.00	0.00
2,300.00	6.00	195.94	2,299.45	-15.09	-4.31	15.17	2.00	2.00	0.00
2,400.00	8.00	195.94	2,398.70	-26.81	-7.66	26.94	2.00	2.00	0.00
2,454.20	9.08	195.94	2,452.30	-34.55	-9.87	34.73	2.00	2.00	0.00
Hold 9.08° Inc., 195.94° Azm									
2,500.00	9.08	195.94	2,497.53	-41.50	-11.86	41.71	0.00	0.00	0.00
2,600.00	9.08	195.94	2,596.27	-56.68	-16.19	56.97	0.00	0.00	0.00
2,700.00	9.08	195.94	2,695.02	-71.86	-20.53	72.23	0.00	0.00	0.00
2,800.00	9.08	195.94	2,793.76	-87.04	-24.87	87.49	0.00	0.00	0.00
2,900.00	9.08	195.94	2,892.51	-102.23	-29.20	102.75	0.00	0.00	0.00
3,000.00	9.08	195.94	2,991.25	-117.41	-33.54	118.01	0.00	0.00	0.00
3,100.00	9.08	195.94	3,090.00	-132.59	-37.88	133.27	0.00	0.00	0.00
3,200.00	9.08	195.94	3,188.75	-147.77	-42.21	148.52	0.00	0.00	0.00
3,300.00	9.08	195.94	3,287.49	-162.95	-46.55	163.78	0.00	0.00	0.00
3,400.00	9.08	195.94	3,386.24	-178.13	-50.89	179.04	0.00	0.00	0.00
3,500.00	9.08	195.94	3,484.98	-193.31	-55.22	194.30	0.00	0.00	0.00
3,600.00	9.08	195.94	3,583.73	-208.49	-59.56	209.56	0.00	0.00	0.00
3,700.00	9.08	195.94	3,682.47	-223.67	-63.90	224.82	0.00	0.00	0.00
3,800.00	9.08	195.94	3,781.22	-238.85	-68.24	240.08	0.00	0.00	0.00
3,878.77	9.08	195.94	3,859.00	-250.81	-71.65	252.09	0.00	0.00	0.00
Parkman									
3,900.00	9.08	195.94	3,879.97	-254.03	-72.57	255.33	0.00	0.00	0.00
4,000.00	9.08	195.94	3,978.71	-269.22	-76.91	270.59	0.00	0.00	0.00
4,100.00	9.08	195.94	4,077.46	-284.40	-81.25	285.85	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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)
4,114.73	9.08	195.94	4,092.00	-286.63	-81.88	288.10	0.00	0.00	0.00
Sussex									
4,200.00	9.08	195.94	4,176.20	-299.58	-85.58	301.11	0.00	0.00	0.00
4,300.00	9.08	195.94	4,274.95	-314.76	-89.92	316.37	0.00	0.00	0.00
4,400.00	9.08	195.94	4,373.70	-329.94	-94.26	331.63	0.00	0.00	0.00
4,500.00	9.08	195.94	4,472.44	-345.12	-98.59	346.89	0.00	0.00	0.00
4,600.00	9.08	195.94	4,571.19	-360.30	-102.93	362.14	0.00	0.00	0.00
4,700.00	9.08	195.94	4,669.93	-375.48	-107.27	377.40	0.00	0.00	0.00
4,800.00	9.08	195.94	4,768.68	-390.66	-111.60	392.66	0.00	0.00	0.00
4,900.00	9.08	195.94	4,867.42	-405.84	-115.94	407.92	0.00	0.00	0.00
5,000.00	9.08	195.94	4,966.17	-421.03	-120.28	423.18	0.00	0.00	0.00
5,076.79	9.08	195.94	5,042.00	-432.68	-123.61	434.90	0.00	0.00	0.00
Shannon									
5,100.00	9.08	195.94	5,064.92	-436.21	-124.62	438.44	0.00	0.00	0.00
5,200.00	9.08	195.94	5,163.66	-451.39	-128.95	453.70	0.00	0.00	0.00
5,300.00	9.08	195.94	5,262.41	-466.57	-133.29	468.95	0.00	0.00	0.00
5,400.00	9.08	195.94	5,361.15	-481.75	-137.63	484.21	0.00	0.00	0.00
5,500.00	9.08	195.94	5,459.90	-496.93	-141.96	499.47	0.00	0.00	0.00
5,600.00	9.08	195.94	5,558.64	-512.11	-146.30	514.73	0.00	0.00	0.00
5,700.00	9.08	195.94	5,657.39	-527.29	-150.64	529.99	0.00	0.00	0.00
5,800.00	9.08	195.94	5,756.14	-542.47	-154.97	545.25	0.00	0.00	0.00
5,900.00	9.08	195.94	5,854.88	-557.65	-159.31	560.51	0.00	0.00	0.00
6,000.00	9.08	195.94	5,953.63	-572.84	-163.65	575.77	0.00	0.00	0.00
6,100.00	9.08	195.94	6,052.37	-588.02	-167.98	591.02	0.00	0.00	0.00
6,200.00	9.08	195.94	6,151.12	-603.20	-172.32	606.28	0.00	0.00	0.00
6,212.03	9.08	195.94	6,163.00	-605.02	-172.84	608.12	0.00	0.00	0.00
Teepee Buttes									
6,300.00	9.08	195.94	6,249.86	-618.38	-176.66	621.54	0.00	0.00	0.00
6,400.00	9.08	195.94	6,348.61	-633.56	-180.99	636.80	0.00	0.00	0.00
6,417.17	9.08	195.94	6,365.56	-636.17	-181.74	639.42	0.00	0.00	0.00
KOP: Build 9°/100' @ 6417.17' MD									
6,450.00	11.95	191.99	6,397.84	-641.98	-183.16	645.26	9.00	8.73	-12.05
6,500.00	16.38	188.61	6,446.31	-654.02	-185.29	657.34	9.00	8.85	-6.74
6,550.00	20.83	186.65	6,493.69	-669.83	-187.38	673.19	9.00	8.91	-3.93
6,600.00	25.31	185.36	6,539.68	-689.31	-189.40	692.70	9.00	8.94	-2.59
6,650.00	29.78	184.43	6,584.00	-712.35	-191.36	715.77	9.00	8.96	-1.85
6,700.00	34.27	183.73	6,626.38	-738.79	-193.24	742.24	9.00	8.97	-1.41
6,750.00	38.76	183.17	6,666.55	-768.48	-195.02	771.95	9.00	8.98	-1.12
6,779.34	41.39	182.89	6,689.00	-787.34	-196.01	790.83	9.00	8.98	-0.95
Sharon Springs									
6,800.00	43.25	182.71	6,704.28	-801.23	-196.69	804.73	9.00	8.98	-0.87
6,850.00	47.74	182.32	6,739.32	-836.85	-198.25	840.37	9.00	8.98	-0.78
6,860.02	48.64	182.25	6,746.00	-844.31	-198.55	847.84	9.00	8.98	-0.71
Top A Chalk									
6,861.54	48.78	182.24	6,747.00	-845.45	-198.59	848.98	9.00	8.98	-0.70
Top A Marl									
6,872.26	49.74	182.16	6,754.00	-853.57	-198.90	857.10	9.00	8.98	-0.69
Top B Chalk									
6,900.00	52.23	181.98	6,771.46	-875.10	-199.68	878.65	9.00	8.99	-0.65
6,950.00	56.72	181.69	6,800.50	-915.77	-200.98	919.33	9.00	8.99	-0.60
6,956.42	57.30	181.65	6,804.00	-921.15	-201.14	924.72	9.00	8.99	-0.56
Top B Marl									
7,000.00	61.22	181.42	6,826.27	-958.58	-202.14	962.16	9.00	8.99	-0.53

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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)
7,050.00	65.71	181.17	6,848.60	-1,003.30	-203.15	1,006.88	9.00	8.99	-0.49
7,100.00	70.21	180.94	6,867.36	-1,049.62	-204.00	1,053.22	9.00	8.99	-0.46
7,117.32	71.77	180.87	6,873.00	-1,066.00	-204.26	1,069.59	9.00	8.99	-0.44
Top C Chalk									
7,150.00	74.70	180.72	6,882.42	-1,097.28	-204.69	1,100.88	9.00	8.99	-0.43
7,200.00	79.20	180.52	6,893.71	-1,145.97	-205.22	1,149.57	9.00	8.99	-0.42
7,250.00	83.69	180.32	6,901.15	-1,195.40	-205.58	1,199.00	9.00	8.99	-0.40
7,300.00	88.19	180.12	6,904.68	-1,245.26	-205.77	1,248.86	9.00	8.99	-0.40
7,320.13	90.00	180.04	6,905.00	-1,265.39	-205.79	1,268.98	9.00	8.99	-0.39
LP: 7320.13' MD, 90.00° Inc, 180.04° Azm - Top C Marl									
7,400.00	90.00	180.04	6,905.00	-1,345.26	-205.85	1,348.84	0.00	0.00	0.00
7,500.00	90.00	180.04	6,905.00	-1,445.26	-205.91	1,448.82	0.00	0.00	0.00
7,600.00	90.00	180.04	6,905.00	-1,545.26	-205.98	1,548.81	0.00	0.00	0.00
7,700.00	90.00	180.04	6,905.00	-1,645.26	-206.05	1,648.79	0.00	0.00	0.00
7,800.00	90.00	180.04	6,905.00	-1,745.26	-206.11	1,748.78	0.00	0.00	0.00
7,900.00	90.00	180.04	6,905.00	-1,845.26	-206.18	1,848.76	0.00	0.00	0.00
8,000.00	90.00	180.04	6,905.00	-1,945.26	-206.25	1,948.74	0.00	0.00	0.00
8,100.00	90.00	180.04	6,905.00	-2,045.26	-206.31	2,048.73	0.00	0.00	0.00
8,200.00	90.00	180.04	6,905.00	-2,145.26	-206.38	2,148.71	0.00	0.00	0.00
8,300.00	90.00	180.04	6,905.00	-2,245.26	-206.45	2,248.70	0.00	0.00	0.00
8,400.00	90.00	180.04	6,905.00	-2,345.26	-206.51	2,348.68	0.00	0.00	0.00
8,500.00	90.00	180.04	6,905.00	-2,445.26	-206.58	2,448.66	0.00	0.00	0.00
8,600.00	90.00	180.04	6,905.00	-2,545.26	-206.65	2,548.65	0.00	0.00	0.00
8,700.00	90.00	180.04	6,905.00	-2,645.26	-206.71	2,648.63	0.00	0.00	0.00
8,800.00	90.00	180.04	6,905.00	-2,745.26	-206.78	2,748.62	0.00	0.00	0.00
8,900.00	90.00	180.04	6,905.00	-2,845.26	-206.84	2,848.60	0.00	0.00	0.00
9,000.00	90.00	180.04	6,905.00	-2,945.26	-206.91	2,948.58	0.00	0.00	0.00
9,100.00	90.00	180.04	6,905.00	-3,045.26	-206.98	3,048.57	0.00	0.00	0.00
9,200.00	90.00	180.04	6,905.00	-3,145.26	-207.04	3,148.55	0.00	0.00	0.00
9,300.00	90.00	180.04	6,905.00	-3,245.26	-207.11	3,248.54	0.00	0.00	0.00
9,400.00	90.00	180.04	6,905.00	-3,345.26	-207.18	3,348.52	0.00	0.00	0.00
9,500.00	90.00	180.04	6,905.00	-3,445.26	-207.24	3,448.50	0.00	0.00	0.00
9,600.00	90.00	180.04	6,905.00	-3,545.26	-207.31	3,548.49	0.00	0.00	0.00
9,700.00	90.00	180.04	6,905.00	-3,645.26	-207.38	3,648.47	0.00	0.00	0.00
9,800.00	90.00	180.04	6,905.00	-3,745.26	-207.44	3,748.46	0.00	0.00	0.00
9,900.00	90.00	180.04	6,905.00	-3,845.26	-207.51	3,848.44	0.00	0.00	0.00
10,000.00	90.00	180.04	6,905.00	-3,945.26	-207.58	3,948.43	0.00	0.00	0.00
10,100.00	90.00	180.04	6,905.00	-4,045.26	-207.64	4,048.41	0.00	0.00	0.00
10,200.00	90.00	180.04	6,905.00	-4,145.26	-207.71	4,148.39	0.00	0.00	0.00
10,300.00	90.00	180.04	6,905.00	-4,245.26	-207.78	4,248.38	0.00	0.00	0.00
10,400.00	90.00	180.04	6,905.00	-4,345.26	-207.84	4,348.36	0.00	0.00	0.00
10,500.00	90.00	180.04	6,905.00	-4,445.26	-207.91	4,448.35	0.00	0.00	0.00
10,600.00	90.00	180.04	6,905.00	-4,545.26	-207.97	4,548.33	0.00	0.00	0.00
10,700.00	90.00	180.04	6,905.00	-4,645.26	-208.04	4,648.31	0.00	0.00	0.00
10,800.00	90.00	180.04	6,905.00	-4,745.26	-208.11	4,748.30	0.00	0.00	0.00
10,900.00	90.00	180.04	6,905.00	-4,845.26	-208.17	4,848.28	0.00	0.00	0.00
11,000.00	90.00	180.04	6,905.00	-4,945.26	-208.24	4,948.27	0.00	0.00	0.00
11,100.00	90.00	180.04	6,905.00	-5,045.26	-208.31	5,048.25	0.00	0.00	0.00
11,200.00	90.00	180.04	6,905.00	-5,145.26	-208.37	5,148.23	0.00	0.00	0.00
11,300.00	90.00	180.04	6,905.00	-5,245.26	-208.44	5,248.22	0.00	0.00	0.00
11,400.00	90.00	180.04	6,905.00	-5,345.26	-208.51	5,348.20	0.00	0.00	0.00
11,500.00	90.00	180.04	6,905.00	-5,445.26	-208.57	5,448.19	0.00	0.00	0.00
11,600.00	90.00	180.04	6,905.00	-5,545.26	-208.64	5,548.17	0.00	0.00	0.00
11,700.00	90.00	180.04	6,905.00	-5,645.26	-208.71	5,648.15	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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)
11,800.00	90.00	180.04	6,905.00	-5,745.26	-208.77	5,748.14	0.00	0.00	0.00
11,900.00	90.00	180.04	6,905.00	-5,845.26	-208.84	5,848.12	0.00	0.00	0.00
12,000.00	90.00	180.04	6,905.00	-5,945.26	-208.91	5,948.11	0.00	0.00	0.00
12,100.00	90.00	180.04	6,905.00	-6,045.26	-208.97	6,048.09	0.00	0.00	0.00
12,200.00	90.00	180.04	6,905.00	-6,145.26	-209.04	6,148.08	0.00	0.00	0.00
12,300.00	90.00	180.04	6,905.00	-6,245.26	-209.10	6,248.06	0.00	0.00	0.00
12,400.00	90.00	180.04	6,905.00	-6,345.26	-209.17	6,348.04	0.00	0.00	0.00
12,500.00	90.00	180.04	6,905.00	-6,445.26	-209.24	6,448.03	0.00	0.00	0.00
12,600.00	90.00	180.04	6,905.00	-6,545.26	-209.30	6,548.01	0.00	0.00	0.00
12,700.00	90.00	180.04	6,905.00	-6,645.26	-209.37	6,648.00	0.00	0.00	0.00
12,800.00	90.00	180.04	6,905.00	-6,745.26	-209.44	6,747.98	0.00	0.00	0.00
12,900.00	90.00	180.04	6,905.00	-6,845.26	-209.50	6,847.96	0.00	0.00	0.00
13,000.00	90.00	180.04	6,905.00	-6,945.26	-209.57	6,947.95	0.00	0.00	0.00
13,100.00	90.00	180.04	6,905.00	-7,045.26	-209.64	7,047.93	0.00	0.00	0.00
13,200.00	90.00	180.04	6,905.00	-7,145.26	-209.70	7,147.92	0.00	0.00	0.00
13,300.00	90.00	180.04	6,905.00	-7,245.26	-209.77	7,247.90	0.00	0.00	0.00
13,400.00	90.00	180.04	6,905.00	-7,345.26	-209.84	7,347.88	0.00	0.00	0.00
13,500.00	90.00	180.04	6,905.00	-7,445.26	-209.90	7,447.87	0.00	0.00	0.00
13,600.00	90.00	180.04	6,905.00	-7,545.26	-209.97	7,547.85	0.00	0.00	0.00
13,700.00	90.00	180.04	6,905.00	-7,645.26	-210.04	7,647.84	0.00	0.00	0.00
13,800.00	90.00	180.04	6,905.00	-7,745.26	-210.10	7,747.82	0.00	0.00	0.00
13,900.00	90.00	180.04	6,905.00	-7,845.26	-210.17	7,847.80	0.00	0.00	0.00
14,000.00	90.00	180.04	6,905.00	-7,945.26	-210.24	7,947.79	0.00	0.00	0.00
14,100.00	90.00	180.04	6,905.00	-8,045.26	-210.30	8,047.77	0.00	0.00	0.00
14,200.00	90.00	180.04	6,905.00	-8,145.26	-210.37	8,147.76	0.00	0.00	0.00
14,300.00	90.00	180.04	6,905.00	-8,245.26	-210.43	8,247.74	0.00	0.00	0.00
14,400.00	90.00	180.04	6,905.00	-8,345.26	-210.50	8,347.73	0.00	0.00	0.00
14,500.00	90.00	180.04	6,905.00	-8,445.26	-210.57	8,447.71	0.00	0.00	0.00
14,600.00	90.00	180.04	6,905.00	-8,545.26	-210.63	8,547.69	0.00	0.00	0.00
14,700.00	90.00	180.04	6,905.00	-8,645.26	-210.70	8,647.68	0.00	0.00	0.00
14,800.00	90.00	180.04	6,905.00	-8,745.26	-210.77	8,747.66	0.00	0.00	0.00
14,900.00	90.00	180.04	6,905.00	-8,845.26	-210.83	8,847.65	0.00	0.00	0.00
15,000.00	90.00	180.04	6,905.00	-8,945.26	-210.90	8,947.63	0.00	0.00	0.00
15,100.00	90.00	180.04	6,905.00	-9,045.26	-210.97	9,047.61	0.00	0.00	0.00
15,200.00	90.00	180.04	6,905.00	-9,145.26	-211.03	9,147.60	0.00	0.00	0.00
15,300.00	90.00	180.04	6,905.00	-9,245.26	-211.10	9,247.58	0.00	0.00	0.00
15,400.00	90.00	180.04	6,905.00	-9,345.26	-211.17	9,347.57	0.00	0.00	0.00
15,500.00	90.00	180.04	6,905.00	-9,445.26	-211.23	9,447.55	0.00	0.00	0.00
15,600.00	90.00	180.04	6,905.00	-9,545.26	-211.30	9,547.53	0.00	0.00	0.00
15,700.00	90.00	180.04	6,905.00	-9,645.26	-211.37	9,647.52	0.00	0.00	0.00
15,800.00	90.00	180.04	6,905.00	-9,745.26	-211.43	9,747.50	0.00	0.00	0.00
15,900.00	90.00	180.04	6,905.00	-9,845.26	-211.50	9,847.49	0.00	0.00	0.00
16,000.00	90.00	180.04	6,905.00	-9,945.26	-211.56	9,947.47	0.00	0.00	0.00
16,100.00	90.00	180.04	6,905.00	-10,045.26	-211.63	10,047.45	0.00	0.00	0.00
16,200.00	90.00	180.04	6,905.00	-10,145.26	-211.70	10,147.44	0.00	0.00	0.00
16,300.00	90.00	180.04	6,905.00	-10,245.26	-211.76	10,247.42	0.00	0.00	0.00
16,400.00	90.00	180.04	6,905.00	-10,345.26	-211.83	10,347.41	0.00	0.00	0.00
16,500.00	90.00	180.04	6,905.00	-10,445.26	-211.90	10,447.39	0.00	0.00	0.00
16,600.00	90.00	180.04	6,905.00	-10,545.26	-211.96	10,547.38	0.00	0.00	0.00
16,700.00	90.00	180.04	6,905.00	-10,645.26	-212.03	10,647.36	0.00	0.00	0.00
16,800.00	90.00	180.04	6,905.00	-10,745.26	-212.10	10,747.34	0.00	0.00	0.00
16,900.00	90.00	180.04	6,905.00	-10,845.26	-212.16	10,847.33	0.00	0.00	0.00
17,000.00	90.00	180.04	6,905.00	-10,945.26	-212.23	10,947.31	0.00	0.00	0.00
17,100.00	90.00	180.04	6,905.00	-11,045.26	-212.30	11,047.30	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**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)
17,200.00	90.00	180.04	6,905.00	-11,145.26	-212.36	11,147.28	0.00	0.00	0.00
17,300.00	90.00	180.04	6,905.00	-11,245.26	-212.43	11,247.26	0.00	0.00	0.00
17,400.00	90.00	180.04	6,905.00	-11,345.26	-212.50	11,347.25	0.00	0.00	0.00
17,500.00	90.00	180.04	6,905.00	-11,445.26	-212.56	11,447.23	0.00	0.00	0.00
17,541.47	90.00	180.04	6,905.00	-11,486.73	-212.59	11,488.70	0.00	0.00	0.00
TD @ 17541.47' MD/6905.00' TVD									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Vogler State D33-779 SI - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,319,509.90	3,261,920.14	40.2066500	-104.5622247
Vogler State D33-779 KO - plan hits target center - Point	0.00	0.00	6,365.57	-636.17	-181.74	1,318,873.73	3,261,738.40	40.2049090	-104.5628994
Vogler State D33-779 BH - plan hits target center - Point	0.00	0.01	6,905.00	-11,486.73	-212.59	1,308,023.19	3,261,707.55	40.1751255	-104.5634201
Vogler State D33-779 TH - plan hits target center - Point	0.00	0.01	6,905.00	-1,265.39	-205.79	1,318,244.51	3,261,714.34	40.2031825	-104.5630093

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
636.00	636.00	Pierre			
771.00	771.00	Upper Pierre Aquifer Top			
1,638.00	1,638.00	Upper Pierre Aquifer Base			
3,878.77	3,859.00	Parkman			
4,114.73	4,092.00	Sussex			
5,076.79	5,042.00	Shannon			
6,212.03	6,163.00	Teepee Buttes			
6,779.34	6,689.00	Sharon Springs			
6,860.02	6,746.00	Top A Chalk			
6,861.54	6,747.00	Top A Marl			
6,872.26	6,754.00	Top B Chalk			
6,956.42	6,804.00	Top B Marl			
7,117.32	6,873.00	Top C Chalk			
7,320.13	6,905.00	Top C Marl			

Database:	EDMP	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4826.00ft
Project:	Mustang	**MD Reference:**	Well @ 4826.00ft
Site:	D Section 21	**North Reference:**	Grid
Well:	Vogler State D33-779	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,000.00	2,000.00	0.00	0.00	Build 2°/100'
2,454.20	2,452.30	-34.55	-9.87	Hold 9.08° Inc., 195.94° Azm
6,417.17	6,365.56	-636.17	-181.74	KOP: Build 9°/100' @ 6417.17' MD
7,320.13	6,905.00	-1,265.39	-205.79	LP: 7320.13' MD, 90.00° Inc, 180.04° Azm
17,541.47	6,905.00	-11,486.73	-212.59	TD @ 17541.47' MD/6905.00' TVD

Northern Region - DJ Basin

Mustang
D Section 21
Vogler State D33-779

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 D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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	17,541.36	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 20						
Bohlender D20-2J - Wellbore #1 - No Surveys	2,000.00	1,942.00	5,799.82	5,775.94	242.836	CC
Bohlender D20-2J - Wellbore #1 - No Surveys	2,200.00	2,141.84	5,800.94	5,774.64	220.642	ES
Bohlender D20-2J - Wellbore #1 - No Surveys	7,050.00	6,790.64	6,122.23	6,037.77	72.483	SF
Bohlender D20-3 - Wellbore #1 - Gyro Surveys	100.00	35.68	5,501.08	5,500.89	10,000.000	CC
Bohlender D20-3 - Wellbore #1 - Gyro Surveys	400.00	323.50	5,502.47	5,500.31	2,547.675	ES
Bohlender D20-3 - Wellbore #1 - Gyro Surveys	7,000.00	6,808.03	6,068.56	6,020.04	125.060	SF
Bohlender D20-4 (P&A) - Wellbore #1 - No Surveys	2,000.00	1,944.00	6,733.44	6,687.62	146.965	CC
Bohlender D20-4 (P&A) - Wellbore #1 - No Surveys	2,200.00	2,143.84	6,735.40	6,684.92	133.435	ES
Bohlender D20-4 (P&A) - Wellbore #1 - No Surveys	7,000.00	6,770.32	7,133.24	6,972.85	44.475	SF
Bohlender D20-6 - Wellbore#1 - Gyro Surveys	1,369.92	1,312.22	4,753.25	4,744.17	523.177	CC
Bohlender D20-6 - Wellbore#1 - Gyro Surveys	2,100.00	2,019.11	4,755.03	4,740.88	335.958	ES
Bohlender D20-6 - Wellbore#1 - Gyro Surveys	7,000.00	6,789.13	5,130.01	5,081.46	105.658	SF
Butterball D19-27D - Butterball D19-27D - Butterball D19	100.00	30.14	7,442.95	7,442.77	10,000.000	CC
Butterball D19-27D - Butterball D19-27D - Butterball D19	800.00	700.00	7,444.24	7,439.33	1,515.913	ES
Butterball D19-27D - Butterball D19-27D - Butterball D19	6,850.00	6,850.00	8,912.26	8,838.58	120.968	SF
Duncan D20-1 (P&A) - Wellbore #1 - No Surveys	2,000.00	1,943.00	3,910.86	3,865.06	85.396	CC
Duncan D20-1 (P&A) - Wellbore #1 - No Surveys	2,100.00	2,042.98	3,912.22	3,864.08	81.273	ES
Duncan D20-1 (P&A) - Wellbore #1 - No Surveys	6,750.00	6,609.64	4,567.23	4,411.18	29.266	SF
Duncan D20-10 - Wellbore #1 - Gyro Surveys	100.00	48.91	2,645.44	2,645.23	10,000.000	CC
Duncan D20-10 - Wellbore #1 - Gyro Surveys	4,200.00	4,123.55	2,654.30	2,625.46	92.024	ES
Duncan D20-10 - Wellbore #1 - Gyro Surveys	6,900.00	6,722.77	2,784.60	2,736.57	57.976	SF
Duncan D20-11 (SI) - Wellbore #1 - No Surveys	4,306.23	4,230.16	4,272.23	4,220.34	82.335	CC
Duncan D20-11 (SI) - Wellbore #1 - No Surveys	6,416.94	6,314.44	4,285.18	4,207.26	54.996	ES
Duncan D20-11 (SI) - Wellbore #1 - No Surveys	7,050.00	6,797.64	4,407.33	4,322.72	52.090	SF
Duncan D20-12 (SI) - Wellbore #1 - No Surveys	6,424.13	6,319.54	5,579.48	5,501.49	71.540	CC
Duncan D20-12 (SI) - Wellbore #1 - No Surveys	6,450.00	6,344.95	5,579.62	5,501.31	71.250	ES
Duncan D20-12 (SI) - Wellbore #1 - No Surveys	7,200.00	6,840.73	5,709.66	5,624.10	66.732	SF
Duncan D20-13 (SI) - Wellbore #1 - No Surveys	6,936.42	6,745.00	5,391.65	5,307.91	64.387	CC
Duncan D20-13 (SI) - Wellbore #1 - No Surveys	7,000.00	6,778.32	5,392.09	5,307.80	63.974	ES
Duncan D20-13 (SI) - Wellbore #1 - No Surveys	8,400.00	6,857.00	5,617.89	5,527.26	61.989	SF
Duncan D20-14 (SI) - Wellbore #1 - Gyro Surveys	6,654.24	6,644.75	4,422.77	4,376.03	94.620	CC
Duncan D20-14 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,687.75	4,423.04	4,375.97	93.952	ES
Duncan D20-14 (SI) - Wellbore #1 - Gyro Surveys	7,800.00	7,022.63	4,634.70	4,582.38	88.583	SF
Duncan D20-15 (P&A) - Wellbore #1 - Gyro Surveys	6,704.36	6,600.90	2,913.54	2,866.69	62.187	CC, ES
Duncan D20-15 (P&A) - Wellbore #1 - Gyro Surveys	7,250.00	6,864.76	2,968.77	2,918.86	59.477	SF
Duncan D20-16 (SI) - Wellbore #1 - Gyro Surveys	6,574.37	6,485.95	1,278.81	1,232.92	27.864	CC
Duncan D20-16 (SI) - Wellbore #1 - Gyro Surveys	6,600.00	6,511.02	1,278.91	1,232.82	27.751	ES

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 20						
Duncan D20-16 (SI) - Wellbore #1 - Gyro Surveys	6,900.00	6,746.83	1,303.03	1,254.90	27.073	SF
Duncan D20-2 - Wellbore #1 - Gyro Surveys	429.17	362.18	4,552.05	4,549.66	1,898.213	CC
Duncan D20-2 - Wellbore #1 - Gyro Surveys	2,000.00	1,928.45	4,555.33	4,541.83	337.501	ES
Duncan D20-2 - Wellbore #1 - Gyro Surveys	6,850.00	6,689.60	5,130.46	5,082.95	107.982	SF
Duncan D20-7 - Wellbore #1 - Gyro Surveys	723.74	658.74	3,637.03	3,632.53	809.696	CC
Duncan D20-7 - Wellbore #1 - Gyro Surveys	1,700.00	1,616.91	3,638.78	3,627.45	321.127	ES
Duncan D20-7 - Wellbore #1 - Gyro Surveys	6,800.00	6,636.88	4,098.39	4,051.22	86.877	SF
Duncan D20-8 - Wellbore #1 - Gyro Surveys	273.43	235.43	2,626.92	2,625.52	1,882.599	CC
Duncan D20-8 - Wellbore #1 - Gyro Surveys	1,100.00	1,044.80	2,630.18	2,623.00	365.941	ES
Duncan D20-8 - Wellbore #1 - Gyro Surveys	6,700.00	6,600.39	3,155.02	3,108.38	67.656	SF
Duncan D20-9 (P&A) - Wellbore #1 - Gyro Surveys	509.80	454.81	1,685.47	1,682.46	559.575	CC
Duncan D20-9 (P&A) - Wellbore #1 - Gyro Surveys	1,200.00	1,132.29	1,689.37	1,681.51	215.186	ES
Duncan D20-9 (P&A) - Wellbore #1 - Gyro Surveys	6,600.00	6,483.00	2,029.71	1,983.78	44.195	SF
E Ranches (P&A) - Wellbore #1 - No Surveys	6,767.88	6,624.42	4,900.23	4,743.55	31.275	CC
E Ranches (P&A) - Wellbore #1 - No Surveys	6,850.00	6,683.39	4,900.92	4,742.72	30.979	ES
E Ranches (P&A) - Wellbore #1 - No Surveys	7,300.00	6,848.69	4,936.40	4,773.16	30.241	SF
Guttersen 10-20 - Wellbore #1 - Gyro Surveys	305.20	243.20	3,239.29	3,237.75	2,106.931	CC
Guttersen 10-20 - Wellbore #1 - Gyro Surveys	1,200.00	1,113.37	3,242.68	3,234.89	416.414	ES
Guttersen 10-20 - Wellbore #1 - Gyro Surveys	6,800.00	6,664.20	3,452.05	3,404.82	73.088	SF
LDS D20-30D - LDS D20-30D - LDS D20-30D - As Drille	726.58	663.58	7,416.07	7,411.55	1,642.588	CC
LDS D20-30D - LDS D20-30D - LDS D20-30D - As Drille	1,700.00	1,600.47	7,419.95	7,408.67	658.046	ES
LDS D20-30D - LDS D20-30D - LDS D20-30D - As Drille	7,150.00	6,888.52	7,995.62	7,943.14	152.375	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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	2,000.00	1,988.00	1,416.19	1,369.49	30.327	CC
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	2,100.00	2,087.98	1,417.72	1,368.68	28.911	ES
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	6,550.00	6,481.79	2,052.28	1,899.57	13.439	SF
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	5,566.53	5,486.48	210.13	171.47	5.435	CC
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	5,700.00	5,619.58	210.68	171.06	5.317	ES
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	5,800.00	5,717.29	212.49	172.16	5.268	SF
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	2,799.48	2,783.96	1,161.11	1,141.95	60.615	CC
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	2,900.00	2,877.50	1,161.44	1,141.61	58.579	ES
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,610.86	1,385.94	1,339.19	29.646	SF
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	100.00	77.25	565.35	565.09	2,167.206	CC
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	2,010.50	1,990.45	566.61	552.86	41.215	ES
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	6,450.00	6,380.11	1,239.09	1,194.31	27.669	SF
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	259.44	226.44	4,236.32	4,235.01	3,221.768	CC
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	2,000.00	1,966.21	4,241.17	4,227.53	311.018	ES
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,659.39	5,023.98	4,976.96	106.843	SF
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	1,841.37	1,825.38	4,265.52	4,252.95	339.429	CC
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	2,000.00	1,950.71	4,266.00	4,252.43	314.323	ES
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	6,900.00	6,758.02	4,942.10	4,894.26	103.301	SF
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	2,000.00	1,992.00	3,171.64	3,124.86	67.804	CC
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	2,100.00	2,091.98	3,173.14	3,124.02	64.604	ES
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	6,750.00	6,658.64	3,864.68	3,707.67	24.615	SF
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	2,486.77			
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	2,000.00	1,987.42	2,489.75	2,476.04	181.647	ES
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,703.26	3,140.02	3,092.63	66.259	SF
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	2,375.96	2,405.13	2,335.10	2,318.69	142.238	CC
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	2,600.00	2,622.22	2,336.14	2,318.22	130.359	ES
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	7,050.00	6,752.01	2,698.62	2,650.06	55.580	SF
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	945.15	929.18	5,082.89	5,076.67	816.311	CC
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	2,000.00	1,951.85	5,085.45	5,071.87	374.488	ES
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,807.61	5,977.59	5,929.36	123.935	SF
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	2,010.85	2,014.48	3,674.63	3,660.79	265.567	CC, ES
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,951.58	4,116.75	4,067.87	84.217	SF
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	1,941.28	2,005.98	671.38	654.53	39.826	CC
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	2,000.00	2,060.57	671.77	654.28	38.423	ES
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	2,400.00	2,412.09	722.13	700.83	33.901	SF
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	2,000.00	1,976.00	4,199.58	4,153.13	90.398	CC
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	2,100.00	2,075.98	4,201.10	4,152.30	86.094	ES
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	6,800.00	6,680.36	4,918.82	4,761.21	31.208	SF
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	0.00	0.00	782.54			
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	300.00	292.32	782.66	781.03	478.830	ES
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	6,500.00	6,585.40	2,171.17	2,122.07	44.219	SF
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	184.85	178.85	792.62	791.81	976.185	CC
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	300.00	287.31	793.22	791.60	492.265	ES
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surve	6,600.00	6,739.12	2,732.52	2,684.36	56.744	SF
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	227.85	221.85	803.51	802.40	720.886	CC
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	500.00	488.62	804.73	801.69	265.544	ES
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	6,700.00	6,701.22	2,005.22	1,956.58	41.224	SF
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surve	0.00	0.00	772.59			
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surve	2,100.00	2,102.94	777.23	762.65	53.317	ES
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surve	6,500.00	6,439.45	1,396.35	1,350.81	30.663	SF
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	258.24	233.24	4,223.88	4,222.60	3,306.716	CC
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	900.00	852.01	4,224.74	4,219.01	737.208	ES
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	6,800.00	6,815.15	5,875.96	5,825.12	115.574	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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						
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	2,241.35	2,633.91	4,091.62	4,071.26	200.898	CC, ES
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	6,650.00	6,888.76	5,218.88	5,158.29	86.135	SF
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surve	2,820.02	2,956.60	413.16	390.38	18.137	CC
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surve	2,900.00	3,035.00	413.98	390.12	17.347	ES
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surve	3,300.00	3,392.32	450.95	422.21	15.691	SF
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	100.00	73.01	4,244.46	4,244.20	10,000.000	CC
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	800.00	755.24	4,245.38	4,240.49	868.552	ES
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	6,950.00	7,001.31	6,729.25	6,678.71	133.159	SF
Gutterson 18-21 (SI) - Wellbore #1 - Gyro Surveys	2,020.32	2,025.63	3,002.01	2,988.08	215.583	CC, ES
Gutterson 18-21 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,540.62	3,784.14	3,738.07	82.140	SF
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	381.94	356.97	2,236.91	2,234.70	1,010.889	CC
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	2,000.00	1,970.73	2,237.73	2,224.09	164.030	ES
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	6,600.00	6,533.10	2,926.90	2,880.99	63.756	SF
HSR Gutterson 4-21 (PR) - Wellbore #1 - Gyro Surveys	2,117.15	2,232.95	3,481.48	3,466.49	232.183	CC, ES
HSR Gutterson 4-21 (PR) - Wellbore #1 - Gyro Surveys	6,700.00	6,583.00	4,189.90	4,143.47	90.245	SF
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	2,036.84	2,062.96	3,652.58	3,638.47	258.825	CC, ES
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,836.32	4,473.16	4,424.91	92.721	SF
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	1,822.63	1,799.66	2,439.37	2,426.95	196.293	CC
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	2,000.00	1,973.46	2,439.54	2,425.87	178.494	ES
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,549.86	3,196.28	3,150.16	69.308	SF
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	2,093.09	2,123.97	3,274.16	3,259.65	225.704	CC
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	2,100.00	2,130.68	3,274.16	3,259.61	224.975	ES
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	7,100.00	6,851.02	3,680.91	3,631.84	75.010	SF
Vogler State D21-720 - Wellbore #1 - Plan 1	1,906.17	1,930.17	3,700.07	3,686.78	278.491	CC
Vogler State D21-720 - Wellbore #1 - Plan 1	2,100.00	2,122.83	3,700.48	3,685.85	253.008	ES
Vogler State D21-720 - Wellbore #1 - Plan 1	8,400.00	6,783.07	3,958.62	3,903.58	71.922	SF
Vogler State D21-731 - Wellbore #1 - Plan 1	2,000.00	2,029.00	1,841.76	1,827.78	131.773	CC
Vogler State D21-731 - Wellbore #1 - Plan 1	2,100.00	2,128.98	1,842.12	1,827.44	125.526	ES
Vogler State D21-731 - Wellbore #1 - Plan 1	8,200.00	6,550.00	3,101.97	3,048.07	57.550	SF
Vogler State D21-740 - Wellbore #1 - Plan 1	2,000.00	2,029.00	1,803.86	1,789.89	129.061	CC
Vogler State D21-740 - Wellbore #1 - Plan 1	2,100.00	2,128.98	1,804.22	1,789.54	122.944	ES
Vogler State D21-740 - Wellbore #1 - Plan 1	7,800.00	6,813.19	2,508.92	2,455.87	47.290	SF
Vogler State D21-750 - Wellbore #1 - Plan 1	1,903.73	1,931.73	1,766.97	1,753.69	133.025	CC
Vogler State D21-750 - Wellbore #1 - Plan 1	2,100.00	2,125.96	1,767.39	1,752.76	120.756	ES
Vogler State D21-750 - Wellbore #1 - Plan 1	7,300.00	7,163.40	1,891.05	1,839.39	36.608	SF
Vogler State D21-760 - Wellbore #1 - Plan 1	2,640.16	2,623.92	136.98	118.85	7.554	CC, ES
Vogler State D21-760 - Wellbore #1 - Plan 1	2,800.00	2,775.85	142.09	122.98	7.436	SF
Vogler State D21-770 - Wellbore #1 - Plan 1	2,574.08	2,551.89	132.47	114.91	7.544	CC
Vogler State D21-770 - Wellbore #1 - Plan 1	2,600.00	2,576.64	132.59	114.87	7.485	ES
Vogler State D21-770 - Wellbore #1 - Plan 1	2,700.00	2,672.13	135.28	116.97	7.390	SF
Vogler State D21-780 - Wellbore #1 - Plan 1	7,137.03	7,282.70	98.16	46.52	1.901	CC, ES, SF
Vogler State D21-790 - Wellbore #1 - Plan 1	2,000.00	2,024.00	3,738.02	3,724.06	267.788	CC
Vogler State D21-790 - Wellbore #1 - Plan 1	2,100.00	2,123.98	3,738.41	3,723.75	255.056	ES
Vogler State D21-790 - Wellbore #1 - Plan 1	9,100.00	6,500.00	4,717.78	4,660.47	82.321	SF
Vogler State D33-711 - Wellbore #1 - Plan 1	1,906.71	1,929.71	3,733.35	3,720.06	280.989	CC
Vogler State D33-711 - Wellbore #1 - Plan 1	2,000.00	2,000.00	3,733.42	3,719.55	269.121	ES
Vogler State D33-711 - Wellbore #1 - Plan 1	17,541.36	17,480.85	4,571.59	4,377.06	23.501	SF
Vogler State D33-718 - Wellbore #1 - Plan 1	2,000.00	2,023.00	3,695.35	3,681.40	264.799	CC
Vogler State D33-718 - Wellbore #1 - Plan 1	2,100.00	2,122.98	3,695.81	3,681.16	252.211	ES
Vogler State D33-718 - Wellbore #1 - Plan 1	17,541.36	17,482.05	3,941.58	3,747.16	20.274	SF
Vogler State D33-728 - Wellbore #1 - Plan 1	1,900.25	1,933.25	1,837.22	1,823.94	138.386	CC
Vogler State D33-728 - Wellbore #1 - Plan 1	2,000.00	2,021.32	1,837.32	1,823.38	131.744	ES
Vogler State D33-728 - Wellbore #1 - Plan 1	17,541.36	17,663.97	3,281.60	3,086.75	16.842	SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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						
Vogler State D33-738 - Wellbore #1 - Plan 1	2,000.00	2,033.00	1,799.22	1,785.23	128.597	CC
Vogler State D33-738 - Wellbore #1 - Plan 1	2,100.00	2,132.98	1,799.71	1,785.02	122.517	ES
Vogler State D33-738 - Wellbore #1 - Plan 1	17,541.36	17,481.14	2,623.67	2,428.85	13.467	SF
Vogler State D33-752 - Wellbore #1 - Plan 1	2,000.00	2,033.00	1,762.22	1,748.23	125.952	CC
Vogler State D33-752 - Wellbore #1 - Plan 1	2,100.00	2,132.98	1,762.72	1,748.03	119.998	ES
Vogler State D33-752 - Wellbore #1 - Plan 1	17,541.36	17,537.69	1,971.08	1,775.92	10.100	SF
Vogler State D33-759 - Wellbore #1 - Plan 1	2,000.00	2,001.00	75.00	61.12	5.405	CC, ES
Vogler State D33-759 - Wellbore #1 - Plan 1	2,100.00	2,098.83	76.92	62.37	5.287	SF
Vogler State D33-769 - Wellbore #1 - Plan 1	2,000.00	2,000.00	37.00	23.13	2.667	CC
Vogler State D33-769 - Wellbore #1 - Plan 1	2,100.00	2,100.02	37.52	22.95	2.575	ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 28						
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	9,081.82	6,889.00	2,532.98	2,360.39	14.676	CC
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	9,100.00	6,889.00	2,533.05	2,360.35	14.668	ES
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	9,300.00	6,889.00	2,542.36	2,368.61	14.632	SF
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	10,470.63	6,885.27	193.58	125.90	2.861	CC, ES, SF
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	7,010.76	6,873.63	587.48	537.45	11.741	CC, ES, SF
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	7,205.24	6,972.58	861.48	811.10	17.100	CC, ES, SF
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	8,265.18	6,957.95	1,710.00	1,652.68	29.832	CC, ES
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	8,500.00	6,955.99	1,726.05	1,667.43	29.447	SF
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	9,587.73	6,932.24	1,826.63	1,762.11	28.314	CC
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	9,600.00	6,932.14	1,826.67	1,762.10	28.291	ES
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	9,800.00	6,930.39	1,838.92	1,773.61	28.158	SF
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	11,150.86	7,031.29	1,819.59	1,742.05	23.465	CC, ES
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	11,400.00	7,037.84	1,836.56	1,757.38	23.195	SF
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	5,334.00	5,345.75	1,740.60	1,699.67	42.527	CC
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	5,500.00	5,502.07	1,741.22	1,699.25	41.491	ES
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	7,100.00	6,897.88	1,768.76	1,717.18	34.287	SF
Guttersen State D28-79HN - Wellbore #1 - Actual	7,700.00	11,042.11	674.81	564.44	6.114	SF
Guttersen State D28-79HN - Wellbore #1 - Actual	11,198.70	7,567.29	492.40	414.74	6.341	CC, ES
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	10,365.04	6,907.40	2,271.10	2,204.08	33.883	CC, ES
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	10,700.00	6,902.04	2,295.65	2,226.84	33.362	SF
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	11,996.89	6,823.00	2,875.31	2,797.00	36.716	CC
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	12,000.00	6,823.16	2,875.32	2,796.98	36.706	ES
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	12,500.00	6,852.37	2,918.77	2,837.53	35.928	SF
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	9,026.01	6,716.58	2,324.30	2,266.72	40.363	CC, ES
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	9,400.00	6,706.32	2,354.17	2,294.85	39.685	SF
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	8,106.53	6,900.53	3,522.60	3,469.15	65.903	CC, ES
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	9,100.00	6,904.21	3,660.01	3,602.06	63.164	SF
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	7,741.76	6,898.89	2,539.30	2,487.87	49.375	CC, ES
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	8,200.00	6,898.56	2,580.32	2,527.08	48.468	SF
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	9,138.50	6,835.44	3,886.91	3,828.18	66.178	CC, ES
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	10,300.00	6,882.34	4,056.47	3,991.61	62.543	SF
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	7,609.42	6,876.45	1,296.33	1,229.19	19.309	CC, ES
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	7,700.00	6,875.81	1,299.49	1,232.04	19.268	SF
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	7,581.32	6,934.43	81.45	30.19	1.589	CC, ES, SF
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	11,913.02	6,893.21	103.85	25.87	1.332	Level 3, CC, ES, SF
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	8,926.75	6,876.67	214.46	156.85	3.723	CC, ES, SF
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	8,953.96	6,854.46	1,477.03	1,419.22	25.552	CC, ES
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	9,100.00	6,855.65	1,484.23	1,425.75	25.379	SF
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	10,265.95	6,913.74	1,398.44	1,332.03	21.058	CC, ES
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	10,400.00	6,923.11	1,404.82	1,337.70	20.930	SF
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	11,966.98	6,883.54	1,430.85	1,352.49	18.260	CC, ES
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	12,100.00	6,893.48	1,436.99	1,357.92	18.173	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 29						
Guttersen D29-30D - Wellbore #1 - Design #1	7,350.41	7,046.26	5,935.76	5,878.25	103.216	CC, ES
Guttersen D29-30D - Wellbore #1 - Design #1	9,800.00	7,046.26	6,421.35	6,353.93	95.241	SF
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	8,588.61	6,947.24	5,856.97	5,799.30	101.543	CC
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	8,600.00	6,947.26	5,856.99	5,799.25	101.443	ES
Guttersen D29-31D - Wellbore #1 - Guttersen D29-31D	11,100.00	6,949.79	6,372.70	6,302.29	90.517	SF
Guttersen D29-33D - Wellbore #1 - Guttersen D29-33D -	11,235.15	7,166.59	5,817.39	5,736.62	72.024	CC
Guttersen D29-33D - Wellbore #1 - Guttersen D29-33D -	11,300.00	7,166.66	5,817.75	5,736.49	71.596	ES
Guttersen D29-33D - Wellbore #1 - Guttersen D29-33D -	13,100.00	7,168.60	6,108.98	6,016.72	66.217	SF
Guttersen D29-65HN - Original Drilling - Original Drilling	9,882.45	10,959.00	1,358.49	1,295.66	21.620	CC
Guttersen D29-65HN - Original Drilling - Original Drilling	9,900.00	10,959.00	1,358.60	1,295.48	21.521	ES
Guttersen D29-65HN - Original Drilling - Original Drilling	10,900.00	10,959.00	1,697.32	1,581.55	14.661	SF
Guttersen D29-67HN - Original Drilling - Original Drilling	8,448.87	10,899.02	1,281.14	1,222.85	21.979	CC
Guttersen D29-67HN - Original Drilling - Original Drilling	8,500.00	10,899.02	1,282.16	1,222.77	21.590	ES
Guttersen D29-67HN - Original Drilling - Original Drilling	9,400.00	10,899.02	1,595.61	1,491.87	15.381	SF
Guttersen D29-69HN - Original Drilling - Original Drilling	7,212.11	11,072.02	1,295.69	1,234.54	21.187	CC
Guttersen D29-69HN - Original Drilling - Original Drilling	7,250.00	11,072.02	1,296.29	1,233.61	20.681	ES
Guttersen D29-69HN - Original Drilling - Original Drilling	8,100.00	11,072.02	1,575.38	1,469.60	14.893	SF
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 1	9,956.24	6,989.99	1,417.62	1,353.01	21.942	CC, ES
Guttersen D29-722 - Guttersen D29-722 - Prelim - Rev 1	10,200.00	6,837.22	1,427.65	1,361.94	21.726	SF
Guttersen D29-730 - Guttersen D29-730 - Prelim - Rev 1	10,123.52	6,688.09	2,017.19	1,952.01	30.946	CC, ES
Guttersen D29-730 - Guttersen D29-730 - Prelim - Rev 1	10,400.00	6,575.47	2,031.55	1,965.15	30.595	SF
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 1	9,730.30	7,400.00	2,669.22	2,604.87	41.485	CC
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 1	9,800.00	7,359.70	2,669.57	2,604.82	41.224	ES
Guttersen D29-738 - Guttersen D29-738 - Prelim - Rev 1	10,500.00	7,050.00	2,726.64	2,658.07	39.760	SF
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 1	9,728.15	7,127.21	3,258.02	3,194.96	51.667	CC
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 1	9,800.00	7,083.61	3,258.34	3,194.87	51.335	ES
Guttersen D29-746 - Guttersen D29-746 - Prelim - Rev 1	10,900.00	6,650.00	3,375.80	3,306.59	48.775	SF
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 1	10,206.48	6,756.66	3,841.78	3,775.91	58.326	CC, ES
Guttersen D29-754 - Guttersen D29-754 - Prelim - Rev 1	11,300.00	6,565.97	3,981.91	3,910.04	55.403	SF
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 1	9,734.68	7,181.96	4,493.68	4,430.37	70.975	CC
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 1	9,800.00	7,150.00	4,493.92	4,430.22	70.543	ES
Guttersen D29-770 - Guttersen D29-770 - Prelim - Rev 1	11,500.00	6,624.87	4,718.78	4,645.75	64.612	SF
Guttersen D29-778 - Guttersen D29-778 - Prelim - Rev 1	10,176.70	6,825.80	5,096.49	5,030.75	77.530	CC
Guttersen D29-778 - Guttersen D29-778 - Prelim - Rev 1	10,200.00	6,812.83	5,096.52	5,030.65	77.377	ES
Guttersen D29-778 - Guttersen D29-778 - Prelim - Rev 1	12,000.00	6,500.00	5,373.23	5,297.30	70.764	SF
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 1	10,292.26	6,192.61	5,624.63	5,559.86	86.844	CC
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 1	10,300.00	6,193.61	5,624.64	5,559.81	86.767	ES
Guttersen D29-786 - Guttersen D29-786 - Prelim - Rev 1	12,400.00	6,250.00	6,004.75	5,927.15	77.381	SF
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	11,186.36	10,883.02	1,269.38	1,194.00	16.842	CC
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	11,200.00	10,883.02	1,269.45	1,193.57	16.730	ES
Guttersen D29-99HZ - Wellbore #1 - MWD Surveys	12,000.00	10,883.02	1,507.76	1,387.19	12.506	SF
Guttersen D30-68-1HN - Original Drilling - Original Drillin	8,261.86	6,222.01	5,968.93	5,917.82	116.785	CC
Guttersen D30-68-1HN - Original Drilling - Original Drillin	8,300.00	6,222.01	5,969.05	5,917.75	116.364	ES
Guttersen D30-68-1HN - Original Drilling - Original Drillin	11,200.00	6,222.01	6,652.88	6,586.79	100.667	SF
Guttersen D30-69-1HN - Original Drilling - Original Drillin	7,537.65	6,410.01	6,120.42	6,066.41	113.310	CC, ES
Guttersen D30-69-1HN - Original Drilling - Original Drillin	10,200.00	6,410.01	6,674.41	6,609.53	102.886	SF
Guttersen State D29-714 - Guttersen D29-714 - Prelim -	9,647.49	7,206.13	876.11	813.59	14.013	CC, ES
Guttersen State D29-714 - Guttersen D29-714 - Prelim -	9,800.00	7,089.91	879.28	816.05	13.906	SF
Guttersen State Y05-719 - Guttersen Y05-719 - Prelim -	17,541.36	15,444.01	954.78	783.96	5.589	CC, ES, SF
Guttersen Y05-726 - Guttersen Y05-726 - Prelim - Rev 1	17,541.36	15,458.63	1,567.69	1,397.01	9.185	CC, ES, SF
Guttersen Y05-734 - Guttersen Y05-734 - Prelim - Rev 1	17,541.36	15,523.88	2,180.59	2,009.84	12.771	CC, ES, SF
Guttersen Y05-749 - Guttersen Y05-749 - Prelim - Rev 1	17,541.36	15,468.83	2,793.59	2,622.86	16.363	CC, ES, SF
Guttersen Y05-756 - Guttersen Y05-756 - Prelim - Rev 1	17,541.36	15,409.74	3,404.40	3,233.85	19.962	CC, ES, SF

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 29						
Guttersen Y05-771 - Guttersen Y05-771 - Prelim - Rev 1	17,541.36	15,463.93	4,102.38	3,931.72	24.039	CC, ES, SF
Guttersen Y05-779 - Guttersen Y05- 779 - Prelim - Rev 1	17,541.36	15,507.57	4,631.56	4,460.85	27.132	CC, ES, SF
Guttersen Y05-786 - Guttersen Y05-786 - Prelim - Rev 1	17,541.36	15,405.37	5,188.37	5,017.88	30.433	CC, ES, SF
Jessie D29-1J - Wellbore #1 - Gyro Surveys	8,174.17	6,881.65	2,396.57	2,342.86	44.621	CC, ES
Jessie D29-1J - Wellbore #1 - Gyro Surveys	8,700.00	6,885.43	2,453.57	2,397.20	43.527	SF
Jessie D29-4J - Wellbore #1 - Gyro Surveys	10,849.86	6,939.16	2,311.97	2,241.50	32.809	CC, ES
Jessie D29-4J - Wellbore #1 - Gyro Surveys	11,300.00	6,959.20	2,355.30	2,281.93	32.103	SF
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	10,888.46	6,884.94	5,076.90	5,006.35	71.954	CC
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	10,900.00	6,884.90	5,076.92	5,006.28	71.869	ES
Kate Red D29-03J - Kate Red D29-03J - Kate Red D29-0	12,600.00	6,879.53	5,357.64	5,276.59	66.109	SF
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	10,513.43	6,830.44	4,107.38	4,039.63	60.626	CC, ES
Kate Red D29-11 - Wellbore #1 - Gyro Surveys	11,700.00	6,818.40	4,275.32	4,200.32	57.006	SF
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	11,967.68	6,929.48	5,417.18	5,338.77	69.090	CC
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	12,000.00	6,929.65	5,417.28	5,338.63	68.875	ES
Kate Red D29-13 - Wellbore #1 - Gyro Surveys	13,700.00	6,938.25	5,687.42	5,598.16	63.717	SF
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	11,845.16	6,916.31	4,052.78	3,975.23	52.263	CC
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	11,900.00	6,917.11	4,053.15	3,975.18	51.985	ES
Kate Red D29-14 - Wellbore #1 - Gyro Surveys	12,900.00	6,924.80	4,187.80	4,103.66	49.770	SF
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	8,282.05	6,900.00	4,869.38	4,815.04	89.611	CC
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	8,300.00	6,900.00	4,869.41	4,814.98	89.459	ES
Kate Red D29-2J - Wellbore #1 - Kate Red D29-2J	10,300.00	6,912.24	5,270.94	5,205.94	81.098	SF
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	7,869.46	6,879.88	3,987.64	3,935.35	76.262	CC
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	7,900.00	6,880.00	3,987.76	3,935.33	76.062	ES
Kate Red D29-3 - Wellbore #1 - Kate Red D29-3	9,300.00	6,885.39	4,236.47	4,177.19	71.462	SF
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	9,198.53	6,929.26	5,343.10	5,283.59	89.781	CC
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	9,200.00	6,929.26	5,343.10	5,283.58	89.767	ES
Kate Red D29-5 - Wellbore #1 - Gyro Surveys	11,400.00	6,921.78	5,778.85	5,706.74	80.137	SF
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	9,222.92	6,864.48	3,986.74	3,927.28	67.045	CC, ES
Kate Red D29-6 - Wellbore #1 - Gyro Surveys	10,500.00	6,867.69	4,186.29	4,119.48	62.660	SF
Kate White D29-1 - Wellbore #1 - Gyro Surveys	7,783.34	6,868.51	1,318.08	1,266.20	25.403	CC, ES
Kate White D29-1 - Wellbore #1 - Gyro Surveys	7,900.00	6,868.77	1,323.24	1,270.81	25.240	SF
Kate White D29-15 - Wellbore #1 - Gyro Surveys	11,724.13	7,054.64	2,797.82	2,720.87	36.356	CC, ES
Kate White D29-15 - Wellbore #1 - Gyro Surveys	12,200.00	7,052.37	2,838.00	2,757.87	35.415	SF
Kate White D29-16 - Wellbore #1 - Gyro Surveys	11,792.54	6,905.42	1,395.78	1,318.67	18.101	CC
Kate White D29-16 - Wellbore #1 - Gyro Surveys	11,800.00	6,905.42	1,395.80	1,318.62	18.087	ES
Kate White D29-16 - Wellbore #1 - Gyro Surveys	11,900.00	6,905.44	1,399.91	1,322.02	17.973	SF
Kate White D29-7 - Wellbore #1 - Gyro Surveys	9,206.40	6,907.79	2,501.26	2,441.74	42.024	CC, ES
Kate White D29-7 - Wellbore #1 - Gyro Surveys	9,700.00	6,911.03	2,549.49	2,487.05	40.825	SF
Kate White D29-8 - Wellbore #1 - Gyro Surveys	9,166.17	6,948.17	1,368.87	1,309.56	23.079	CC, ES
Kate White D29-8 - Wellbore #1 - Gyro Surveys	9,300.00	6,945.25	1,375.39	1,315.26	22.872	SF
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys	10,567.04	6,911.04	1,385.96	1,317.58	20.269	CC, ES
Kate White D29-9 (SI) - Wellbore #1 - Gyro Surveys	10,700.00	6,900.00	1,392.40	1,323.13	20.102	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 32						
HP D32-21D - Wellbore #1 - MWD Surveys	15,116.82	7,115.45	3,239.23	3,133.07	30.512	CC, ES
HP D32-21D - Wellbore #1 - MWD Surveys	15,500.00	7,133.97	3,261.77	3,153.33	30.080	SF
HP D32-23D - Wellbore #1 - MWD Surveys	16,181.56	7,028.41	2,054.80	1,942.13	18.238	CC
HP D32-23D - Wellbore #1 - MWD Surveys	16,200.00	7,028.38	2,054.88	1,942.08	18.217	ES
HP D32-23D - Wellbore #1 - MWD Surveys	16,300.00	7,028.22	2,058.21	1,944.78	18.146	SF
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,028.98	7,276.09	1,962.41	1,848.66	17.253	CC, ES
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,200.00	7,278.04	1,969.84	1,855.15	17.175	SF
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	13,352.36	6,968.59	3,829.69	3,740.67	43.021	CC
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	13,400.00	6,969.53	3,829.99	3,740.59	42.840	ES
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	14,200.00	7,014.59	3,922.34	3,827.78	41.481	SF
HP Farms D32-18D - Wellbore #1 - MWD Surveys	13,862.92	7,119.63	3,216.38	3,121.42	33.872	CC
HP Farms D32-18D - Wellbore #1 - MWD Surveys	13,900.00	7,119.87	3,216.59	3,121.37	33.779	ES
HP Farms D32-18D - Wellbore #1 - MWD Surveys	14,400.00	7,123.09	3,260.91	3,162.62	33.176	SF
HP Farms D32-24D - Wellbore #1 - MWD Surveys	16,461.03	7,202.94	3,194.32	3,078.79	27.648	CC
HP Farms D32-24D - Wellbore #1 - MWD Surveys	16,500.00	7,203.09	3,194.56	3,078.74	27.581	ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	16,900.00	7,204.54	3,224.34	3,106.05	27.256	SF
Norris 14-32 - Wellbore #1 - Projection Survey	17,360.13	6,906.00	5,374.69	5,218.18	34.341	CC
Norris 14-32 - Wellbore #1 - Projection Survey	17,400.00	6,906.00	5,374.84	5,218.00	34.271	ES
Norris 14-32 - Wellbore #1 - Projection Survey	17,541.36	6,906.00	5,377.74	5,219.79	34.046	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	16,619.76	7,184.35	4,711.09	4,595.84	40.875	CC, ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	17,541.36	7,167.79	4,800.35	4,679.08	39.584	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	13,209.39	6,919.93	1,348.80	1,261.02	15.365	CC, ES
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	13,300.00	6,918.61	1,351.84	1,263.39	15.283	SF
Norris D32-10 - Wellbore #1 - Gyro Surveys	15,905.15	6,750.00	2,654.95	2,546.75	24.539	CC, ES
Norris D32-10 - Wellbore #1 - Gyro Surveys	16,200.00	6,750.00	2,671.27	2,561.08	24.242	SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	17,191.11	6,800.00	2,646.01	2,527.44	22.316	CC
Norris D32-15 - Wellbore #1 - Gyro Surveys	17,200.00	6,800.00	2,646.02	2,527.38	22.302	ES
Norris D32-15 - Wellbore #1 - Gyro Surveys	17,500.00	6,800.00	2,663.98	2,543.38	22.089	SF
Norris D32-1J - Wellbore #1 - Gyro Surveys	14,009.00	6,914.81	1,767.10	1,673.17	18.813	CC, ES
Norris D32-1J - Wellbore #1 - Gyro Surveys	14,200.00	6,908.93	1,777.38	1,682.19	18.671	SF
Norris D32-2 - Wellbore #1 - Gyro Surveys	13,148.27	6,912.67	2,661.98	2,574.69	30.494	CC, ES
Norris D32-2 - Wellbore #1 - Gyro Surveys	13,600.00	6,910.54	2,700.04	2,609.83	29.932	SF
Norris D32-2J - Wellbore #1 - Gyro Surveys	13,653.19	6,977.36	4,560.08	4,468.80	49.959	CC
Norris D32-2J - Wellbore #1 - Gyro Surveys	13,700.00	6,978.02	4,560.32	4,468.67	49.759	ES
Norris D32-2J - Wellbore #1 - Gyro Surveys	14,700.00	6,992.18	4,678.66	4,580.57	47.697	SF
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	13,224.40	6,889.00	5,327.46	5,125.77	26.414	CC
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	13,300.00	6,889.00	5,328.00	5,125.71	26.339	ES
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	14,100.00	6,889.00	5,398.94	5,191.07	25.973	SF
Norris D32-5 - Wellbore #1 - Gyro Surveys	14,568.91	6,841.16	5,282.33	5,184.35	53.912	CC
Norris D32-5 - Wellbore #1 - Gyro Surveys	14,600.00	6,840.88	5,282.42	5,184.19	53.776	ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	15,900.00	6,829.43	5,447.45	5,340.97	51.162	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys	14,576.56	6,842.76	4,064.11	3,966.01	41.429	CC
Norris D32-6 - Wellbore #1 - Gyro Surveys	14,600.00	6,842.77	4,064.18	3,965.89	41.349	ES
Norris D32-6 - Wellbore #1 - Gyro Surveys	15,400.00	6,843.15	4,146.69	4,043.28	40.098	SF
Norris D32-7 - Wellbore #1 - Gyro Surveys	14,529.36	6,933.93	2,720.74	2,622.75	27.766	CC
Norris D32-7 - Wellbore #1 - Gyro Surveys	14,900.00	14,900.00	2,745.21	2,621.89	22.262	ES, SF
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	15,864.24	6,888.53	1,241.52	1,133.22	11.464	CC, ES
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	15,900.00	6,888.43	1,242.03	1,133.44	11.438	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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

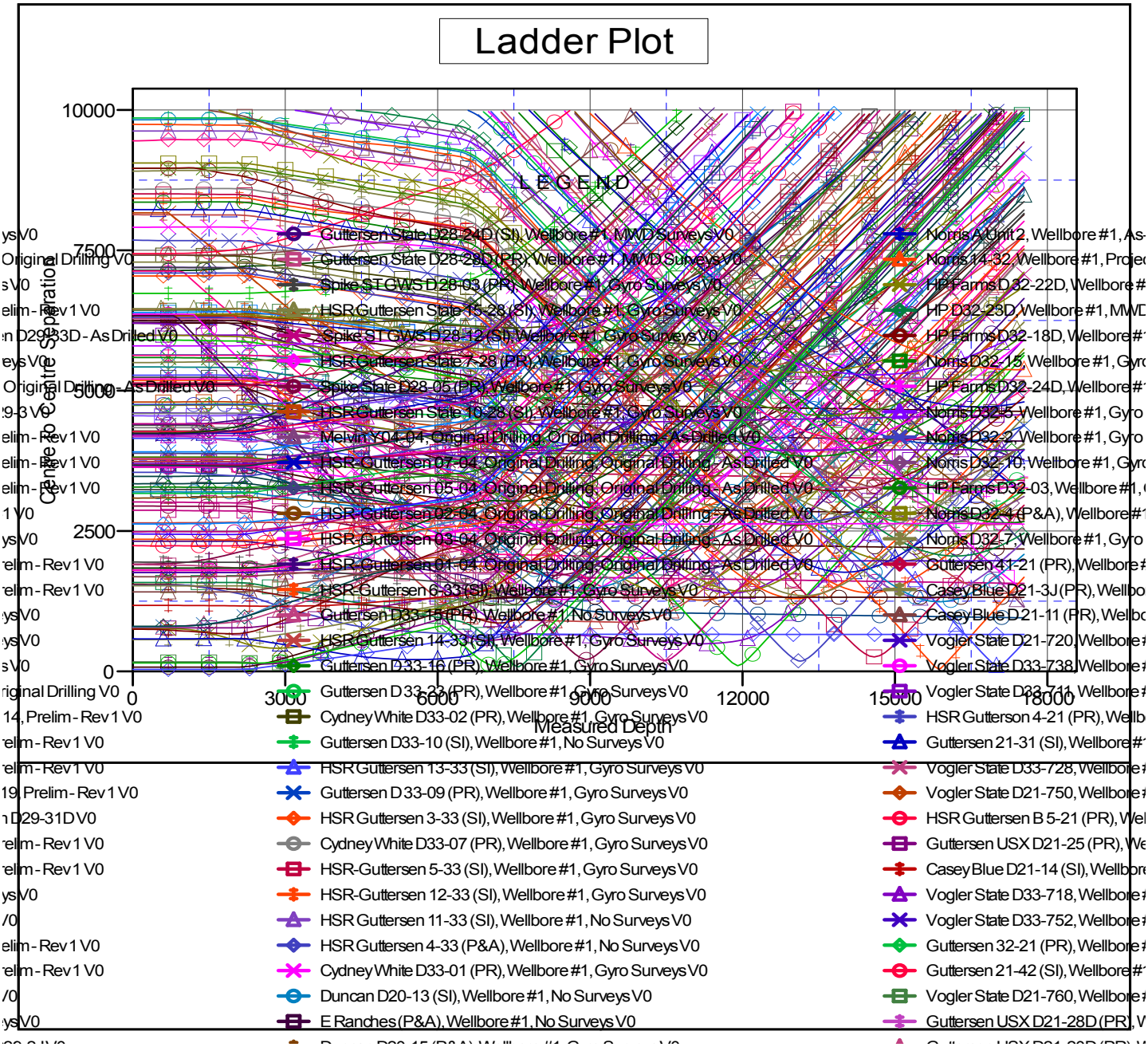
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 33						
Cydney White D33-01 (PR) - Wellbore #1 - Gyro Surveys	13,120.98	6,948.73	3,916.53	3,829.52	45.014	CC, ES
Cydney White D33-01 (PR) - Wellbore #1 - Gyro Surveys	13,900.00	6,955.59	3,993.24	3,901.68	43.612	SF
Cydney White D33-02 (PR) - Wellbore #1 - Gyro Surveys	13,076.23	6,901.48	2,606.70	2,519.99	30.061	CC
Cydney White D33-02 (PR) - Wellbore #1 - Gyro Surveys	13,100.00	6,901.72	2,606.81	2,519.93	30.005	ES
Cydney White D33-02 (PR) - Wellbore #1 - Gyro Surveys	13,400.00	6,904.73	2,626.73	2,538.15	29.653	SF
Cydney White D33-07 (PR) - Wellbore #1 - Gyro Surveys	14,366.04	6,922.74	2,542.94	2,446.27	26.305	CC
Cydney White D33-07 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,922.50	2,543.17	2,446.26	26.243	ES
Cydney White D33-07 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	6,920.36	2,564.78	2,466.27	26.037	SF
Guttersen D 33-09 (PR) - Wellbore #1 - Gyro Surveys	15,889.18	6,951.18	4,055.52	3,946.82	37.311	CC
Guttersen D 33-09 (PR) - Wellbore #1 - Gyro Surveys	15,900.00	6,951.19	4,055.53	3,946.75	37.284	ES
Guttersen D 33-09 (PR) - Wellbore #1 - Gyro Surveys	16,500.00	6,951.83	4,101.26	3,988.87	36.491	SF
Guttersen D 33-16 (PR) - Wellbore #1 - Gyro Surveys	17,068.64	6,939.20	3,929.55	3,828.49	38.882	CC
Guttersen D 33-16 (PR) - Wellbore #1 - Gyro Surveys	17,100.00	6,938.96	3,929.68	3,828.38	38.794	ES
Guttersen D 33-16 (PR) - Wellbore #1 - Gyro Surveys	17,541.36	6,935.45	3,957.88	3,853.90	38.063	SF
Guttersen D 33-23 (PR) - Wellbore #1 - Gyro Surveys	16,354.81	6,938.52	3,251.60	3,139.35	28.967	CC
Guttersen D 33-23 (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,938.28	3,251.92	3,139.34	28.886	ES
Guttersen D 33-23 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,936.17	3,281.94	3,167.14	28.589	SF
Guttersen D33-10 (SI) - Wellbore #1 - No Surveys	15,619.68	6,910.00	2,596.74	2,376.06	11.767	CC, ES
Guttersen D33-10 (SI) - Wellbore #1 - No Surveys	15,800.00	6,910.00	2,602.99	2,381.19	11.735	SF
Guttersen D33-15 (PR) - Wellbore #1 - No Surveys	16,945.55	6,915.00	2,614.56	2,383.31	11.306	CC, ES
Guttersen D33-15 (PR) - Wellbore #1 - No Surveys	17,100.00	6,915.00	2,619.12	2,386.88	11.278	SF
HSR Guttersen 11-33 (SI) - Wellbore #1 - No Surveys	15,619.80	6,904.00	1,297.38	1,076.83	5.882	CC, ES, SF
HSR Guttersen 13-33 (SI) - Wellbore #1 - Gyro Surveys	17,031.75	6,945.29	98.24	-19.48	0.835	Level 1, CC, ES, SF
HSR Guttersen 14-33 (SI) - Wellbore #1 - Gyro Surveys	17,111.38	6,910.92	1,391.45	1,273.55	11.802	CC, ES
HSR Guttersen 14-33 (SI) - Wellbore #1 - Gyro Surveys	17,200.00	6,910.92	1,394.27	1,275.94	11.783	SF
HSR Guttersen 3-33 (SI) - Wellbore #1 - Gyro Surveys	13,064.94	6,919.10	1,298.26	1,211.64	14.988	CC, ES
HSR Guttersen 3-33 (SI) - Wellbore #1 - Gyro Surveys	13,100.00	6,917.36	1,298.73	1,211.90	14.958	SF
HSR Guttersen 4-33 (P&A) - Wellbore #1 - No Surveys	13,141.71	6,919.00	184.30	-17.36	0.914	Level 1, CC, ES, SF
HSR-Guttersen 12-33 (SI) - Wellbore #1 - Gyro Surveys	15,864.03	6,934.94	41.40	-66.97	0.382	Level 1, CC, ES, SF
HSR-Guttersen 5-33 (SI) - Wellbore #1 - Gyro Surveys	14,591.39	6,910.34	258.63	160.24	2.629	CC, ES, SF
HSR-Guttersen 6-33 (SI) - Wellbore #1 - Gyro Surveys	14,497.47	6,892.91	1,402.46	1,305.21	14.420	CC
HSR-Guttersen 6-33 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,892.94	1,402.47	1,305.19	14.418	ES
HSR-Guttersen 6-33 (SI) - Wellbore #1 - Gyro Surveys	14,600.00	6,893.97	1,406.21	1,308.44	14.383	SF
Y Section 04						
HSR-Guttersen 01-04 - Original Drilling - Original Drilling	17,541.36	7,020.91	3,773.46	3,652.98	31.322	CC, ES, SF
HSR-Guttersen 02-04 - Original Drilling - Original Drilling	17,541.36	6,930.47	2,707.99	2,589.44	22.843	CC, ES, SF
HSR-Guttersen 03-04 - Original Drilling - Original Drilling	17,541.36	6,950.31	1,448.27	1,343.24	13.789	CC, ES, SF
HSR-Guttersen 05-04 - Original Drilling - Original Drilling	17,541.36	6,931.77	2,249.47	2,194.40	40.851	CC, ES, SF
HSR-Guttersen 07-04 - Original Drilling - Original Drilling	17,541.36	6,946.44	3,175.65	3,072.65	30.830	CC, ES, SF
Melvin Y04-04 - Original Drilling - Original Drilling - As Dr	17,541.36	6,972.31	1,143.21	1,076.93	17.249	CC, ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 @ 4826.00ft	Coordinates are relative to: Vogler State D33-779
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.5000000	Grid Convergence at Surface is: 0.61°



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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Vogler State D33-779
Project:	Mustang	**TVD Reference:**	Well @ 4826.00ft
Reference Site:	D Section 21	**MD Reference:**	Well @ 4826.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Vogler State D33-779	**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 @ 4826.00ft	Coordinates are relative to: Vogler State D33-779
Offset Depths are relative to Offset Datum	Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is -105.5000000	Grid Convergence at Surface is: 0.61°