Project: Mustang
Site: CC Section 29
Well: Guttersen CC32-755
Wellbore: Guttersen CC32-755
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

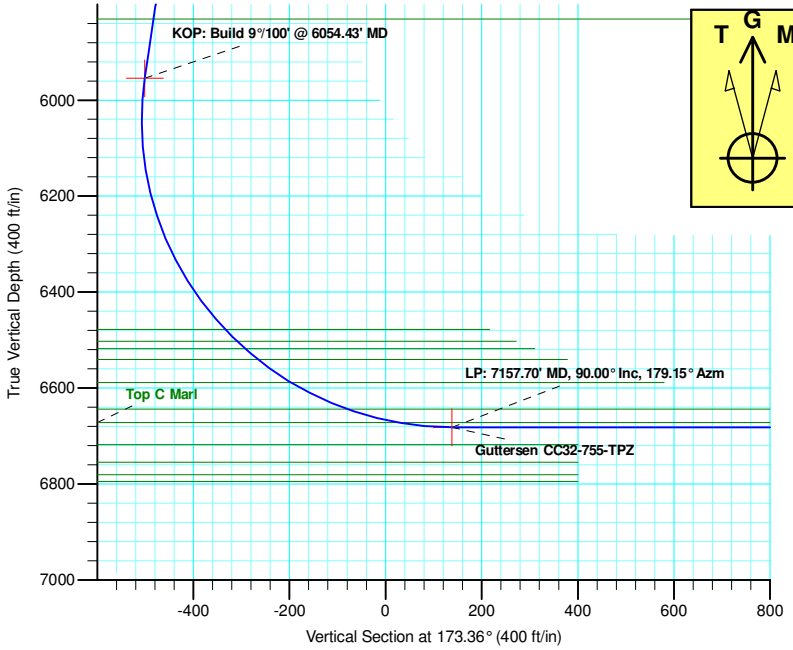
SECTION DETAILS

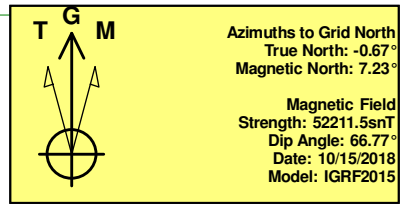
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	
3	2896.34	13.93	47.01	2889.50	57.43	61.59	2.00	47.01	-49.92	
4	6054.43	13.93	47.01	5954.76	575.76	617.54	0.00	0.00	-500.46	
5	7157.70	90.00	179.15	6682.00	-50.45	760.55	9.00	131.30	138.09	Guttersen CC32-755-TPZ
6	14584.44	90.00	179.15	6682.00	-7476.38	870.64	0.00	0.00	7526.90	Guttersen CC32-755-BHL

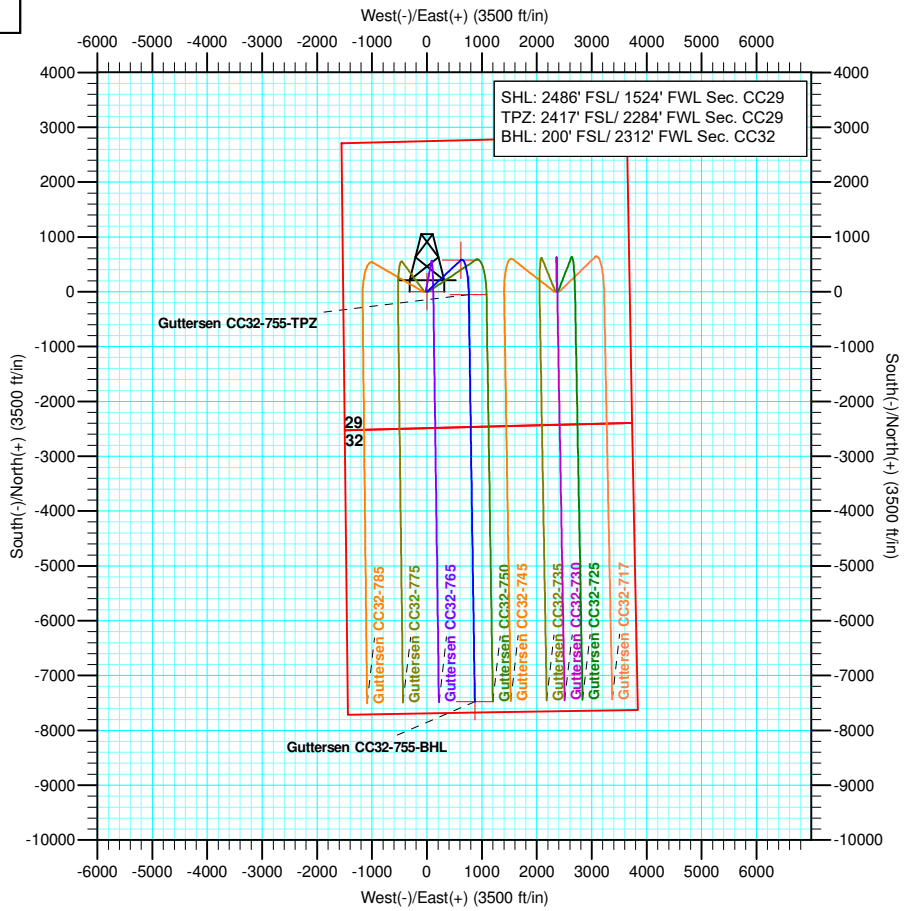
WELL DETAILS: Guttersen CC32-755

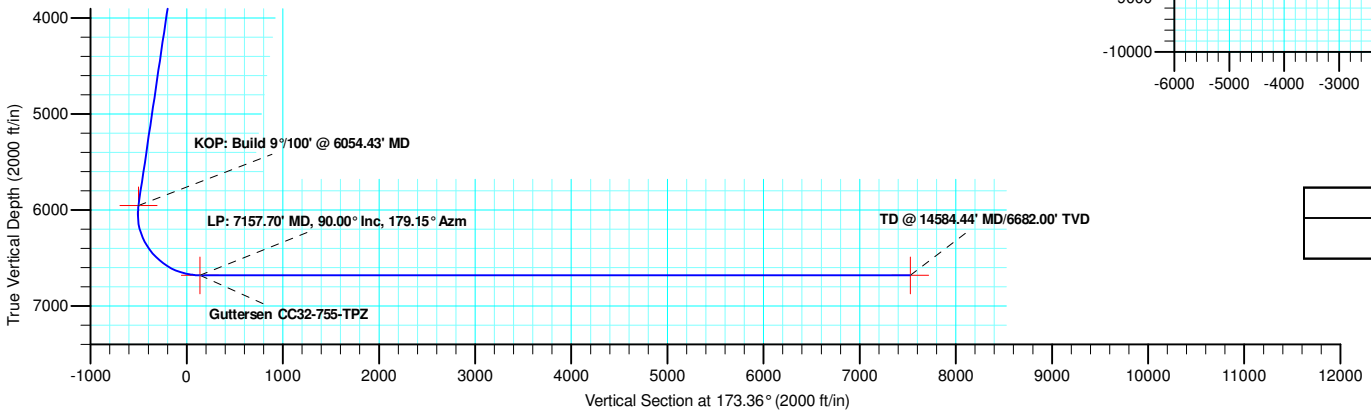
Ground Level: 4762.00

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude	Slot
0.00	0.00	1347598.80	3288584.53	40.2829380	-104.4655910	









Plan: Plan #1 (Guttersen CC32-755/Guttersen CC32-755)

Created By: Keith Noack Date: 11:20, October 15 2018

Northern Region - DJ Basin

Mustang
CC Section 29
Guttersen CC32-755

Guttersen CC32-755

Plan: Plan #1

Standard Planning Report

15 October, 2018

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
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 CC Section 29

Site Position:		**Northing:**	1,347,029.76 usft	**Latitude:**	40.2812800
From:	Lat/Long	**Easting:**	3,291,568.57 usft	**Longitude:**	-104.4549200
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.68 °

Well Guttersen CC32-755

Well Position	**+N/-S**	569.04 ft	**Northing:**	1,347,598.80 usft	**Latitude:**	40.2829380
	+E/-W	-2,984.04 ft	**Easting:**	3,288,584.54 usft	**Longitude:**	-104.4655910
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	4,762.00 ft

Wellbore Guttersen CC32-755

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/15/2018	7.90	66.77	52,211.47408684

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	173.36

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	
2,896.34	13.93	47.01	2,889.50	57.43	61.59	2.00	2.00	0.00	47.01	
6,054.43	13.93	47.01	5,954.76	575.76	617.54	0.00	0.00	0.00	0.00	
7,157.70	90.00	179.15	6,682.00	-50.45	760.55	9.00	6.90	11.98	131.30	Guttersen CC32-75
14,584.44	90.00	179.15	6,682.00	-7,476.38	870.64	0.00	0.00	0.00	0.00	Guttersen CC32-75

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
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
65.00	0.00	0.00	65.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
401.00	0.00	0.00	401.00	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
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
1,603.00	0.00	0.00	1,603.00	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	47.01	2,299.98	1.19	1.28	-1.03	2.00	2.00	0.00
2,400.00	4.00	47.01	2,399.84	4.76	5.10	-4.14	2.00	2.00	0.00
2,500.00	6.00	47.01	2,499.45	10.70	11.48	-9.30	2.00	2.00	0.00
2,600.00	8.00	47.01	2,598.70	19.01	20.39	-16.53	2.00	2.00	0.00
2,700.00	10.00	47.01	2,697.47	29.68	31.83	-25.80	2.00	2.00	0.00
2,800.00	12.00	47.01	2,795.62	42.69	45.79	-37.11	2.00	2.00	0.00
2,896.34	13.93	47.01	2,889.50	57.43	61.59	-49.92	2.00	2.00	0.00
Hold: 13.93° Inc, 47.01° Azm									
2,900.00	13.93	47.01	2,893.06	58.03	62.24	-50.44	0.00	0.00	0.00
3,000.00	13.93	47.01	2,990.12	74.44	79.84	-64.71	0.00	0.00	0.00
3,100.00	13.93	47.01	3,087.18	90.85	97.45	-78.97	0.00	0.00	0.00
3,200.00	13.93	47.01	3,184.24	107.27	115.05	-93.24	0.00	0.00	0.00
3,300.00	13.93	47.01	3,281.30	123.68	132.66	-107.50	0.00	0.00	0.00
3,400.00	13.93	47.01	3,378.36	140.09	150.26	-121.77	0.00	0.00	0.00
3,500.00	13.93	47.01	3,475.42	156.50	167.86	-136.04	0.00	0.00	0.00
3,600.00	13.93	47.01	3,572.48	172.92	185.47	-150.30	0.00	0.00	0.00
3,689.14	13.93	47.01	3,659.00	187.55	201.16	-163.02	0.00	0.00	0.00
Parkman									
3,700.00	13.93	47.01	3,669.54	189.33	203.07	-164.57	0.00	0.00	0.00
3,800.00	13.93	47.01	3,766.60	205.74	220.67	-178.84	0.00	0.00	0.00
3,900.00	13.93	47.01	3,863.66	222.16	238.28	-193.10	0.00	0.00	0.00
4,000.00	13.93	47.01	3,960.72	238.57	255.88	-207.37	0.00	0.00	0.00
4,100.00	13.93	47.01	4,057.78	254.98	273.49	-221.64	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
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	13.93	47.01	4,154.84	271.39	291.09	-235.90	0.00	0.00	0.00
4,300.00	13.93	47.01	4,251.90	287.81	308.69	-250.17	0.00	0.00	0.00
4,320.71	13.93	47.01	4,272.00	291.21	312.34	-253.12	0.00	0.00	0.00
Sussex									
4,400.00	13.93	47.01	4,348.96	304.22	326.30	-264.43	0.00	0.00	0.00
4,500.00	13.93	47.01	4,446.02	320.63	343.90	-278.70	0.00	0.00	0.00
4,600.00	13.93	47.01	4,543.08	337.05	361.51	-292.97	0.00	0.00	0.00
4,700.00	13.93	47.01	4,640.14	353.46	379.11	-307.23	0.00	0.00	0.00
4,800.00	13.93	47.01	4,737.20	369.87	396.71	-321.50	0.00	0.00	0.00
4,900.00	13.93	47.01	4,834.26	386.28	414.32	-335.77	0.00	0.00	0.00
4,965.67	13.93	47.01	4,898.00	397.06	425.88	-345.13	0.00	0.00	0.00
Shannon									
5,000.00	13.93	47.01	4,931.32	402.70	431.92	-350.03	0.00	0.00	0.00
5,100.00	13.93	47.01	5,028.38	419.11	449.53	-364.30	0.00	0.00	0.00
5,200.00	13.93	47.01	5,125.45	435.52	467.13	-378.57	0.00	0.00	0.00
5,300.00	13.93	47.01	5,222.51	451.93	484.73	-392.83	0.00	0.00	0.00
5,400.00	13.93	47.01	5,319.57	468.35	502.34	-407.10	0.00	0.00	0.00
5,500.00	13.93	47.01	5,416.63	484.76	519.94	-421.36	0.00	0.00	0.00
5,600.00	13.93	47.01	5,513.69	501.17	537.54	-435.63	0.00	0.00	0.00
5,700.00	13.93	47.01	5,610.75	517.59	555.15	-449.90	0.00	0.00	0.00
5,800.00	13.93	47.01	5,707.81	534.00	572.75	-464.16	0.00	0.00	0.00
5,900.00	13.93	47.01	5,804.87	550.41	590.36	-478.43	0.00	0.00	0.00
5,926.92	13.93	47.01	5,831.00	554.83	595.10	-482.27	0.00	0.00	0.00
Teepee Buttes									
6,000.00	13.93	47.01	5,901.93	566.82	607.96	-492.70	0.00	0.00	0.00
6,054.43	13.93	47.01	5,954.76	575.76	617.54	-500.46	0.00	0.00	0.00
KOP: Build 9°/100' @ 6054.43' MD									
6,100.00	11.63	62.47	5,999.21	581.62	625.63	-505.35	9.00	-5.05	33.93
6,150.00	10.44	85.33	6,048.31	584.32	634.62	-506.99	9.00	-2.37	45.72
6,200.00	11.08	109.36	6,097.45	583.10	643.67	-504.73	9.00	1.29	48.06
6,250.00	13.30	128.07	6,146.34	577.96	652.74	-498.58	9.00	4.42	37.43
6,300.00	16.45	140.65	6,194.67	568.93	661.76	-488.57	9.00	6.32	25.16
6,350.00	20.12	149.02	6,242.15	556.08	670.68	-474.77	9.00	7.33	16.75
6,400.00	24.06	154.83	6,288.47	539.47	679.44	-457.26	9.00	7.88	11.61
6,450.00	28.16	159.06	6,333.37	519.22	688.00	-436.15	9.00	8.20	8.46
6,500.00	32.36	162.28	6,376.55	495.44	696.29	-411.58	9.00	8.40	6.44
6,550.00	36.62	164.83	6,417.75	468.29	704.27	-383.69	9.00	8.53	5.09
6,600.00	40.93	166.91	6,456.73	437.93	711.89	-352.65	9.00	8.62	4.16
6,628.70	43.42	167.95	6,478.00	419.12	716.08	-333.48	9.00	8.67	3.61
Sharon Springs									
6,650.00	45.27	168.66	6,493.23	404.55	719.09	-318.66	9.00	8.69	3.33
6,664.03	46.49	169.10	6,503.00	394.67	721.04	-308.61	9.00	8.71	3.16
Top A Chalk									
6,686.22	48.42	169.76	6,518.00	378.60	724.03	-292.31	9.00	8.72	3.00
Top A Marl									
6,700.00	49.63	170.16	6,527.04	368.35	725.85	-281.92	9.00	8.74	2.86
6,722.00	51.55	170.76	6,541.00	351.59	728.66	-264.95	9.00	8.75	2.73
Top B Chalk									
6,750.00	54.01	171.48	6,557.94	329.56	732.10	-242.67	9.00	8.76	2.57
6,800.00	58.40	172.66	6,585.74	288.42	737.83	-201.14	9.00	8.78	2.36
6,806.26	58.95	172.80	6,589.00	283.11	738.50	-195.79	9.00	8.80	2.23
Top B Marl									
6,850.00	62.80	173.73	6,610.28	245.17	742.98	-157.59	9.00	8.80	2.13

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
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)
6,900.00	67.21	174.72	6,631.40	200.10	747.53	-112.29	9.00	8.82	1.98
6,934.75	70.28	175.37	6,644.00	167.84	750.33	-79.92	9.00	8.83	1.87
Top C Chalk									
6,950.00	71.63	175.65	6,648.98	153.47	751.45	-65.52	9.00	8.83	1.82
7,000.00	76.05	176.53	6,662.89	105.57	754.72	-17.56	9.00	8.84	1.77
7,043.74	79.92	177.28	6,672.00	62.85	757.03	25.14	9.00	8.84	1.70
Top C Marl									
7,050.00	80.47	177.38	6,673.07	56.69	757.32	31.29	9.00	8.85	1.68
7,100.00	84.89	178.21	6,679.43	7.15	759.22	80.72	9.00	8.85	1.66
7,150.00	89.32	179.03	6,681.96	-42.76	760.43	130.43	9.00	8.85	1.63
7,157.70	90.00	179.15	6,682.00	-50.45	760.55	138.09	9.00	8.85	1.63
LP: 7157.70' MD, 90.00° Inc, 179.15° Azm									
7,200.00	90.00	179.15	6,682.00	-92.75	761.18	180.17	0.00	0.00	0.00
7,300.00	90.00	179.15	6,682.00	-192.74	762.66	279.66	0.00	0.00	0.00
7,400.00	90.00	179.15	6,682.00	-292.73	764.14	379.15	0.00	0.00	0.00
7,500.00	90.00	179.15	6,682.00	-392.72	765.62	478.64	0.00	0.00	0.00
7,600.00	90.00	179.15	6,682.00	-492.71	767.11	578.13	0.00	0.00	0.00
7,700.00	90.00	179.15	6,682.00	-592.70	768.59	677.62	0.00	0.00	0.00
7,800.00	90.00	179.15	6,682.00	-692.69	770.07	777.11	0.00	0.00	0.00
7,900.00	90.00	179.15	6,682.00	-792.67	771.55	876.60	0.00	0.00	0.00
8,000.00	90.00	179.15	6,682.00	-892.66	773.04	976.09	0.00	0.00	0.00
8,100.00	90.00	179.15	6,682.00	-992.65	774.52	1,075.58	0.00	0.00	0.00
8,200.00	90.00	179.15	6,682.00	-1,092.64	776.00	1,175.07	0.00	0.00	0.00
8,300.00	90.00	179.15	6,682.00	-1,192.63	777.48	1,274.56	0.00	0.00	0.00
8,400.00	90.00	179.15	6,682.00	-1,292.62	778.96	1,374.05	0.00	0.00	0.00
8,500.00	90.00	179.15	6,682.00	-1,392.61	780.45	1,473.54	0.00	0.00	0.00
8,600.00	90.00	179.15	6,682.00	-1,492.60	781.93	1,573.03	0.00	0.00	0.00
8,700.00	90.00	179.15	6,682.00	-1,592.59	783.41	1,672.51	0.00	0.00	0.00
8,800.00	90.00	179.15	6,682.00	-1,692.58	784.89	1,772.00	0.00	0.00	0.00
8,900.00	90.00	179.15	6,682.00	-1,792.57	786.38	1,871.49	0.00	0.00	0.00
9,000.00	90.00	179.15	6,682.00	-1,892.55	787.86	1,970.98	0.00	0.00	0.00
9,100.00	90.00	179.15	6,682.00	-1,992.54	789.34	2,070.47	0.00	0.00	0.00
9,200.00	90.00	179.15	6,682.00	-2,092.53	790.82	2,169.96	0.00	0.00	0.00
9,300.00	90.00	179.15	6,682.00	-2,192.52	792.31	2,269.45	0.00	0.00	0.00
9,400.00	90.00	179.15	6,682.00	-2,292.51	793.79	2,368.94	0.00	0.00	0.00
9,500.00	90.00	179.15	6,682.00	-2,392.50	795.27	2,468.43	0.00	0.00	0.00
9,600.00	90.00	179.15	6,682.00	-2,492.49	796.75	2,567.92	0.00	0.00	0.00
9,700.00	90.00	179.15	6,682.00	-2,592.48	798.24	2,667.41	0.00	0.00	0.00
9,800.00	90.00	179.15	6,682.00	-2,692.47	799.72	2,766.90	0.00	0.00	0.00
9,900.00	90.00	179.15	6,682.00	-2,792.46	801.20	2,866.39	0.00	0.00	0.00
10,000.00	90.00	179.15	6,682.00	-2,892.44	802.68	2,965.88	0.00	0.00	0.00
10,100.00	90.00	179.15	6,682.00	-2,992.43	804.16	3,065.36	0.00	0.00	0.00
10,200.00	90.00	179.15	6,682.00	-3,092.42	805.65	3,164.85	0.00	0.00	0.00
10,300.00	90.00	179.15	6,682.00	-3,192.41	807.13	3,264.34	0.00	0.00	0.00
10,400.00	90.00	179.15	6,682.00	-3,292.40	808.61	3,363.83	0.00	0.00	0.00
10,500.00	90.00	179.15	6,682.00	-3,392.39	810.09	3,463.32	0.00	0.00	0.00
10,600.00	90.00	179.15	6,682.00	-3,492.38	811.58	3,562.81	0.00	0.00	0.00
10,700.00	90.00	179.15	6,682.00	-3,592.37	813.06	3,662.30	0.00	0.00	0.00
10,800.00	90.00	179.15	6,682.00	-3,692.36	814.54	3,761.79	0.00	0.00	0.00
10,900.00	90.00	179.15	6,682.00	-3,792.35	816.02	3,861.28	0.00	0.00	0.00
11,000.00	90.00	179.15	6,682.00	-3,892.33	817.51	3,960.77	0.00	0.00	0.00
11,100.00	90.00	179.15	6,682.00	-3,992.32	818.99	4,060.26	0.00	0.00	0.00
11,200.00	90.00	179.15	6,682.00	-4,092.31	820.47	4,159.75	0.00	0.00	0.00

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,300.00	90.00	179.15	6,682.00	-4,192.30	821.95	4,259.24	0.00	0.00	0.00
11,400.00	90.00	179.15	6,682.00	-4,292.29	823.44	4,358.73	0.00	0.00	0.00
11,500.00	90.00	179.15	6,682.00	-4,392.28	824.92	4,458.22	0.00	0.00	0.00
11,600.00	90.00	179.15	6,682.00	-4,492.27	826.40	4,557.70	0.00	0.00	0.00
11,700.00	90.00	179.15	6,682.00	-4,592.26	827.88	4,657.19	0.00	0.00	0.00
11,800.00	90.00	179.15	6,682.00	-4,692.25	829.36	4,756.68	0.00	0.00	0.00
11,900.00	90.00	179.15	6,682.00	-4,792.24	830.85	4,856.17	0.00	0.00	0.00
12,000.00	90.00	179.15	6,682.00	-4,892.22	832.33	4,955.66	0.00	0.00	0.00
12,100.00	90.00	179.15	6,682.00	-4,992.21	833.81	5,055.15	0.00	0.00	0.00
12,200.00	90.00	179.15	6,682.00	-5,092.20	835.29	5,154.64	0.00	0.00	0.00
12,300.00	90.00	179.15	6,682.00	-5,192.19	836.78	5,254.13	0.00	0.00	0.00
12,400.00	90.00	179.15	6,682.00	-5,292.18	838.26	5,353.62	0.00	0.00	0.00
12,500.00	90.00	179.15	6,682.00	-5,392.17	839.74	5,453.11	0.00	0.00	0.00
12,600.00	90.00	179.15	6,682.00	-5,492.16	841.22	5,552.60	0.00	0.00	0.00
12,700.00	90.00	179.15	6,682.00	-5,592.15	842.71	5,652.09	0.00	0.00	0.00
12,800.00	90.00	179.15	6,682.00	-5,692.14	844.19	5,751.58	0.00	0.00	0.00
12,900.00	90.00	179.15	6,682.00	-5,792.13	845.67	5,851.07	0.00	0.00	0.00
13,000.00	90.00	179.15	6,682.00	-5,892.11	847.15	5,950.56	0.00	0.00	0.00
13,100.00	90.00	179.15	6,682.00	-5,992.10	848.63	6,050.04	0.00	0.00	0.00
13,200.00	90.00	179.15	6,682.00	-6,092.09	850.12	6,149.53	0.00	0.00	0.00
13,300.00	90.00	179.15	6,682.00	-6,192.08	851.60	6,249.02	0.00	0.00	0.00
13,400.00	90.00	179.15	6,682.00	-6,292.07	853.08	6,348.51	0.00	0.00	0.00
13,500.00	90.00	179.15	6,682.00	-6,392.06	854.56	6,448.00	0.00	0.00	0.00
13,600.00	90.00	179.15	6,682.00	-6,492.05	856.05	6,547.49	0.00	0.00	0.00
13,700.00	90.00	179.15	6,682.00	-6,592.04	857.53	6,646.98	0.00	0.00	0.00
13,800.00	90.00	179.15	6,682.00	-6,692.03	859.01	6,746.47	0.00	0.00	0.00
13,900.00	90.00	179.15	6,682.00	-6,792.02	860.49	6,845.96	0.00	0.00	0.00
14,000.00	90.00	179.15	6,682.00	-6,892.00	861.98	6,945.45	0.00	0.00	0.00
14,100.00	90.00	179.15	6,682.00	-6,991.99	863.46	7,044.94	0.00	0.00	0.00
14,200.00	90.00	179.15	6,682.00	-7,091.98	864.94	7,144.43	0.00	0.00	0.00
14,300.00	90.00	179.15	6,682.00	-7,191.97	866.42	7,243.92	0.00	0.00	0.00
14,400.00	90.00	179.15	6,682.00	-7,291.96	867.91	7,343.41	0.00	0.00	0.00
14,500.00	90.00	179.15	6,682.00	-7,391.95	869.39	7,442.89	0.00	0.00	0.00
14,584.44	90.00	179.15	6,682.00	-7,476.38	870.64	7,526.90	0.00	0.00	0.00
TD @ 14584.44' MD/6682.00' TVD									

Database:	EDMP	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Company:	Northern Region - DJ Basin	**TVD Reference:**	Well @ 4792.00ft
Project:	Mustang	**MD Reference:**	Well @ 4792.00ft
Site:	CC Section 29	**North Reference:**	Grid
Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Guttersen CC32-755		
Design:	Plan #1		

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 CC32-755- - plan hits target center - Point	0.00	0.01	0.00	0.00	0.00	1,347,598.80	3,288,584.54	40.2829380	-104.4655910
Guttersen CC32-755- - plan hits target center - Point	0.00	0.00	5,954.76	575.76	617.54	1,348,174.56	3,289,202.08	40.2844986	-104.4633535
Guttersen CC32-755- - plan hits target center - Point	0.00	0.01	6,682.00	-7,476.38	870.64	1,340,122.44	3,289,455.18	40.2623883	-104.4627840
Guttersen CC32-755- - plan hits target center - Point	0.00	0.00	6,682.00	-50.45	760.55	1,347,548.35	3,289,345.09	40.2827751	-104.4628672

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
65.00	65.00	Upper Pierre Aquifer Top			
401.00	401.00	Pierre			
1,603.00	1,603.00	Upper Pierre Aquifer Base			
3,689.14	3,659.00	Parkman			
4,320.71	4,272.00	Sussex			
4,965.67	4,898.00	Shannon			
5,926.92	5,831.00	Teepee Buttes			
6,628.70	6,478.00	Sharon Springs			
6,664.03	6,503.00	Top A Chalk			
6,686.22	6,518.00	Top A Marl			
6,722.00	6,541.00	Top B Chalk			
6,806.26	6,589.00	Top B Marl			
6,934.75	6,644.00	Top C Chalk			
7,043.74	6,672.00	Top C Marl			

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'
2,896.34	2,889.50	57.43	61.59	Hold: 13.93° Inc, 47.01° Azm
6,054.43	5,954.76	575.76	617.54	KOP: Build 9°/100' @ 6054.43' MD
7,157.70	6,682.00	-50.45	760.55	LP: 7157.70' MD, 90.00° Inc, 179.15° Azm
14,584.44	6,682.00	-7,476.38	870.64	TD @ 14584.44' MD/6682.00' TVD

Northern Region - DJ Basin

Mustang
CC Section 29
Guttersen CC32-755

Guttersen CC32-755
Plan #1

Anticollision Summary Report

15 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Project:	Mustang	**TVD Reference:**	Well @ 4792.00ft
Reference Site:	CC Section 29	**MD Reference:**	Well @ 4792.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen CC32-755	**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** 10/15/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	14,584.44	Plan #1 (Guttersen CC32-755)	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
CC Section 29						
GUTTERSEN #13-29U(PA) - Wellbore #1 - Gyro	100.00	66.26	1,030.19	1,029.95	4,250.859	CC
GUTTERSEN #13-29U(PA) - Wellbore #1 - Gyro	1,900.00	1,862.17	1,031.39	1,018.49	79.906	ES
GUTTERSEN #13-29U(PA) - Wellbore #1 - Gyro	7,700.00	6,749.99	1,625.19	1,576.77	33.567	SF
GUTTERSEN #14-29U(PR) - Wellbore #1 - Gyro	8,904.34	6,655.73	1,600.13	1,547.91	30.642	CC, ES
GUTTERSEN #14-29U(PR) - Wellbore #1 - Gyro	9,000.00	6,655.20	1,602.99	1,550.48	30.529	SF
GUTTERSEN #23-29U(PR) - Wellbore #1 - Gyro	7,632.34	6,661.46	390.18	342.28	8.146	CC, ES, SF
GUTTERSEN #24-29U(PR) - Wellbore #1 - Gyro	8,972.49	6,663.51	392.91	340.29	7.467	CC, ES, SF
GUTTERSEN #29-BU(PR) - Wellbore #1 - Gyro	8,254.84	6,706.59	1,024.08	974.16	20.516	CC, ES
GUTTERSEN #29-BU(PR) - Wellbore #1 - Gyro	8,300.00	6,706.52	1,025.07	975.08	20.507	SF
GUTTERSEN #29PU(PR) - Wellbore #1 - Gyro	8,235.93	6,660.62	218.65	169.13	4.416	CC, ES, SF
GUTTERSEN #33-29U(PR) - Wellbore #1 - Gyro	7,590.49	6,661.59	909.30	861.52	19.031	CC, ES
GUTTERSEN #33-29U(PR) - Wellbore #1 - Gyro	7,600.00	6,661.57	909.35	861.54	19.021	SF
GUTTERSEN #43-29U(PR) - Wellbore #1 - Gyro	7,662.63	6,626.35	2,206.62	2,158.75	46.094	CC, ES
GUTTERSEN #43-29U(PR) - Wellbore #1 - Gyro	8,000.00	6,625.74	2,232.26	2,183.35	45.637	SF
GUTTERSEN #44-29U(PR) - Wellbore #1 - Gyro	8,917.34	6,742.82	2,286.20	2,233.78	43.611	CC, ES
GUTTERSEN #44-29U(PR) - Wellbore #1 - Gyro	9,400.00	6,735.56	2,336.59	2,281.48	42.405	SF
Guttersen CC29-717 - Wellbore #1 - Plan #1	3,237.66	2,856.84	2,367.23	2,346.18	112.470	CC, ES
Guttersen CC29-717 - Wellbore #1 - Plan #1	7,700.00	6,219.63	2,443.48	2,395.79	51.238	SF
Guttersen CC32-717 - Guttersen CC32-717 - Plan #1	3,323.57	2,910.50	2,370.38	2,348.84	110.056	CC, ES
Guttersen CC32-717 - Guttersen CC32-717 - Plan #1	14,584.44	14,523.99	2,503.26	2,367.34	18.418	SF
Guttersen CC32-725 - Guttersen CC32-725 - Plan #1	7,142.33	7,084.33	1,934.60	1,886.80	40.470	CC
Guttersen CC32-725 - Guttersen CC32-725 - Plan #1	14,584.44	14,526.85	1,962.22	1,826.71	14.481	ES, SF
Guttersen CC32-730 - Guttersen CC32-730 - Plan #1	7,148.48	7,164.71	1,612.86	1,565.03	33.722	CC
Guttersen CC32-730 - Guttersen CC32-730 - Plan #1	14,584.44	14,600.63	1,635.86	1,500.68	12.101	ES, SF
Guttersen CC32-735 - Guttersen CC32-735 - Plan #1	7,140.36	7,007.23	1,294.91	1,247.46	27.289	CC
Guttersen CC32-735 - Guttersen CC32-735 - Plan #1	14,584.44	14,437.35	1,313.26	1,177.72	9.689	ES, SF
Guttersen CC32-745 - Guttersen CC32-745 - Plan #1	7,153.02	7,196.18	644.81	596.42	13.325	CC
Guttersen CC32-745 - Guttersen CC32-745 - Plan #1	14,584.44	14,627.60	654.02	518.58	4.829	ES, SF
Guttersen CC32-750 - Guttersen CC32-750 - Plan #1	2,200.00	2,200.00	22.60	7.29	1.477	Level 3, CC
Guttersen CC32-750 - Guttersen CC32-750 - Plan #1	2,400.00	2,398.70	23.27	6.58	1.394	Level 3, ES
Guttersen CC32-750 - Guttersen CC32-750 - Plan #1	2,500.00	2,498.04	24.16	6.79	1.391	Level 3, SF
Guttersen CC32-765 - Guttersen CC32-765 - Plan #1	2,200.00	2,200.00	22.60	7.29	1.476	Level 3, CC, ES
Guttersen CC32-765 - Guttersen CC32-765 - Plan #1	2,300.00	2,300.14	23.55	7.53	1.470	Level 3, SF
Guttersen CC32-775 - Guttersen CC32-775 - Plan #1	2,200.00	2,200.00	44.92	29.61	2.935	CC, ES, SF
Guttersen CC32-785 - Guttersen CC32-785 - Plan #1	2,200.00	2,199.00	67.52	52.22	4.412	CC, ES
Guttersen CC32-785 - Guttersen CC32-785 - Plan #1	2,300.00	2,296.95	70.25	54.25	4.391	SF
KILLEYBEGS #1(PR) - Wellbore #1 - No Surveys	8,649.89	6,664.00	1,291.96	1,205.79	14.993	CC, 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 Guttersen CC32-755
Project:	Mustang	**TVD Reference:**	Well @ 4792.00ft
Reference Site:	CC Section 29	**MD Reference:**	Well @ 4792.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen CC32-755	**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
CC Section 29						
KILLEYBEGS #1(PR) - Wellbore #1 - No Surveys	8,800.00	6,664.00	1,300.65	1,213.63	14.945	SF
CC Section 32						
Guttersen State #CC32-06(PR) - Guttersen State #CC32	11,486.22	6,700.00	242.85	64.05	1.358	Level 3, CC, ES, SF
GUTTERSEN STATE CC #32-03(PR) - GUTTERSEN ST	10,066.17	6,677.00	141.01	-28.00	0.834	Level 1, CC, ES, SF
GUTTERSEN STATE CC #32-04(PR) - GUTTERSEN ST	10,208.87	6,688.00	1,668.86	1,498.75	9.811	CC, ES
GUTTERSEN STATE CC #32-04(PR) - GUTTERSEN ST	10,300.00	6,688.00	1,671.35	1,500.87	9.804	SF
GUTTERSEN STATE CC #32-11(PR) - GUTTERSEN ST	12,933.01	6,691.00	180.69	-8.36	0.956	Level 1, CC, ES, SF
GUTTERSEN STATE CC #32-12(PR) - GUTTERSEN ST	12,702.09	6,700.00	1,776.17	1,588.64	9.472	CC, ES
GUTTERSEN STATE CC #32-12(PR) - GUTTERSEN ST	12,800.00	6,700.00	1,778.87	1,590.89	9.463	SF
GUTTERSEN STATE CC #32-5(PR) - GUTTERSEN STA	11,424.07	6,691.00	1,692.55	1,514.37	9.499	CC, ES
GUTTERSEN STATE CC #32-5(PR) - GUTTERSEN STA	11,500.00	6,691.00	1,694.26	1,515.73	9.490	SF
Guttersen State CC32-13 - Wellbore #1 - Wellbore #1 - A	14,188.35	6,775.94	1,716.41	1,628.06	19.428	CC
Guttersen State CC32-13 - Wellbore #1 - Wellbore #1 - A	14,200.00	6,776.37	1,716.45	1,628.04	19.414	ES
Guttersen State CC32-13 - Wellbore #1 - Wellbore #1 - A	14,300.00	6,780.07	1,720.03	1,631.17	19.357	SF
Guttersen State CC32-14 - Wellbore #1 - Wellbore #1 - A	14,232.79	6,726.62	487.30	398.89	5.512	CC, ES, SF
STATE #25(PR) - STATE #25 - No Surveys	13,633.09	6,716.00	1,015.06	820.26	5.211	CC, ES, SF
DD Section 05						
Guttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	14,584.44	11,271.02	2,603.22	2,451.77	17.188	CC, ES, SF
Guttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	14,584.44	11,061.02	1,597.36	1,456.74	11.359	CC, ES, SF
Guttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	14,584.44	11,309.02	748.84	672.35	9.790	CC, ES, SF
Guttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	14,584.44	11,041.02	1,026.83	916.94	9.344	CC, ES, SF
Guttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	14,584.44	11,205.02	1,886.91	1,735.60	12.471	CC, ES, SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	14,584.44	6,754.11	4,630.15	4,573.00	81.021	CC, ES, SF

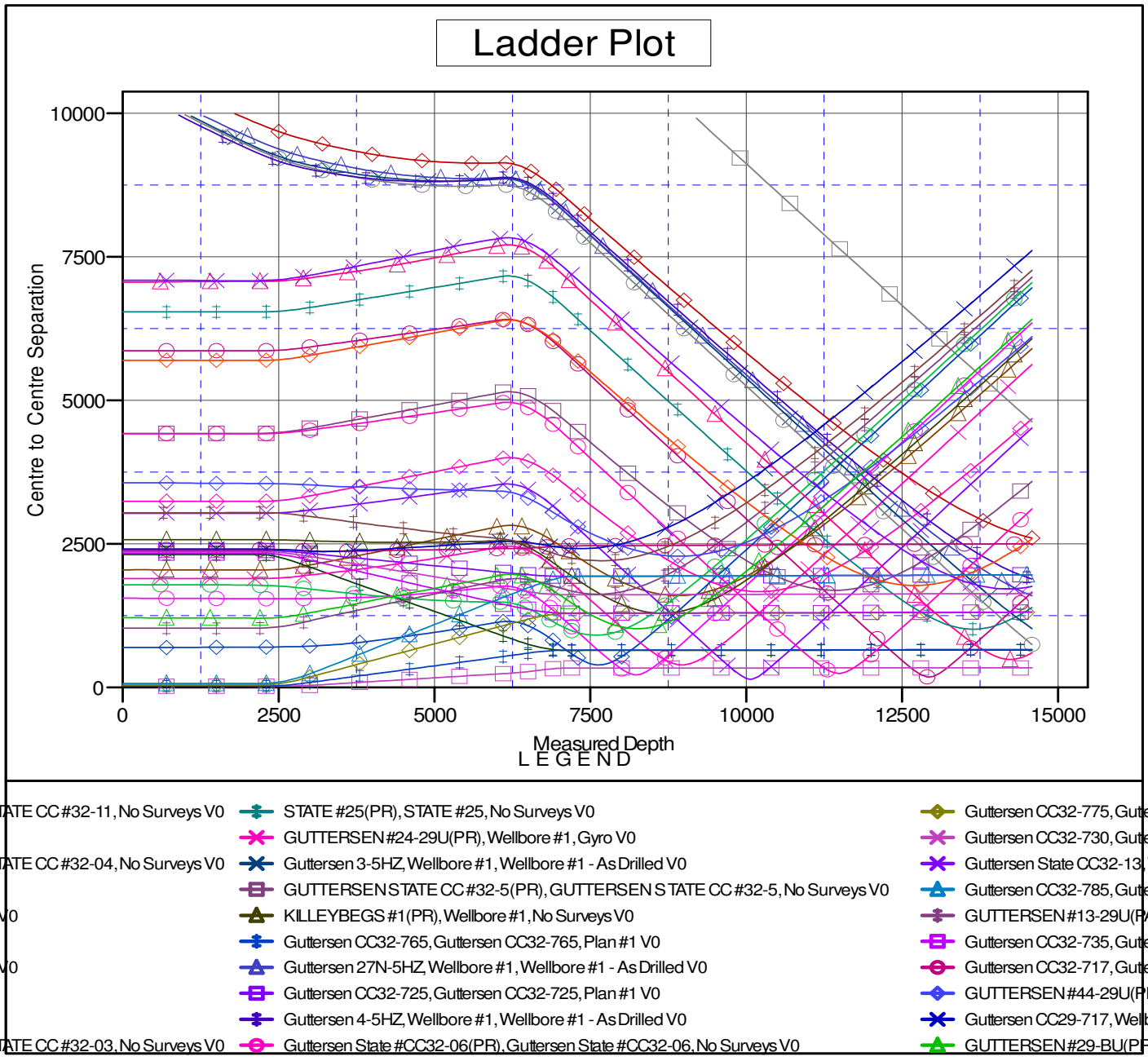
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Project:	Mustang	**TVD Reference:**	Well @ 4792.00ft
Reference Site:	CC Section 29	**MD Reference:**	Well @ 4792.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen CC32-755	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4792.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Guttersen CC32-755
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°

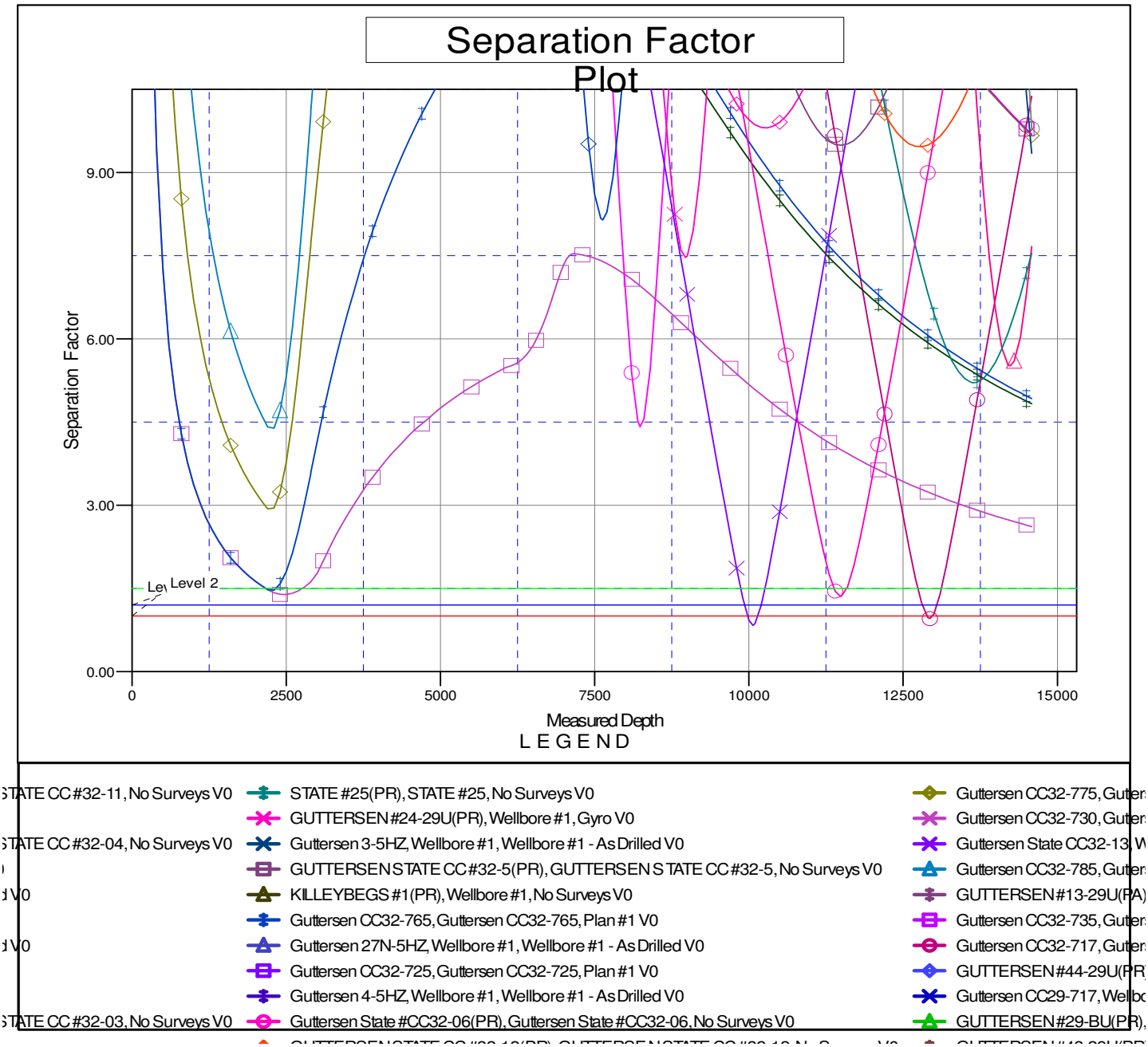


Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	**Local Co-ordinate Reference:**	Well Guttersen CC32-755
Project:	Mustang	**TVD Reference:**	Well @ 4792.00ft
Reference Site:	CC Section 29	**MD Reference:**	Well @ 4792.00ft
Site Error:	0.00 ft	**North Reference:**	Grid
Reference Well:	Guttersen CC32-755	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.00 ft	**Output errors are at**	2.00 sigma
Reference Wellbore	Guttersen CC32-755	**Database:**	EDMP
Reference Design:	Plan #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to Well @ 4792.00ft	Coordinates are relative to: Guttersen CC32-755
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