

Project: Mustang
Site: D Section 21
Well: Vogler State D21-731
Wellbore: Wellbore #1
Design: Plan 1

Northern Region - DJ Basin

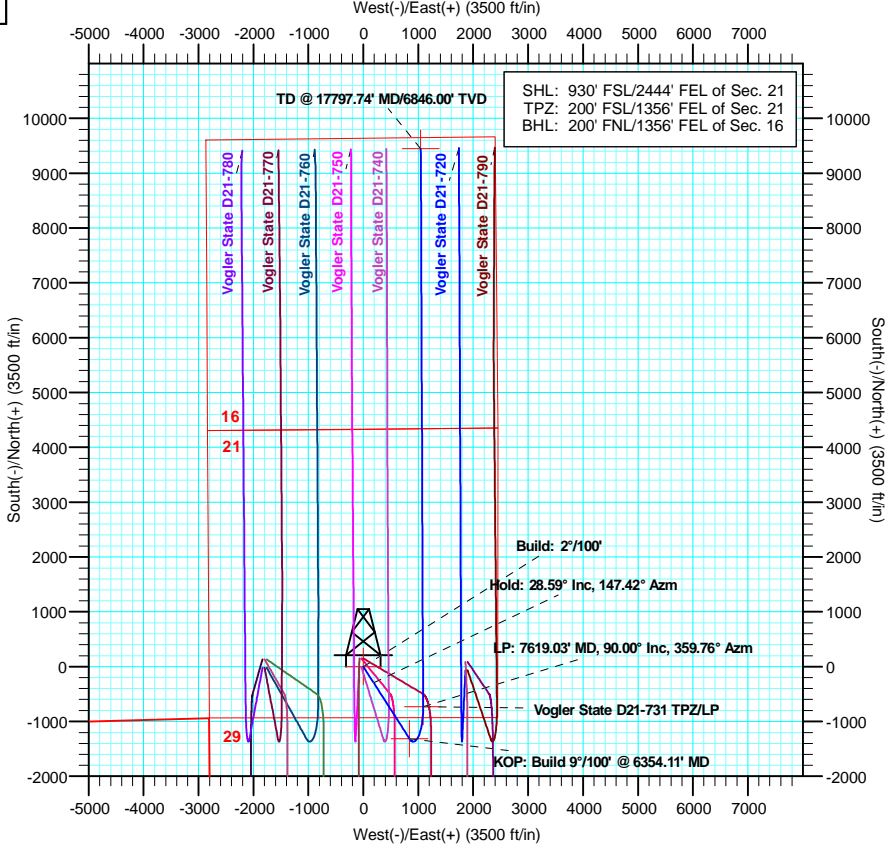
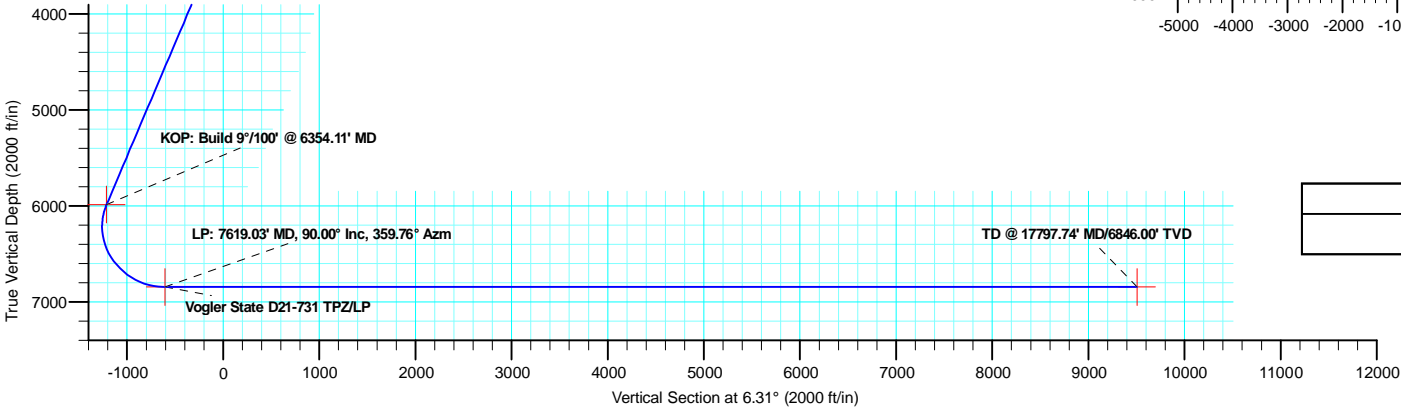
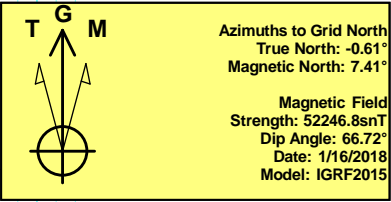
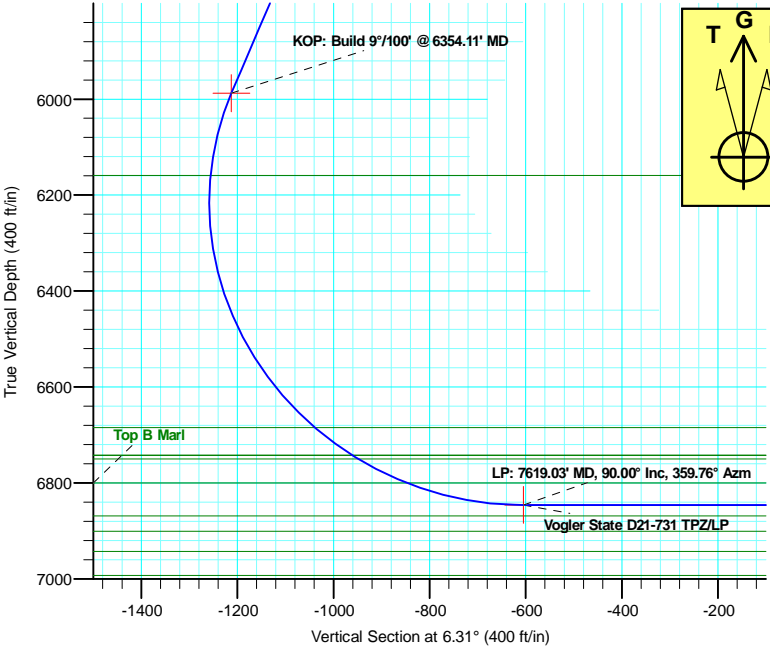
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec
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	3829.31	28.59	147.42	3770.74	-294.25	188.07	2.00	147.42	-271.82
4	6354.11	28.59	147.42	5987.77	-1312.17	838.66	0.00	0.00	-1212.13
5	7619.03	90.00	359.76	6846.00	-728.85	1086.44	9.00	-144.20	-605.12
6	17797.74	90.00	359.76	6846.00	9449.77	1044.14	0.00	0.00	9507.28

WELL DETAILS: Vogler State D21-731

+N/-S	+E/-W	Northing	Ground Level: Easting	4825.00 3263757.09	Latitude	Longitude
0.00	0.00	1319376.91			40.2062314	-104.5556533



Plan: Plan 1 (Vogler State D21-731/Wellbore #1)
Created By: Keith Noack Date: 14:10, August 07 2018

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-731

Wellbore #1

Plan: Plan 1

Standard Planning Report

07 August, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-731
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	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 D21-731					
Well Position	+N-S	-3,664.98 ft	Northing:	1,319,376.91 usft	Latitude:	40.2062314
	+E-W	2,143.62 ft	Easting:	3,263,757.09 usft	Longitude:	-104.5556532
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,825.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	1/16/2018	8.02	66.72	52,246.79040614

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	6.31

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	
3,829.31	28.59	147.42	3,770.74	-294.25	188.07	2.00	2.00	0.00	147.42	
6,354.11	28.59	147.42	5,987.77	-1,312.17	838.66	0.00	0.00	0.00	0.00	
7,619.03	90.00	359.76	6,846.00	-728.85	1,086.44	9.00	4.86	-11.67	-144.20	Vogler State D21-7:
17,797.74	90.00	359.76	6,846.00	9,449.77	1,044.14	0.00	0.00	0.00	0.00	Vogler State D21-7:

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	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
632.00	0.00	0.00	632.00	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
767.00	0.00	0.00	767.00	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
1,634.00	0.00	0.00	1,634.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
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	147.42	2,499.98	-1.47	0.94	-1.36	2.00	2.00	0.00
2,600.00	4.00	147.42	2,599.84	-5.88	3.76	-5.43	2.00	2.00	0.00
2,700.00	6.00	147.42	2,699.45	-13.22	8.45	-12.22	2.00	2.00	0.00
2,800.00	8.00	147.42	2,798.70	-23.49	15.01	-21.70	2.00	2.00	0.00
2,900.00	10.00	147.42	2,897.47	-36.67	23.44	-33.88	2.00	2.00	0.00
3,000.00	12.00	147.42	2,995.62	-52.75	33.71	-48.73	2.00	2.00	0.00
3,100.00	14.00	147.42	3,093.06	-71.70	45.83	-66.24	2.00	2.00	0.00
3,200.00	16.00	147.42	3,189.64	-93.51	59.77	-86.38	2.00	2.00	0.00
3,300.00	18.00	147.42	3,285.27	-118.14	75.51	-109.14	2.00	2.00	0.00
3,400.00	20.00	147.42	3,379.82	-145.57	93.04	-134.48	2.00	2.00	0.00
3,500.00	22.00	147.42	3,473.17	-175.77	112.34	-162.37	2.00	2.00	0.00
3,600.00	24.00	147.42	3,565.21	-208.69	133.38	-192.78	2.00	2.00	0.00
3,700.00	26.00	147.42	3,655.84	-244.30	156.14	-225.67	2.00	2.00	0.00
3,800.00	28.00	147.42	3,744.94	-282.55	180.59	-261.01	2.00	2.00	0.00
3,829.31	28.59	147.42	3,770.74	-294.25	188.07	-271.82	2.00	2.00	0.00
Hold: 28.59° Inc, 147.42° Azm									
3,900.00	28.59	147.42	3,832.82	-322.76	206.28	-298.15	0.00	0.00	0.00
3,925.26	28.59	147.42	3,855.00	-332.94	212.79	-307.56	0.00	0.00	0.00
Parkman									
4,000.00	28.59	147.42	3,920.63	-363.07	232.05	-335.39	0.00	0.00	0.00
4,100.00	28.59	147.42	4,008.44	-403.39	257.82	-372.63	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

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Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	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)
4,190.61	28.59	147.42	4,088.00	-439.92	281.17	-406.38	0.00	0.00	0.00
Sussex									
4,200.00	28.59	147.42	4,096.25	-443.71	283.59	-409.88	0.00	0.00	0.00
4,300.00	28.59	147.42	4,184.06	-484.02	309.36	-447.12	0.00	0.00	0.00
4,400.00	28.59	147.42	4,271.87	-524.34	335.12	-484.36	0.00	0.00	0.00
4,500.00	28.59	147.42	4,359.68	-564.66	360.89	-521.61	0.00	0.00	0.00
4,600.00	28.59	147.42	4,447.49	-604.97	386.66	-558.85	0.00	0.00	0.00
4,700.00	28.59	147.42	4,535.30	-645.29	412.43	-596.09	0.00	0.00	0.00
4,800.00	28.59	147.42	4,623.11	-685.61	438.20	-633.33	0.00	0.00	0.00
4,900.00	28.59	147.42	4,710.92	-725.92	463.96	-670.58	0.00	0.00	0.00
5,000.00	28.59	147.42	4,798.73	-766.24	489.73	-707.82	0.00	0.00	0.00
5,100.00	28.59	147.42	4,886.54	-806.56	515.50	-745.06	0.00	0.00	0.00
5,200.00	28.59	147.42	4,974.35	-846.87	541.27	-782.31	0.00	0.00	0.00
5,272.49	28.59	147.42	5,038.00	-876.10	559.95	-809.30	0.00	0.00	0.00
Shannon									
5,300.00	28.59	147.42	5,062.16	-887.19	567.04	-819.55	0.00	0.00	0.00
5,400.00	28.59	147.42	5,149.97	-927.51	592.80	-856.79	0.00	0.00	0.00
5,500.00	28.59	147.42	5,237.78	-967.82	618.57	-894.04	0.00	0.00	0.00
5,600.00	28.59	147.42	5,325.59	-1,008.14	644.34	-931.28	0.00	0.00	0.00
5,700.00	28.59	147.42	5,413.40	-1,048.46	670.11	-968.52	0.00	0.00	0.00
5,800.00	28.59	147.42	5,501.21	-1,088.77	695.87	-1,005.76	0.00	0.00	0.00
5,900.00	28.59	147.42	5,589.02	-1,129.09	721.64	-1,043.01	0.00	0.00	0.00
6,000.00	28.59	147.42	5,676.83	-1,169.41	747.41	-1,080.25	0.00	0.00	0.00
6,100.00	28.59	147.42	5,764.64	-1,209.73	773.18	-1,117.49	0.00	0.00	0.00
6,200.00	28.59	147.42	5,852.45	-1,250.04	798.95	-1,154.74	0.00	0.00	0.00
6,300.00	28.59	147.42	5,940.25	-1,290.36	824.71	-1,191.98	0.00	0.00	0.00
6,354.11	28.59	147.42	5,987.77	-1,312.17	838.66	-1,212.13	0.00	0.00	0.00
KOP: Build 9°/100' @ 6354.11' MD									
6,400.00	25.34	141.77	6,028.67	-1,329.15	850.65	-1,227.68	9.00	-7.07	-12.31
6,450.00	22.12	133.94	6,074.45	-1,344.09	864.06	-1,241.06	9.00	-6.44	-15.66
6,500.00	19.39	123.82	6,121.22	-1,355.25	877.74	-1,250.65	9.00	-5.47	-20.24
6,539.85	17.71	113.83	6,159.00	-1,361.38	888.78	-1,255.53	9.00	-4.21	-25.06
Teepee Buttes									
6,550.00	17.37	111.02	6,168.68	-1,362.55	891.61	-1,256.38	9.00	-3.33	-27.75
6,600.00	16.34	95.86	6,216.56	-1,365.94	905.58	-1,258.22	9.00	-2.06	-30.31
6,650.00	16.48	79.89	6,264.54	-1,365.42	919.57	-1,256.16	9.00	0.29	-31.93
6,700.00	17.77	65.21	6,312.35	-1,360.97	933.49	-1,250.22	9.00	2.58	-29.37
6,750.00	19.98	53.05	6,359.67	-1,352.63	947.25	-1,240.42	9.00	4.42	-24.30
6,800.00	22.85	43.53	6,406.23	-1,340.45	960.77	-1,226.82	9.00	5.74	-19.05
6,850.00	26.16	36.16	6,451.73	-1,324.50	973.97	-1,209.52	9.00	6.62	-14.74
6,900.00	29.77	30.41	6,495.89	-1,304.89	986.77	-1,188.62	9.00	7.21	-11.51
6,950.00	33.57	25.82	6,538.44	-1,281.73	999.08	-1,164.25	9.00	7.61	-9.18
7,000.00	37.51	22.08	6,579.13	-1,255.16	1,010.83	-1,136.55	9.00	7.88	-7.48
7,050.00	41.55	18.96	6,617.68	-1,225.35	1,021.94	-1,105.71	9.00	8.08	-6.23
7,100.00	45.67	16.31	6,653.88	-1,192.49	1,032.36	-1,071.90	9.00	8.22	-5.31
7,146.15	49.51	14.18	6,685.00	-1,159.62	1,041.30	-1,038.25	9.00	8.33	-4.63
Sharon Springs									
7,150.00	49.83	14.01	6,687.49	-1,156.77	1,042.01	-1,035.34	9.00	8.37	-4.33
7,200.00	54.04	11.97	6,718.32	-1,118.42	1,050.84	-996.25	9.00	8.41	-4.07
7,242.16	57.61	10.42	6,742.00	-1,084.21	1,057.60	-961.50	9.00	8.47	-3.68
Top A Chalk									
7,244.03	57.77	10.35	6,743.00	-1,082.66	1,057.89	-959.92	9.00	8.49	-3.53
Top A Marl									

Noble Energy, Inc.

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Well:	Vogler State D21-731	Survey Calculation Method:	Minimum Curvature
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Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,250.00	58.27	10.15	6,746.16	-1,077.68	1,058.79	-954.88	9.00	8.50	-3.50	
7,257.37	58.90	9.89	6,750.00	-1,071.48	1,059.88	-948.60	9.00	8.50	-3.46	
Top B Chalk										
7,300.00	62.53	8.48	6,770.85	-1,034.78	1,065.81	-911.47	9.00	8.52	-3.31	
7,350.00	66.81	6.94	6,792.23	-990.01	1,071.85	-866.30	9.00	8.56	-3.09	
7,370.46	68.57	6.33	6,800.00	-971.21	1,074.04	-847.38	9.00	8.58	-2.94	
Top B Marl										
7,400.00	71.11	5.49	6,810.18	-943.63	1,076.89	-819.65	9.00	8.59	-2.86	
7,450.00	75.41	4.11	6,824.58	-895.93	1,080.89	-771.80	9.00	8.61	-2.75	
7,500.00	79.72	2.79	6,835.35	-847.20	1,083.83	-723.04	9.00	8.62	-2.64	
7,550.00	84.04	1.51	6,842.41	-797.75	1,085.68	-673.69	9.00	8.63	-2.57	
7,600.00	88.36	0.24	6,845.73	-747.88	1,086.44	-624.04	9.00	8.64	-2.53	
7,619.03	90.00	359.76	6,846.00	-728.85	1,086.44	-605.12	9.00	8.64	-2.52	
LP: 7619.03' MD, 90.00° Inc, 359.76° Azm										
7,700.00	90.00	359.76	6,846.00	-647.88	1,086.11	-524.68	0.00	0.00	0.00	
7,800.00	90.00	359.76	6,846.00	-547.88	1,085.69	-425.33	0.00	0.00	0.00	
7,900.00	90.00	359.76	6,846.00	-447.88	1,085.28	-325.98	0.00	0.00	0.00	
8,000.00	90.00	359.76	6,846.00	-347.88	1,084.86	-226.64	0.00	0.00	0.00	
8,100.00	90.00	359.76	6,846.00	-247.89	1,084.45	-127.29	0.00	0.00	0.00	
8,200.00	90.00	359.76	6,846.00	-147.89	1,084.03	-27.94	0.00	0.00	0.00	
8,300.00	90.00	359.76	6,846.00	-47.89	1,083.61	71.41	0.00	0.00	0.00	
8,400.00	90.00	359.76	6,846.00	52.11	1,083.20	170.76	0.00	0.00	0.00	
8,500.00	90.00	359.76	6,846.00	152.11	1,082.78	270.11	0.00	0.00	0.00	
8,600.00	90.00	359.76	6,846.00	252.11	1,082.37	369.46	0.00	0.00	0.00	
8,700.00	90.00	359.76	6,846.00	352.11	1,081.95	468.81	0.00	0.00	0.00	
8,800.00	90.00	359.76	6,846.00	452.11	1,081.54	568.15	0.00	0.00	0.00	
8,900.00	90.00	359.76	6,846.00	552.11	1,081.12	667.50	0.00	0.00	0.00	
9,000.00	90.00	359.76	6,846.00	652.11	1,080.70	766.85	0.00	0.00	0.00	
9,100.00	90.00	359.76	6,846.00	752.11	1,080.29	866.20	0.00	0.00	0.00	
9,200.00	90.00	359.76	6,846.00	852.10	1,079.87	965.55	0.00	0.00	0.00	
9,300.00	90.00	359.76	6,846.00	952.10	1,079.46	1,064.90	0.00	0.00	0.00	
9,400.00	90.00	359.76	6,846.00	1,052.10	1,079.04	1,164.25	0.00	0.00	0.00	
9,500.00	90.00	359.76	6,846.00	1,152.10	1,078.63	1,263.59	0.00	0.00	0.00	
9,600.00	90.00	359.76	6,846.00	1,252.10	1,078.21	1,362.94	0.00	0.00	0.00	
9,700.00	90.00	359.76	6,846.00	1,352.10	1,077.80	1,462.29	0.00	0.00	0.00	
9,800.00	90.00	359.76	6,846.00	1,452.10	1,077.38	1,561.64	0.00	0.00	0.00	
9,900.00	90.00	359.76	6,846.00	1,552.10	1,076.96	1,660.99	0.00	0.00	0.00	
10,000.00	90.00	359.76	6,846.00	1,652.10	1,076.55	1,760.34	0.00	0.00	0.00	
10,100.00	90.00	359.76	6,846.00	1,752.10	1,076.13	1,859.69	0.00	0.00	0.00	
10,200.00	90.00	359.76	6,846.00	1,852.10	1,075.72	1,959.03	0.00	0.00	0.00	
10,300.00	90.00	359.76	6,846.00	1,952.10	1,075.30	2,058.38	0.00	0.00	0.00	
10,400.00	90.00	359.76	6,846.00	2,052.09	1,074.89	2,157.73	0.00	0.00	0.00	
10,500.00	90.00	359.76	6,846.00	2,152.09	1,074.47	2,257.08	0.00	0.00	0.00	
10,600.00	90.00	359.76	6,846.00	2,252.09	1,074.06	2,356.43	0.00	0.00	0.00	
10,700.00	90.00	359.76	6,846.00	2,352.09	1,073.64	2,455.78	0.00	0.00	0.00	
10,800.00	90.00	359.76	6,846.00	2,452.09	1,073.22	2,555.13	0.00	0.00	0.00	
10,900.00	90.00	359.76	6,846.00	2,552.09	1,072.81	2,654.47	0.00	0.00	0.00	
11,000.00	90.00	359.76	6,846.00	2,652.09	1,072.39	2,753.82	0.00	0.00	0.00	
11,100.00	90.00	359.76	6,846.00	2,752.09	1,071.98	2,853.17	0.00	0.00	0.00	
11,200.00	90.00	359.76	6,846.00	2,852.09	1,071.56	2,952.52	0.00	0.00	0.00	
11,300.00	90.00	359.76	6,846.00	2,952.09	1,071.15	3,051.87	0.00	0.00	0.00	
11,400.00	90.00	359.76	6,846.00	3,052.09	1,070.73	3,151.22	0.00	0.00	0.00	
11,500.00	90.00	359.76	6,846.00	3,152.09	1,070.32	3,250.57	0.00	0.00	0.00	

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-731
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	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)
11,600.00	90.00	359.76	6,846.00	3,252.08	1,069.90	3,349.91	0.00	0.00	0.00
11,700.00	90.00	359.76	6,846.00	3,352.08	1,069.48	3,449.26	0.00	0.00	0.00
11,800.00	90.00	359.76	6,846.00	3,452.08	1,069.07	3,548.61	0.00	0.00	0.00
11,900.00	90.00	359.76	6,846.00	3,552.08	1,068.65	3,647.96	0.00	0.00	0.00
12,000.00	90.00	359.76	6,846.00	3,652.08	1,068.24	3,747.31	0.00	0.00	0.00
12,100.00	90.00	359.76	6,846.00	3,752.08	1,067.82	3,846.66	0.00	0.00	0.00
12,200.00	90.00	359.76	6,846.00	3,852.08	1,067.41	3,946.01	0.00	0.00	0.00
12,300.00	90.00	359.76	6,846.00	3,952.08	1,066.99	4,045.35	0.00	0.00	0.00
12,400.00	90.00	359.76	6,846.00	4,052.08	1,066.57	4,144.70	0.00	0.00	0.00
12,500.00	90.00	359.76	6,846.00	4,152.08	1,066.16	4,244.05	0.00	0.00	0.00
12,600.00	90.00	359.76	6,846.00	4,252.08	1,065.74	4,343.40	0.00	0.00	0.00
12,700.00	90.00	359.76	6,846.00	4,352.07	1,065.33	4,442.75	0.00	0.00	0.00
12,800.00	90.00	359.76	6,846.00	4,452.07	1,064.91	4,542.10	0.00	0.00	0.00
12,900.00	90.00	359.76	6,846.00	4,552.07	1,064.50	4,641.45	0.00	0.00	0.00
13,000.00	90.00	359.76	6,846.00	4,652.07	1,064.08	4,740.79	0.00	0.00	0.00
13,100.00	90.00	359.76	6,846.00	4,752.07	1,063.67	4,840.14	0.00	0.00	0.00
13,200.00	90.00	359.76	6,846.00	4,852.07	1,063.25	4,939.49	0.00	0.00	0.00
13,300.00	90.00	359.76	6,846.00	4,952.07	1,062.83	5,038.84	0.00	0.00	0.00
13,400.00	90.00	359.76	6,846.00	5,052.07	1,062.42	5,138.19	0.00	0.00	0.00
13,500.00	90.00	359.76	6,846.00	5,152.07	1,062.00	5,237.54	0.00	0.00	0.00
13,600.00	90.00	359.76	6,846.00	5,252.07	1,061.59	5,336.89	0.00	0.00	0.00
13,700.00	90.00	359.76	6,846.00	5,352.07	1,061.17	5,436.23	0.00	0.00	0.00
13,800.00	90.00	359.76	6,846.00	5,452.07	1,060.76	5,535.58	0.00	0.00	0.00
13,900.00	90.00	359.76	6,846.00	5,552.06	1,060.34	5,634.93	0.00	0.00	0.00
14,000.00	90.00	359.76	6,846.00	5,652.06	1,059.93	5,734.28	0.00	0.00	0.00
14,100.00	90.00	359.76	6,846.00	5,752.06	1,059.51	5,833.63	0.00	0.00	0.00
14,200.00	90.00	359.76	6,846.00	5,852.06	1,059.09	5,932.98	0.00	0.00	0.00
14,300.00	90.00	359.76	6,846.00	5,952.06	1,058.68	6,032.33	0.00	0.00	0.00
14,400.00	90.00	359.76	6,846.00	6,052.06	1,058.26	6,131.67	0.00	0.00	0.00
14,500.00	90.00	359.76	6,846.00	6,152.06	1,057.85	6,231.02	0.00	0.00	0.00
14,600.00	90.00	359.76	6,846.00	6,252.06	1,057.43	6,330.37	0.00	0.00	0.00
14,700.00	90.00	359.76	6,846.00	6,352.06	1,057.02	6,429.72	0.00	0.00	0.00
14,800.00	90.00	359.76	6,846.00	6,452.06	1,056.60	6,529.07	0.00	0.00	0.00
14,900.00	90.00	359.76	6,846.00	6,552.06	1,056.18	6,628.42	0.00	0.00	0.00
15,000.00	90.00	359.76	6,846.00	6,652.05	1,055.77	6,727.77	0.00	0.00	0.00
15,100.00	90.00	359.76	6,846.00	6,752.05	1,055.35	6,827.11	0.00	0.00	0.00
15,200.00	90.00	359.76	6,846.00	6,852.05	1,054.94	6,926.46	0.00	0.00	0.00
15,300.00	90.00	359.76	6,846.00	6,952.05	1,054.52	7,025.81	0.00	0.00	0.00
15,400.00	90.00	359.76	6,846.00	7,052.05	1,054.11	7,125.16	0.00	0.00	0.00
15,500.00	90.00	359.76	6,846.00	7,152.05	1,053.69	7,224.51	0.00	0.00	0.00
15,600.00	90.00	359.76	6,846.00	7,252.05	1,053.28	7,323.86	0.00	0.00	0.00
15,700.00	90.00	359.76	6,846.00	7,352.05	1,052.86	7,423.21	0.00	0.00	0.00
15,800.00	90.00	359.76	6,846.00	7,452.05	1,052.44	7,522.55	0.00	0.00	0.00
15,900.00	90.00	359.76	6,846.00	7,552.05	1,052.03	7,621.90	0.00	0.00	0.00
16,000.00	90.00	359.76	6,846.00	7,652.05	1,051.61	7,721.25	0.00	0.00	0.00
16,100.00	90.00	359.76	6,846.00	7,752.05	1,051.20	7,820.60	0.00	0.00	0.00
16,200.00	90.00	359.76	6,846.00	7,852.04	1,050.78	7,919.95	0.00	0.00	0.00
16,300.00	90.00	359.76	6,846.00	7,952.04	1,050.37	8,019.30	0.00	0.00	0.00
16,400.00	90.00	359.76	6,846.00	8,052.04	1,049.95	8,118.65	0.00	0.00	0.00
16,500.00	90.00	359.76	6,846.00	8,152.04	1,049.54	8,218.00	0.00	0.00	0.00
16,600.00	90.00	359.76	6,846.00	8,252.04	1,049.12	8,317.34	0.00	0.00	0.00
16,700.00	90.00	359.76	6,846.00	8,352.04	1,048.70	8,416.69	0.00	0.00	0.00
16,800.00	90.00	359.76	6,846.00	8,452.04	1,048.29	8,516.04	0.00	0.00	0.00
16,900.00	90.00	359.76	6,846.00	8,552.04	1,047.87	8,615.39	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-731
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	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)
17,000.00	90.00	359.76	6,846.00	8,652.04	1,047.46	8,714.74	0.00	0.00	0.00
17,100.00	90.00	359.76	6,846.00	8,752.04	1,047.04	8,814.09	0.00	0.00	0.00
17,200.00	90.00	359.76	6,846.00	8,852.04	1,046.63	8,913.44	0.00	0.00	0.00
17,300.00	90.00	359.76	6,846.00	8,952.04	1,046.21	9,012.78	0.00	0.00	0.00
17,400.00	90.00	359.76	6,846.00	9,052.03	1,045.80	9,112.13	0.00	0.00	0.00
17,500.00	90.00	359.76	6,846.00	9,152.03	1,045.38	9,211.48	0.00	0.00	0.00
17,600.00	90.00	359.76	6,846.00	9,252.03	1,044.96	9,310.83	0.00	0.00	0.00
17,700.00	90.00	359.76	6,846.00	9,352.03	1,044.55	9,410.18	0.00	0.00	0.00
17,797.74	90.00	359.76	6,846.00	9,449.77	1,044.14	9,507.28	0.00	0.00	0.00
TD @ 17797.74' MD/6846.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Vogler State D21-731	0.00	0.01	0.00	0.00	0.00	1,319,376.91	3,263,757.09	40.2062314	-104.5556532
- plan hits target center									
- Point									
Vogler State D21-731	0.00	0.00	5,987.77	-1,312.17	838.66	1,318,064.74	3,264,595.75	40.2026050	-104.5527010
- plan hits target center									
- Point									
Vogler State D21-731	0.00	0.01	6,846.00	9,449.77	1,044.14	1,328,826.66	3,264,801.23	40.2321399	-104.5515533
- plan hits target center									
- Point									
Vogler State D21-731	0.00	0.01	6,846.00	-728.85	1,086.44	1,318,648.06	3,264,843.54	40.2041989	-104.5517916
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
632.00	632.00	Pierre				
767.00	767.00	Upper Pierre Aquifer Top				
1,634.00	1,634.00	Upper Pierre Aquifer Base				
3,925.26	3,855.00	Parkman				
4,190.61	4,088.00	Sussex				
5,272.49	5,038.00	Shannon				
6,539.85	6,159.00	Teepee Buttes				
7,146.15	6,685.00	Sharon Springs				
7,242.16	6,742.00	Top A Chalk				
7,244.03	6,743.00	Top A Marl				
7,257.37	6,750.00	Top B Chalk				
7,370.46	6,800.00	Top B Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Vogler State D21-731
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4855.00ft
Project:	Mustang	MD Reference:	Well @ 4855.00ft
Site:	D Section 21	North Reference:	Grid
Well:	Vogler State D21-731	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan 1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,400.00	2,400.00	0.00	0.00	Build: 2°/100'
3,829.31	3,770.74	-294.25	188.07	Hold: 28.59° Inc, 147.42° Azm
6,354.11	5,987.77	-1,312.17	838.66	KOP: Build 9°/100' @ 6354.11' MD
7,619.03	6,846.00	-728.85	1,086.44	LP: 7619.03' MD, 90.00° Inc, 359.76° Azm
17,797.74	6,846.00	9,449.77	1,044.14	TD @ 17797.74' MD/6846.00' TVD

Northern Region - DJ Basin

Mustang

D Section 21

Vogler State D21-731

Wellbore #1

Plan 1

Anticollision Summary Report

01 August, 2018

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-731
Project:	Mustang	TVD Reference:	Well @ 4855.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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	17,797.28	Plan 1 (Wellbore #1)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 16						
Diggen State D16-23 (SI) - Wellbore #1 - Gyro Surveys	14,044.06	6,776.34	43.43	-39.53	0.523	Level 1, CC, ES, SF
Diggin State D 16-07 (SI) - Wellbore #1 - No Surveys	15,921.98	6,769.00	716.16	507.01	3.424	CC, ES, SF
Diggin State D 16-19J (PR) - Wellbore #1 - No Surveys	16,614.52	6,728.00	2,627.18	2,413.52	12.296	CC, ES
Diggin State D 16-19J (PR) - Wellbore #1 - No Surveys	16,800.00	6,728.00	2,633.72	2,419.00	12.265	SF
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	13,404.66	6,761.22	3,300.09	3,221.62	42.059	CC, ES
Diggin State D16-13 (PR) - Wellbore #1 - Gyro Surveys	14,000.00	6,758.64	3,353.35	3,271.77	41.104	SF
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,270.63	6,780.94	1,263.48	1,171.16	13.686	CC, ES
Guttersen ST D 15-32 (SI) - Wellbore #1 - Gyro Surveys	15,400.00	6,780.89	1,270.09	1,176.83	13.618	SF
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,246.10	6,761.73	1,215.56	1,123.47	13.199	CC, ES
Guttersen ST D 16-21 (SI) - Wellbore #1 - Gyro Surveys	15,300.00	6,761.62	1,216.75	1,124.43	13.179	SF
Guttersen ST D 16-22D (SI) - Wellbore #1 - MWD Surve	15,417.09	6,869.88	29.73	-65.88	0.311	Level 1, CC, ES, SF
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,151.16	6,743.00	3,880.51	3,685.22	19.870	CC
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,200.00	6,743.00	3,880.82	3,685.20	19.838	ES
Guttersen ST D 16-33 (SI) - Wellbore #1 - No Surveys	14,600.00	6,743.00	3,906.38	3,708.40	19.730	SF
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	16,972.78	6,764.31	1,189.20	1,083.87	11.290	CC, ES
Guttersen State D 15-31 (PR) - Wellbore #1 - Gyro Surve	17,100.00	6,764.31	1,195.99	1,089.78	11.261	SF
Guttersen State D 15-33 (SI) - Wellbore #1 - Gyro Survey	14,041.81	6,758.25	1,340.14	1,256.97	16.113	CC, ES
Guttersen State D 15-33 (SI) - Wellbore #1 - Gyro Survey	14,200.00	6,756.76	1,349.45	1,265.14	16.007	SF
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,495.01	6,787.36	664.08	584.94	8.392	CC, ES
Guttersen State D 16-15X (PR) - Wellbore #1 - Gyro Sur	13,500.00	6,787.35	664.09	584.95	8.390	SF
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,772.46	6,743.00	1,299.12	1,083.93	6.037	CC, ES
Guttersen State D 16-18 (SI) - Wellbore #1 - No Surveys	16,800.00	6,743.00	1,299.41	1,084.09	6.035	SF
Guttersen State D 16-20 (SI) - Wellbore #1 - Gyro Survey	15,305.95	6,722.13	2,592.53	2,500.23	28.088	CC, ES
Guttersen State D 16-20 (SI) - Wellbore #1 - Gyro Survey	15,600.00	6,722.17	2,609.15	2,515.30	27.799	SF
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	14,132.33	6,791.95	1,251.68	1,167.74	14.913	CC, ES
Guttersen State D 16-24 (SI) - Wellbore #1 - Gyro Survey	14,200.00	6,791.64	1,253.51	1,169.28	14.883	SF
Guttersen State D 16-27 (PR) - Wellbore #1 - No Survey	17,779.80	6,739.00	2.32	-220.64	0.010	Level 1, CC, ES, SF
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,649.78	6,739.00	3,718.60	3,504.44	17.364	CC
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	16,700.00	6,739.00	3,718.94	3,504.43	17.338	ES
Guttersen State D 16-31 (PR) - Wellbore #1 - No Survey	17,000.00	6,739.00	3,735.05	3,518.76	17.269	SF
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,453.68	6,934.25	3,812.37	3,710.76	37.521	CC
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	15,500.00	6,934.37	3,812.65	3,710.73	37.409	ES
Guttersen State D 16-32D (SI) - Wellbore #1 - MWD Sur	16,000.00	6,935.60	3,851.31	3,746.74	36.828	SF
Guttersen State D16-63-1HN - Original Drilling - Original	13,664.69	7,872.62	72.39	1.95	1.028	Level 2, CC, ES, SF
Guttersen State D16-65-1HN - Original Drilling - Original	14,994.90	7,868.53	58.91	-21.69	0.731	Level 1, CC, ES, SF
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,468.13	6,759.95	733.00	623.84	6.715	CC, ES
Spike ST GWS D 16-01 (SI) - Wellbore #1 - Gyro Survey	17,500.00	6,760.10	733.69	624.23	6.703	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 D21-731
Project:	Mustang	TVD Reference:	Well @ 4855.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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						
Spike ST GWS D 16-02 (P&A) - Wellbore #1 - Gyro Surv	17,416.55	6,745.61	765.43	639.59	6.082	CC, ES, SF
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,343.88	6,737.00	1,942.22	1,722.71	8.848	CC, ES
Spike ST GWS D 16-03 (PR) - Wellbore #1 - No Surveys	17,400.00	6,737.00	1,943.03	1,723.20	8.839	SF
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,331.83	6,732.00	3,248.85	3,029.54	14.813	CC, ES
Spike ST GWS D 16-04 (SI) - Wellbore #1 - No Surveys	17,600.00	6,732.00	3,259.90	3,038.99	14.757	SF
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Surve	15,974.92	6,742.18	3,294.26	3,196.71	33.771	CC
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Surve	16,000.00	6,742.19	3,294.35	3,196.63	33.713	ES
Spike ST GWS D 16-05 (PR) - Wellbore #1 - Gyro Surve	16,400.00	6,742.34	3,321.57	3,221.66	33.246	SF
Spike ST GWS D 16-06 (SI) - Wellbore #1 - No Surveys	16,021.55	6,745.00	1,933.68	1,724.24	9.233	CC, ES
Spike ST GWS D 16-06 (SI) - Wellbore #1 - No Surveys	16,100.00	6,745.00	1,935.27	1,725.40	9.221	SF
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Surve	15,982.47	6,783.98	886.87	789.17	9.077	CC
Spike ST GWS D 16-08 (PR) - Wellbore #1 - Gyro Surve	16,000.00	6,783.83	887.04	789.16	9.063	ES, SF
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Surve	14,861.15	6,763.46	3,394.05	3,304.88	38.060	CC
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Surve	14,900.00	6,763.13	3,394.27	3,304.84	37.953	ES
Spike ST GWS D 16-12 (PA) - Wellbore #1 - Gyro Surve	15,400.00	6,759.05	3,436.56	3,344.48	37.323	SF
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	13,151.37	6,778.00	1,864.87	1,676.11	9.880	CC, ES
Spike ST GWS D 16-14 (SI) - Wellbore #1 - No Surveys	13,200.00	6,778.00	1,865.50	1,676.48	9.869	SF
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,361.28	6,777.00	719.69	529.46	3.783	CC, ES
Spike ST GWS D 16-16 (SI) - Wellbore #1 - No Surveys	13,400.00	6,777.00	720.73	530.16	3.782	SF
Spike State D 16-10 (SI) - Wellbore #1 - Gyro Surveys	14,721.76	6,762.77	657.51	569.39	7.462	CC, ES, SF
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	14,791.12	6,776.44	1,872.97	1,784.22	21.104	CC
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	14,800.00	6,776.42	1,872.99	1,784.19	21.091	ES
Spike State D 16-11 (SI) - Wellbore #1 - Gyro Surveys	14,900.00	6,776.18	1,876.13	1,786.81	21.005	SF
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	14,662.86	6,761.40	726.83	639.09	8.284	CC, ES
Spike State D 16-9 (SI) - Wellbore #1 - Gyro Surveys	14,700.00	6,761.52	727.78	639.70	8.263	SF
Spike State D16-15 (P&A) - Wellbore #1 - Wellbore #1	13,412.89	6,786.59	665.40	576.29	7.467	CC, ES, SF
Spike State D16-99HZ - Original Drilling - Original Drilling	14,380.49	7,831.42	32.75	-43.38	0.430	Level 1, CC, ES, SF
Spike State GWS D 16-7J (PR) - Wellbore #1 - No Surve	16,770.19	6,762.00	29.97	-185.58	0.139	Level 1, CC, ES, SF
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	13,982.98	6,769.54	2,665.57	2,582.86	32.229	CC
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	14,000.00	6,769.38	2,665.62	2,582.81	32.188	ES
Spike State GWS D16-13J (PR) - Wellbore #1 - Gyro Su	14,300.00	6,766.55	2,684.35	2,599.98	31.815	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-731
Project:	Mustang	TVD Reference:	Well @ 4855.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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	2,359.00	1,420.50	1,364.95	25.571	CC
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	2,500.00	2,458.98	1,422.24	1,364.35	24.567	ES
Casey Blue D 21-11 (PR) - Wellbore #1 - No Surveys	9,600.00	6,805.00	1,925.00	1,757.36	11.483	SF
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	100.00	29.85	2,175.75	2,175.58	10,000.000	CC
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	2,400.00	2,318.02	2,186.40	2,170.08	134.046	ES
Casey Blue D21-13 (PR) - Wellbore #1 - Gyro Surveys	8,500.00	6,836.59	3,283.87	3,232.18	63.523	SF
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	378.79	337.79	777.80	775.67	364.875	CC
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	2,500.00	2,459.68	785.57	768.43	45.848	ES
Casey Blue D21-14 (SI) - Wellbore #1 - Gyro Surveys	8,300.00	6,820.96	1,787.92	1,736.99	35.107	SF
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	1,558.46	1,507.48	2,023.11	2,012.66	193.553	CC
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	2,415.02	2,372.49	2,023.44	2,006.90	122.369	ES
Casey Blue D21-3J (PR) - Wellbore #1 - Gyro Surveys	9,600.00	6,830.46	2,976.68	2,921.74	54.179	SF
Guttersen 21-31 (SI) - Wellbore #1 - Gyro Surveys	12,021.96	6,789.49	570.85	501.82	8.269	CC, ES, SF
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	10,702.91	6,798.78	738.13	677.35	12.143	CC, ES
Guttersen 21-42 (SI) - Wellbore #1 - Gyro Surveys	10,800.00	6,798.64	744.49	683.14	12.135	SF
Guttersen 32-21 (PR) - Wellbore #1 - No Surveys	10,664.11	6,809.00	608.76	435.60	3.516	CC, ES, SF
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	9,488.41	6,815.07	544.37	489.60	9.938	CC, ES
Guttersen 33-21 (PR) - Wellbore #1 - Gyro Surveys	9,500.00	6,815.03	544.49	489.68	9.934	SF
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	4,028.66	3,902.08	260.82	233.25	9.462	CC, ES
Guttersen 34-21 (PR) - Wellbore #1 - Gyro Surveys	4,100.00	3,963.33	263.23	235.16	9.379	SF
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	12,077.74	6,799.11	758.97	689.58	10.937	CC, ES
Guttersen 41-21 (PR) - Wellbore #1 - Gyro Surveys	12,100.00	6,799.07	759.30	689.72	10.912	SF
Guttersen 43-21 (PR) - Wellbore #1 - Gyro Surveys	9,343.54	6,820.26	572.60	518.51	10.586	CC, ES, SF
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	100.00	60.69	1,258.48	1,258.24	5,359.858	CC, ES
Guttersen D21-32D (SI) - Wellbore #1 - MWD Surveys	11,300.00	7,181.40	4,047.95	3,970.65	52.364	SF
Guttersen USX D21-17 (PR) - Wellbore #1 - No Surveys	11,411.89	6,793.00	98.53	-78.79	0.556	Level 1, CC, ES, SF
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	669.99	635.23	1,188.20	1,184.03	285.425	CC
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	700.00	658.22	1,188.29	1,183.93	273.046	ES
Guttersen USX D21-20D (PR) - Wellbore #1 - MWD Surv	10,400.00	6,984.17	2,614.35	2,547.71	39.228	SF
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surv	2,418.02	2,423.57	1,119.88	1,101.72	61.662	CC, ES
Guttersen USX D21-21D (SI) - Wellbore #1 - MWD Surv	9,900.00	7,036.07	1,382.97	1,318.42	21.426	SF
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	3,026.66	3,197.41	843.96	821.82	38.124	CC, ES
Guttersen USX D21-24D (PR) - Wellbore #1 - MWD Surv	8,900.00	6,904.62	1,380.38	1,326.75	25.740	SF
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	801.50	767.51	1,213.67	1,208.49	234.242	CC
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	2,000.00	1,955.77	1,217.30	1,203.59	88.731	ES
Guttersen USX D21-25 (PR) - Wellbore #1 - MWD Surv	9,100.00	6,829.02	2,166.62	2,113.06	40.447	SF
Guttersen USX D21-27D (PR) - Wellbore #1 - MWD Surv	12,626.33	6,952.60	71.67	-8.97	0.889	Level 1, CC, ES, SF
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,623.89	7,143.77	1,166.55	1,084.57	14.230	CC, ES
Guttersen USX D21-28D (PR) - Wellbore #1 - MWD Surv	12,800.00	7,143.79	1,179.76	1,095.34	13.975	SF
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	100.00	64.13	1,235.95	1,235.71	5,138.756	CC
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	600.00	556.29	1,238.61	1,234.90	334.416	ES
Guttersen USX D21-33D (SI) - Wellbore #1 - MWD Surv	10,200.00	6,977.06	4,087.68	4,027.31	67.710	SF
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	12,616.42	7,090.98	1,336.35	1,254.71	16.370	CC, ES
Guttersen USX D22-30D (PR) - Wellbore #1 - MWD Surv	12,900.00	7,091.91	1,366.11	1,280.56	15.970	SF
Guttersen 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,495.70	6,827.56	2,385.86	2,320.42	36.457	CC
Guttersen 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,500.00	6,827.57	2,385.87	2,320.40	36.443	ES
Guttersen 18-21 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	6,827.82	2,405.19	2,338.26	35.935	SF
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	439.53	385.56	3,176.40	3,173.88	1,261.564	CC
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	10,728.18	6,802.46	3,200.73	3,140.20	52.885	ES
HSR Guttersen B 5-21 (PR) - Wellbore #1 - Gyro Survey	11,400.00	6,799.24	3,270.47	3,206.79	51.357	SF
HSR Guttersen 4-21 (PR) - Wellbore #1 - Gyro Surveys	11,943.52	6,833.23	3,270.70	3,202.18	47.732	CC, ES
HSR Guttersen 4-21 (PR) - Wellbore #1 - Gyro Surveys	12,600.00	6,839.14	3,335.93	3,264.08	46.428	SF
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	11,925.90	6,908.20	1,801.50	1,731.67	25.799	CC, ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-731
Project:	Mustang	TVD Reference:	Well @ 4855.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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 21						
HSR-Guttersen 3-21 (SI) - Wellbore #1 - Gyro Surveys	12,100.00	6,900.26	1,809.87	1,739.36	25.666	SF
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,723.26	6,795.89	1,862.45	1,801.68	30.646	CC, ES
HSR-Guttersen 6-21 (SI) - Wellbore #1 - Gyro Surveys	10,900.00	6,797.18	1,870.82	1,809.23	30.379	SF
Two E Ranch 1-21C (SI) - Wellbore #1 - Gyro Surveys	8,758.27	6,808.42	309.83	257.64	5.937	CC, ES, SF
Vogler State D21-720 - Wellbore #1 - Plan 1	17,797.28	17,675.98	700.45	524.24	3.975	CC, ES, SF
Vogler State D21-740 - Wellbore #1 - Plan 1	2,433.69	2,434.09	36.46	19.55	2.156	CC, ES
Vogler State D21-740 - Wellbore #1 - Plan 1	2,500.00	2,500.21	36.97	19.61	2.130	SF
Vogler State D21-750 - Wellbore #1 - Plan 1	2,000.00	1,999.00	75.00	61.13	5.408	CC
Vogler State D21-750 - Wellbore #1 - Plan 1	2,200.00	2,198.42	75.66	60.42	4.963	ES
Vogler State D21-750 - Wellbore #1 - Plan 1	2,300.00	2,297.53	77.36	61.44	4.858	SF
Vogler State D21-760 - Wellbore #1 - Plan 1	3,589.74	3,939.10	1,740.45	1,714.67	67.495	CC
Vogler State D21-760 - Wellbore #1 - Plan 1	3,600.00	3,949.35	1,740.46	1,714.60	67.291	ES
Vogler State D21-760 - Wellbore #1 - Plan 1	17,797.28	17,730.08	1,932.00	1,755.47	10.944	SF
Vogler State D21-770 - Wellbore #1 - Plan 1	2,494.07	2,492.53	1,797.42	1,780.12	103.868	CC
Vogler State D21-770 - Wellbore #1 - Plan 1	2,600.00	2,610.50	1,798.10	1,780.06	99.709	ES
Vogler State D21-770 - Wellbore #1 - Plan 1	17,797.28	17,600.46	2,590.62	2,413.94	14.663	SF
Vogler State D21-780 - Wellbore #1 - Plan 1	2,004.90	1,969.90	1,835.90	1,822.12	133.205	CC
Vogler State D21-780 - Wellbore #1 - Plan 1	2,100.00	2,057.92	1,836.03	1,821.60	127.255	ES
Vogler State D21-780 - Wellbore #1 - Plan 1	17,797.28	17,653.67	3,251.97	3,075.13	18.389	SF
Vogler State D21-790 - Wellbore #1 - Plan 1	14,058.39	13,902.77	1,310.15	1,190.25	10.927	CC
Vogler State D21-790 - Wellbore #1 - Plan 1	17,797.28	17,629.06	1,346.07	1,169.01	7.603	ES, SF
Vogler State D33-711 - Wellbore #1 - Plan 1	7,600.00	6,868.82	1,248.35	1,196.53	24.091	SF
Vogler State D33-711 - Wellbore #1 - Plan 1	7,674.66	6,814.84	1,247.18	1,195.50	24.133	CC, ES
Vogler State D33-718 - Wellbore #1 - Plan 1	7,550.00	6,975.90	803.96	752.34	15.574	SF
Vogler State D33-718 - Wellbore #1 - Plan 1	7,570.24	6,960.08	803.78	752.18	15.576	CC, ES
Vogler State D33-728 - Wellbore #1 - Plan 1	7,567.60	7,120.35	120.86	66.67	2.230	CC, ES, SF
Vogler State D33-738 - Wellbore #1 - Plan 1	2,400.00	2,404.00	154.65	137.90	9.230	CC, ES
Vogler State D33-738 - Wellbore #1 - Plan 1	3,200.00	3,239.44	178.49	156.60	8.155	SF
Vogler State D33-752 - Wellbore #1 - Plan 1	2,466.22	2,474.08	167.50	150.29	9.730	CC
Vogler State D33-752 - Wellbore #1 - Plan 1	2,700.00	2,720.34	168.29	149.57	8.989	ES
Vogler State D33-752 - Wellbore #1 - Plan 1	3,000.00	3,027.71	176.98	156.32	8.566	SF
Vogler State D33-759 - Wellbore #1 - Plan 1	3,515.30	3,880.93	1,591.66	1,566.31	62.785	CC, ES
Vogler State D33-759 - Wellbore #1 - Plan 1	6,900.00	7,588.34	1,760.97	1,706.36	32.247	SF
Vogler State D33-769 - Wellbore #1 - Plan 1	2,925.23	3,105.96	1,799.20	1,778.47	86.824	CC, ES
Vogler State D33-769 - Wellbore #1 - Plan 1	6,850.00	7,526.96	2,404.73	2,351.48	45.156	SF
Vogler State D33-779 - Wellbore #1 - Plan 1	2,000.00	1,971.00	1,841.76	1,827.99	133.762	CC
Vogler State D33-779 - Wellbore #1 - Plan 1	2,100.00	2,062.73	1,841.92	1,827.47	127.517	ES
Vogler State D33-779 - Wellbore #1 - Plan 1	6,900.00	7,509.71	3,061.23	3,008.15	57.677	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Vogler State D21-731
Project:	Mustang	TVD Reference:	Well @ 4855.00ft
Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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	6,570.36	6,143.58	1,584.97	1,437.34	10.736	CC
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,600.00	6,171.99	1,585.66	1,437.33	10.690	ES
O'SH D 28-7 (P&A) - Wellbore #1 - No Surveys	6,700.00	6,267.78	1,598.07	1,447.44	10.610	SF
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	6,428.76	5,979.11	4,268.84	4,222.99	93.114	CC, ES
Spike ST GWS D 28-12 (SI) - Wellbore #1 - Gyro Surve	6,850.00	6,403.91	4,364.02	4,315.25	89.477	SF
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	4,259.25	4,502.05	1,907.75	1,876.57	61.183	CC
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	4,300.00	4,523.62	1,908.00	1,876.51	60.589	ES
Guttersen D State 28-29D (PR) - Wellbore #1 - MWD Su	7,400.00	6,855.86	2,531.02	2,479.51	49.141	SF
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	851.19	811.09	2,515.43	2,511.18	592.388	CC
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	1,100.00	1,028.31	2,516.29	2,510.24	415.900	ES
Guttersen D State 28-30D - Wellbore #1 - Guttersen D S	7,450.00	7,450.00	3,985.98	3,933.11	75.392	SF
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,361.14	6,014.43	1,401.54	1,351.63	28.082	CC, ES
Guttersen State D28-18D (PR) - Wellbore #1 - MWD Sur	6,550.00	6,189.09	1,419.85	1,368.57	27.688	SF
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	6,529.46	6,199.19	2,334.38	2,287.26	49.544	CC, ES
Guttersen State D28-21D (SI) - Wellbore #1 - MWD Surv	6,750.00	6,423.79	2,367.78	2,319.08	48.619	SF
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	6,558.73	6,217.66	3,757.80	3,708.73	76.567	CC, ES
Guttersen State D28-24D (SI) - Wellbore #1 - MWD Surv	6,800.00	6,457.21	3,800.73	3,750.01	74.943	SF
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	4,491.37	4,438.52	698.57	665.17	20.910	CC
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	4,500.00	4,444.56	698.60	665.10	20.858	ES
Guttersen State D28-28D (PR) - Wellbore #1 - MWD Sur	4,800.00	4,665.10	723.78	687.47	19.932	SF
Guttersen State D28-79HN - Wellbore #1 - Actual	6,276.02	11,086.00	3,661.92	3,556.26	34.659	CC
Guttersen State D28-79HN - Wellbore #1 - Actual	6,300.00	11,086.00	3,662.00	3,556.10	34.583	ES
Guttersen State D28-79HN - Wellbore #1 - Actual	6,800.00	11,086.00	3,706.36	3,596.77	33.819	SF
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	6,568.61	6,084.92	2,882.77	2,836.96	62.931	CC, ES
HSR Guttersen State 10-28 (SI) - Wellbore #1 - Gyro Su	7,150.00	7,150.00	3,134.44	3,083.56	61.610	SF
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	6,605.06	6,123.45	4,421.83	4,376.18	96.867	CC, ES
HSR Guttersen State 15-28 (SI) - Wellbore #1 - Gyro Su	6,850.00	6,320.03	4,469.92	4,422.81	94.884	SF
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,543.38	6,107.95	1,608.51	1,562.38	34.871	CC
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,550.00	6,114.12	1,608.54	1,562.36	34.833	ES
HSR Guttersen State 7-28 (PR) - Wellbore #1 - Gyro Sur	6,700.00	6,252.99	1,626.87	1,579.62	34.430	SF
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,776.91	6,358.67	780.21	733.95	16.868	CC, ES
O'SH D 28-1 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,426.09	783.93	737.29	16.810	SF
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	6,369.15	5,962.52	422.97	377.39	9.279	CC, ES
O'SH D 28-2 (SI) - Wellbore #1 - Gyro Surveys	6,400.00	5,989.46	423.68	377.84	9.244	SF
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,700.61	6,245.35	1,814.57	1,768.82	39.666	CC, ES
O'SH D 28-8 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,378.42	1,830.97	1,784.34	39.267	SF
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	4,802.20	4,561.09	1,394.58	1,354.93	35.168	CC
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	4,900.00	4,646.57	1,395.39	1,354.64	34.244	ES
Spike ST GWS D 28-03 (PR) - Wellbore #1 - Gyro Surve	6,700.00	6,241.48	1,678.58	1,617.93	27.679	SF
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	2,979.93	2,911.85	2,566.01	2,545.72	126.473	CC
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	3,300.00	3,230.07	2,566.97	2,544.47	114.118	ES
Spike ST GWS D 28-4 (SI) - Wellbore #1 - Gyro Surveys	7,200.00	6,689.94	3,188.83	3,138.89	63.854	SF
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,483.05	5,960.66	5,320.88	5,275.10	116.230	CC, ES
Spike State D 28-13 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,500.00	5,397.79	5,348.96	110.535	SF
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	5,603.08	5,332.15	3,400.88	3,361.22	85.755	CC
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	5,700.00	5,404.72	3,401.36	3,360.98	84.240	ES
Spike State D28-05 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,594.62	3,574.78	3,525.09	71.947	SF
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,451.72	6,041.10	2,028.11	1,981.98	43.959	CC, ES
Spike State D28-06 (SI) - Wellbore #1 - Gyro Surveys	6,700.00	6,282.19	2,062.74	2,014.79	43.012	SF
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,519.99	6,090.57	3,091.35	3,045.14	66.905	CC, ES
Spike State D28-11 (SI) - Wellbore #1 - Gyro Surveys	6,750.00	6,250.94	3,130.14	3,082.50	65.701	SF
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,546.39	6,043.18	4,646.42	4,600.60	101.416	CC
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,550.00	6,046.73	4,646.43	4,600.58	101.355	ES

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

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Reference Site:	D Section 21	MD Reference:	Well @ 4855.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Vogler State D21-731	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

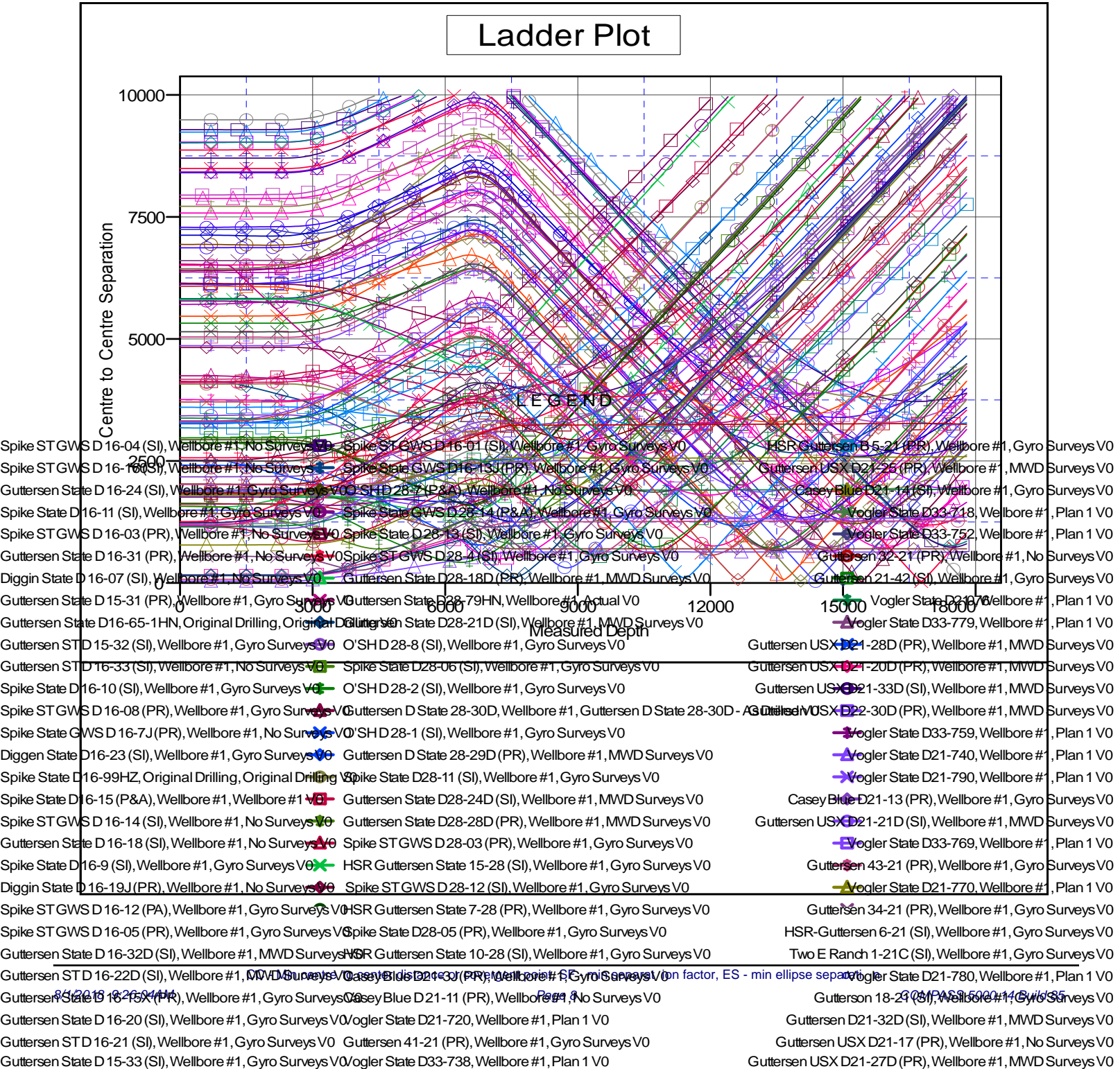
Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 28						
Spike State GWS D 28-14 (P&A) - Wellbore #1 - Gyro Su	6,900.00	6,385.70	4,737.24	4,689.17	98.558	SF

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Reference Depths are relative to Well @ 4855.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Vogler State D21-731
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.61°



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