Project: Mustang
Site: DD Section 08
Well: Guttersen DD17-750
Wellbore: Guttersen DD17-750
Design: Plan #1

Northern Region - DJ Basin

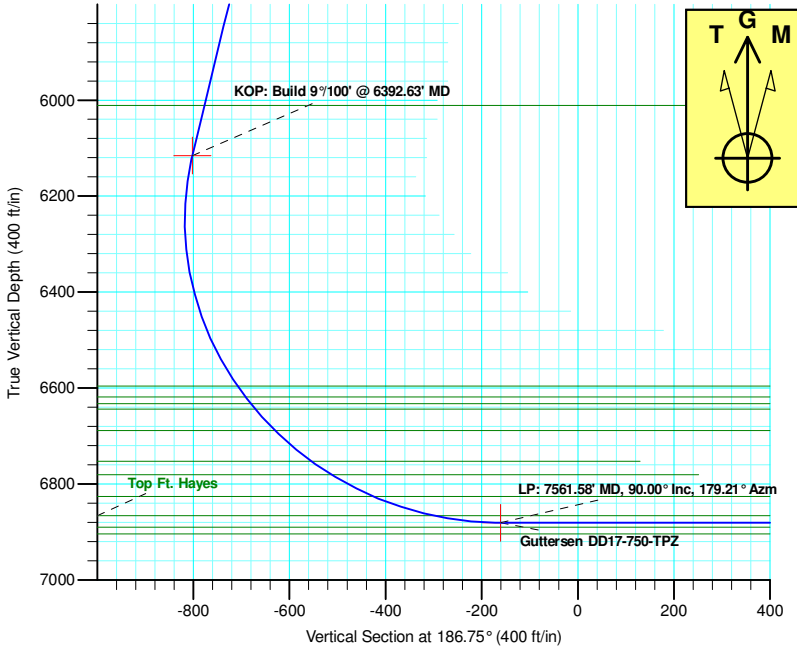
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

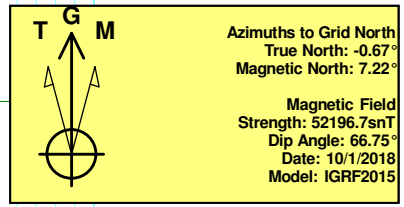
SECTION DETAILS

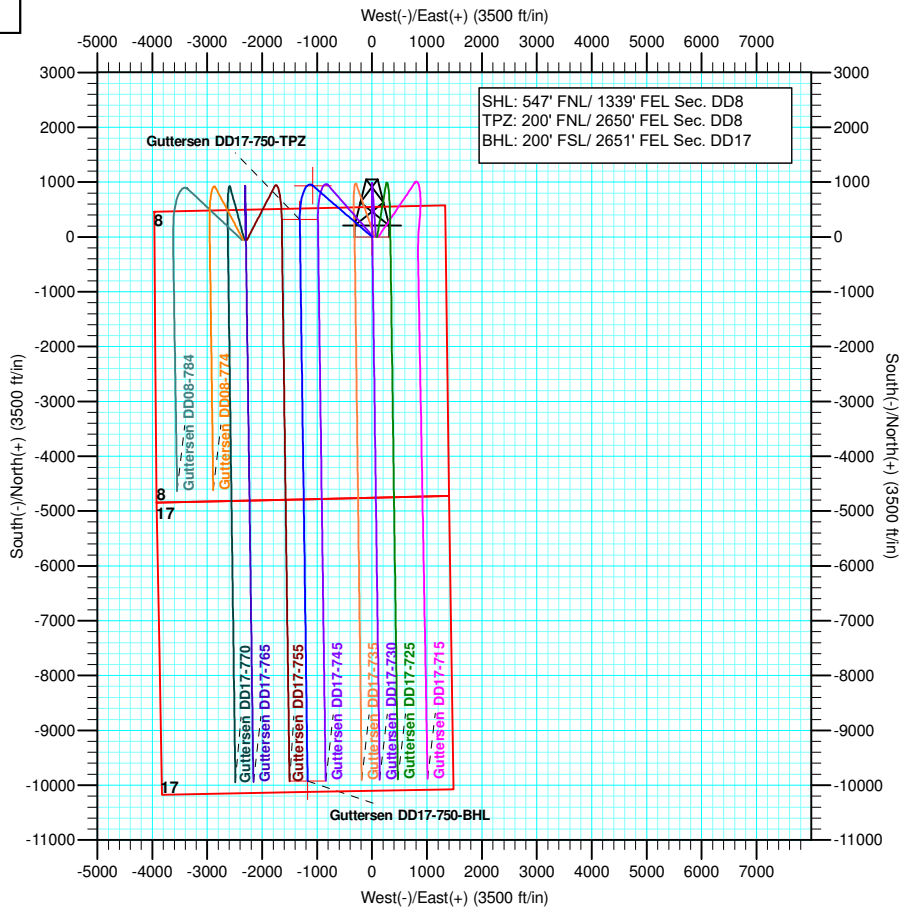
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	3360.68	23.21	310.93	3329.19	151.94	-175.23	2.00	310.93	-130.30	
4	6392.63	23.21	310.93	6115.67	934.85	-1078.15	0.00	0.00	-801.71	
5	7561.58	90.00	179.21	6881.00	317.21	-1314.70	9.00	-129.33	-160.56	Guttersen DD17-750-TPZ
6	17803.16	90.00	179.21	6881.00	-9923.40	-1174.00	0.00	0.00	9992.60	Guttersen DD17-750-BHL

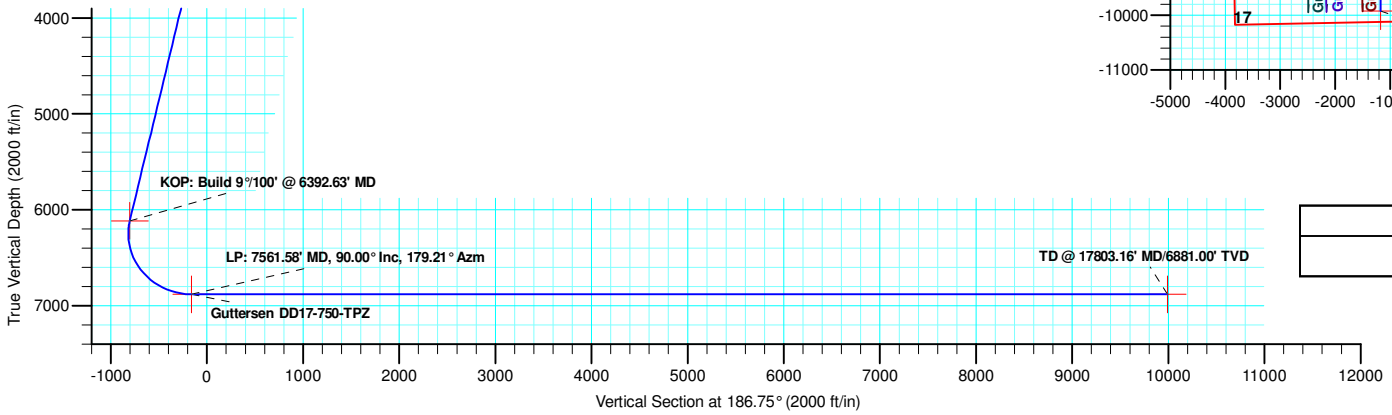
WELL DETAILS: Guttersen DD17-750

+N/-S	+E/-W	Northing	Ground Level: Easting	4870.00 Latittude	Longitude	Slot
0.00	0.00	1334135.54	3291156.63	40.2459000	-104.4569400	









Plan: Plan #1 (Guttersen DD17-750/Guttersen DD17-750)
Created By: Keith Noack Date: 13:16, October 02 2018

Northern Region - DJ Basin

Mustang
DD Section 08
Guttersen DD17-750

Guttersen DD17-750

Plan: Plan #1

Standard Planning Report

02 October, 2018

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
Design:	Plan #1		

Project Mustang, Weld County Colorado

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site DD Section 08

Site Position:		**Northing:**	1,330,053.01 usft	**Latitude:**	40.2347995
From:	Map	**Easting:**	3,287,864.30 usft	**Longitude:**	-104.4689036
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.67 °

Well Guttersen DD17-750

Well Position	**+N/-S**	4,082.54 ft	**Northing:**	1,334,135.54 usft	**Latitude:**	40.2459000
	+E/-W	3,292.33 ft	**Easting:**	3,291,156.63 usft	**Longitude:**	-104.4569400
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	4,870.00 ft

Wellbore Guttersen DD17-750

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/1/2018	7.90	66.75	52,196.66257525

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	186.75

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,360.68	23.21	310.93	3,329.19	151.94	-175.23	2.00	2.00	0.00	310.93	
6,392.63	23.21	310.93	6,115.67	934.85	-1,078.15	0.00	0.00	0.00	0.00	
7,561.58	90.00	179.21	6,881.00	317.21	-1,314.70	9.00	5.71	-11.27	-129.33	Guttersen DD17-75
17,803.16	90.00	179.21	6,881.00	-9,923.40	-1,174.00	0.00	0.00	0.00	0.00	Guttersen DD17-75

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
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
417.00	0.00	0.00	417.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
757.00	0.00	0.00	757.00	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
1,652.00	0.00	0.00	1,652.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
Build: 2°/100'									
2,300.00	2.00	310.93	2,299.98	1.14	-1.32	-0.98	2.00	2.00	0.00
2,400.00	4.00	310.93	2,399.84	4.57	-5.27	-3.92	2.00	2.00	0.00
2,500.00	6.00	310.93	2,499.45	10.28	-11.86	-8.82	2.00	2.00	0.00
2,600.00	8.00	310.93	2,598.70	18.26	-21.06	-15.66	2.00	2.00	0.00
2,700.00	10.00	310.93	2,697.47	28.51	-32.88	-24.45	2.00	2.00	0.00
2,800.00	12.00	310.93	2,795.62	41.01	-47.30	-35.17	2.00	2.00	0.00
2,900.00	14.00	310.93	2,893.06	55.75	-64.29	-47.81	2.00	2.00	0.00
3,000.00	16.00	310.93	2,989.64	72.70	-83.85	-62.35	2.00	2.00	0.00
3,100.00	18.00	310.93	3,085.27	91.86	-105.93	-78.77	2.00	2.00	0.00
3,200.00	20.00	310.93	3,179.82	113.18	-130.53	-97.06	2.00	2.00	0.00
3,300.00	22.00	310.93	3,273.17	136.66	-157.61	-117.20	2.00	2.00	0.00
3,360.68	23.21	310.93	3,329.19	151.94	-175.23	-130.30	2.00	2.00	0.00
Hold: 23.21° Inc, 310.93° Azm									
3,400.00	23.21	310.93	3,365.32	162.09	-186.94	-139.01	0.00	0.00	0.00
3,500.00	23.21	310.93	3,457.23	187.91	-216.72	-161.15	0.00	0.00	0.00
3,600.00	23.21	310.93	3,549.13	213.74	-246.50	-183.30	0.00	0.00	0.00
3,700.00	23.21	310.93	3,641.03	239.56	-276.28	-205.44	0.00	0.00	0.00
3,800.00	23.21	310.93	3,732.94	265.38	-306.06	-227.59	0.00	0.00	0.00
3,864.26	23.21	310.93	3,792.00	281.98	-325.20	-241.82	0.00	0.00	0.00
Parkman									
3,900.00	23.21	310.93	3,824.84	291.20	-335.84	-249.73	0.00	0.00	0.00
4,000.00	23.21	310.93	3,916.75	317.03	-365.62	-271.87	0.00	0.00	0.00
4,100.00	23.21	310.93	4,008.65	342.85	-395.40	-294.02	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
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Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
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)
4,200.00	23.21	310.93	4,100.56	368.67	-425.18	-316.16	0.00	0.00	0.00
4,288.62	23.21	310.93	4,182.00	391.55	-451.57	-335.79	0.00	0.00	0.00
Sussex									
4,300.00	23.21	310.93	4,192.46	394.49	-454.96	-338.31	0.00	0.00	0.00
4,400.00	23.21	310.93	4,284.36	420.31	-484.74	-360.45	0.00	0.00	0.00
4,500.00	23.21	310.93	4,376.27	446.14	-514.52	-382.60	0.00	0.00	0.00
4,600.00	23.21	310.93	4,468.17	471.96	-544.30	-404.74	0.00	0.00	0.00
4,700.00	23.21	310.93	4,560.08	497.78	-574.08	-426.89	0.00	0.00	0.00
4,800.00	23.21	310.93	4,651.98	523.60	-603.86	-449.03	0.00	0.00	0.00
4,900.00	23.21	310.93	4,743.88	549.42	-633.64	-471.17	0.00	0.00	0.00
5,000.00	23.21	310.93	4,835.79	575.25	-663.42	-493.32	0.00	0.00	0.00
5,100.00	23.21	310.93	4,927.69	601.07	-693.20	-515.46	0.00	0.00	0.00
5,137.33	23.21	310.93	4,962.00	610.71	-704.32	-523.73	0.00	0.00	0.00
Shannon									
5,200.00	23.21	310.93	5,019.60	626.89	-722.98	-537.61	0.00	0.00	0.00
5,300.00	23.21	310.93	5,111.50	652.71	-752.76	-559.75	0.00	0.00	0.00
5,400.00	23.21	310.93	5,203.40	678.53	-782.54	-581.90	0.00	0.00	0.00
5,500.00	23.21	310.93	5,295.31	704.36	-812.32	-604.04	0.00	0.00	0.00
5,600.00	23.21	310.93	5,387.21	730.18	-842.10	-626.19	0.00	0.00	0.00
5,700.00	23.21	310.93	5,479.12	756.00	-871.88	-648.33	0.00	0.00	0.00
5,800.00	23.21	310.93	5,571.02	781.82	-901.66	-670.48	0.00	0.00	0.00
5,900.00	23.21	310.93	5,662.93	807.65	-931.44	-692.62	0.00	0.00	0.00
6,000.00	23.21	310.93	5,754.83	833.47	-961.22	-714.76	0.00	0.00	0.00
6,100.00	23.21	310.93	5,846.73	859.29	-991.00	-736.91	0.00	0.00	0.00
6,200.00	23.21	310.93	5,938.64	885.11	-1,020.78	-759.05	0.00	0.00	0.00
6,278.74	23.21	310.93	6,011.00	905.44	-1,044.23	-776.49	0.00	0.00	0.00
Teepee Buttes									
6,300.00	23.21	310.93	6,030.54	910.93	-1,050.56	-781.20	0.00	0.00	0.00
6,392.63	23.21	310.93	6,115.67	934.85	-1,078.15	-801.71	0.00	0.00	0.00
KOP: Build 9°/100' @ 6392.63' MD									
6,400.00	22.80	309.60	6,122.46	936.71	-1,080.34	-803.30	9.00	-5.63	-17.97
6,450.00	20.32	299.36	6,168.97	947.15	-1,095.38	-811.90	9.00	-4.97	-20.48
6,500.00	18.57	286.87	6,216.14	953.72	-1,110.57	-816.64	9.00	-3.49	-24.99
6,550.00	17.78	272.63	6,263.67	956.38	-1,125.83	-817.49	9.00	-1.58	-28.48
6,600.00	18.08	258.00	6,311.26	955.12	-1,141.05	-814.45	9.00	0.59	-29.25
6,650.00	19.40	244.58	6,358.63	949.94	-1,156.14	-807.53	9.00	2.65	-26.84
6,700.00	21.57	233.29	6,405.49	940.88	-1,171.02	-796.78	9.00	4.34	-22.59
6,750.00	24.36	224.21	6,451.54	927.98	-1,185.59	-782.27	9.00	5.58	-18.15
6,800.00	27.58	217.01	6,496.49	911.34	-1,199.75	-764.08	9.00	6.44	-14.39
6,850.00	31.10	211.27	6,540.08	891.05	-1,213.43	-742.32	9.00	7.03	-11.48
6,900.00	34.82	206.62	6,582.03	867.24	-1,226.53	-717.14	9.00	7.45	-9.31
6,917.15	36.13	205.22	6,596.00	858.29	-1,230.88	-707.74	9.00	7.66	-8.15
Sharon Springs									
6,946.05	38.38	203.06	6,619.00	842.33	-1,238.03	-691.04	9.00	7.77	-7.49
Top A Chalk									
6,950.00	38.69	202.78	6,622.09	840.06	-1,238.99	-688.68	9.00	7.85	-7.07
6,964.08	39.80	201.81	6,633.00	831.82	-1,242.36	-680.09	9.00	7.89	-6.86
Top A Marl									
6,978.52	40.95	200.87	6,644.00	823.11	-1,245.77	-671.04	9.00	7.94	-6.54
Top B Chalk									
7,000.00	42.66	199.54	6,660.01	809.67	-1,250.71	-657.12	9.00	8.00	-6.18
7,040.51	45.94	197.26	6,689.00	782.82	-1,259.62	-629.41	9.00	8.10	-5.63
Top B Marl									

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
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Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
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	46.72	196.76	6,695.55	776.26	-1,261.63	-622.66	9.00	8.16	-5.24
7,100.00	50.83	194.33	6,728.50	740.03	-1,271.68	-585.50	9.00	8.23	-4.86
7,140.26	54.18	192.57	6,753.00	708.97	-1,279.10	-553.78	9.00	8.31	-4.36
Top C Chalk									
7,150.00	54.99	192.17	6,758.65	701.22	-1,280.80	-545.88	9.00	8.35	-4.13
7,190.72	58.40	190.57	6,781.00	667.86	-1,287.50	-511.97	9.00	8.38	-3.93
Top C Marl									
7,200.00	59.18	190.22	6,785.81	660.05	-1,288.93	-504.05	9.00	8.41	-3.75
7,250.00	63.40	188.44	6,809.82	616.79	-1,296.02	-460.25	9.00	8.44	-3.57
7,288.32	66.65	187.16	6,826.00	582.38	-1,300.73	-425.53	9.00	8.48	-3.34
Top D Chalk									
7,300.00	67.64	186.78	6,830.54	571.69	-1,302.04	-414.76	9.00	8.49	-3.23
7,350.00	71.90	185.22	6,847.83	525.05	-1,306.93	-367.86	9.00	8.51	-3.12
7,400.00	76.16	183.74	6,861.58	477.14	-1,310.68	-319.84	9.00	8.54	-2.97
7,419.66	77.84	183.17	6,866.00	458.02	-1,311.83	-300.72	9.00	8.55	-2.89
Top Ft. Hayes									
7,450.00	80.44	182.30	6,871.71	428.25	-1,313.25	-271.00	9.00	8.56	-2.85
7,500.00	84.72	180.91	6,878.17	378.71	-1,314.64	-221.63	9.00	8.56	-2.79
7,550.00	89.01	179.53	6,880.90	328.79	-1,314.83	-172.04	9.00	8.57	-2.75
7,561.58	90.00	179.21	6,881.00	317.21	-1,314.70	-160.56	9.00	8.57	-2.74
LP: 7561.58' MD, 90.00° Inc, 179.21° Azm									
7,600.00	90.00	179.21	6,881.00	278.80	-1,314.17	-122.47	0.00	0.00	0.00
7,700.00	90.00	179.21	6,881.00	178.81	-1,312.80	-23.33	0.00	0.00	0.00
7,800.00	90.00	179.21	6,881.00	78.82	-1,311.42	75.80	0.00	0.00	0.00
7,900.00	90.00	179.21	6,881.00	-21.17	-1,310.05	174.94	0.00	0.00	0.00
8,000.00	90.00	179.21	6,881.00	-121.16	-1,308.68	274.08	0.00	0.00	0.00
8,100.00	90.00	179.21	6,881.00	-221.15	-1,307.30	373.21	0.00	0.00	0.00
8,200.00	90.00	179.21	6,881.00	-321.14	-1,305.93	472.35	0.00	0.00	0.00
8,300.00	90.00	179.21	6,881.00	-421.14	-1,304.56	571.49	0.00	0.00	0.00
8,400.00	90.00	179.21	6,881.00	-521.13	-1,303.18	670.62	0.00	0.00	0.00
8,500.00	90.00	179.21	6,881.00	-621.12	-1,301.81	769.76	0.00	0.00	0.00
8,600.00	90.00	179.21	6,881.00	-721.11	-1,300.43	868.90	0.00	0.00	0.00
8,700.00	90.00	179.21	6,881.00	-821.10	-1,299.06	968.03	0.00	0.00	0.00
8,800.00	90.00	179.21	6,881.00	-921.09	-1,297.69	1,067.17	0.00	0.00	0.00
8,900.00	90.00	179.21	6,881.00	-1,021.08	-1,296.31	1,166.31	0.00	0.00	0.00
9,000.00	90.00	179.21	6,881.00	-1,121.07	-1,294.94	1,265.44	0.00	0.00	0.00
9,100.00	90.00	179.21	6,881.00	-1,221.06	-1,293.57	1,364.58	0.00	0.00	0.00
9,200.00	90.00	179.21	6,881.00	-1,321.05	-1,292.19	1,463.72	0.00	0.00	0.00
9,300.00	90.00	179.21	6,881.00	-1,421.04	-1,290.82	1,562.85	0.00	0.00	0.00
9,400.00	90.00	179.21	6,881.00	-1,521.03	-1,289.44	1,661.99	0.00	0.00	0.00
9,500.00	90.00	179.21	6,881.00	-1,621.02	-1,288.07	1,761.13	0.00	0.00	0.00
9,600.00	90.00	179.21	6,881.00	-1,721.01	-1,286.70	1,860.26	0.00	0.00	0.00
9,700.00	90.00	179.21	6,881.00	-1,821.00	-1,285.32	1,959.40	0.00	0.00	0.00
9,800.00	90.00	179.21	6,881.00	-1,920.99	-1,283.95	2,058.54	0.00	0.00	0.00
9,900.00	90.00	179.21	6,881.00	-2,020.98	-1,282.57	2,157.67	0.00	0.00	0.00
10,000.00	90.00	179.21	6,881.00	-2,120.98	-1,281.20	2,256.81	0.00	0.00	0.00
10,100.00	90.00	179.21	6,881.00	-2,220.97	-1,279.83	2,355.95	0.00	0.00	0.00
10,200.00	90.00	179.21	6,881.00	-2,320.96	-1,278.45	2,455.08	0.00	0.00	0.00
10,300.00	90.00	179.21	6,881.00	-2,420.95	-1,277.08	2,554.22	0.00	0.00	0.00
10,400.00	90.00	179.21	6,881.00	-2,520.94	-1,275.71	2,653.36	0.00	0.00	0.00
10,500.00	90.00	179.21	6,881.00	-2,620.93	-1,274.33	2,752.49	0.00	0.00	0.00
10,600.00	90.00	179.21	6,881.00	-2,720.92	-1,272.96	2,851.63	0.00	0.00	0.00
10,700.00	90.00	179.21	6,881.00	-2,820.91	-1,271.58	2,950.77	0.00	0.00	0.00
10,800.00	90.00	179.21	6,881.00	-2,920.90	-1,270.21	3,049.90	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
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)
10,900.00	90.00	179.21	6,881.00	-3,020.89	-1,268.84	3,149.04	0.00	0.00	0.00
11,000.00	90.00	179.21	6,881.00	-3,120.88	-1,267.46	3,248.18	0.00	0.00	0.00
11,100.00	90.00	179.21	6,881.00	-3,220.87	-1,266.09	3,347.31	0.00	0.00	0.00
11,200.00	90.00	179.21	6,881.00	-3,320.86	-1,264.72	3,446.45	0.00	0.00	0.00
11,300.00	90.00	179.21	6,881.00	-3,420.85	-1,263.34	3,545.59	0.00	0.00	0.00
11,400.00	90.00	179.21	6,881.00	-3,520.84	-1,261.97	3,644.72	0.00	0.00	0.00
11,500.00	90.00	179.21	6,881.00	-3,620.83	-1,260.59	3,743.86	0.00	0.00	0.00
11,600.00	90.00	179.21	6,881.00	-3,720.82	-1,259.22	3,843.00	0.00	0.00	0.00
11,700.00	90.00	179.21	6,881.00	-3,820.81	-1,257.85	3,942.13	0.00	0.00	0.00
11,800.00	90.00	179.21	6,881.00	-3,920.81	-1,256.47	4,041.27	0.00	0.00	0.00
11,900.00	90.00	179.21	6,881.00	-4,020.80	-1,255.10	4,140.41	0.00	0.00	0.00
12,000.00	90.00	179.21	6,881.00	-4,120.79	-1,253.73	4,239.54	0.00	0.00	0.00
12,100.00	90.00	179.21	6,881.00	-4,220.78	-1,252.35	4,338.68	0.00	0.00	0.00
12,200.00	90.00	179.21	6,881.00	-4,320.77	-1,250.98	4,437.82	0.00	0.00	0.00
12,300.00	90.00	179.21	6,881.00	-4,420.76	-1,249.60	4,536.95	0.00	0.00	0.00
12,400.00	90.00	179.21	6,881.00	-4,520.75	-1,248.23	4,636.09	0.00	0.00	0.00
12,500.00	90.00	179.21	6,881.00	-4,620.74	-1,246.86	4,735.23	0.00	0.00	0.00
12,600.00	90.00	179.21	6,881.00	-4,720.73	-1,245.48	4,834.36	0.00	0.00	0.00
12,700.00	90.00	179.21	6,881.00	-4,820.72	-1,244.11	4,933.50	0.00	0.00	0.00
12,800.00	90.00	179.21	6,881.00	-4,920.71	-1,242.74	5,032.64	0.00	0.00	0.00
12,900.00	90.00	179.21	6,881.00	-5,020.70	-1,241.36	5,131.77	0.00	0.00	0.00
13,000.00	90.00	179.21	6,881.00	-5,120.69	-1,239.99	5,230.91	0.00	0.00	0.00
13,100.00	90.00	179.21	6,881.00	-5,220.68	-1,238.61	5,330.05	0.00	0.00	0.00
13,200.00	90.00	179.21	6,881.00	-5,320.67	-1,237.24	5,429.18	0.00	0.00	0.00
13,300.00	90.00	179.21	6,881.00	-5,420.66	-1,235.87	5,528.32	0.00	0.00	0.00
13,400.00	90.00	179.21	6,881.00	-5,520.65	-1,234.49	5,627.46	0.00	0.00	0.00
13,500.00	90.00	179.21	6,881.00	-5,620.64	-1,233.12	5,726.59	0.00	0.00	0.00
13,600.00	90.00	179.21	6,881.00	-5,720.64	-1,231.75	5,825.73	0.00	0.00	0.00
13,700.00	90.00	179.21	6,881.00	-5,820.63	-1,230.37	5,924.87	0.00	0.00	0.00
13,800.00	90.00	179.21	6,881.00	-5,920.62	-1,229.00	6,024.00	0.00	0.00	0.00
13,900.00	90.00	179.21	6,881.00	-6,020.61	-1,227.62	6,123.14	0.00	0.00	0.00
14,000.00	90.00	179.21	6,881.00	-6,120.60	-1,226.25	6,222.28	0.00	0.00	0.00
14,100.00	90.00	179.21	6,881.00	-6,220.59	-1,224.88	6,321.41	0.00	0.00	0.00
14,200.00	90.00	179.21	6,881.00	-6,320.58	-1,223.50	6,420.55	0.00	0.00	0.00
14,300.00	90.00	179.21	6,881.00	-6,420.57	-1,222.13	6,519.69	0.00	0.00	0.00
14,400.00	90.00	179.21	6,881.00	-6,520.56	-1,220.76	6,618.82	0.00	0.00	0.00
14,500.00	90.00	179.21	6,881.00	-6,620.55	-1,219.38	6,717.96	0.00	0.00	0.00
14,600.00	90.00	179.21	6,881.00	-6,720.54	-1,218.01	6,817.10	0.00	0.00	0.00
14,700.00	90.00	179.21	6,881.00	-6,820.53	-1,216.63	6,916.23	0.00	0.00	0.00
14,800.00	90.00	179.21	6,881.00	-6,920.52	-1,215.26	7,015.37	0.00	0.00	0.00
14,900.00	90.00	179.21	6,881.00	-7,020.51	-1,213.89	7,114.51	0.00	0.00	0.00
15,000.00	90.00	179.21	6,881.00	-7,120.50	-1,212.51	7,213.64	0.00	0.00	0.00
15,100.00	90.00	179.21	6,881.00	-7,220.49	-1,211.14	7,312.78	0.00	0.00	0.00
15,200.00	90.00	179.21	6,881.00	-7,320.48	-1,209.77	7,411.92	0.00	0.00	0.00
15,300.00	90.00	179.21	6,881.00	-7,420.48	-1,208.39	7,511.05	0.00	0.00	0.00
15,400.00	90.00	179.21	6,881.00	-7,520.47	-1,207.02	7,610.19	0.00	0.00	0.00
15,500.00	90.00	179.21	6,881.00	-7,620.46	-1,205.64	7,709.33	0.00	0.00	0.00
15,600.00	90.00	179.21	6,881.00	-7,720.45	-1,204.27	7,808.46	0.00	0.00	0.00
15,700.00	90.00	179.21	6,881.00	-7,820.44	-1,202.90	7,907.60	0.00	0.00	0.00
15,800.00	90.00	179.21	6,881.00	-7,920.43	-1,201.52	8,006.74	0.00	0.00	0.00
15,900.00	90.00	179.21	6,881.00	-8,020.42	-1,200.15	8,105.87	0.00	0.00	0.00
16,000.00	90.00	179.21	6,881.00	-8,120.41	-1,198.78	8,205.01	0.00	0.00	0.00
16,100.00	90.00	179.21	6,881.00	-8,220.40	-1,197.40	8,304.15	0.00	0.00	0.00
16,200.00	90.00	179.21	6,881.00	-8,320.39	-1,196.03	8,403.28	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
16,300.00	90.00	179.21	6,881.00	-8,420.38	-1,194.65	8,502.42	0.00	0.00	0.00
16,400.00	90.00	179.21	6,881.00	-8,520.37	-1,193.28	8,601.56	0.00	0.00	0.00
16,500.00	90.00	179.21	6,881.00	-8,620.36	-1,191.91	8,700.69	0.00	0.00	0.00
16,600.00	90.00	179.21	6,881.00	-8,720.35	-1,190.53	8,799.83	0.00	0.00	0.00
16,700.00	90.00	179.21	6,881.00	-8,820.34	-1,189.16	8,898.97	0.00	0.00	0.00
16,800.00	90.00	179.21	6,881.00	-8,920.33	-1,187.79	8,998.10	0.00	0.00	0.00
16,900.00	90.00	179.21	6,881.00	-9,020.32	-1,186.41	9,097.24	0.00	0.00	0.00
17,000.00	90.00	179.21	6,881.00	-9,120.31	-1,185.04	9,196.38	0.00	0.00	0.00
17,100.00	90.00	179.21	6,881.00	-9,220.31	-1,183.66	9,295.51	0.00	0.00	0.00
17,200.00	90.00	179.21	6,881.00	-9,320.30	-1,182.29	9,394.65	0.00	0.00	0.00
17,300.00	90.00	179.21	6,881.00	-9,420.29	-1,180.92	9,493.79	0.00	0.00	0.00
17,400.00	90.00	179.21	6,881.00	-9,520.28	-1,179.54	9,592.92	0.00	0.00	0.00
17,500.00	90.00	179.21	6,881.00	-9,620.27	-1,178.17	9,692.06	0.00	0.00	0.00
17,600.00	90.00	179.21	6,881.00	-9,720.26	-1,176.80	9,791.20	0.00	0.00	0.00
17,700.00	90.00	179.21	6,881.00	-9,820.25	-1,175.42	9,890.33	0.00	0.00	0.00
17,803.16	90.00	179.21	6,881.00	-9,923.40	-1,174.00	9,992.60	0.00	0.00	0.00
TD @ 17803.16' MD/6881.00' 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
Guttersen DD17-750- - plan hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,334,135.54	3,291,156.63	40.2459000	-104.4569400
Guttersen DD17-750- - plan hits target center - Point	0.00	0.00	6,115.67	934.85	-1,078.15	1,335,070.39	3,290,078.49	40.2485008	-104.4607628
Guttersen DD17-750- - plan hits target center - Point	0.00	0.00	6,881.00	317.21	-1,314.70	1,334,452.75	3,289,841.93	40.2468131	-104.4616361
Guttersen DD17-750- - plan hits target center - Point	0.00	0.00	6,881.00	-9,923.40	-1,174.00	1,324,212.16	3,289,982.63	40.2186990	-104.4615617

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4900.00ft
Project:	Mustang	**MD Reference:**	Well @ 4900.00ft
Site:	DD Section 08	**North Reference:**	Grid
Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen DD17-750		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
417.00	417.00	Pierre			
757.00	757.00	Upper Pierre Aquifer Top			
1,652.00	1,652.00	Upper Pierre Aquifer Base			
3,864.26	3,792.00	Parkman			
4,288.62	4,182.00	Sussex			
5,137.33	4,962.00	Shannon			
6,278.74	6,011.00	Teepee Buttes			
6,917.15	6,596.00	Sharon Springs			
6,946.05	6,619.00	Top A Chalk			
6,964.08	6,633.00	Top A Marl			
6,978.52	6,644.00	Top B Chalk			
7,040.51	6,689.00	Top B Marl			
7,140.26	6,753.00	Top C Chalk			
7,190.72	6,781.00	Top C Marl			
7,288.32	6,826.00	Top D Chalk			
7,419.66	6,866.00	Top Ft. Hayes			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'
3,360.68	3,329.19	151.94	-175.23	Hold: 23.21° Inc, 310.93° Azm
6,392.63	6,115.67	934.85	-1,078.15	KOP: Build 9°/100' @ 6392.63' MD
7,561.58	6,881.00	317.21	-1,314.70	LP: 7561.58' MD, 90.00° Inc, 179.21° Azm
17,803.16	6,881.00	-9,923.40	-1,174.00	TD @ 17803.16' MD/6881.00' TVD

Northern Region - DJ Basin

Mustang
DD Section 08
Guttersen DD17-750

Guttersen DD17-750
Plan #1

Anticollision Summary Report

02 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Project:	Mustang	**TVD Reference:**	Well @ 4900.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4900.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-750	**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** 10/1/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,803.16	Plan #1 (Guttersen DD17-750)	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
DD Section 05						
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,807.43	3,686.13	453.18	428.88	18.653	CC, ES
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	3,900.00	3,757.23	456.91	432.05	18.379	SF
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	4,539.38	4,397.09	309.24	277.45	9.728	CC, ES
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	4,700.00	4,544.09	315.67	282.76	9.594	SF
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	6,941.18	6,782.43	81.49	31.80	1.640	CC, ES, SF
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,082.39	6,621.16	1,135.23	1,088.43	24.260	CC, ES, SF
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,259.99	6,264.01	2,124.53	2,075.31	43.161	CC, ES
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	7,450.00	6,264.01	2,133.42	2,083.90	43.083	SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	6,961.68	6,619.22	1,815.73	1,767.75	37.848	CC, ES
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	7,100.00	6,706.12	1,825.44	1,776.89	37.604	SF
DD Section 08						
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	3,815.11	3,726.83	520.86	432.74	5.910	CC
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	3,900.00	3,804.84	521.94	431.90	5.797	ES
GUTTERSEN #31-8 (PA) - GUTTERSEN #31-8 - No Sur	8,012.11	6,861.00	656.79	493.28	4.017	SF
GUTTERSEN #32-8(PA) - GUTTERSEN #32-8 - No Surv	9,345.37	6,881.00	645.74	478.04	3.850	CC, ES, SF
GUTTERSEN #33-8 (PA) - GUTTERSEN #33-8 - No Sur	10,660.46	6,871.00	651.49	477.29	3.740	CC, ES, SF
GUTTERSEN #34-8(PA) - GUTTERSEN #34-8 - No Surv	11,968.37	6,861.00	710.29	528.01	3.897	CC, ES, SF
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	2,200.00	2,170.00	1,595.30	1,544.25	31.248	CC
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	2,300.00	2,269.98	1,596.90	1,543.50	29.900	ES
GUTTERSEN #42-8(PA) - GUTTERSEN #42-8 - No Surv	9,400.00	6,851.00	1,989.40	1,822.14	11.894	SF
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,663.08	6,871.00	1,977.57	1,803.35	11.351	CC, ES
GUTTERSEN #43-8 (PA) - GUTTERSEN #43-8 - No Sur	10,700.00	6,871.00	1,977.91	1,803.55	11.344	SF
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	100.00	90.35	772.37	772.11	2,990.242	CC
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	2,300.00	2,298.15	780.82	764.98	49.297	ES
Guttersen 08C - Wellbore #1 - Wellbore #1 - As Drilled	8,700.00	6,847.41	1,378.79	1,327.52	26.891	SF
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,342.34	6,883.14	1,280.64	1,215.89	19.777	CC, ES
Guttersen 08D - Wellbore #1 - Wellbore #1 - As Drilled	11,400.00	6,883.29	1,281.94	1,217.03	19.749	SF
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	100.00	74.79	872.58	872.32	3,435.080	CC
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	300.00	271.61	873.22	871.91	667.022	ES
Guttersen 41-08 - Wellbore #1 - Wellbore #1 - As Drilled	8,000.00	6,839.68	2,209.76	2,160.84	45.168	SF
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	12,031.45	6,879.76	2,035.59	1,874.48	12.635	CC, ES
Guttersen 44-08 - Wellbore #1 - Wellbore #1 - As Drilled	12,100.00	6,880.38	2,036.75	1,875.31	12.617	SF
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	7,548.98	7,306.61	1,645.32	1,594.28	32.236	CC
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,500.00	12,243.71	1,645.66	1,548.21	16.887	ES
Guttersen DD08-774 - Guttersen DD08-774 - Plan #1	12,700.00	12,243.71	1,660.46	1,561.30	16.746	SF
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	6,897.76	6,186.32	2,220.72	2,172.09	45.665	CC

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Project:	Mustang	**TVD Reference:**	Well @ 4900.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4900.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-750	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 08						
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	6,900.00	6,187.87	2,220.72	2,172.08	45.654	ES
Guttersen DD08-784 - Guttersen DD08-784 - Plan #1	12,800.00	12,287.22	2,328.66	2,227.61	23.045	SF
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,200.00	2,194.00	114.51	99.22	7.491	CC, ES
Guttersen DD17-715 - Guttersen DD17-715 - Plan #1	2,300.00	2,291.97	116.66	100.67	7.297	SF
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,200.00	2,205.00	92.19	76.86	6.016	CC, ES
Guttersen DD17-725 - Guttersen DD17-725 - Plan #1	2,400.00	2,405.16	97.69	80.94	5.832	SF
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,200.00	2,196.00	69.79	54.49	4.563	CC, ES
Guttersen DD17-730 - Guttersen DD17-730 - Plan #1	2,300.00	2,296.12	71.00	54.99	4.436	SF
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,200.00	2,197.00	47.45	32.16	3.102	CC, ES
Guttersen DD17-735 - Guttersen DD17-735 - Plan #1	2,300.00	2,297.50	48.24	32.23	3.013	SF
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,200.00	2,199.00	22.33	7.03	1.459	Level 3, CC
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,400.00	2,400.01	23.06	6.35	1.380	Level 3, ES
Guttersen DD17-745 - Guttersen DD17-745 - Plan #1	2,500.00	2,500.50	23.96	6.56	1.377	Level 3, SF
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	7,561.51	7,350.69	339.21	288.97	6.752	CC
Guttersen DD17-755 - Guttersen DD17-755 - Plan #1	17,803.16	17,586.93	339.27	161.12	1.904	ES, SF
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	7,561.49	7,224.19	1,000.64	950.13	19.811	CC
Guttersen DD17-765 - Guttersen DD17-765 - Plan #1	17,803.16	17,449.85	1,000.84	822.20	5.602	ES, SF
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	7,557.40	7,376.67	1,314.56	1,263.85	25.922	CC
Guttersen DD17-770 - Guttersen DD17-770 - Plan #1	17,803.16	17,625.06	1,314.84	1,137.66	7.421	ES, SF
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,642.76	6,875.13	588.91	528.13	9.689	CC, ES
Guttersen State DD08-11 - Wellbore #1 - Wellbore #1 - A	10,700.00	6,875.33	591.69	530.29	9.637	SF
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,899.07	6,885.36	2,057.04	1,988.19	29.877	CC
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	11,900.00	6,885.37	2,057.04	1,988.18	29.873	ES
Guttersen State DD08-13 - Wellbore #1 - Wellbore #1 - A	12,300.00	6,888.69	2,095.75	2,023.89	29.165	SF
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	2,200.00	2,155.00	681.36	630.61	13.425	CC
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	2,300.00	2,254.98	682.45	629.34	12.850	ES
L F RANCHES #1(DA) - L F RANCHES #1 - No Surveys	3,200.00	3,134.82	800.26	726.41	10.836	SF
DD Section 17						
Guttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,884.08	6,838.48	771.56	673.97	7.906	CC
Guttersen 23-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,900.00	6,838.36	771.72	673.92	7.890	ES, SF
Guttersen State DD17-78HN - Original Drilling - Original	17,803.16	6,855.39	1,999.70	1,889.91	18.214	CC, ES, SF
Guttersen State DD17-78HN - Original Drilling - ST01 - S	15,300.00	15,300.00	2,002.11	1,778.87	8.969	ES, SF
Guttersen State DD17-78HN - Original Drilling - ST01 - S	15,616.46	8,683.90	1,999.87	1,886.11	17.580	CC
Guttersen State DD17-79-1HN - Original Drilling - Origina	12,900.00	12,900.00	2,368.43	2,197.78	13.879	ES, SF
Guttersen State DD17-79-1HN - Original Drilling - Origina	16,328.50	7,924.94	2,326.30	2,216.22	21.133	CC
Guttersen State DD17-79HN - Original Drilling - Original	15,107.77	9,227.00	2,559.61	2,439.74	21.352	CC
Guttersen State DD17-79HN - Original Drilling - Original	15,600.00	15,600.00	2,583.67	2,356.67	11.382	ES, SF
Guttersen USX DD17-19 - Origianal Drilling - Original Dri	13,861.50	6,830.03	1,442.14	1,359.33	17.416	CC, ES
Guttersen USX DD17-19 - Origianal Drilling - Original Dri	14,000.00	6,829.85	1,448.77	1,364.67	17.227	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Project:	Mustang	**TVD Reference:**	Well @ 4900.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4900.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-750	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Summary

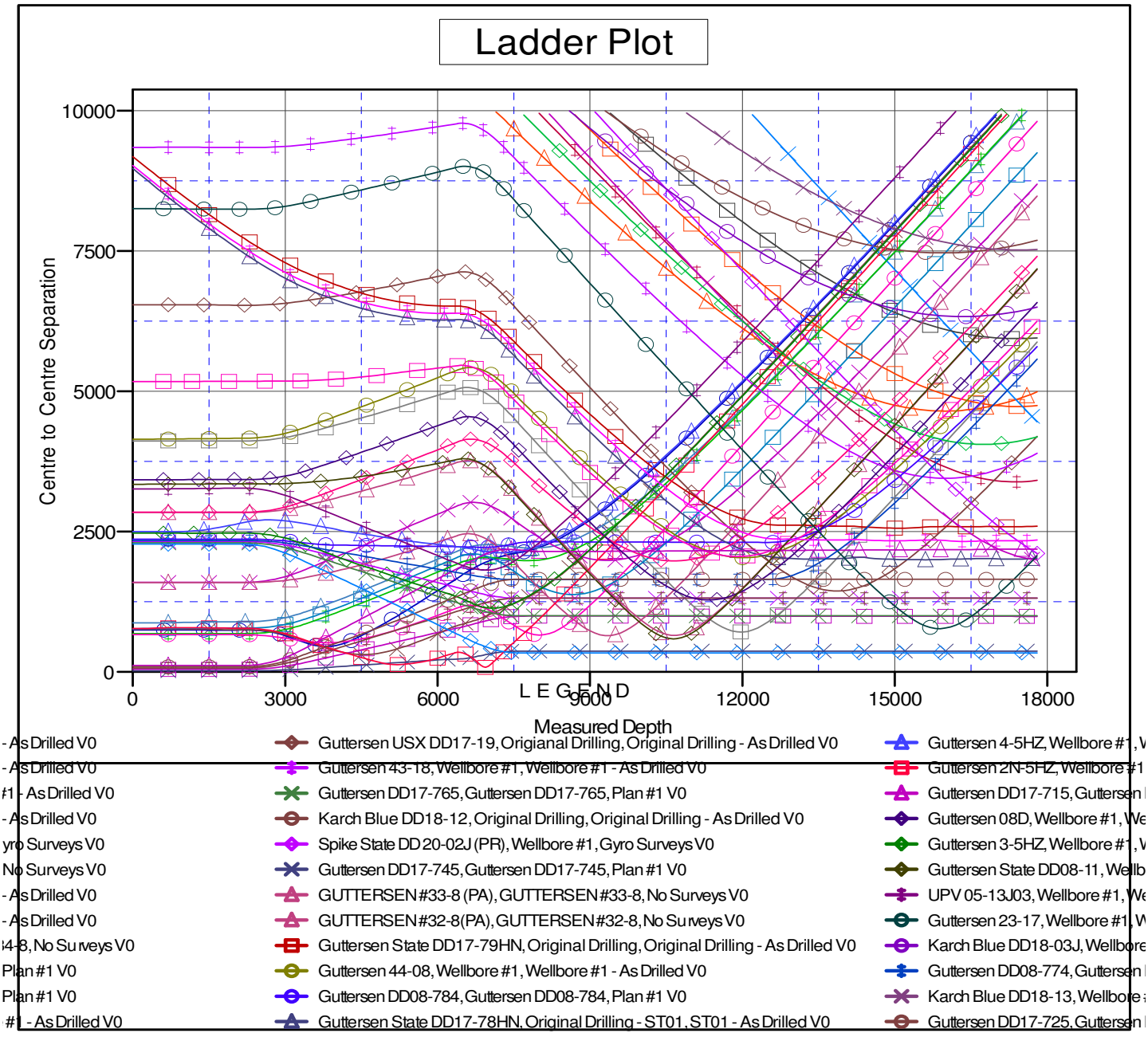
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
DD Section 18						
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,759.11	6,879.02	4,055.99	3,952.79	39.302	CC
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	16,800.00	6,879.56	4,056.20	3,952.63	39.163	ES
Guttersen 18D - Wellbore #1 - Wellbore #1 - As Drilled	17,600.00	6,890.08	4,142.23	4,032.93	37.896	SF
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,394.10	6,867.63	5,940.79	5,832.35	54.781	CC
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,400.00	6,867.65	5,940.80	5,832.30	54.755	ES
Guttersen 24-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,803.16	6,868.95	5,954.86	5,843.01	53.239	SF
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,989.18	6,804.35	4,649.57	4,551.42	47.373	CC
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	16,000.00	6,804.43	4,649.58	4,551.34	47.327	ES
Guttersen 33-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,100.00	6,812.59	4,780.41	4,674.34	45.069	SF
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,428.55	6,806.93	4,730.25	4,621.97	43.683	CC
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,500.00	6,806.66	4,730.79	4,621.87	43.434	ES
Guttersen 34-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,803.16	6,805.52	4,745.06	4,633.64	42.587	SF
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	15,996.56	6,826.17	3,452.21	3,351.09	34.140	CC
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	16,000.00	6,826.19	3,452.21	3,351.06	34.130	ES
Guttersen 43-18 - Wellbore #1 - Wellbore #1 - As Drilled	16,600.00	6,828.75	3,504.55	3,398.83	33.150	SF
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,364.41	6,833.37	3,386.52	3,278.78	31.432	CC
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,400.00	6,833.17	3,386.70	3,278.63	31.337	ES
Guttersen 44-18 - Wellbore #1 - Wellbore #1 - As Drilled	17,803.16	6,830.95	3,414.82	3,303.58	30.697	SF
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,335.72	6,705.92	6,333.67	6,233.00	62.918	CC
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	16,400.00	6,705.88	6,334.00	6,232.78	62.578	ES
Karch Blue DD18-03J - Wellbore #1 - Wellbore #1 - As D	17,803.16	6,705.12	6,501.44	6,390.07	58.377	SF
Karch Blue DD18-12 - Original Drilling - Original Drilling -	15,950.04	6,817.41	7,467.61	7,364.46	72.395	CC
Karch Blue DD18-12 - Original Drilling - Original Drilling -	16,000.00	6,817.20	7,467.78	7,364.21	72.104	ES
Karch Blue DD18-12 - Original Drilling - Original Drilling -	17,803.16	6,809.71	7,694.10	7,577.54	66.009	SF
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,434.59	6,957.19	7,520.48	7,410.76	68.538	CC
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,500.00	6,955.99	7,520.77	7,410.48	68.196	ES
Karch Blue DD18-13 - Wellbore #1 - Wellbore #1 - As Dr	17,803.16	6,950.42	7,529.51	7,416.72	66.761	SF
DD Section 20						
Spike State DD 20-02J (PR) - Wellbore #1 - Gyro Survey	17,803.16	6,783.15	2,111.90	2,014.47	21.677	CC, ES, SF
Spike State DD 20-03J (PR) - Wellbore #1 - Gyro Survey	17,803.16	6,850.66	4,455.71	4,395.39	73.869	CC, ES, SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Project:	Mustang	**TVD Reference:**	Well @ 4900.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4900.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-750	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4900.00ft	Coordinates are relative to: Guttersen DD17-750
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: 0.67°



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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen DD17-750
Project:	Mustang	**TVD Reference:**	Well @ 4900.00ft
Reference Site:	DD Section 08	**MD Reference:**	Well @ 4900.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen DD17-750	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen DD17-750	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4900.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen DD17-750
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°