

Project: Mustang
 Site: CC Section 29
 Well: Gutteresen CC32-775
 Wellbore: Gutteresen CC32-775
 Design: Plan #1

Northern Region - DJ Basin

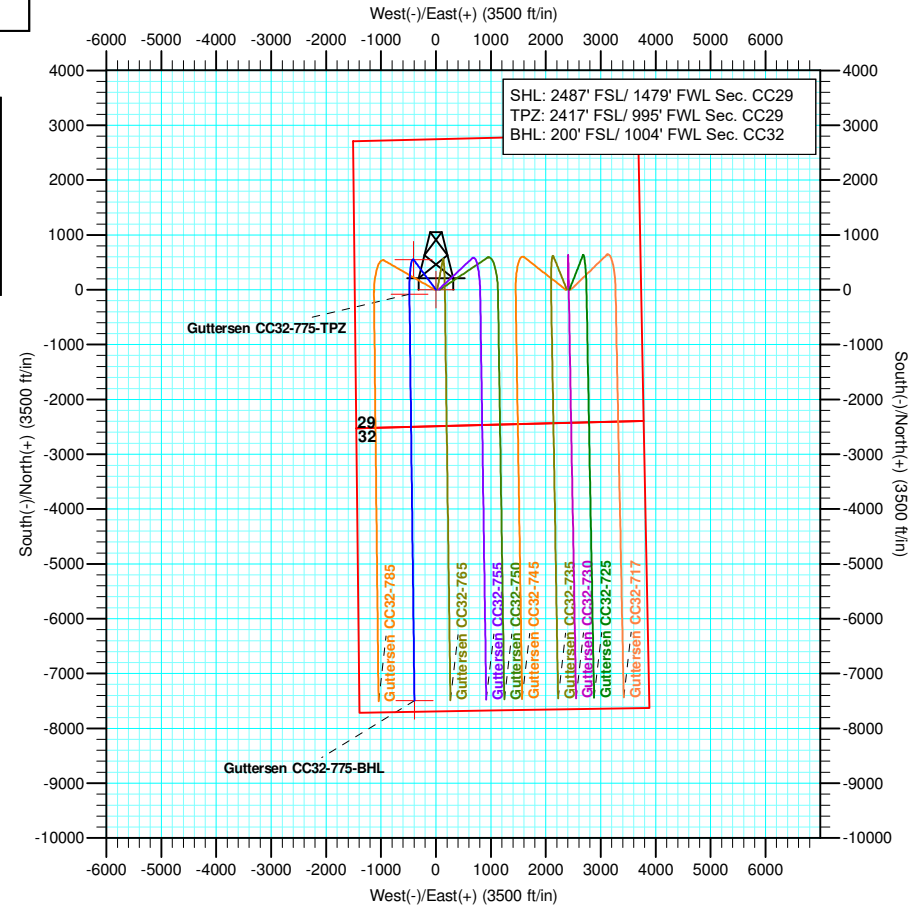
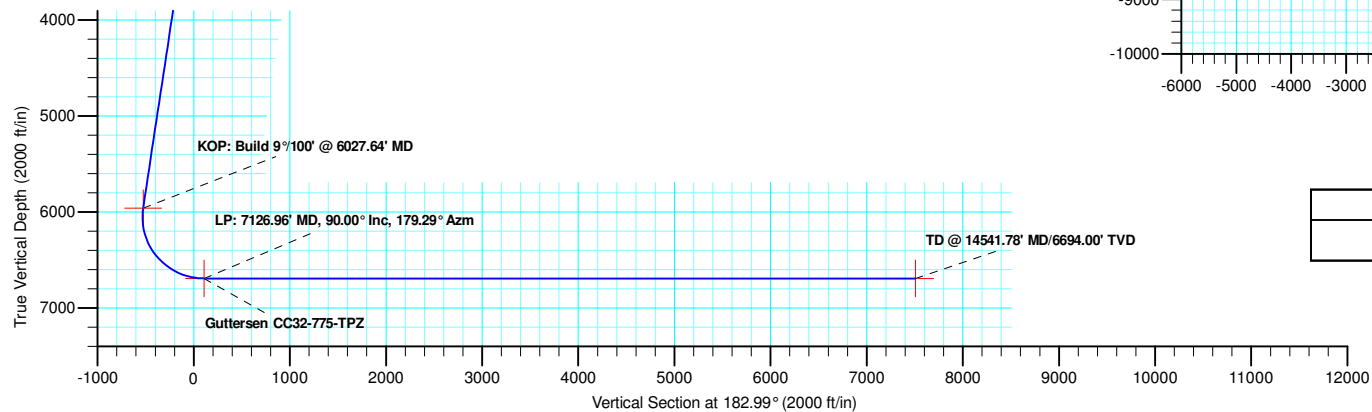
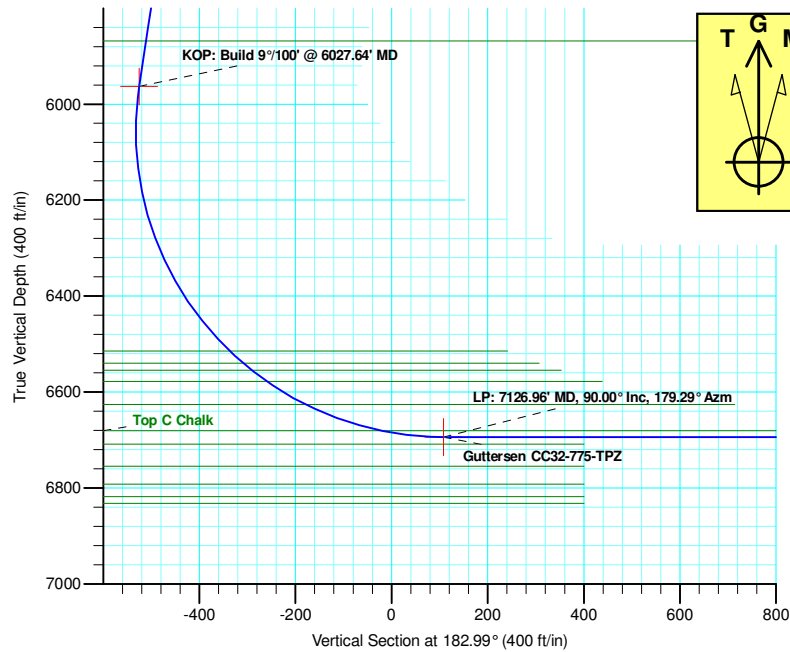
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2753.54	11.07	323.31	2750.10	42.75	-31.85	2.00	323.31	-41.03	
4	6027.64	11.07	323.31	5963.27	546.90	-407.47	0.00	0.00	-524.87	
5	7126.96	90.00	179.29	6694.00	-82.97	-483.70	9.00	-143.51	108.13	Gutteresen CC32-775-TPZ
6	14541.78	90.00	179.29	6694.00	-7497.23	-392.22	0.00	0.00	7507.48	Gutteresen CC32-775-BHL

WELL DETAILS: Gutteresen CC32-775

+N/-S	+E/-W	Northing	Ground Level: Easting	4762.00 Latitude	Longitude	Slot
0.00	0.00	1347598.64	3288539.62	40.2829390	-104.4657520	



Plan: Plan #1 (Gutteresen CC32-775/Gutteresen CC32-775)

Created By: Keith Noack Date: 11:13, October 15 2018

Northern Region - DJ Basin

Mustang

CC Section 29

Guttersen CC32-775

Guttersen CC32-775

Plan: Plan #1

Standard Planning Report

15 October, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen CC32-775
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 CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
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 CC32-775					
Well Position	+N/-S	568.88 ft	Northing:	1,347,598.64 usft	Latitude:	40.2829390
	+E/-W	-3,028.95 ft	Easting:	3,288,539.62 usft	Longitude:	-104.4657520
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,762.00 ft

Wellbore	Guttersen CC32-775				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	10/15/2018	7.90	66.77	52,211.45805699

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	182.99

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	
2,753.54	11.07	323.31	2,750.10	42.75	-31.85	2.00	2.00	0.00	323.31	
6,027.64	11.07	323.31	5,963.27	546.90	-407.47	0.00	0.00	0.00	0.00	
7,126.96	90.00	179.29	6,694.00	-82.97	-483.70	9.00	7.18	-13.10	-143.51	Guttersen CC32-77
14,541.79	90.00	179.29	6,694.00	-7,497.23	-392.22	0.00	0.00	0.00	0.00	Guttersen CC32-77

Noble Energy, Inc.

Planning Report

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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 CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
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
102.00	0.00	0.00	102.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
438.00	0.00	0.00	438.00	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
1,640.00	0.00	0.00	1,640.00	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	323.31	2,299.98	1.40	-1.04	-1.34	2.00	2.00	0.00
2,400.00	4.00	323.31	2,399.84	5.60	-4.17	-5.37	2.00	2.00	0.00
2,500.00	6.00	323.31	2,499.45	12.58	-9.38	-12.08	2.00	2.00	0.00
2,600.00	8.00	323.31	2,598.70	22.36	-16.66	-21.46	2.00	2.00	0.00
2,700.00	10.00	323.31	2,697.47	34.90	-26.00	-33.49	2.00	2.00	0.00
2,753.54	11.07	323.31	2,750.10	42.75	-31.85	-41.03	2.00	2.00	0.00
Hold: 11.07° Inc, 323.31° Azm									
2,800.00	11.07	323.31	2,795.70	49.91	-37.18	-47.89	0.00	0.00	0.00
2,900.00	11.07	323.31	2,893.84	65.30	-48.65	-62.67	0.00	0.00	0.00
3,000.00	11.07	323.31	2,991.98	80.70	-60.13	-77.45	0.00	0.00	0.00
3,100.00	11.07	323.31	3,090.11	96.10	-71.60	-92.23	0.00	0.00	0.00
3,200.00	11.07	323.31	3,188.25	111.50	-83.07	-107.01	0.00	0.00	0.00
3,300.00	11.07	323.31	3,286.39	126.90	-94.54	-121.78	0.00	0.00	0.00
3,400.00	11.07	323.31	3,384.53	142.29	-106.02	-136.56	0.00	0.00	0.00
3,500.00	11.07	323.31	3,482.67	157.69	-117.49	-151.34	0.00	0.00	0.00
3,600.00	11.07	323.31	3,580.81	173.09	-128.96	-166.12	0.00	0.00	0.00
3,700.00	11.07	323.31	3,678.95	188.49	-140.43	-180.89	0.00	0.00	0.00
3,717.37	11.07	323.31	3,696.00	191.16	-142.43	-183.46	0.00	0.00	0.00
Parkman									
3,800.00	11.07	323.31	3,777.09	203.89	-151.90	-195.67	0.00	0.00	0.00
3,900.00	11.07	323.31	3,875.23	219.29	-163.38	-210.45	0.00	0.00	0.00
4,000.00	11.07	323.31	3,973.37	234.68	-174.85	-225.23	0.00	0.00	0.00
4,100.00	11.07	323.31	4,071.51	250.08	-186.32	-240.01	0.00	0.00	0.00

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Planning Report

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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 CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
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	11.07	323.31	4,169.64	265.48	-197.79	-254.78	0.00	0.00	0.00
4,300.00	11.07	323.31	4,267.78	280.88	-209.27	-269.56	0.00	0.00	0.00
4,342.00	11.07	323.31	4,309.00	287.34	-214.08	-275.77	0.00	0.00	0.00
Sussex									
4,400.00	11.07	323.31	4,365.92	296.28	-220.74	-284.34	0.00	0.00	0.00
4,500.00	11.07	323.31	4,464.06	311.67	-232.21	-299.12	0.00	0.00	0.00
4,600.00	11.07	323.31	4,562.20	327.07	-243.68	-313.89	0.00	0.00	0.00
4,700.00	11.07	323.31	4,660.34	342.47	-255.16	-328.67	0.00	0.00	0.00
4,800.00	11.07	323.31	4,758.48	357.87	-266.63	-343.45	0.00	0.00	0.00
4,900.00	11.07	323.31	4,856.62	373.27	-278.10	-358.23	0.00	0.00	0.00
4,979.87	11.07	323.31	4,935.00	385.57	-287.26	-370.03	0.00	0.00	0.00
Shannon									
5,000.00	11.07	323.31	4,954.76	388.67	-289.57	-373.01	0.00	0.00	0.00
5,100.00	11.07	323.31	5,052.90	404.06	-301.04	-387.78	0.00	0.00	0.00
5,200.00	11.07	323.31	5,151.04	419.46	-312.52	-402.56	0.00	0.00	0.00
5,300.00	11.07	323.31	5,249.17	434.86	-323.99	-417.34	0.00	0.00	0.00
5,400.00	11.07	323.31	5,347.31	450.26	-335.46	-432.12	0.00	0.00	0.00
5,500.00	11.07	323.31	5,445.45	465.66	-346.93	-446.89	0.00	0.00	0.00
5,600.00	11.07	323.31	5,543.59	481.05	-358.41	-461.67	0.00	0.00	0.00
5,700.00	11.07	323.31	5,641.73	496.45	-369.88	-476.45	0.00	0.00	0.00
5,800.00	11.07	323.31	5,739.87	511.85	-381.35	-491.23	0.00	0.00	0.00
5,900.00	11.07	323.31	5,838.01	527.25	-392.82	-506.01	0.00	0.00	0.00
5,930.56	11.07	323.31	5,868.00	531.95	-396.33	-510.52	0.00	0.00	0.00
Teepee Buttes									
6,000.00	11.07	323.31	5,936.15	542.65	-404.29	-520.78	0.00	0.00	0.00
6,027.64	11.07	323.31	5,963.27	546.90	-407.47	-524.87	0.00	0.00	0.00
KOP: Build 9°/100' @ 6027.64' MD									
6,050.00	9.53	316.06	5,985.27	549.96	-410.03	-527.78	9.00	-6.90	-32.42
6,100.00	6.99	289.65	6,034.77	553.96	-415.77	-531.48	9.00	-5.07	-52.82
6,150.00	6.88	251.71	6,084.43	554.05	-421.48	-531.27	9.00	-0.23	-75.90
6,200.00	9.27	224.04	6,133.95	550.21	-427.13	-527.14	9.00	4.80	-55.34
6,250.00	12.85	209.56	6,183.02	542.47	-432.67	-519.13	9.00	7.15	-28.96
6,300.00	16.87	201.58	6,231.34	530.89	-438.09	-507.27	9.00	8.04	-15.97
6,350.00	21.08	196.65	6,278.62	515.52	-443.33	-491.65	9.00	8.42	-9.85
6,400.00	25.38	193.32	6,324.56	496.47	-448.38	-472.37	9.00	8.61	-6.67
6,450.00	29.74	190.90	6,368.88	473.85	-453.19	-449.53	9.00	8.72	-4.83
6,500.00	34.13	189.06	6,411.30	447.81	-457.75	-423.28	9.00	8.79	-3.69
6,550.00	38.55	187.59	6,451.56	418.50	-462.02	-393.79	9.00	8.83	-2.94
6,600.00	42.98	186.38	6,489.42	386.10	-465.97	-361.23	9.00	8.86	-2.42
6,635.91	46.17	185.63	6,515.00	361.04	-468.60	-336.06	9.00	8.88	-2.09
Sharon Springs									
6,650.00	47.42	185.36	6,524.65	350.81	-469.58	-325.80	9.00	8.89	-1.93
6,673.15	49.48	184.93	6,540.00	333.56	-471.14	-308.49	9.00	8.89	-1.84
Top A Chalk									
6,696.75	51.58	184.52	6,555.00	315.41	-472.64	-290.28	9.00	8.90	-1.73
Top A Marl									
6,700.00	51.87	184.47	6,557.02	312.86	-472.84	-287.73	9.00	8.90	-1.67
6,735.23	55.01	183.91	6,578.00	284.64	-474.90	-259.44	9.00	8.91	-1.59
Top B Chalk									
6,750.00	56.32	183.69	6,586.33	272.47	-475.71	-247.25	9.00	8.91	-1.51
6,800.00	60.78	182.98	6,612.41	229.90	-478.18	-204.60	9.00	8.92	-1.41
6,829.03	63.38	182.60	6,626.00	204.28	-479.43	-178.95	9.00	8.92	-1.32
Top B Marl									

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Planning Report

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Project:	Mustang	MD Reference:	Well @ 4792.00ft
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Well:	Guttersen CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
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)
6,850.00	65.25	182.33	6,635.09	185.40	-480.24	-160.06	9.00	8.93	-1.27
6,900.00	69.71	181.73	6,654.23	139.25	-481.87	-113.89	9.00	8.93	-1.21
6,950.00	74.18	181.16	6,669.73	91.74	-483.07	-66.38	9.00	8.93	-1.14
6,997.65	78.44	180.64	6,681.00	45.47	-483.79	-20.13	9.00	8.94	-1.09
Top C Chalk									
7,000.00	78.65	180.62	6,681.47	43.16	-483.82	-17.82	9.00	8.94	-1.07
7,050.00	83.12	180.09	6,689.39	-6.19	-484.12	31.48	9.00	8.94	-1.05
7,100.00	87.59	179.57	6,693.44	-56.02	-483.97	81.23	9.00	8.94	-1.04
7,126.96	90.00	179.29	6,694.00	-82.97	-483.70	108.13	9.00	8.94	-1.03
LP: 7126.96' MD, 90.00° Inc, 179.29° Azm									
7,200.00	90.00	179.29	6,694.00	-156.00	-482.80	181.01	0.00	0.00	0.00
7,300.00	90.00	179.29	6,694.00	-255.99	-481.57	280.80	0.00	0.00	0.00
7,400.00	90.00	179.29	6,694.00	-355.99	-480.33	380.60	0.00	0.00	0.00
7,500.00	90.00	179.29	6,694.00	-455.98	-479.10	480.39	0.00	0.00	0.00
7,600.00	90.00	179.29	6,694.00	-555.97	-477.87	580.18	0.00	0.00	0.00
7,700.00	90.00	179.29	6,694.00	-655.96	-476.63	679.97	0.00	0.00	0.00
7,800.00	90.00	179.29	6,694.00	-755.96	-475.40	779.76	0.00	0.00	0.00
7,900.00	90.00	179.29	6,694.00	-855.95	-474.16	879.55	0.00	0.00	0.00
8,000.00	90.00	179.29	6,694.00	-955.94	-472.93	979.34	0.00	0.00	0.00
8,100.00	90.00	179.29	6,694.00	-1,055.93	-471.70	1,079.14	0.00	0.00	0.00
8,200.00	90.00	179.29	6,694.00	-1,155.93	-470.46	1,178.93	0.00	0.00	0.00
8,300.00	90.00	179.29	6,694.00	-1,255.92	-469.23	1,278.72	0.00	0.00	0.00
8,400.00	90.00	179.29	6,694.00	-1,355.91	-468.00	1,378.51	0.00	0.00	0.00
8,500.00	90.00	179.29	6,694.00	-1,455.90	-466.76	1,478.30	0.00	0.00	0.00
8,600.00	90.00	179.29	6,694.00	-1,555.90	-465.53	1,578.09	0.00	0.00	0.00
8,700.00	90.00	179.29	6,694.00	-1,655.89	-464.29	1,677.88	0.00	0.00	0.00
8,800.00	90.00	179.29	6,694.00	-1,755.88	-463.06	1,777.68	0.00	0.00	0.00
8,900.00	90.00	179.29	6,694.00	-1,855.87	-461.83	1,877.47	0.00	0.00	0.00
9,000.00	90.00	179.29	6,694.00	-1,955.87	-460.59	1,977.26	0.00	0.00	0.00
9,100.00	90.00	179.29	6,694.00	-2,055.86	-459.36	2,077.05	0.00	0.00	0.00
9,200.00	90.00	179.29	6,694.00	-2,155.85	-458.13	2,176.84	0.00	0.00	0.00
9,300.00	90.00	179.29	6,694.00	-2,255.84	-456.89	2,276.63	0.00	0.00	0.00
9,400.00	90.00	179.29	6,694.00	-2,355.84	-455.66	2,376.42	0.00	0.00	0.00
9,500.00	90.00	179.29	6,694.00	-2,455.83	-454.43	2,476.21	0.00	0.00	0.00
9,600.00	90.00	179.29	6,694.00	-2,555.82	-453.19	2,576.01	0.00	0.00	0.00
9,700.00	90.00	179.29	6,694.00	-2,655.81	-451.96	2,675.80	0.00	0.00	0.00
9,800.00	90.00	179.29	6,694.00	-2,755.80	-450.72	2,775.59	0.00	0.00	0.00
9,900.00	90.00	179.29	6,694.00	-2,855.80	-449.49	2,875.38	0.00	0.00	0.00
10,000.00	90.00	179.29	6,694.00	-2,955.79	-448.26	2,975.17	0.00	0.00	0.00
10,100.00	90.00	179.29	6,694.00	-3,055.78	-447.02	3,074.96	0.00	0.00	0.00
10,200.00	90.00	179.29	6,694.00	-3,155.77	-445.79	3,174.75	0.00	0.00	0.00
10,300.00	90.00	179.29	6,694.00	-3,255.77	-444.56	3,274.55	0.00	0.00	0.00
10,400.00	90.00	179.29	6,694.00	-3,355.76	-443.32	3,374.34	0.00	0.00	0.00
10,500.00	90.00	179.29	6,694.00	-3,455.75	-442.09	3,474.13	0.00	0.00	0.00
10,600.00	90.00	179.29	6,694.00	-3,555.74	-440.85	3,573.92	0.00	0.00	0.00
10,700.00	90.00	179.29	6,694.00	-3,655.74	-439.62	3,673.71	0.00	0.00	0.00
10,800.00	90.00	179.29	6,694.00	-3,755.73	-438.39	3,773.50	0.00	0.00	0.00
10,900.00	90.00	179.29	6,694.00	-3,855.72	-437.15	3,873.29	0.00	0.00	0.00
11,000.00	90.00	179.29	6,694.00	-3,955.71	-435.92	3,973.09	0.00	0.00	0.00
11,100.00	90.00	179.29	6,694.00	-4,055.71	-434.69	4,072.88	0.00	0.00	0.00
11,200.00	90.00	179.29	6,694.00	-4,155.70	-433.45	4,172.67	0.00	0.00	0.00
11,300.00	90.00	179.29	6,694.00	-4,255.69	-432.22	4,272.46	0.00	0.00	0.00
11,400.00	90.00	179.29	6,694.00	-4,355.68	-430.98	4,372.25	0.00	0.00	0.00
11,500.00	90.00	179.29	6,694.00	-4,455.68	-429.75	4,472.04	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen CC32-775
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 CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
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	179.29	6,694.00	-4,555.67	-428.52	4,571.83	0.00	0.00	0.00
11,700.00	90.00	179.29	6,694.00	-4,655.66	-427.28	4,671.63	0.00	0.00	0.00
11,800.00	90.00	179.29	6,694.00	-4,755.65	-426.05	4,771.42	0.00	0.00	0.00
11,900.00	90.00	179.29	6,694.00	-4,855.64	-424.82	4,871.21	0.00	0.00	0.00
12,000.00	90.00	179.29	6,694.00	-4,955.64	-423.58	4,971.00	0.00	0.00	0.00
12,100.00	90.00	179.29	6,694.00	-5,055.63	-422.35	5,070.79	0.00	0.00	0.00
12,200.00	90.00	179.29	6,694.00	-5,155.62	-421.12	5,170.58	0.00	0.00	0.00
12,300.00	90.00	179.29	6,694.00	-5,255.61	-419.88	5,270.37	0.00	0.00	0.00
12,400.00	90.00	179.29	6,694.00	-5,355.61	-418.65	5,370.16	0.00	0.00	0.00
12,500.00	90.00	179.29	6,694.00	-5,455.60	-417.41	5,469.96	0.00	0.00	0.00
12,600.00	90.00	179.29	6,694.00	-5,555.59	-416.18	5,569.75	0.00	0.00	0.00
12,700.00	90.00	179.29	6,694.00	-5,655.58	-414.95	5,669.54	0.00	0.00	0.00
12,800.00	90.00	179.29	6,694.00	-5,755.58	-413.71	5,769.33	0.00	0.00	0.00
12,900.00	90.00	179.29	6,694.00	-5,855.57	-412.48	5,869.12	0.00	0.00	0.00
13,000.00	90.00	179.29	6,694.00	-5,955.56	-411.25	5,968.91	0.00	0.00	0.00
13,100.00	90.00	179.29	6,694.00	-6,055.55	-410.01	6,068.70	0.00	0.00	0.00
13,200.00	90.00	179.29	6,694.00	-6,155.55	-408.78	6,168.50	0.00	0.00	0.00
13,300.00	90.00	179.29	6,694.00	-6,255.54	-407.54	6,268.29	0.00	0.00	0.00
13,400.00	90.00	179.29	6,694.00	-6,355.53	-406.31	6,368.08	0.00	0.00	0.00
13,500.00	90.00	179.29	6,694.00	-6,455.52	-405.08	6,467.87	0.00	0.00	0.00
13,600.00	90.00	179.29	6,694.00	-6,555.52	-403.84	6,567.66	0.00	0.00	0.00
13,700.00	90.00	179.29	6,694.00	-6,655.51	-402.61	6,667.45	0.00	0.00	0.00
13,800.00	90.00	179.29	6,694.00	-6,755.50	-401.38	6,767.24	0.00	0.00	0.00
13,900.00	90.00	179.29	6,694.00	-6,855.49	-400.14	6,867.04	0.00	0.00	0.00
14,000.00	90.00	179.29	6,694.00	-6,955.49	-398.91	6,966.83	0.00	0.00	0.00
14,100.00	90.00	179.29	6,694.00	-7,055.48	-397.68	7,066.62	0.00	0.00	0.00
14,200.00	90.00	179.29	6,694.00	-7,155.47	-396.44	7,166.41	0.00	0.00	0.00
14,300.00	90.00	179.29	6,694.00	-7,255.46	-395.21	7,266.20	0.00	0.00	0.00
14,400.00	90.00	179.29	6,694.00	-7,355.45	-393.97	7,365.99	0.00	0.00	0.00
14,500.00	90.00	179.29	6,694.00	-7,455.45	-392.74	7,465.78	0.00	0.00	0.00
14,541.79	90.00	179.29	6,694.00	-7,497.23	-392.22	7,507.48	0.00	0.00	0.00
TD @ 14541.78' MD/6694.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Guttersen CC32-775- - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,347,598.64	3,288,539.62	40.2829390	-104.4657520
Guttersen CC32-775- - plan hits target center - Point	0.00	0.01	5,963.27	546.90	-407.47	1,348,145.54	3,288,132.15	40.2844532	-104.4671895
Guttersen CC32-775- - plan hits target center - Point	0.00	0.00	6,694.00	-7,497.23	-392.22	1,340,101.43	3,288,147.39	40.2623725	-104.4674706
Guttersen CC32-775- - plan hits target center - Point	0.00	0.00	6,694.00	-82.97	-483.70	1,347,515.67	3,288,055.92	40.2827267	-104.4674891

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Guttersen CC32-775
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 CC32-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Guttersen CC32-775		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
102.00	102.00	Upper Pierre Aquifer Top				
438.00	438.00	Pierre				
1,640.00	1,640.00	Upper Pierre Aquifer Base				
3,717.37	3,696.00	Parkman				
4,342.00	4,309.00	Sussex				
4,979.87	4,935.00	Shannon				
5,930.56	5,868.00	Teepee Buttes				
6,635.91	6,515.00	Sharon Springs				
6,673.15	6,540.00	Top A Chalk				
6,696.75	6,555.00	Top A Marl				
6,735.23	6,578.00	Top B Chalk				
6,829.03	6,626.00	Top B Marl				
6,997.65	6,681.00	Top C Chalk				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
2,753.54	2,750.10	42.75	-31.85	Hold: 11.07° Inc, 323.31° Azm	
6,027.64	5,963.27	546.90	-407.47	KOP: Build 9°/100' @ 6027.64' MD	
7,126.96	6,694.00	-82.97	-483.70	LP: 7126.96' MD, 90.00° Inc, 179.29° Azm	
14,541.79	6,694.00	-7,497.23	-392.22	TD @ 14541.78' MD/6694.00' TVD	

Northern Region - DJ Basin

Mustang

CC Section 29

Guttersen CC32-775

Guttersen CC32-775

Plan #1

Anticollision Summary Report

15 October, 2018

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Guttersten CC32-775
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:	Guttersten CC32-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Guttersten CC32-775	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	14,541.79	Plan #1 (Guttersten CC32-775)	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						
CC Section 29						
GUTTERSEN #13-29U(PA) - Wellbore #1 - Gyro	7,582.84	6,683.62	334.50	287.05	7.050	CC, ES, SF
GUTTERSEN #14-29U(PR) - Wellbore #1 - Gyro	8,860.71	6,671.17	306.37	254.30	5.884	CC, ES, SF
GUTTERSEN #23-29U(PR) - Wellbore #1 - Gyro	100.00	70.39	724.91	724.66	2,898.569	CC
GUTTERSEN #23-29U(PR) - Wellbore #1 - Gyro	2,200.00	2,171.59	732.99	717.91	48.619	ES
GUTTERSEN #23-29U(PR) - Wellbore #1 - Gyro	7,600.00	6,657.92	900.64	853.08	18.936	SF
GUTTERSEN #24-29U(PR) - Wellbore #1 - Gyro	8,925.91	6,732.97	901.11	848.55	17.144	CC, ES
GUTTERSEN #24-29U(PR) - Wellbore #1 - Gyro	9,000.00	6,733.83	904.15	851.38	17.134	SF
GUTTERSEN #29-BU(PR) - Wellbore #1 - Gyro	8,209.90	6,661.18	267.40	218.24	5.439	CC, ES, SF
GUTTERSEN #29PU(PR) - Wellbore #1 - Gyro	8,187.76	6,668.76	1,510.83	1,461.57	30.670	CC, ES
GUTTERSEN #29PU(PR) - Wellbore #1 - Gyro	8,300.00	6,667.47	1,514.99	1,465.43	30.570	SF
GUTTERSEN #33-29U(PR) - Wellbore #1 - Gyro	2,260.95	2,269.57	1,822.32	1,806.69	116.583	CC
GUTTERSEN #33-29U(PR) - Wellbore #1 - Gyro	2,300.00	2,309.32	1,822.52	1,806.61	114.558	ES
GUTTERSEN #33-29U(PR) - Wellbore #1 - Gyro	7,700.00	6,675.49	2,205.60	2,157.75	46.097	SF
GUTTERSEN #43-29U(PR) - Wellbore #1 - Gyro	659.01	657.04	3,085.91	3,081.66	724.977	CC
GUTTERSEN #43-29U(PR) - Wellbore #1 - Gyro	2,204.33	2,205.84	3,090.03	3,074.83	203.285	ES
GUTTERSEN #43-29U(PR) - Wellbore #1 - Gyro	8,400.00	6,601.21	3,585.42	3,536.09	72.677	SF
GUTTERSEN #44-29U(PR) - Wellbore #1 - Gyro	8,863.44	6,789.86	3,579.25	3,526.71	68.129	CC, ES
GUTTERSEN #44-29U(PR) - Wellbore #1 - Gyro	9,800.00	6,775.84	3,699.73	3,643.25	65.511	SF
Guttersten CC32-717 - Guttersten CC32-717 - Plan #1	2,112.55	2,123.55	2,452.23	2,437.51	166.601	CC
Guttersten CC32-717 - Guttersten CC32-717 - Plan #1	2,200.00	2,200.00	2,452.25	2,436.95	160.209	ES
Guttersten CC32-717 - Guttersten CC32-717 - Plan #1	14,541.79	14,519.14	3,810.75	3,675.52	28.179	SF
Guttersten CC32-725 - Guttersten CC32-725 - Plan #1	2,200.00	2,210.00	2,429.63	2,414.29	158.359	CC, ES
Guttersten CC32-725 - Guttersten CC32-725 - Plan #1	14,541.79	14,523.61	3,270.19	3,135.06	24.200	SF
Guttersten CC32-730 - Guttersten CC32-730 - Plan #1	2,200.08	2,209.12	2,407.31	2,391.97	156.934	CC, ES
Guttersten CC32-730 - Guttersten CC32-730 - Plan #1	14,541.79	14,598.20	2,943.20	2,807.94	21.760	SF
Guttersten CC32-735 - Guttersten CC32-735 - Plan #1	2,288.82	2,340.99	2,384.64	2,368.51	147.899	CC
Guttersten CC32-735 - Guttersten CC32-735 - Plan #1	2,600.00	2,781.16	2,385.60	2,366.86	127.316	ES
Guttersten CC32-735 - Guttersten CC32-735 - Plan #1	14,541.79	14,435.73	2,619.13	2,484.39	19.438	SF
Guttersten CC32-745 - Guttersten CC32-745 - Plan #1	6,831.83	7,030.76	1,933.15	1,885.37	40.460	CC
Guttersten CC32-745 - Guttersten CC32-745 - Plan #1	14,541.79	14,627.60	1,962.03	1,826.85	14.515	ES, SF
Guttersten CC32-750 - Guttersten CC32-750 - Plan #1	2,200.00	2,200.00	67.52	52.21	4.411	CC, ES
Guttersten CC32-750 - Guttersten CC32-750 - Plan #1	2,300.00	2,298.02	69.98	53.98	4.373	SF
Guttersten CC32-755 - Guttersten CC32-755 - Plan #1	2,200.00	2,200.00	44.92	29.61	2.935	CC, ES, SF
Guttersten CC32-765 - Guttersten CC32-765 - Plan #1	2,200.00	2,200.00	22.32	7.02	1.458	Level 3, CC, ES, SF
Guttersten CC32-785 - Guttersten CC32-785 - Plan #1	2,200.00	2,199.00	22.60	7.30	1.477	Level 3, CC
Guttersten CC32-785 - Guttersten CC32-785 - Plan #1	2,300.00	2,298.32	23.03	7.03	1.439	Level 3, ES, SF
KILLEYBEGS #1(PR) - Wellbore #1 - No Surveys	8,599.17	6,676.00	2,585.14	2,499.14	30.060	CC

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutttersen CC32-775
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:	Gutttersen CC32-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutttersen CC32-775	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						
CC Section 29						
KILLEYBEGS #1(PR) - Wellbore #1 - No Surveys	8,600.00	6,676.00	2,585.14	2,499.14	30.059	ES
KILLEYBEGS #1(PR) - Wellbore #1 - No Surveys	8,900.00	6,676.00	2,602.59	2,515.46	29.870	SF
CC Section 32						
Gutttersen State #CC32-06(PR) - Gutttersen State #CC32	11,439.31	6,712.00	1,057.39	878.57	5.913	CC, ES, SF
GUTTERSEN STATE CC #32-03(PR) - GUTTERSEN ST	10,019.01	6,689.00	1,155.70	986.68	6.838	CC, ES, SF
GUTTERSEN STATE CC #32-04(PR) - GUTTERSEN ST	10,165.51	6,700.00	371.79	201.65	2.185	CC, ES, SF
GUTTERSEN STATE CC #32-11(PR) - GUTTERSEN ST	12,885.93	6,703.00	1,123.15	934.05	5.940	CC, ES
GUTTERSEN STATE CC #32-11(PR) - GUTTERSEN ST	12,900.00	6,703.00	1,123.23	934.07	5.938	SF
GUTTERSEN STATE CC #32-12(PR) - GUTTERSEN ST	12,658.99	6,712.00	472.90	285.31	2.521	CC, ES, SF
GUTTERSEN STATE CC #32-5(PR) - GUTTERSEN ST	11,380.76	6,703.00	392.46	214.23	2.202	CC, ES, SF
Gutttersen State CC32-13 - Wellbore #1 - Wellbore #1 - A	14,144.09	6,748.71	409.68	321.89	4.667	CC, ES, SF
Gutttersen State CC32-14 - Wellbore #1 - Wellbore #1 - A	14,186.51	6,729.35	819.83	731.67	9.299	CC, ES
Gutttersen State CC32-14 - Wellbore #1 - Wellbore #1 - A	14,200.00	6,729.49	819.94	731.72	9.294	SF
STATE #25(PR) - STATE #25 - No Surveys	13,588.09	6,728.00	290.52	95.65	1.491	Level 3, CC, ES, SF
DD Section 05						
Gutttersen 1N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	14,541.79	11,271.02	3,880.14	3,726.57	25.266	CC, ES, SF
Gutttersen 27N-5HZ - Wellbore #1 - Wellbore #1 - As Dril	14,541.79	11,061.02	2,837.48	2,687.11	18.870	CC, ES, SF
Gutttersen 2N-5HZ - Wellbore #1 - Wellbore #1 - As Drille	14,541.79	11,309.02	1,794.68	1,653.50	12.712	CC, ES, SF
Gutttersen 3-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	14,541.79	11,041.02	974.70	869.74	9.286	CC, ES, SF
Gutttersen 4-5HZ - Wellbore #1 - Wellbore #1 - As Drilled	14,541.79	11,205.02	806.07	699.03	7.531	CC, ES, SF
UPV 05-13J03 - Wellbore #1 - Wellbore #1 - As Drilled	14,541.79	6,765.47	4,446.33	4,396.73	89.644	CC, ES, SF

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

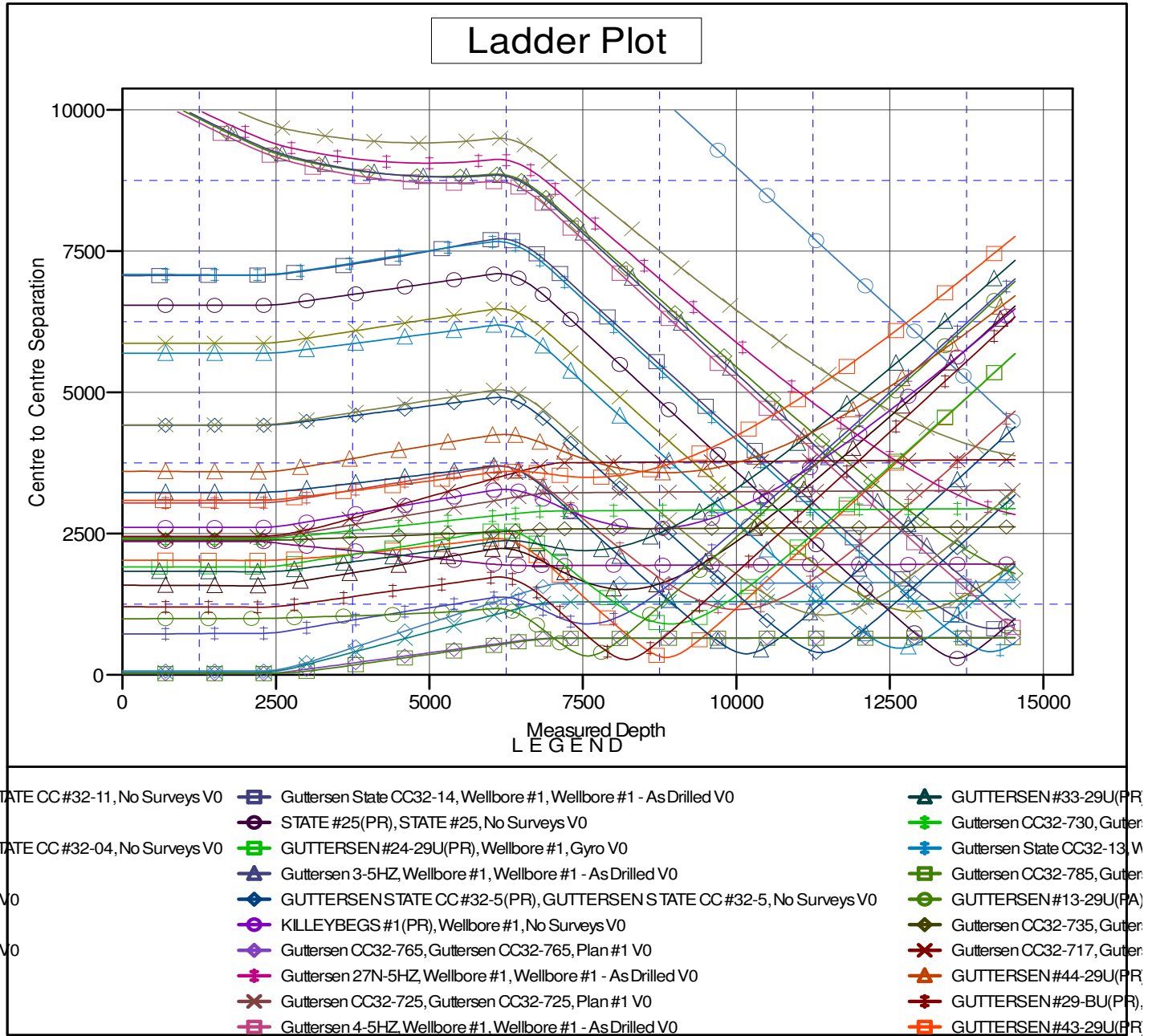
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Gutteresen CC32-775
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:	Gutteresen CC32-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Gutteresen CC32-775	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: Gutteresen CC32-775
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.67°



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

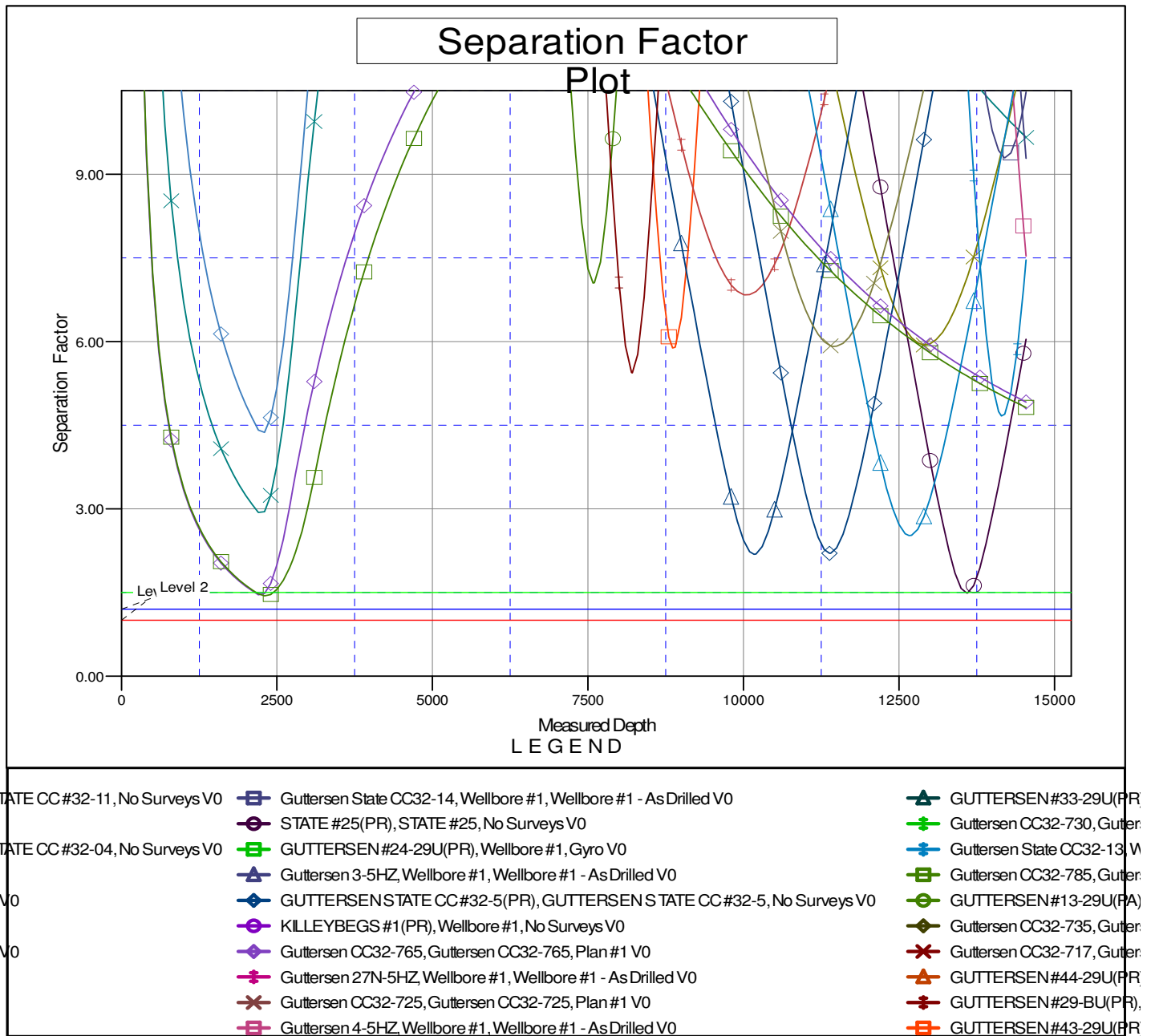
Noble Energy, Inc.

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