

Project: Mustang
 Site: Y Section 07
 Well: Pioneer D31-775
 Wellbore: Pioneer D31-775
 Design: Plan #3

Northern Region - DJ Basin

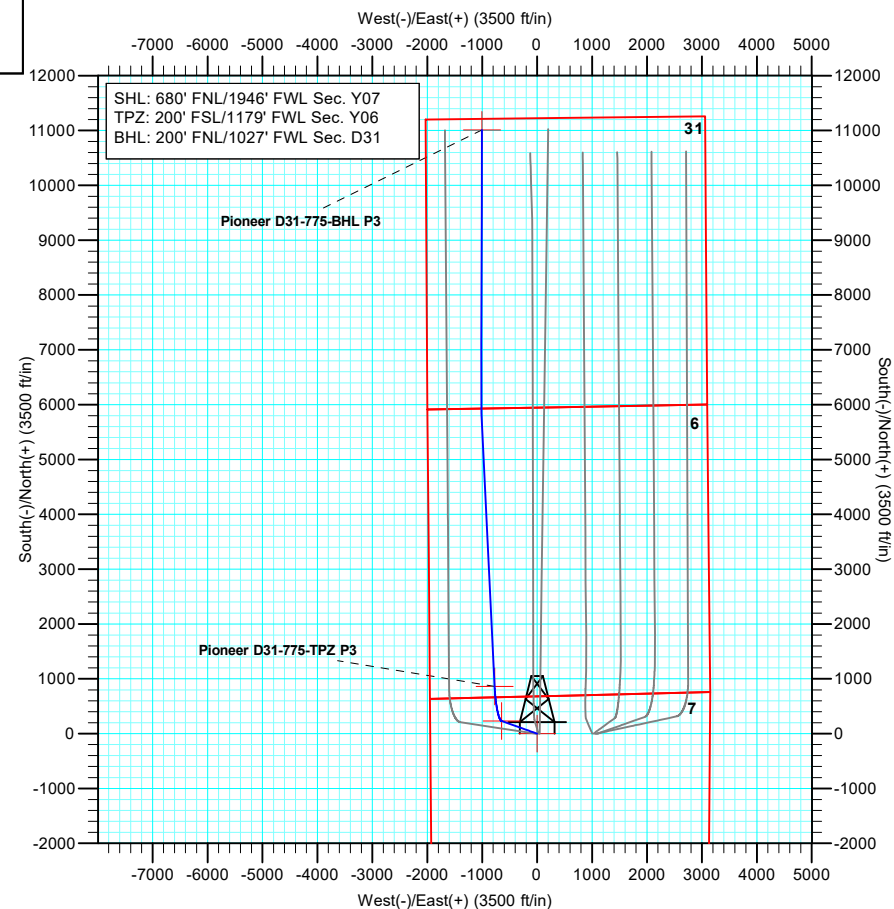
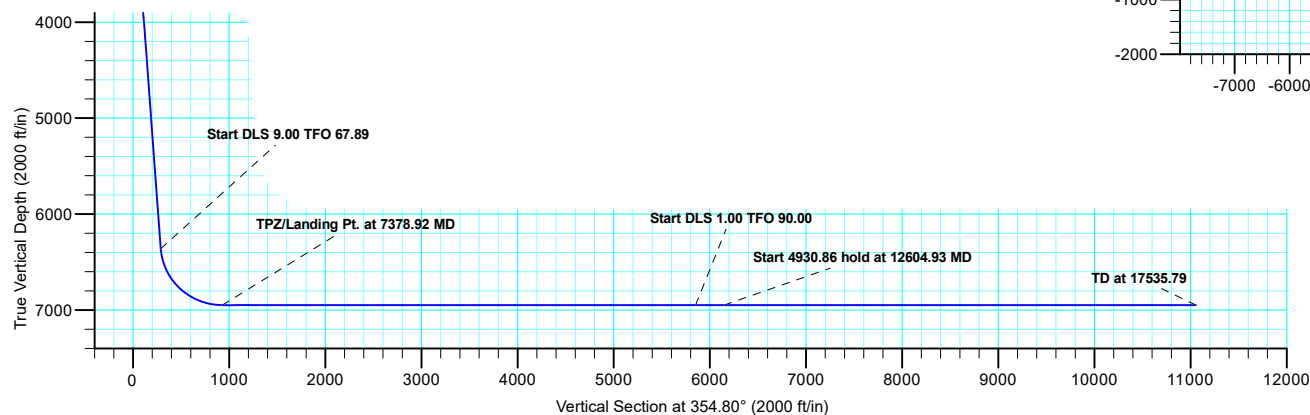
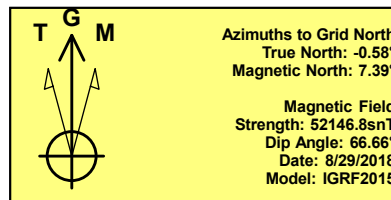
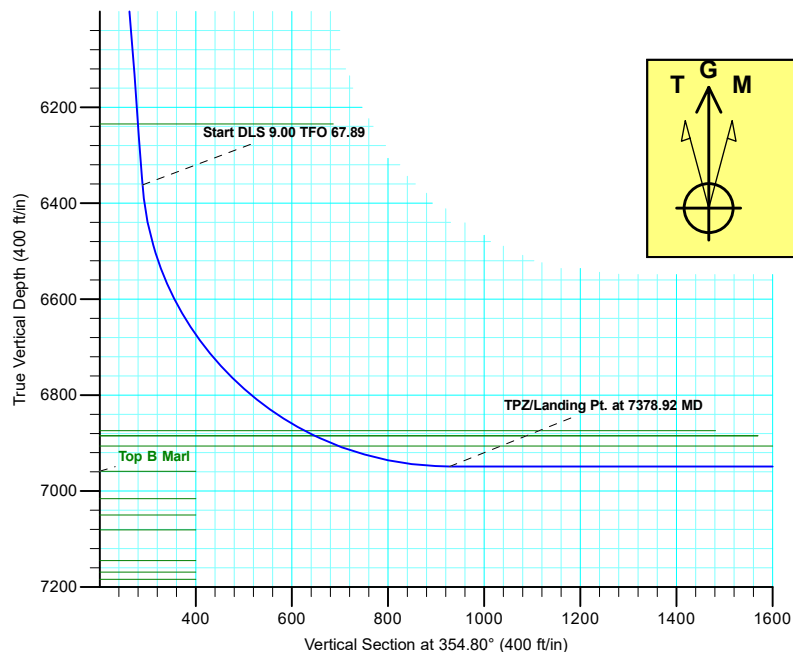
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2699.07	9.98	289.65	2696.55	14.58	-40.84	2.00	289.65	18.22	
4	6421.03	9.98	289.65	6362.18	231.49	-648.39	0.00	0.00	289.35	
5	7378.92	90.00	357.23	6949.00	861.36	-774.45	9.00	67.89	928.06	Pioneer D31-775-TPZ P3
6	12308.92	90.00	357.23	6949.00	5785.60	-1012.70	0.00	0.00	5853.61	
7	12604.93	90.00	0.19	6949.00	6081.51	-1019.36	1.00	90.00	6148.90	
8	17535.79	90.00	0.19	6949.00	11012.34	-1003.00	0.00	0.00	11057.92	Pioneer D31-775-BHL P3

WELL DETAILS: Pioneer D31-775

+N/-S	+E/-W	Northing	Ground Level: Easting	4887.00 Latitude	Longitude	Slot
0.00	0.00	1301718.36	3252680.29	40.1580760	-104.5959540	



Plan: Plan #3 (Pioneer D31-775/Pioneer D31-775)

Created By: Shelly Peterkin Date: 15:08, September 16 2019

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer D31-775

Pioneer D31-775

Plan: Plan #3

Standard Planning Report

16 September, 2019

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

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	Y Section 07				
Site Position:		Northing:	1,301,764.67 usft	Latitude:	40.1582400
From:	Lat/Long	Easting:	3,251,358.82 usft	Longitude:	-104.6006800
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.58 °

Well	Pioneer D31-775					
Well Position	+N/-S	-46.31 ft	Northing:	1,301,718.36 usft	Latitude:	40.1580760
	+E/-W	1,321.48 ft	Easting:	3,252,680.29 usft	Longitude:	-104.5959540
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,887.00 ft

Wellbore	Pioneer D31-775				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/29/2018	7.97	66.66	52,146.81096336

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	354.80

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	
2,699.07	9.98	289.65	2,696.55	14.58	-40.84	2.00	2.00	0.00	289.65	
6,421.03	9.98	289.65	6,362.18	231.49	-648.39	0.00	0.00	0.00	0.00	
7,378.92	90.00	357.23	6,949.00	861.36	-774.45	9.00	8.35	7.06	67.89	Pioneer D31-775-TPZ
12,308.92	90.00	357.23	6,949.00	5,785.60	-1,012.70	0.00	0.00	0.00	0.00	
12,604.93	90.00	0.19	6,949.00	6,081.51	-1,019.36	1.00	0.00	1.00	90.00	
17,535.79	90.00	0.19	6,949.00	11,012.34	-1,003.00	0.00	0.00	0.00	0.00	Pioneer D31-775-BHL

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
723.00	0.00	0.00	723.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills - Pierre									
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
1,071.00	0.00	0.00	1,071.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Top									
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
1,700.00	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
1,880.00	0.00	0.00	1,880.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre Aquifer Base									
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
Start Build 2.00									
2,300.00	2.00	289.65	2,299.98	0.59	-1.64	0.73	2.00	2.00	0.00
2,400.00	4.00	289.65	2,399.84	2.35	-6.57	2.93	2.00	2.00	0.00
2,500.00	6.00	289.65	2,499.45	5.28	-14.78	6.60	2.00	2.00	0.00
2,600.00	8.00	289.65	2,598.70	9.37	-26.26	11.72	2.00	2.00	0.00
2,699.07	9.98	289.65	2,696.55	14.58	-40.84	18.22	2.00	2.00	0.00
Start 3721.97 hold at 2699.07 MD									
2,800.00	9.98	289.65	2,795.95	20.46	-57.31	25.58	0.00	0.00	0.00
2,900.00	9.98	289.65	2,894.44	26.29	-73.64	32.86	0.00	0.00	0.00
3,000.00	9.98	289.65	2,992.92	32.12	-89.96	40.15	0.00	0.00	0.00
3,100.00	9.98	289.65	3,091.41	37.95	-106.28	47.43	0.00	0.00	0.00
3,200.00	9.98	289.65	3,189.90	43.77	-122.61	54.71	0.00	0.00	0.00
3,300.00	9.98	289.65	3,288.38	49.60	-138.93	62.00	0.00	0.00	0.00
3,400.00	9.98	289.65	3,386.87	55.43	-155.25	69.28	0.00	0.00	0.00
3,500.00	9.98	289.65	3,485.36	61.26	-171.58	76.57	0.00	0.00	0.00
3,600.00	9.98	289.65	3,583.84	67.09	-187.90	83.85	0.00	0.00	0.00
3,700.00	9.98	289.65	3,682.33	72.91	-204.22	91.14	0.00	0.00	0.00
3,800.00	9.98	289.65	3,780.82	78.74	-220.55	98.42	0.00	0.00	0.00
3,900.00	9.98	289.65	3,879.30	84.57	-236.87	105.71	0.00	0.00	0.00
3,980.92	9.98	289.65	3,959.00	89.29	-250.08	111.60	0.00	0.00	0.00
Parkman									
4,000.00	9.98	289.65	3,977.79	90.40	-253.19	112.99	0.00	0.00	0.00
4,100.00	9.98	289.65	4,076.28	96.23	-269.52	120.27	0.00	0.00	0.00
4,200.00	9.98	289.65	4,174.76	102.05	-285.84	127.56	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
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Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

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)
4,300.00	9.98	289.65	4,273.25	107.88	-302.16	134.84	0.00	0.00	0.00
4,400.00	9.98	289.65	4,371.73	113.71	-318.49	142.13	0.00	0.00	0.00
4,500.00	9.98	289.65	4,470.22	119.54	-334.81	149.41	0.00	0.00	0.00
4,556.64	9.98	289.65	4,526.00	122.84	-344.06	153.54	0.00	0.00	0.00
Sussex									
4,600.00	9.98	289.65	4,568.71	125.36	-351.14	156.70	0.00	0.00	0.00
4,700.00	9.98	289.65	4,667.19	131.19	-367.46	163.98	0.00	0.00	0.00
4,800.00	9.98	289.65	4,765.68	137.02	-383.78	171.27	0.00	0.00	0.00
4,900.00	9.98	289.65	4,864.17	142.85	-400.11	178.55	0.00	0.00	0.00
5,000.00	9.98	289.65	4,962.65	148.68	-416.43	185.84	0.00	0.00	0.00
5,100.00	9.98	289.65	5,061.14	154.50	-432.75	193.12	0.00	0.00	0.00
5,200.00	9.98	289.65	5,159.63	160.33	-449.08	200.40	0.00	0.00	0.00
5,300.00	9.98	289.65	5,258.11	166.16	-465.40	207.69	0.00	0.00	0.00
5,349.64	9.98	289.65	5,307.00	169.05	-473.50	211.31	0.00	0.00	0.00
Shannon									
5,400.00	9.98	289.65	5,356.60	171.99	-481.72	214.97	0.00	0.00	0.00
5,500.00	9.98	289.65	5,455.09	177.82	-498.05	222.26	0.00	0.00	0.00
5,600.00	9.98	289.65	5,553.57	183.64	-514.37	229.54	0.00	0.00	0.00
5,700.00	9.98	289.65	5,652.06	189.47	-530.69	236.83	0.00	0.00	0.00
5,800.00	9.98	289.65	5,750.54	195.30	-547.02	244.11	0.00	0.00	0.00
5,900.00	9.98	289.65	5,849.03	201.13	-563.34	251.40	0.00	0.00	0.00
6,000.00	9.98	289.65	5,947.52	206.96	-579.66	258.68	0.00	0.00	0.00
6,100.00	9.98	289.65	6,046.00	212.78	-595.99	265.97	0.00	0.00	0.00
6,200.00	9.98	289.65	6,144.49	218.61	-612.31	273.25	0.00	0.00	0.00
6,291.90	9.98	289.65	6,235.00	223.97	-627.31	279.94	0.00	0.00	0.00
Teepee Buttes									
6,300.00	9.98	289.65	6,242.98	224.44	-628.64	280.53	0.00	0.00	0.00
6,400.00	9.98	289.65	6,341.46	230.27	-644.96	287.82	0.00	0.00	0.00
6,421.03	9.98	289.65	6,362.18	231.49	-648.39	289.35	0.00	0.00	0.00
Start DLS 9.00 TFO 67.89									
6,450.00	11.22	302.15	6,390.65	233.84	-653.14	292.12	9.00	4.29	43.17
6,500.00	14.25	317.40	6,439.43	240.96	-661.43	299.96	9.00	6.06	30.49
6,550.00	17.90	326.98	6,487.48	251.94	-669.79	311.65	9.00	7.30	19.17
6,600.00	21.86	333.30	6,534.49	266.71	-678.16	327.12	9.00	7.92	12.64
6,650.00	25.99	337.73	6,580.19	285.17	-686.50	346.26	9.00	8.26	8.86
6,700.00	30.22	341.01	6,624.29	307.22	-694.75	368.97	9.00	8.46	6.55
6,750.00	34.51	343.54	6,666.52	332.71	-702.86	395.09	9.00	8.58	5.07
6,800.00	38.84	345.57	6,706.61	361.49	-710.78	424.47	9.00	8.67	4.06
6,850.00	43.21	347.26	6,744.32	393.39	-718.47	456.93	9.00	8.73	3.36
6,900.00	47.59	348.68	6,779.42	428.20	-725.87	492.27	9.00	8.77	2.86
6,950.00	51.99	349.92	6,811.70	465.71	-732.94	530.27	9.00	8.80	2.48
7,000.00	56.40	351.02	6,840.94	505.69	-739.64	570.70	9.00	8.82	2.20
7,050.00	60.82	352.02	6,866.98	547.90	-745.92	613.30	9.00	8.84	1.99
7,064.70	62.12	352.29	6,874.00	560.69	-747.69	626.19	9.00	8.85	1.87
Sharon Springs									
7,089.09	64.28	352.74	6,885.00	582.28	-750.52	647.95	9.00	8.85	1.81
Top A Chalk - Top A Marl									
7,100.00	65.25	352.93	6,889.65	592.07	-751.75	657.81	9.00	8.86	1.77
7,142.04	68.97	353.64	6,906.00	630.52	-756.28	696.52	9.00	8.86	1.70
Top B Chalk									
7,150.00	69.68	353.78	6,908.81	637.92	-757.09	703.97	9.00	8.87	1.65
7,200.00	74.11	354.58	6,924.35	685.19	-761.91	751.48	9.00	8.87	1.60
7,250.00	78.55	355.34	6,936.16	733.57	-766.18	800.05	9.00	8.88	1.53

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

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)
7,300.00	82.99	356.08	6,944.18	782.78	-769.86	849.38	9.00	8.88	1.48
7,350.00	87.43	356.81	6,948.35	832.49	-772.95	899.17	9.00	8.88	1.46
7,378.92	90.00	357.23	6,949.00	861.36	-774.45	928.06	9.00	8.88	1.45
TPZ/Landing Pt. at 7378.92 MD									
7,400.00	90.00	357.23	6,949.00	882.42	-775.47	949.12	0.00	0.00	0.00
7,500.00	90.00	357.23	6,949.00	982.30	-780.30	1,049.03	0.00	0.00	0.00
7,600.00	90.00	357.23	6,949.00	1,082.19	-785.13	1,148.94	0.00	0.00	0.00
7,700.00	90.00	357.23	6,949.00	1,182.07	-789.97	1,248.85	0.00	0.00	0.00
7,800.00	90.00	357.23	6,949.00	1,281.95	-794.80	1,348.76	0.00	0.00	0.00
7,900.00	90.00	357.23	6,949.00	1,381.84	-799.63	1,448.67	0.00	0.00	0.00
8,000.00	90.00	357.23	6,949.00	1,481.72	-804.46	1,548.58	0.00	0.00	0.00
8,100.00	90.00	357.23	6,949.00	1,581.60	-809.30	1,648.49	0.00	0.00	0.00
8,200.00	90.00	357.23	6,949.00	1,681.49	-814.13	1,748.40	0.00	0.00	0.00
8,300.00	90.00	357.23	6,949.00	1,781.37	-818.96	1,848.31	0.00	0.00	0.00
8,400.00	90.00	357.23	6,949.00	1,881.25	-823.80	1,948.22	0.00	0.00	0.00
8,500.00	90.00	357.23	6,949.00	1,981.14	-828.63	2,048.13	0.00	0.00	0.00
8,600.00	90.00	357.23	6,949.00	2,081.02	-833.46	2,148.04	0.00	0.00	0.00
8,700.00	90.00	357.23	6,949.00	2,180.90	-838.29	2,247.95	0.00	0.00	0.00
8,800.00	90.00	357.23	6,949.00	2,280.78	-843.13	2,347.86	0.00	0.00	0.00
8,900.00	90.00	357.23	6,949.00	2,380.67	-847.96	2,447.77	0.00	0.00	0.00
9,000.00	90.00	357.23	6,949.00	2,480.55	-852.79	2,547.68	0.00	0.00	0.00
9,100.00	90.00	357.23	6,949.00	2,580.43	-857.62	2,647.59	0.00	0.00	0.00
9,200.00	90.00	357.23	6,949.00	2,680.32	-862.46	2,747.50	0.00	0.00	0.00
9,300.00	90.00	357.23	6,949.00	2,780.20	-867.29	2,847.41	0.00	0.00	0.00
9,400.00	90.00	357.23	6,949.00	2,880.08	-872.12	2,947.32	0.00	0.00	0.00
9,500.00	90.00	357.23	6,949.00	2,979.97	-876.95	3,047.23	0.00	0.00	0.00
9,600.00	90.00	357.23	6,949.00	3,079.85	-881.79	3,147.14	0.00	0.00	0.00
9,700.00	90.00	357.23	6,949.00	3,179.73	-886.62	3,247.05	0.00	0.00	0.00
9,800.00	90.00	357.23	6,949.00	3,279.62	-891.45	3,346.96	0.00	0.00	0.00
9,900.00	90.00	357.23	6,949.00	3,379.50	-896.29	3,446.87	0.00	0.00	0.00
10,000.00	90.00	357.23	6,949.00	3,479.38	-901.12	3,546.78	0.00	0.00	0.00
10,100.00	90.00	357.23	6,949.00	3,579.27	-905.95	3,646.69	0.00	0.00	0.00
10,200.00	90.00	357.23	6,949.00	3,679.15	-910.78	3,746.59	0.00	0.00	0.00
10,300.00	90.00	357.23	6,949.00	3,779.03	-915.62	3,846.50	0.00	0.00	0.00
10,400.00	90.00	357.23	6,949.00	3,878.92	-920.45	3,946.41	0.00	0.00	0.00
10,500.00	90.00	357.23	6,949.00	3,978.80	-925.28	4,046.32	0.00	0.00	0.00
10,600.00	90.00	357.23	6,949.00	4,078.68	-930.11	4,146.23	0.00	0.00	0.00
10,700.00	90.00	357.23	6,949.00	4,178.56	-934.95	4,246.14	0.00	0.00	0.00
10,800.00	90.00	357.23	6,949.00	4,278.45	-939.78	4,346.05	0.00	0.00	0.00
10,900.00	90.00	357.23	6,949.00	4,378.33	-944.61	4,445.96	0.00	0.00	0.00
11,000.00	90.00	357.23	6,949.00	4,478.21	-949.44	4,545.87	0.00	0.00	0.00
11,100.00	90.00	357.23	6,949.00	4,578.10	-954.28	4,645.78	0.00	0.00	0.00
11,200.00	90.00	357.23	6,949.00	4,677.98	-959.11	4,745.69	0.00	0.00	0.00
11,300.00	90.00	357.23	6,949.00	4,777.86	-963.94	4,845.60	0.00	0.00	0.00
11,400.00	90.00	357.23	6,949.00	4,877.75	-968.78	4,945.51	0.00	0.00	0.00
11,500.00	90.00	357.23	6,949.00	4,977.63	-973.61	5,045.42	0.00	0.00	0.00
11,600.00	90.00	357.23	6,949.00	5,077.51	-978.44	5,145.33	0.00	0.00	0.00
11,700.00	90.00	357.23	6,949.00	5,177.40	-983.27	5,245.24	0.00	0.00	0.00
11,800.00	90.00	357.23	6,949.00	5,277.28	-988.11	5,345.15	0.00	0.00	0.00
11,900.00	90.00	357.23	6,949.00	5,377.16	-992.94	5,445.06	0.00	0.00	0.00
12,000.00	90.00	357.23	6,949.00	5,477.05	-997.77	5,544.97	0.00	0.00	0.00
12,100.00	90.00	357.23	6,949.00	5,576.93	-1,002.60	5,644.88	0.00	0.00	0.00
12,200.00	90.00	357.23	6,949.00	5,676.81	-1,007.44	5,744.79	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

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)
12,308.92	90.00	357.23	6,949.00	5,785.60	-1,012.70	5,853.61	0.00	0.00	0.00
Start DLS 1.00 TFO 90.00									
12,400.00	90.00	358.14	6,949.00	5,876.61	-1,016.38	5,944.58	1.00	0.00	1.00
12,500.00	90.00	359.14	6,949.00	5,976.58	-1,018.75	6,044.35	1.00	0.00	1.00
12,604.93	90.00	0.19	6,949.00	6,081.51	-1,019.36	6,148.90	1.00	0.00	1.00
Start 4930.86 hold at 12604.93 MD									
12,700.00	90.00	0.19	6,949.00	6,176.58	-1,019.05	6,243.55	0.00	0.00	0.00
12,800.00	90.00	0.19	6,949.00	6,276.58	-1,018.72	6,343.10	0.00	0.00	0.00
12,900.00	90.00	0.19	6,949.00	6,376.58	-1,018.38	6,442.66	0.00	0.00	0.00
13,000.00	90.00	0.19	6,949.00	6,476.57	-1,018.05	6,542.22	0.00	0.00	0.00
13,100.00	90.00	0.19	6,949.00	6,576.57	-1,017.72	6,641.78	0.00	0.00	0.00
13,200.00	90.00	0.19	6,949.00	6,676.57	-1,017.39	6,741.33	0.00	0.00	0.00
13,300.00	90.00	0.19	6,949.00	6,776.57	-1,017.06	6,840.89	0.00	0.00	0.00
13,400.00	90.00	0.19	6,949.00	6,876.57	-1,016.73	6,940.45	0.00	0.00	0.00
13,500.00	90.00	0.19	6,949.00	6,976.57	-1,016.39	7,040.00	0.00	0.00	0.00
13,600.00	90.00	0.19	6,949.00	7,076.57	-1,016.06	7,139.56	0.00	0.00	0.00
13,700.00	90.00	0.19	6,949.00	7,176.57	-1,015.73	7,239.12	0.00	0.00	0.00
13,800.00	90.00	0.19	6,949.00	7,276.57	-1,015.40	7,338.68	0.00	0.00	0.00
13,900.00	90.00	0.19	6,949.00	7,376.57	-1,015.07	7,438.23	0.00	0.00	0.00
14,000.00	90.00	0.19	6,949.00	7,476.57	-1,014.73	7,537.79	0.00	0.00	0.00
14,100.00	90.00	0.19	6,949.00	7,576.57	-1,014.40	7,637.35	0.00	0.00	0.00
14,200.00	90.00	0.19	6,949.00	7,676.57	-1,014.07	7,736.90	0.00	0.00	0.00
14,300.00	90.00	0.19	6,949.00	7,776.57	-1,013.74	7,836.46	0.00	0.00	0.00
14,400.00	90.00	0.19	6,949.00	7,876.57	-1,013.41	7,936.02	0.00	0.00	0.00
14,500.00	90.00	0.19	6,949.00	7,976.57	-1,013.08	8,035.58	0.00	0.00	0.00
14,600.00	90.00	0.19	6,949.00	8,076.57	-1,012.74	8,135.13	0.00	0.00	0.00
14,700.00	90.00	0.19	6,949.00	8,176.57	-1,012.41	8,234.69	0.00	0.00	0.00
14,800.00	90.00	0.19	6,949.00	8,276.56	-1,012.08	8,334.25	0.00	0.00	0.00
14,900.00	90.00	0.19	6,949.00	8,376.56	-1,011.75	8,433.80	0.00	0.00	0.00
15,000.00	90.00	0.19	6,949.00	8,476.56	-1,011.42	8,533.36	0.00	0.00	0.00
15,100.00	90.00	0.19	6,949.00	8,576.56	-1,011.08	8,632.92	0.00	0.00	0.00
15,200.00	90.00	0.19	6,949.00	8,676.56	-1,010.75	8,732.48	0.00	0.00	0.00
15,300.00	90.00	0.19	6,949.00	8,776.56	-1,010.42	8,832.03	0.00	0.00	0.00
15,400.00	90.00	0.19	6,949.00	8,876.56	-1,010.09	8,931.59	0.00	0.00	0.00
15,500.00	90.00	0.19	6,949.00	8,976.56	-1,009.76	9,031.15	0.00	0.00	0.00
15,600.00	90.00	0.19	6,949.00	9,076.56	-1,009.42	9,130.70	0.00	0.00	0.00
15,700.00	90.00	0.19	6,949.00	9,176.56	-1,009.09	9,230.26	0.00	0.00	0.00
15,800.00	90.00	0.19	6,949.00	9,276.56	-1,008.76	9,329.82	0.00	0.00	0.00
15,900.00	90.00	0.19	6,949.00	9,376.56	-1,008.43	9,429.38	0.00	0.00	0.00
16,000.00	90.00	0.19	6,949.00	9,476.56	-1,008.10	9,528.93	0.00	0.00	0.00
16,100.00	90.00	0.19	6,949.00	9,576.56	-1,007.77	9,628.49	0.00	0.00	0.00
16,200.00	90.00	0.19	6,949.00	9,676.56	-1,007.43	9,728.05	0.00	0.00	0.00
16,300.00	90.00	0.19	6,949.00	9,776.56	-1,007.10	9,827.60	0.00	0.00	0.00
16,400.00	90.00	0.19	6,949.00	9,876.56	-1,006.77	9,927.16	0.00	0.00	0.00
16,500.00	90.00	0.19	6,949.00	9,976.56	-1,006.44	10,026.72	0.00	0.00	0.00
16,600.00	90.00	0.19	6,949.00	10,076.56	-1,006.11	10,126.28	0.00	0.00	0.00
16,700.00	90.00	0.19	6,949.00	10,176.55	-1,005.77	10,225.83	0.00	0.00	0.00
16,800.00	90.00	0.19	6,949.00	10,276.55	-1,005.44	10,325.39	0.00	0.00	0.00
16,900.00	90.00	0.19	6,949.00	10,376.55	-1,005.11	10,424.95	0.00	0.00	0.00
17,000.00	90.00	0.19	6,949.00	10,476.55	-1,004.78	10,524.50	0.00	0.00	0.00
17,100.00	90.00	0.19	6,949.00	10,576.55	-1,004.45	10,624.06	0.00	0.00	0.00
17,200.00	90.00	0.19	6,949.00	10,676.55	-1,004.12	10,723.62	0.00	0.00	0.00
17,300.00	90.00	0.19	6,949.00	10,776.55	-1,003.78	10,823.18	0.00	0.00	0.00
17,400.00	90.00	0.19	6,949.00	10,876.55	-1,003.45	10,922.73	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,500.00	90.00	0.19	6,949.00	10,976.55	-1,003.12	11,022.29	0.00	0.00	0.00
17,535.79	90.00	0.19	6,949.00	11,012.34	-1,003.00	11,057.92	0.00	0.00	0.00
TD at 17535.79									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Pioneer D31-775-SHL - plan hits target center - Point	0.00	0.01	0.00	0.00	0.00	1,301,718.36	3,252,680.29	40.1580760	-104.5959540
Pioneer D31-775-KOP - plan hits target center - Point	0.00	0.00	6,362.18	231.49	-648.39	1,301,949.85	3,252,031.90	40.1587296	-104.5982652
Pioneer D31-775-TPZ P - plan hits target center - Point	0.00	0.01	6,949.00	861.36	-774.45	1,302,579.72	3,251,905.84	40.1604621	-104.5986933
Pioneer D31-775-BHL P - plan hits target center - Point	0.00	0.01	6,949.00	11,012.34	-1,003.00	1,312,730.68	3,251,677.29	40.1883327	-104.5991420

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
723.00	723.00	Fox Hills				
723.00	723.00	Pierre				
1,071.00	1,071.00	Upper Pierre Aquifer Top				
1,880.00	1,880.00	Upper Pierre Aquifer Base				
3,980.92	3,959.00	Parkman				
4,556.64	4,526.00	Sussex				
5,349.64	5,307.00	Shannon				
6,291.90	6,235.00	Teepee Buttes				
7,064.70	6,874.00	Sharon Springs				
7,089.09	6,885.00	Top A Chalk				
7,089.09	6,885.00	Top A Marl				
7,142.04	6,906.00	Top B Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer D31-775
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4917.00ft
Project:	Mustang	MD Reference:	KB @ 4917.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer D31-775		
Design:	Plan #3		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,200.00	2,200.00	0.00	0.00	Start Build 2.00	
2,699.07	2,696.55	14.58	-40.84	Start 3721.97 hold at 2699.07 MD	
6,421.03	6,362.18	231.49	-648.39	Start DLS 9.00 TFO 67.89	
7,378.92	6,949.00	861.36	-774.45	TPZ/Landing Pt. at 7378.92 MD	
12,308.92	6,949.00	5,785.60	-1,012.70	Start DLS 1.00 TFO 90.00	
12,604.93	6,949.00	6,081.51	-1,019.36	Start 4930.86 hold at 12604.93 MD	
17,535.79	6,949.00	11,012.34	-1,003.00	TD at 17535.79	

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer D31-775

Pioneer D31-775

Plan #3

Anticollision Summary Report

16 September, 2019

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 100.00ft	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	9/16/2019		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	17,535.79	Plan #3 (Pioneer D31-775)	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
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - A	17,535.79	6,863.87	6,246.37	6,170.62	82.468	CC, ES, SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	17,535.79	6,940.93	5,437.55	5,377.57	90.654	CC, ES, SF
Adams D30-30D - Adams D30-30D Gyros - Gyros	17,535.79	7,281.98	5,677.43	5,548.88	44.163	CC, ES, SF
Adams D30-30D - Adams D30-30D OH - As Drilled	17,535.79	7,294.98	5,677.40	5,548.85	44.163	CC, ES, SF
Adams D30-31D - Adams D30-31D Gyros - Gyros	17,535.79	7,292.88	4,377.79	4,253.44	35.205	CC, ES, SF
Adams D30-31D - Adams D30-31D OH - As-drilled	17,535.79	7,305.88	4,377.76	4,253.40	35.205	CC, ES, SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - As	17,535.79	7,184.06	3,075.19	2,960.08	26.714	CC, ES, SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	17,535.79	6,940.34	3,078.13	2,974.19	29.617	CC, ES, SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D3	17,535.79	6,758.43	4,103.54	3,997.49	38.693	CC, ES, SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D3	17,535.79	6,911.90	2,283.00	2,170.12	20.225	CC, ES, SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D3	17,535.79	6,844.55	3,435.12	3,319.27	29.651	CC, ES, SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17D	17,535.79	7,238.10	4,713.13	4,569.52	32.818	CC, ES, SF
Dechant D30-20D - Dechant D30-20D - Dechant D30-20D	17,535.79	6,919.95	2,939.86	2,879.54	48.743	CC, ES, SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24D	17,535.79	6,954.73	2,035.67	1,940.25	21.335	CC, ES, SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25D	17,535.79	7,051.01	1,552.64	1,484.40	22.754	CC, ES, SF
Dechant D31-27D - Dechant D31-27D - Dechant D31-27D	17,535.79	7,121.66	2,767.27	2,643.09	22.283	CC, ES, SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28D	17,535.79	6,850.26	1,393.18	1,277.70	12.064	CC, ES, SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29D	17,535.79	6,961.68	329.73	241.48	3.736	CC, ES, SF
Dechant D31-77HN - Original Drilling - Original Drilling - A	12,995.60	11,360.01	415.74	271.33	2.879	CC
Dechant D31-77HN - Original Drilling - Original Drilling - A	13,000.00	11,360.01	415.77	271.28	2.878	ES, SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As D	17,535.79	6,792.67	2,448.19	2,380.40	36.118	CC, ES, SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	17,535.79	6,787.99	2,468.52	2,412.95	44.425	CC, ES, SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	17,535.79	6,842.04	1,010.21	934.77	13.390	CC, ES, SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	17,535.79	6,799.61	1,321.51	1,225.28	13.733	CC, ES, SF
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	17,535.79	6,654.63	5,579.88	5,496.73	67.106	CC, ES, SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	17,535.79	6,811.00	5,441.90	5,333.27	50.094	CC, ES, SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	17,535.79	6,780.87	5,112.22	5,053.37	86.862	CC, ES, SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	17,535.79	6,790.28	5,113.69	5,059.56	94.467	CC, ES, SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	17,535.79	6,831.23	3,339.96	3,285.37	61.176	CC, ES, SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	17,535.79	6,782.30	3,445.11	3,382.19	54.754	CC, ES, SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	17,535.79	6,839.44	4,755.99	4,661.09	50.114	CC, ES, SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit 1	17,535.79	6,829.00	1,472.59	1,382.50	16.345	CC, ES, SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	17,535.79	6,749.00	4,940.51	4,837.54	47.981	CC, ES, SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	17,535.79	6,819.00	4,242.94	4,126.67	36.493	CC, ES, SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	17,535.79	6,732.60	4,416.56	4,348.06	64.478	CC, ES, SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	17,535.79	6,794.62	4,232.94	4,175.55	73.750	CC, ES, SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	17,535.79	6,841.61	3,127.32	3,041.75	36.549	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 30						
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	17,535.79	6,876.14	3,940.30	3,847.25	42.349	CC, ES, SF
D Section 31						
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	13,436.92	6,846.60	44.78	-40.01	0.528	Level 1, CC, ES, SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	15,200.84	6,926.35	2,634.09	2,531.24	25.613	CC, ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	15,300.00	6,924.39	2,635.95	2,532.86	25.569	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	16,400.00	7,205.55	1,326.03	1,202.25	10.712	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	16,416.55	7,204.94	1,325.93	1,202.21	10.717	CC, ES
Dechant D31-21D (PR) - Wellbore #1 - As Drilled	15,263.65	6,920.04	1,602.43	1,500.69	15.749	CC, ES
Dechant D31-21D (PR) - Wellbore #1 - As Drilled	15,300.00	6,919.41	1,602.84	1,501.04	15.745	SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	13,913.14	6,974.93	1,556.23	1,465.04	17.066	CC, ES, SF
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	16,280.73	6,981.98	949.40	828.70	7.866	CC
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	16,300.00	6,982.04	949.60	828.49	7.841	ES
Dechant D31-31D (SI) - Dechant D31-31D OH - As-Drille	16,400.00	6,982.37	956.86	834.27	7.805	SF
Dechant State D31-32 (SI) - Wellbore #1 - As-Drilled	15,289.08	6,848.79	621.11	521.68	6.246	CC
Dechant State D31-32 (SI) - Wellbore #1 - As-Drilled	15,300.00	6,848.80	621.21	521.60	6.236	ES, SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	12,571.55	6,939.30	2,797.02	2,714.49	33.891	CC
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	12,600.00	6,938.91	2,797.10	2,714.47	33.853	ES
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	12,800.00	6,936.59	2,805.11	2,721.94	33.730	SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	12,480.38	6,961.17	1,587.86	1,505.74	19.336	CC
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	12,500.00	6,960.46	1,587.95	1,505.69	19.306	ES
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	12,604.93	6,956.63	1,591.38	1,508.55	19.213	SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	13,461.26	6,822.23	2,148.04	2,062.85	25.215	CC, ES
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	13,600.00	6,823.44	2,152.52	2,066.75	25.097	SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	13,240.53	6,837.63	3,187.48	3,103.83	38.103	CC, ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,840.18	3,220.42	3,134.64	37.540	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	14,494.18	6,811.42	3,220.46	3,127.50	34.643	CC
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	14,500.00	6,811.37	3,220.47	3,127.47	34.630	ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	14,900.00	6,808.77	3,245.93	3,151.07	34.219	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	14,157.87	6,798.63	2,448.53	2,358.22	27.111	CC, ES
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,790.83	2,460.46	2,369.19	26.957	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	14,641.83	6,832.35	1,116.46	1,020.73	11.664	CC, ES, SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	14,491.62	6,852.09	513.24	420.08	5.509	CC
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,852.03	513.31	420.00	5.501	ES, SF
Riva Blue D31-14 (PR) - Wellbore #1 - Gyro Surveys	12,838.94	6,841.90	970.05	889.34	12.019	CC, ES, SF
Riva D 31-10 (PR) - Wellbore #1 - As-Drilled	14,604.18	6,928.90	1,914.85	1,820.44	20.282	CC, ES
Riva D 31-10 (PR) - Wellbore #1 - As-Drilled	14,700.00	6,931.10	1,917.24	1,822.45	20.225	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	16,358.24	6,840.67	69.78	-37.76	0.649	Level 1, CC, ES, SF
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	17,396.72	6,865.13	929.34	813.34	8.012	CC, ES
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	17,400.00	6,865.07	929.35	813.34	8.011	SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	15,655.95	6,840.00	966.18	616.21	2.761	CC, ES, SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	15,869.51	6,824.95	866.35	762.78	8.364	CC, ES, SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,168.60	6,793.02	3,323.87	3,210.16	29.231	CC
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,200.00	6,793.49	3,324.02	3,210.12	29.183	ES
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,500.00	6,797.83	3,340.35	3,224.99	28.958	SF
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	15,901.45	6,814.10	2,239.09	2,135.24	21.560	CC, ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	16,000.00	6,811.84	2,241.26	2,136.98	21.492	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	15,720.18	6,968.00	3,275.02	3,171.85	31.746	CC, ES
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	16,100.00	6,950.20	3,296.92	3,191.99	31.420	SF
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	17,269.19	6,769.02	884.88	714.96	5.208	CC, ES
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	17,300.00	6,769.63	885.41	715.08	5.198	SF
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Survey	16,467.22	6,833.00	2,735.39	2,379.37	7.683	CC, ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Survey	16,600.00	6,833.00	2,738.61	2,381.92	7.678	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 32						
HP D32-21D - Wellbore #1 - MWD Surveys	15,283.50	6,925.78	6,798.25	6,695.67	66.278	CC
HP D32-21D - Wellbore #1 - MWD Surveys	15,300.00	6,925.48	6,798.27	6,695.59	66.212	ES
HP D32-21D - Wellbore #1 - MWD Surveys	16,900.00	6,900.00	6,987.71	6,877.06	63.151	SF
HP D32-23D - Wellbore #1 - MWD Surveys	14,216.28	6,803.97	7,985.25	7,893.04	86.591	CC
HP D32-23D - Wellbore #1 - MWD Surveys	14,300.00	6,803.95	7,985.69	7,892.93	86.085	ES
HP D32-23D - Wellbore #1 - MWD Surveys	16,800.00	6,803.49	8,392.85	8,286.81	79.152	SF
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,370.93	7,010.27	8,073.19	7,961.78	72.467	CC
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,400.00	7,010.09	8,073.24	7,961.64	72.342	ES
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	17,500.00	6,997.52	8,349.20	8,226.66	68.132	SF
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,044.78	6,739.91	6,202.36	6,089.87	55.135	CC
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,100.00	6,738.99	6,202.61	6,089.74	54.955	ES
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,535.79	6,731.76	6,221.76	6,106.16	53.822	SF
HP Farms D32-18D - Wellbore #1 - MWD Surveys	16,532.06	7,045.40	6,819.56	6,708.46	61.378	CC
HP Farms D32-18D - Wellbore #1 - MWD Surveys	16,600.00	7,044.72	6,819.90	6,708.36	61.140	ES
HP Farms D32-18D - Wellbore #1 - MWD Surveys	17,535.79	7,035.13	6,893.03	6,776.04	58.920	SF
HP Farms D32-24D - Wellbore #1 - MWD Surveys	13,934.33	7,082.32	6,847.97	6,756.77	75.084	CC
HP Farms D32-24D - Wellbore #1 - MWD Surveys	14,000.00	7,081.92	6,848.29	6,756.67	74.750	ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	16,100.00	7,069.73	7,182.25	7,079.23	69.721	SF
Norris 14-32 - Wellbore #1 - Projection Survey	13,028.57	6,859.00	4,670.69	4,552.46	39.503	CC, ES
Norris 14-32 - Wellbore #1 - Projection Survey	13,800.00	6,859.00	4,733.97	4,611.58	38.679	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	13,761.16	6,600.00	5,306.36	5,219.82	61.318	CC
Norris A Unit 2 - Wellbore #1 - As-Drilled	13,800.00	6,600.00	5,306.50	5,219.71	61.144	ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	15,000.00	6,600.00	5,449.05	5,356.02	58.575	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,188.52	6,823.70	8,684.98	8,570.97	76.180	CC
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,300.00	6,824.80	8,685.69	8,570.89	75.655	ES
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,535.79	6,827.14	8,691.92	8,575.46	74.637	SF
Norris D32-10 - Wellbore #1 - Gyro Surveys	14,489.88	6,639.30	7,390.31	7,298.01	80.063	CC
Norris D32-10 - Wellbore #1 - Gyro Surveys	14,500.00	6,639.42	7,390.32	7,297.95	80.003	ES
Norris D32-10 - Wellbore #1 - Gyro Surveys	16,800.00	6,665.56	7,742.93	7,637.84	73.682	SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	12,800.00	12,800.00	7,412.13	7,310.68	73.063	ES, SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	13,204.84	6,800.00	7,401.07	7,317.77	88.842	CC
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,387.94	16,387.94	8,269.45	8,128.24	58.560	CC
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,500.00	16,500.00	8,270.21	8,127.82	58.079	ES
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,600.00	16,600.00	8,272.17	8,128.73	57.670	SF
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,247.43	6,877.48	7,372.26	7,257.59	64.288	CC
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,300.00	6,877.72	7,372.45	7,257.40	64.082	ES
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,535.79	6,878.82	7,377.90	7,261.24	63.243	SF
Norris D32-2J - Wellbore #1 - Gyro Surveys	16,740.38	6,714.47	5,472.25	5,362.27	49.756	CC
Norris D32-2J - Wellbore #1 - Gyro Surveys	16,800.00	6,714.30	5,472.58	5,362.20	49.580	ES
Norris D32-2J - Wellbore #1 - Gyro Surveys	17,535.79	6,712.32	5,529.76	5,415.25	48.291	SF
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,164.42	6,842.00	4,706.94	4,479.93	20.734	CC
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,200.00	6,842.00	4,707.08	4,479.83	20.713	ES
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,535.79	6,842.00	4,721.57	4,492.35	20.598	SF
Norris D32-5 - Wellbore #1 - Gyro Surveys	15,820.37	6,890.94	4,755.65	4,652.07	45.914	CC, ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	16,700.00	6,896.38	4,836.31	4,728.17	44.722	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys	15,815.51	6,936.24	5,973.51	5,869.76	57.571	CC, ES
Norris D32-6 - Wellbore #1 - Gyro Surveys	17,200.00	6,934.19	6,131.86	6,020.67	55.148	SF
Norris D32-7 - Wellbore #1 - Gyro Surveys	15,873.55	6,825.41	7,316.63	7,212.88	70.523	CC
Norris D32-7 - Wellbore #1 - Gyro Surveys	15,900.00	6,824.86	7,316.68	7,212.75	70.400	ES
Norris D32-7 - Wellbore #1 - Gyro Surveys	17,535.79	6,800.00	7,502.96	7,389.65	66.217	SF
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	14,535.32	6,765.36	8,799.34	8,706.18	94.458	CC
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	14,600.00	6,765.36	8,799.58	8,705.97	94.006	ES
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	17,535.79	6,765.40	9,296.84	9,186.64	84.369	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As Dr	15,484.05	6,911.15	3,197.77	3,096.90	31.700	CC
Dechant 07-36 - Original Drilling - Original Drilling - As Dr	15,500.00	6,911.08	3,197.81	3,096.78	31.652	ES
Dechant 07-36 - Original Drilling - Original Drilling - As Dr	16,100.00	6,908.61	3,256.55	3,151.06	30.869	SF
Dechant 13N-1HZ - Production Hole - Production Hole - A	9,654.34	9,865.00	5,684.23	5,587.16	58.554	CC
Dechant 13N-1HZ - Production Hole - Production Hole - A	9,700.00	9,865.00	5,684.42	5,587.13	58.428	ES
Dechant 13N-1HZ - Production Hole - Production Hole - A	11,700.00	11,700.00	5,773.13	5,642.61	44.231	SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	12,615.05	600.00	7,968.42	7,912.85	143.402	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	12,700.00	600.00	7,968.87	7,912.65	141.759	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dril	16,500.00	600.00	8,865.02	8,786.27	112.573	SF
Dechant 14C-1HZ - Production Hole - Production Hole - A	11,100.00	11,100.00	4,455.13	4,361.50	47.586	SF
Dechant 14C-1HZ - Production Hole - Production Hole - A	12,459.71	7,039.00	4,391.77	4,315.20	57.353	CC
Dechant 14C-1HZ - Production Hole - Production Hole - A	12,500.00	7,021.58	4,392.03	4,315.18	57.151	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	12,612.24	610.00	7,908.34	7,852.85	142.513	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	12,700.00	610.00	7,908.83	7,852.66	140.825	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dril	16,500.00	610.00	8,812.29	8,733.70	112.127	SF
Dechant 15-36 - Original Drilling - Original Drilling - As Dr	13,031.03	6,875.35	3,183.24	3,085.67	32.623	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As Dr	13,600.00	6,872.94	3,233.69	3,131.74	31.717	SF
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	15,155.24	6,928.26	2,502.80	2,402.01	24.831	CC
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	15,200.00	6,928.38	2,503.20	2,401.81	24.689	ES
Dechant 24-36 - Original Drilling - Original Drilling - As Dr	15,700.00	6,929.78	2,561.40	2,454.67	23.999	SF
Dechant 35N-E1HZ - Production Hole - Production Hole -	12,100.00	12,100.00	4,688.11	4,562.98	37.466	ES, SF
Dechant 35N-E1HZ - Production Hole - Production Hole -	12,473.78	6,941.35	4,679.51	4,602.76	60.972	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	12,613.07	612.00	7,921.74	7,866.22	142.680	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	12,700.00	612.00	7,922.22	7,866.03	141.007	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	16,500.00	612.00	8,823.96	8,745.32	112.207	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	11,500.00	11,500.00	5,152.48	5,026.76	40.983	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	12,400.00	12,400.00	5,114.43	5,007.42	47.791	ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	12,497.98	6,758.00	5,113.19	5,037.03	67.141	CC
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,800.00	11,651.36	4,064.57	3,945.65	34.178	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	12,215.22	7,314.40	3,986.62	3,906.33	49.654	CC, ES
Dechant 37N-E1HZ - Production Hole - Production Hole -	7,700.00	11,728.40	2,238.88	2,120.67	18.940	SF
Dechant 37N-E1HZ - Production Hole - Production Hole -	12,335.48	7,116.00	2,007.65	1,928.64	25.412	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	12,653.96	648.00	7,144.62	7,090.05	130.931	CC
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	12,700.00	648.00	7,144.76	7,089.85	130.103	ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	15,900.00	648.00	7,847.44	7,773.60	106.284	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	7,900.00	12,384.00	2,809.76	2,686.87	22.865	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	12,505.76	7,593.53	2,650.94	2,571.09	33.201	CC
Dechant 37N-W1HZ - Production Hole - Production Hole	12,800.00	12,800.00	2,655.55	2,563.35	28.803	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	12,635.92	655.00	7,127.50	7,073.08	130.982	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	12,700.00	655.00	7,127.78	7,072.88	129.832	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As D	15,900.00	655.00	7,839.35	7,765.61	106.308	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,800.00	16,665.00	3,231.70	3,095.58	23.741	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	16,104.05	8,234.27	3,014.53	2,905.49	27.648	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,600.00	16,839.03	2,107.39	1,906.48	10.489	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	12,965.95	11,526.22	1,781.93	1,640.96	12.640	ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	14,108.17	10,383.53	1,780.73	1,650.23	13.645	CC
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,500.00	16,466.31	3,688.81	3,554.74	27.513	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	12,389.79	11,952.21	3,344.77	3,229.35	28.978	CC
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	12,400.00	11,946.63	3,344.79	3,229.34	28.973	ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	12,900.00	11,443.16	2,047.13	1,933.61	18.033	SF
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	13,162.85	11,201.29	2,045.62	1,932.48	18.080	CC, ES
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	15,876.29	8,504.00	2,579.62	2,469.85	23.502	CC
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	17,500.00	6,869.00	2,584.60	2,469.48	22.452	ES

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
H Section 36						
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	17,535.79	6,869.00	2,585.32	2,469.86	22.392	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,600.00	16,675.00	1,497.40	1,360.07	10.904	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	12,467.83	11,881.25	1,303.41	1,188.33	11.327	ES
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	15,109.53	9,207.65	1,299.05	1,189.66	11.875	CC
Dechant State H36-11D - Original Drilling - Original Drilling	14,279.67	6,774.30	4,351.91	4,260.55	47.631	CC
Dechant State H36-11D - Original Drilling - Original Drilling	14,300.00	6,774.56	4,351.96	4,260.41	47.537	ES
Dechant State H36-11D - Original Drilling - Original Drilling	15,400.00	15,400.00	4,493.46	4,364.10	34.736	SF
Dechant State H36-18D - Dechant State H36-18D Gyros	16,341.57	7,103.28	3,815.71	3,705.49	34.620	CC
Dechant State H36-18D - Dechant State H36-18D Gyros	16,400.00	7,101.09	3,816.16	3,705.01	34.335	ES
Dechant State H36-18D - Dechant State H36-18D Gyros	17,535.79	7,062.97	3,997.99	3,869.56	31.131	SF
Dechant State H36-18D - Dechant State H36-18D OH - A	16,341.61	7,116.28	3,815.67	3,705.46	34.620	CC
Dechant State H36-18D - Dechant State H36-18D OH - A	16,400.00	7,114.10	3,816.12	3,704.97	34.335	ES
Dechant State H36-18D - Dechant State H36-18D OH - A	17,535.79	7,075.97	3,997.94	3,869.52	31.131	SF
Dechant State H36-19 - Original Drilling - Original Drilling	16,680.14	6,575.05	5,186.74	5,077.34	47.409	CC
Dechant State H36-19 - Original Drilling - Original Drilling	16,700.00	6,574.91	5,186.78	5,077.20	47.333	ES
Dechant State H36-19 - Original Drilling - Original Drilling	17,535.79	6,569.38	5,256.84	5,140.89	45.337	SF
Dechant State H36-20D - Dechant State H36-20D Gyros	14,893.34	6,839.61	4,981.08	4,880.52	49.535	CC
Dechant State H36-20D - Dechant State H36-20D Gyros	14,900.00	6,839.58	4,981.08	4,880.49	49.517	ES
Dechant State H36-20D - Dechant State H36-20D Gyros	15,800.00	6,836.10	5,062.92	4,958.20	48.345	SF
Dechant State H36-20D - Dechant State H36-20D OH - A	14,893.33	6,852.61	4,981.08	4,880.52	49.535	CC
Dechant State H36-20D - Dechant State H36-20D OH - A	14,900.00	6,852.58	4,981.08	4,880.49	49.517	ES
Dechant State H36-20D - Dechant State H36-20D OH - A	15,800.00	6,849.10	5,062.92	4,958.20	48.345	SF
Dechant State H36-21D - Dechant State H36-21D Gyros	14,913.48	6,936.95	3,777.14	3,674.33	36.737	CC, ES
Dechant State H36-21D - Dechant State H36-21D Gyros	15,400.00	6,939.06	3,808.35	3,703.04	36.164	SF
Dechant State H36-21D - Dechant State H36-21D OH - A	14,913.46	6,949.95	3,777.17	3,674.35	36.738	CC, ES
Dechant State H36-21D - Dechant State H36-21D OH - A	15,400.00	6,952.06	3,808.37	3,703.07	36.165	SF
Dechant State H36-24 - Original Drilling - Original Drilling	13,715.00	7,030.44	3,701.94	3,612.91	41.581	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	14,700.00	7,044.11	3,830.71	3,733.94	39.585	SF
Dechant State H36-31D - Dechant State H36-31D OH - A	16,302.38	7,077.50	6,210.57	6,102.57	57.505	CC
Dechant State H36-31D - Dechant State H36-31D OH - A	16,400.00	7,076.75	6,211.34	6,102.55	57.097	ES
Dechant State H36-31D - Dechant State H36-31D OH - A	17,535.79	7,067.86	6,331.86	6,215.13	54.245	SF
Dechant State H36-32D - Dechant State H36-32D Gyros	15,059.55	6,867.20	6,213.42	6,109.90	60.020	CC
Dechant State H36-32D - Dechant State H36-32D Gyros	15,100.00	6,866.96	6,213.56	6,109.64	59.795	ES
Dechant State H36-32D - Dechant State H36-32D Gyros	17,000.00	6,855.36	6,509.35	6,390.92	54.962	SF
Dechant State H36-32D - Dechant State H36-32D OH - A	15,059.52	6,880.20	6,213.41	6,109.89	60.020	CC
Dechant State H36-32D - Dechant State H36-32D OH - A	15,100.00	6,879.96	6,213.54	6,109.63	59.795	ES
Dechant State H36-32D - Dechant State H36-32D OH - A	17,000.00	6,868.36	6,509.35	6,390.91	54.962	SF
Dechant State H36-33 - Dechant State H36-33D Gyros -	13,840.87	6,900.00	6,148.69	6,060.34	69.598	CC
Dechant State H36-33 - Dechant State H36-33D Gyros -	13,900.00	6,900.00	6,148.97	6,060.05	69.151	ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	17,000.00	6,900.00	6,912.78	6,792.84	57.637	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	13,840.84	6,913.00	6,148.68	6,060.33	69.598	CC
Dechant State H36-33 - Dechant State H36-33D OH - As	13,900.00	6,913.00	6,148.96	6,060.04	69.151	ES
Dechant State H36-33 - Dechant State H36-33D OH - As	17,000.00	6,913.00	6,912.78	6,792.84	57.637	SF
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	17,229.81	6,866.89	1,546.08	1,431.59	13.504	CC, ES
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	17,400.00	6,865.69	1,555.42	1,439.41	13.407	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	17,236.32	6,898.25	3,263.06	3,148.49	28.482	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	17,535.79	6,890.84	3,276.76	3,159.64	27.978	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origina	16,050.17	6,841.00	2,662.97	2,444.71	12.201	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origina	16,100.00	6,841.00	2,663.44	2,444.69	12.176	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origina	16,300.00	6,841.00	2,674.67	2,454.22	12.133	SF
Spike State GWS H36-03 - Original Drilling - Original Dril	17,086.77	6,835.13	4,179.96	4,066.66	36.896	CC
Spike State GWS H36-03 - Original Drilling - Original Dril	17,300.00	17,300.00	4,185.31	4,033.10	27.497	ES, SF
Spike State GWS H36-04 - Original Drilling - Original Dril	17,223.64	6,736.49	5,679.38	5,558.91	47.144	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 Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
H Section 36						
Spike State GWS H36-04 - Original Drilling - Original Dril	17,300.00	6,737.03	5,679.90	5,558.75	46.884	ES
Spike State GWS H36-04 - Original Drilling - Original Dril	17,535.79	6,738.71	5,687.95	5,564.80	46.186	SF
Spike State GWS H36-13 - Original Drilling - Original Dril	13,093.05	7,444.00	5,619.82	5,534.06	65.531	CC
Spike State GWS H36-13 - Original Drilling - Original Dril	13,100.00	7,444.00	5,619.82	5,534.01	65.489	ES
Spike State GWS H36-13 - Original Drilling - Original Dril	14,800.00	7,444.00	5,873.33	5,776.48	60.643	SF
Spike State GWS H36-14 - Original Drilling - Original Dril	12,308.92	12,308.92	4,135.33	4,040.49	43.603	SF
Spike State GWS H36-14 - Original Drilling - Original Dril	12,927.45	6,970.70	4,081.23	3,999.48	49.924	CC, ES
Spike State H36-02J - Original Drilling - Original Drilling -	16,012.22	6,899.07	4,724.33	4,588.10	34.679	CC, ES
Spike State H36-02J - Original Drilling - Original Drilling -	16,900.00	6,883.84	4,806.99	4,664.52	33.739	SF
Spike State H36-05 - Original Drilling - Original Drilling - A	15,824.48	6,789.37	5,723.63	5,620.34	55.408	CC
Spike State H36-05 - Original Drilling - Original Drilling - A	15,900.00	6,788.82	5,724.13	5,620.18	55.063	ES
Spike State H36-05 - Original Drilling - Original Drilling - A	17,400.00	6,776.68	5,936.50	5,822.28	51.972	SF
Spike State H36-11J - Original Drilling - Original Drilling -	13,671.76	6,901.69	4,936.44	4,849.39	56.705	CC
Spike State H36-11J - Original Drilling - Original Drilling -	13,700.00	6,902.18	4,936.52	4,849.22	56.547	ES
Spike State H36-11J - Original Drilling - Original Drilling -	15,100.00	6,922.27	5,138.85	5,041.73	52.911	SF
Spike State H36-12 - Original Drilling - Original Drilling - A	14,551.24	6,769.67	5,825.43	5,732.03	62.372	CC
Spike State H36-12 - Original Drilling - Original Drilling - A	14,600.00	6,770.26	5,825.63	5,731.81	62.095	ES
Spike State H36-12 - Original Drilling - Original Drilling - A	17,300.00	17,300.00	6,441.04	6,294.77	44.034	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
Y Section 05						
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y	11,324.93	6,783.09	5,704.27	5,634.56	81.831	CC, ES
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y	13,400.00	6,780.60	6,023.83	5,943.05	74.576	SF
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	10,383.80	6,862.00	4,640.66	4,588.77	89.426	CC
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	10,400.00	6,862.00	4,640.69	4,588.70	89.263	ES
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	12,000.00	6,862.00	4,914.05	4,854.08	81.940	SF
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drilled	10,277.85	6,914.00	7,335.36	7,235.79	73.670	CC
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drilled	10,300.00	6,914.00	7,335.40	7,235.69	73.572	ES
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drilled	13,100.00	6,914.00	7,828.25	7,713.00	67.921	SF
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drilled	10,224.81	6,931.00	8,639.37	8,539.99	86.932	CC
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drilled	10,300.00	6,931.00	8,639.69	8,539.86	86.539	ES
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drilled	14,000.00	6,931.00	9,354.42	9,233.75	77.525	SF
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drilled	2,200.00	2,187.00	8,221.88	8,195.14	307.490	CC, ES
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drilled	13,000.00	6,936.00	9,479.74	9,366.55	83.748	SF
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	2,201.28	2,179.08	7,461.41	7,446.31	493.999	CC, ES
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	13,000.00	6,836.18	9,412.17	9,338.52	127.810	SF
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	2,200.00	2,183.00	6,312.74	6,297.49	414.064	CC, ES
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	13,300.00	3,646.31	9,955.73	9,896.91	169.262	SF
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	2,200.00	2,182.00	6,290.75	6,275.51	412.719	CC, ES
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	13,100.00	4,941.76	9,682.93	9,618.63	150.591	SF
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	2,200.00	2,180.00	6,268.56	6,253.33	411.457	CC, ES
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	12,000.00	6,014.97	8,759.35	8,694.83	135.777	SF
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	2,200.00	2,179.00	6,246.58	6,231.35	410.111	CC, ES
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	11,700.00	6,158.30	8,312.06	8,248.58	130.942	SF
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	2,200.00	2,178.00	6,224.40	6,209.17	408.751	CC, ES
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	11,000.00	6,422.18	7,766.41	7,704.58	125.615	SF
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	2,200.00	2,169.00	4,511.00	4,495.80	296.862	CC, ES
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	10,700.00	5,531.08	6,865.20	6,809.56	123.379	SF
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	2,200.00	2,169.00	4,489.09	4,473.89	295.420	CC, ES
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	10,200.00	6,306.24	6,160.88	6,104.02	108.357	SF
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	2,200.00	2,169.00	4,467.55	4,452.35	294.003	CC, ES
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	9,100.00	6,600.00	5,254.41	5,200.76	97.955	SF
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	2,200.00	2,169.00	4,445.75	4,430.55	292.568	CC, ES
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	8,700.00	6,850.00	4,814.53	4,761.18	90.236	SF
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	6,420.16	7,741.93	4,205.67	4,156.38	85.335	CC
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	6,421.03	7,741.87	4,205.67	4,156.38	85.329	ES
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	7,350.00	7,300.00	4,275.59	4,224.58	83.816	SF
Y Section 06						
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	9,162.32	6,885.55	2,097.70	2,041.16	37.097	CC, ES
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	9,500.00	6,900.10	2,124.67	2,066.73	36.673	SF
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	8,227.24	6,904.50	132.95	80.79	2.549	CC, ES, SF
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	11,371.10	6,802.54	3,173.16	3,103.11	45.301	CC
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	11,400.00	6,801.78	3,173.29	3,103.07	45.194	ES
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	11,900.00	6,788.71	3,216.90	3,144.17	44.232	SF
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	10,947.16	6,853.14	154.21	86.73	2.285	CC, ES, SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
Y Section 07						
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	6,642.54	6,556.11	669.47	623.08	14.432	CC
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	6,650.00	6,562.77	669.50	623.06	14.416	ES
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	6,750.00	6,648.04	674.99	627.88	14.328	SF
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	5,637.32	5,583.51	1,017.01	977.48	25.732	CC
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	6,200.00	6,147.77	1,017.39	973.77	23.327	ES
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	6,500.00	6,439.57	1,027.03	981.26	22.440	SF
HP Farms Y 7-15JI (PR) - Wellbore #1 - As-Drilled	2,274.40	2,328.68	4,052.33	4,035.88	246.274	CC
HP Farms Y 7-15JI (PR) - Wellbore #1 - As-Drilled	2,300.00	2,350.60	4,052.40	4,035.78	243.827	ES
HP Farms Y 7-15JI (PR) - Wellbore #1 - As-Drilled	6,800.00	6,772.96	4,537.72	4,489.39	93.895	SF
HP Y07-09 (PR) - Wellbore #1 - As-Drilled	2,200.75	2,144.76	3,641.17	3,626.18	242.925	CC, ES
HP Y07-09 (PR) - Wellbore #1 - As-Drilled	6,700.00	6,470.15	4,324.46	4,277.93	92.957	SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	4,991.40	5,560.59	3,068.95	3,001.98	45.828	CC
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	5,000.00	5,565.15	3,068.95	3,001.92	45.780	ES
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	6,450.00	6,553.80	3,192.70	3,118.18	42.847	SF
Perkins 31-7 (SI) - Wellbore #1 - As-Drilled	100.00	42.94	1,178.67	1,178.47	5,846.592	CC
Perkins 31-7 (SI) - Wellbore #1 - As-Drilled	2,200.00	2,144.37	1,182.43	1,167.47	78.997	ES
Perkins 31-7 (SI) - Wellbore #1 - As-Drilled	6,800.00	6,636.64	1,976.27	1,929.09	41.891	SF
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	2,232.94	2,216.06	1,906.85	1,891.49	124.128	CC, ES
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,719.33	2,754.46	2,706.94	57.963	SF
Pioneer 22-7 (SI) - Wellbore #1 - As-Drilled	2,260.26	2,241.30	1,447.99	1,432.46	93.255	CC
Pioneer 22-7 (SI) - Wellbore #1 - As-Drilled	2,300.00	2,280.03	1,448.10	1,432.30	91.633	ES
Pioneer 22-7 (SI) - Wellbore #1 - As-Drilled	6,550.00	6,466.38	1,897.24	1,851.17	41.176	SF
Pioneer D31-716 - Pioneer D31-716 - Plan #2	2,200.00	2,193.00	1,070.00	1,054.72	70.019	CC, ES
Pioneer D31-716 - Pioneer D31-716 - Plan #2	17,500.00	17,365.08	3,730.92	3,548.98	20.506	SF
Pioneer D31-725 - Pioneer D31-725 - Plan #3	2,200.00	2,194.00	1,047.36	1,032.08	68.521	CC, ES
Pioneer D31-725 - Pioneer D31-725 - Plan #3	17,400.00	17,186.24	3,098.62	2,917.81	17.137	SF
Pioneer D31-735 - Pioneer D31-735 - Plan #2	2,200.00	2,194.00	1,025.00	1,009.72	67.058	CC, ES
Pioneer D31-735 - Pioneer D31-735 - Plan #2	17,200.00	17,013.99	2,462.36	2,282.90	13.721	SF
Pioneer D31-744 - Pioneer D31-744 - Plan #2	2,200.00	2,206.00	1,002.36	987.03	65.393	CC, ES
Pioneer D31-744 - Pioneer D31-744 - Plan #2	17,200.00	17,095.39	1,837.56	1,658.14	10.242	SF
Pioneer D31-756 - Pioneer D31-756 - Plan #3	2,200.00	2,201.00	45.05	29.74	2.943	CC, ES
Pioneer D31-756 - Pioneer D31-756 - Plan #3	2,300.00	2,301.02	46.72	30.70	2.916	SF
Pioneer D31-761 (KILLED) - Pioneer D31-761 - Plan #3	2,200.00	2,201.00	22.36	7.05	1.461	Level 3, CC, ES, SF
Pioneer D31-785 - Pioneer D31-785 - Plan #4	2,200.00	2,200.00	21.24	5.94	1.388	Level 3, CC
Pioneer D31-785 - Pioneer D31-785 - Plan #4	2,500.00	2,497.79	22.05	4.73	1.273	Level 3, ES, SF
Pioneer USX Y07-08D (PR) - Pioneer USX Y07-08D OH	3,808.13	4,446.61	3,260.59	3,228.14	100.464	CC
Pioneer USX Y07-08D (PR) - Pioneer USX Y07-08D OH	4,200.00	4,821.03	3,263.58	3,227.54	90.545	ES
Pioneer USX Y07-08D (PR) - Pioneer USX Y07-08D OH	6,550.00	6,609.72	3,519.42	3,467.76	68.129	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	5,274.18	5,965.12	2,183.71	2,140.36	50.366	CC
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	5,300.00	5,979.54	2,183.78	2,140.27	50.190	ES
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	6,500.00	6,830.71	2,311.97	2,261.48	45.793	SF
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,200.00	2,195.00	949.81	934.52	62.125	CC, ES
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,900.00	2,733.61	1,074.49	1,055.07	55.330	SF
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,200.00	2,196.00	927.45	912.16	60.648	CC, ES
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,900.00	2,754.86	1,046.56	1,027.03	53.573	SF
Pioneer Y18-730 - Pioneer Y18-730 - Plan #2	2,200.00	2,197.00	905.09	889.79	59.172	CC, ES
Pioneer Y18-730 - Pioneer Y18-730 - Plan #2	7,900.00	6,677.04	2,582.95	2,532.40	51.102	SF
Pioneer Y18-735 - Pioneer Y18-735 - Plan #2	2,200.00	2,198.00	882.45	867.15	57.678	CC, ES
Pioneer Y18-735 - Pioneer Y18-735 - Plan #2	7,200.00	7,200.00	2,309.94	2,259.25	45.571	SF
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	2,200.00	2,198.00	860.08	844.79	56.216	CC, ES
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	7,250.00	7,350.76	1,707.61	1,656.63	33.494	SF
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,200.00	2,196.00	187.56	172.27	12.265	CC, ES
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,400.00	2,394.18	194.94	178.24	11.674	SF

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

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
Y Section 07						
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,200.00	2,197.00	164.91	149.62	10.782	CC, ES
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	7,250.00	7,327.97	470.08	418.89	9.185	SF
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,200.00	2,197.00	142.56	127.26	9.320	CC, ES
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	7,409.93	7,250.14	188.95	137.03	3.639	SF
Pioneer Y18-775 - Pioneer Y18-775 - Plan #2	2,200.00	2,198.00	121.31	106.01	7.929	CC
Pioneer Y18-775 - Pioneer Y18-775 - Plan #2	7,291.71	7,286.61	142.68	91.19	2.771	ES, SF
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	2,200.00	2,198.00	97.55	82.25	6.376	CC
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	2,300.00	2,300.69	97.84	81.83	6.111	ES
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	3,300.00	3,315.18	107.45	84.26	4.633	SF
UPRC 7-10Q (PR) - Wellbore #1 - As-Drilled	2,212.77	2,177.03	3,548.71	3,533.58	234.539	CC, ES
UPRC 7-10Q (PR) - Wellbore #1 - As-Drilled	6,700.00	6,621.79	4,124.48	4,077.26	87.360	SF
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Surveys	2,598.68	2,666.19	3,408.03	3,389.83	187.208	CC
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Surveys	3,300.00	3,359.61	3,409.53	3,386.38	147.257	ES
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Surveys	6,700.00	6,674.69	3,553.71	3,506.30	74.958	SF
Y Section 08						
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	2,200.00	2,154.00	5,406.06	5,355.33	106.558	CC
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	2,300.00	2,253.98	5,407.69	5,354.61	101.867	ES
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	6,950.00	6,765.70	6,266.90	6,106.87	39.162	SF
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	773.71	732.74	7,648.64	7,643.71	1,550.624	CC
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	2,215.32	2,220.71	7,651.28	7,635.98	500.077	ES
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	7,100.00	7,055.25	8,538.39	8,488.94	172.654	SF
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	2,203.38	2,186.87	7,499.60	7,484.46	495.315	CC, ES
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	11,600.00	6,791.46	9,966.43	9,902.32	155.454	SF
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,270.73	2,309.65	4,035.43	4,019.62	255.230	CC
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,300.00	2,338.34	4,035.58	4,019.56	251.993	ES
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	7,200.00	6,774.73	4,875.55	4,826.88	100.182	SF
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	100.00	39.30	6,284.43	6,284.23	10,000.000	CC
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	2,209.54	2,209.54	6,294.25	6,279.01	413.079	ES
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	10,400.00	6,851.17	8,149.95	8,090.71	137.574	SF
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,168.61	2,106.63	5,227.42	5,212.70	355.062	CC
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,130.11	5,227.45	5,212.53	350.435	ES
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	9,100.00	6,809.62	6,483.09	6,429.06	119.990	SF
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	297.81	249.80	3,838.83	3,837.29	2,497.492	CC
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,135.14	3,842.09	3,827.15	257.280	ES
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,777.45	4,727.84	4,679.59	97.991	SF
Pioneer Y 08-08 (PR) - Wellbore #1 - Gyro Surveys	2,227.26	2,295.58	7,825.13	7,809.52	500.999	CC, ES
Pioneer Y 08-08 (PR) - Wellbore #1 - Gyro Surveys	10,200.00	6,961.37	9,958.05	9,899.72	170.709	SF
Y Section 09						
Perkins 34-09 - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Perkins USX Y09-23 - Original Drilling - Original Drilling -						Out of range

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference 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						
Y Section 16						
Hullabaloo State Y21-716 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-726 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-736 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-746 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-756 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-763 - Original Drilling - Original Drilli						Out of range
Hullabaloo State Y21-769 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-775 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-781 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-787 - Original Drilling - Original Dril						Out of range
State 01 - Original Drilling - Original Drilling - As Drilled						Out of range
State 21 (PA) - Original Drilling - Original Drilling - As Dril						Out of range
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Y Section 17						
HP Farms Y 17-03 (PR) - Wellbore #1 - Gyro Surveys	2,206.29	2,173.80	7,212.50	7,197.40	477.720	CC, ES
HP Farms Y 17-03 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	7,058.32	8,111.91	8,062.29	163.485	SF
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	2,250.67	2,320.71	6,363.54	6,347.76	403.259	CC, ES
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	6,900.00	7,000.00	7,154.08	7,105.10	146.073	SF
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	2,228.87	2,258.68	8,355.28	8,339.81	540.134	CC, ES
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,800.00	9,098.80	9,050.84	189.706	SF
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys						Out of range
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Surveys	1,355.88	1,314.89	9,088.39	9,079.34	1,004.726	CC
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,143.58	9,089.11	9,074.15	607.459	ES
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,589.14	9,995.28	9,947.68	209.998	SF
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,291.93	2,542.53	9,290.49	9,273.78	556.000	CC
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,300.00	2,546.89	9,290.51	9,273.75	554.548	ES
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	6,500.00	6,158.71	9,995.36	9,950.83	224.421	SF
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	2,234.45	2,241.03	8,790.59	8,775.16	569.637	CC
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,325.53	8,791.10	8,775.14	550.869	ES
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	7,200.00	7,200.00	9,779.40	9,729.26	195.038	SF
UPRC 17-13Q (SI) - Wellbore #1 - Gyro Surveys	2,225.20	2,256.78	9,742.28	9,726.81	630.029	CC, ES
UPRC 17-13Q (SI) - Wellbore #1 - Gyro Surveys	4,400.00	4,260.28	9,993.47	9,963.20	330.101	SF
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys						Out of range
UPRC 17-5Q (PR) - Wellbore #1 - Gyro Surveys	441.84	400.49	7,291.92	7,289.34	2,828.504	CC
UPRC 17-5Q (PR) - Wellbore #1 - Gyro Surveys	2,207.68	2,181.81	7,296.82	7,281.66	481.392	ES
UPRC 17-5Q (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,400.01	8,069.10	8,022.45	172.947	SF
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	2,058.26	2,012.44	7,949.87	7,935.86	567.219	CC
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	2,200.00	2,127.32	7,950.18	7,935.26	532.742	ES
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	7,800.00	7,800.00	9,362.56	9,310.02	178.196	SF

Noble Energy, Inc.
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer D31-775
Project:	Mustang	TVD Reference:	KB @ 4917.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4917.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer D31-775	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer D31-775	Database:	EDMP
Reference Design:	Plan #3	Offset TVD Reference:	Reference Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Y Section 18						
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	0.00	28.96	5,894.04			
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	2,200.00	2,224.74	5,903.45	5,888.19	386.956	ES
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,830.39	6,265.86	6,217.50	129.567	SF
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surve	2,530.56	2,812.41	8,410.47	8,391.98	454.985	CC
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surve	2,699.07	3,013.36	8,411.47	8,391.69	425.162	ES
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surve	7,000.00	7,083.03	8,850.86	8,801.23	178.328	SF
HSR Harkis 15-18 (PR) - Wellbore #1 - As-Drilled	2,228.54	2,281.47	8,686.44	8,670.89	558.536	CC
HSR Harkis 15-18 (PR) - Wellbore #1 - As-Drilled	2,300.00	2,350.72	8,686.92	8,670.87	541.350	ES
HSR Harkis 15-18 (PR) - Wellbore #1 - As-Drilled	6,950.00	7,000.00	9,266.12	9,216.91	188.300	SF
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Sur	0.00	0.00	6,564.66			
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Sur	200.00	130.73	6,565.08	6,564.31	8,549.145	ES
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Sur	6,850.00	6,852.27	7,227.62	7,179.22	149.331	SF