

Project: Mustang
 Site: Y Section 07
 Well: Pioneer D31-775
 Wellbore: Pioneer D31-775
 Design: Plan #1

Northern Region - DJ Basin

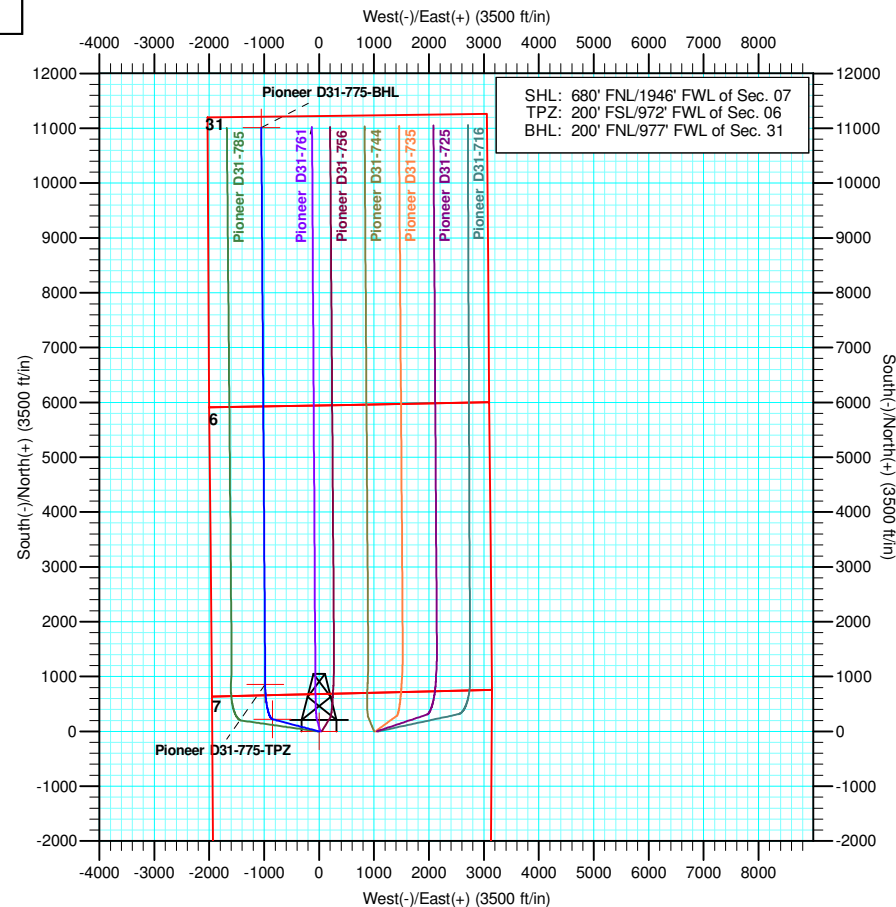
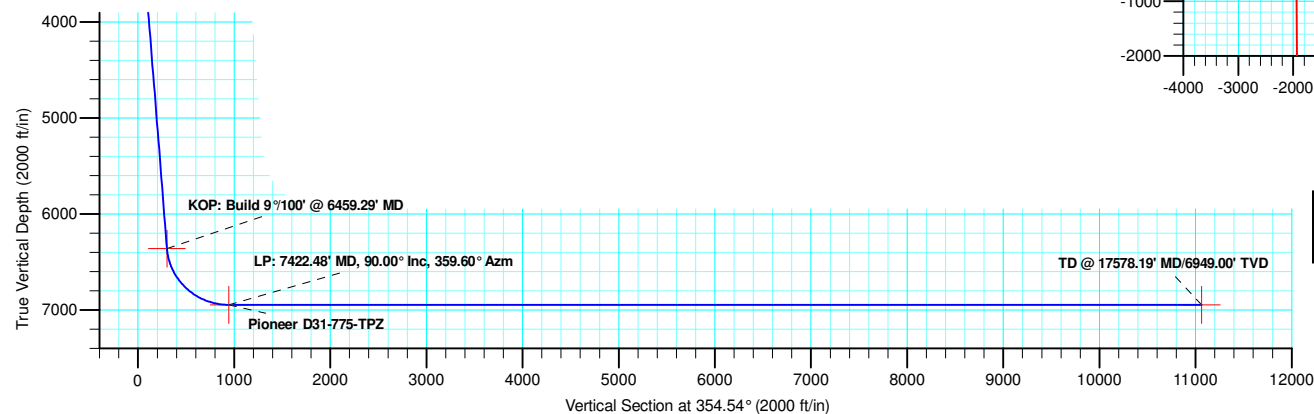
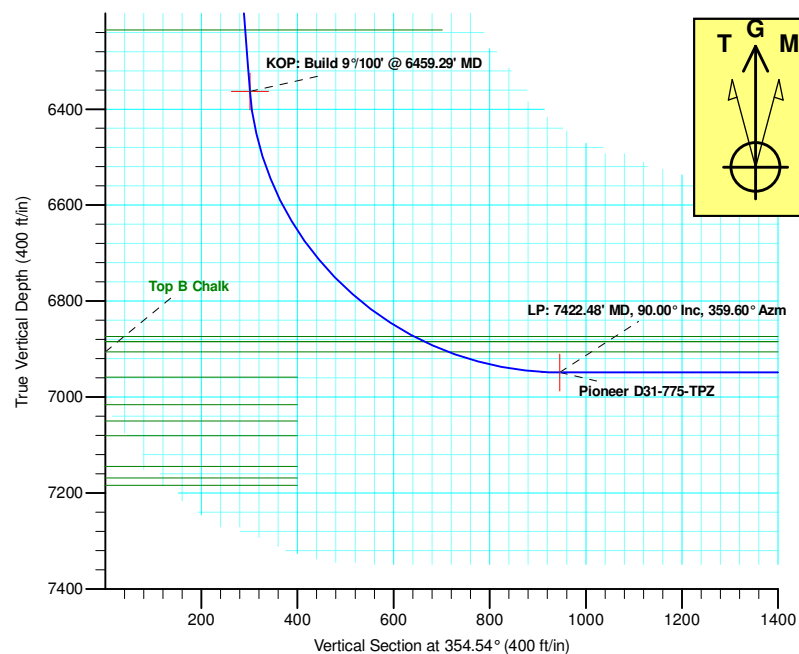
Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level

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	2842.87	12.86	284.65	2837.49	18.17	-69.49	2.00	284.65	24.70	
4	6459.29	12.86	284.65	6363.23	221.69	-848.08	0.00	0.00	301.41	
5	7422.48	90.00	359.60	6949.00	856.32	-981.66	9.00	75.31	945.88	Pioneer D31-775-TPZ
6	17578.19	90.00	359.60	6949.00	11011.78	-1053.00	0.00	0.00	11062.02	Pioneer D31-775-BHL

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 #1 (Pioneer D31-775/Pioneer D31-775)

Created By: Keith Noack Date: 15:13, September 26 2018

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer D31-775

Pioneer D31-775

Plan: Plan #1

Standard Planning Report

26 September, 2018

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 #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		Y Section 07			
Site Position: From: Position Uncertainty:		Northing:	1,301,764.67 usft	Latitude:	40.1582400
	Lat/Long	Easting:	3,251,358.82 usft	Longitude:	-104.6006800
	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 #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	354.54

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	
2,842.87	12.86	284.65	2,837.49	18.17	-69.49	2.00	2.00	0.00	284.65	
6,459.29	12.86	284.65	6,363.23	221.69	-848.08	0.00	0.00	0.00	0.00	
7,422.48	90.00	359.60	6,949.00	856.32	-981.66	9.00	8.01	7.78	75.31	Pioneer D31-775-TI
17,578.19	90.00	359.60	6,949.00	11,011.78	-1,053.00	0.00	0.00	0.00	0.00	Pioneer D31-775-B

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 #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
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
Build: 2°/100'									
2,300.00	2.00	284.65	2,299.98	0.44	-1.69	0.60	2.00	2.00	0.00
2,400.00	4.00	284.65	2,399.84	1.76	-6.75	2.40	2.00	2.00	0.00
2,500.00	6.00	284.65	2,499.45	3.97	-15.18	5.40	2.00	2.00	0.00
2,600.00	8.00	284.65	2,598.70	7.05	-26.97	9.59	2.00	2.00	0.00
2,700.00	10.00	284.65	2,697.47	11.01	-42.11	14.97	2.00	2.00	0.00
2,800.00	12.00	284.65	2,795.62	15.83	-60.57	21.53	2.00	2.00	0.00
2,842.87	12.86	284.65	2,837.49	18.17	-69.49	24.70	2.00	2.00	0.00
Hold: 12.86° Inc, 284.65° Azm									
2,900.00	12.86	284.65	2,893.19	21.38	-81.79	29.07	0.00	0.00	0.00
3,000.00	12.86	284.65	2,990.68	27.01	-103.32	36.72	0.00	0.00	0.00
3,100.00	12.86	284.65	3,088.17	32.64	-124.85	44.37	0.00	0.00	0.00
3,200.00	12.86	284.65	3,185.66	38.26	-146.38	52.02	0.00	0.00	0.00
3,300.00	12.86	284.65	3,283.16	43.89	-167.91	59.68	0.00	0.00	0.00
3,400.00	12.86	284.65	3,380.65	49.52	-189.44	67.33	0.00	0.00	0.00
3,500.00	12.86	284.65	3,478.14	55.15	-210.97	74.98	0.00	0.00	0.00
3,600.00	12.86	284.65	3,575.63	60.78	-232.50	82.63	0.00	0.00	0.00
3,700.00	12.86	284.65	3,673.13	66.40	-254.03	90.28	0.00	0.00	0.00
3,800.00	12.86	284.65	3,770.62	72.03	-275.56	97.93	0.00	0.00	0.00
3,900.00	12.86	284.65	3,868.11	77.66	-297.09	105.59	0.00	0.00	0.00
3,993.23	12.86	284.65	3,959.00	82.90	-317.16	112.72	0.00	0.00	0.00
Parkman									
4,000.00	12.86	284.65	3,965.61	83.29	-318.62	113.24	0.00	0.00	0.00
4,100.00	12.86	284.65	4,063.10	88.91	-340.14	120.89	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 #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	12.86	284.65	4,160.59	94.54	-361.67	128.54	0.00	0.00	0.00
4,300.00	12.86	284.65	4,258.08	100.17	-383.20	136.19	0.00	0.00	0.00
4,400.00	12.86	284.65	4,355.58	105.80	-404.73	143.84	0.00	0.00	0.00
4,500.00	12.86	284.65	4,453.07	111.42	-426.26	151.49	0.00	0.00	0.00
4,574.81	12.86	284.65	4,526.00	115.63	-442.37	157.22	0.00	0.00	0.00
Sussex									
4,600.00	12.86	284.65	4,550.56	117.05	-447.79	159.15	0.00	0.00	0.00
4,700.00	12.86	284.65	4,648.05	122.68	-469.32	166.80	0.00	0.00	0.00
4,800.00	12.86	284.65	4,745.55	128.31	-490.85	174.45	0.00	0.00	0.00
4,900.00	12.86	284.65	4,843.04	133.94	-512.38	182.10	0.00	0.00	0.00
5,000.00	12.86	284.65	4,940.53	139.56	-533.91	189.75	0.00	0.00	0.00
5,100.00	12.86	284.65	5,038.02	145.19	-555.44	197.40	0.00	0.00	0.00
5,200.00	12.86	284.65	5,135.52	150.82	-576.97	205.06	0.00	0.00	0.00
5,300.00	12.86	284.65	5,233.01	156.45	-598.50	212.71	0.00	0.00	0.00
5,375.89	12.86	284.65	5,307.00	160.72	-614.84	218.51	0.00	0.00	0.00
Shannon									
5,400.00	12.86	284.65	5,330.50	162.07	-620.03	220.36	0.00	0.00	0.00
5,500.00	12.86	284.65	5,427.99	167.70	-641.55	228.01	0.00	0.00	0.00
5,600.00	12.86	284.65	5,525.49	173.33	-663.08	235.66	0.00	0.00	0.00
5,700.00	12.86	284.65	5,622.98	178.96	-684.61	243.31	0.00	0.00	0.00
5,800.00	12.86	284.65	5,720.47	184.59	-706.14	250.97	0.00	0.00	0.00
5,900.00	12.86	284.65	5,817.97	190.21	-727.67	258.62	0.00	0.00	0.00
6,000.00	12.86	284.65	5,915.46	195.84	-749.20	266.27	0.00	0.00	0.00
6,100.00	12.86	284.65	6,012.95	201.47	-770.73	273.92	0.00	0.00	0.00
6,200.00	12.86	284.65	6,110.44	207.10	-792.26	281.57	0.00	0.00	0.00
6,300.00	12.86	284.65	6,207.94	212.72	-813.79	289.22	0.00	0.00	0.00
6,327.76	12.86	284.65	6,235.00	214.29	-819.77	291.35	0.00	0.00	0.00
Teepee Buttes									
6,400.00	12.86	284.65	6,305.43	218.35	-835.32	296.87	0.00	0.00	0.00
6,459.29	12.86	284.65	6,363.23	221.69	-848.08	301.41	0.00	0.00	0.00
KOP: Build 9°/100' @ 6459.29' MD									
6,500.00	14.23	299.22	6,402.82	225.28	-856.83	305.82	9.00	3.37	35.78
6,550.00	16.86	312.92	6,451.00	233.22	-867.51	314.74	9.00	5.26	27.41
6,600.00	20.14	322.66	6,498.43	245.01	-878.05	327.47	9.00	6.57	19.47
6,650.00	23.82	329.64	6,544.79	260.57	-888.38	343.95	9.00	7.34	13.95
6,700.00	27.72	334.80	6,589.82	279.81	-898.44	364.06	9.00	7.81	10.32
6,750.00	31.77	338.75	6,633.22	302.61	-908.16	387.69	9.00	8.10	7.91
6,800.00	35.92	341.88	6,674.74	328.83	-917.50	414.68	9.00	8.30	6.27
6,850.00	40.14	344.44	6,714.12	358.31	-926.39	444.87	9.00	8.43	5.12
6,900.00	44.40	346.59	6,751.12	390.87	-934.77	478.08	9.00	8.53	4.29
6,950.00	48.70	348.43	6,785.50	426.30	-942.60	514.09	9.00	8.59	3.68
7,000.00	53.02	350.04	6,817.05	464.39	-949.82	552.70	9.00	8.65	3.23
7,050.00	57.36	351.48	6,845.59	504.90	-956.40	593.65	9.00	8.68	2.88
7,100.00	61.72	352.79	6,870.93	547.59	-962.28	636.70	9.00	8.71	2.61
7,106.54	62.29	352.95	6,874.00	553.32	-963.00	642.47	9.00	8.73	2.48
Sharon Springs									
7,131.08	64.43	353.54	6,885.00	575.09	-965.58	664.40	9.00	8.74	2.43
Top A Chalk - Top A Marl									
7,150.00	66.09	353.99	6,892.92	592.18	-967.44	681.58	9.00	8.74	2.35
7,184.31	69.09	354.77	6,906.00	623.75	-970.55	713.30	9.00	8.75	2.27
Top B Chalk									
7,200.00	70.47	355.11	6,911.42	638.41	-971.84	728.02	9.00	8.76	2.20
7,250.00	74.85	356.18	6,926.32	685.99	-975.46	775.72	9.00	8.77	2.13

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 #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,300.00	79.24	357.20	6,937.53	734.62	-978.27	824.40	9.00	8.78	2.04
7,350.00	83.63	358.19	6,944.98	784.01	-980.26	873.76	9.00	8.78	1.98
7,400.00	88.02	359.16	6,948.61	833.85	-981.41	923.48	9.00	8.79	1.95
7,422.48	90.00	359.60	6,949.00	856.32	-981.66	945.88	9.00	8.79	1.94
LP: 7422.48' MD, 90.00° Inc, 359.60° Azm									
7,500.00	90.00	359.60	6,949.00	933.84	-982.20	1,023.10	0.00	0.00	0.00
7,600.00	90.00	359.60	6,949.00	1,033.84	-982.91	1,122.71	0.00	0.00	0.00
7,700.00	90.00	359.60	6,949.00	1,133.84	-983.61	1,222.32	0.00	0.00	0.00
7,800.00	90.00	359.60	6,949.00	1,233.83	-984.31	1,321.93	0.00	0.00	0.00
7,900.00	90.00	359.60	6,949.00	1,333.83	-985.01	1,421.54	0.00	0.00	0.00
8,000.00	90.00	359.60	6,949.00	1,433.83	-985.71	1,521.15	0.00	0.00	0.00
8,100.00	90.00	359.60	6,949.00	1,533.83	-986.42	1,620.76	0.00	0.00	0.00
8,200.00	90.00	359.60	6,949.00	1,633.82	-987.12	1,720.37	0.00	0.00	0.00
8,300.00	90.00	359.60	6,949.00	1,733.82	-987.82	1,819.98	0.00	0.00	0.00
8,400.00	90.00	359.60	6,949.00	1,833.82	-988.52	1,919.59	0.00	0.00	0.00
8,500.00	90.00	359.60	6,949.00	1,933.82	-989.23	2,019.20	0.00	0.00	0.00
8,600.00	90.00	359.60	6,949.00	2,033.81	-989.93	2,118.81	0.00	0.00	0.00
8,700.00	90.00	359.60	6,949.00	2,133.81	-990.63	2,218.42	0.00	0.00	0.00
8,800.00	90.00	359.60	6,949.00	2,233.81	-991.33	2,318.03	0.00	0.00	0.00
8,900.00	90.00	359.60	6,949.00	2,333.81	-992.04	2,417.64	0.00	0.00	0.00
9,000.00	90.00	359.60	6,949.00	2,433.80	-992.74	2,517.25	0.00	0.00	0.00
9,100.00	90.00	359.60	6,949.00	2,533.80	-993.44	2,616.86	0.00	0.00	0.00
9,200.00	90.00	359.60	6,949.00	2,633.80	-994.14	2,716.47	0.00	0.00	0.00
9,300.00	90.00	359.60	6,949.00	2,733.80	-994.85	2,816.08	0.00	0.00	0.00
9,400.00	90.00	359.60	6,949.00	2,833.79	-995.55	2,915.69	0.00	0.00	0.00
9,500.00	90.00	359.60	6,949.00	2,933.79	-996.25	3,015.30	0.00	0.00	0.00
9,600.00	90.00	359.60	6,949.00	3,033.79	-996.95	3,114.91	0.00	0.00	0.00
9,700.00	90.00	359.60	6,949.00	3,133.79	-997.66	3,214.52	0.00	0.00	0.00
9,800.00	90.00	359.60	6,949.00	3,233.78	-998.36	3,314.13	0.00	0.00	0.00
9,900.00	90.00	359.60	6,949.00	3,333.78	-999.06	3,413.75	0.00	0.00	0.00
10,000.00	90.00	359.60	6,949.00	3,433.78	-999.76	3,513.36	0.00	0.00	0.00
10,100.00	90.00	359.60	6,949.00	3,533.78	-1,000.47	3,612.97	0.00	0.00	0.00
10,200.00	90.00	359.60	6,949.00	3,633.78	-1,001.17	3,712.58	0.00	0.00	0.00
10,300.00	90.00	359.60	6,949.00	3,733.77	-1,001.87	3,812.19	0.00	0.00	0.00
10,400.00	90.00	359.60	6,949.00	3,833.77	-1,002.57	3,911.80	0.00	0.00	0.00
10,500.00	90.00	359.60	6,949.00	3,933.77	-1,003.28	4,011.41	0.00	0.00	0.00
10,600.00	90.00	359.60	6,949.00	4,033.77	-1,003.98	4,111.02	0.00	0.00	0.00
10,700.00	90.00	359.60	6,949.00	4,133.76	-1,004.68	4,210.63	0.00	0.00	0.00
10,800.00	90.00	359.60	6,949.00	4,233.76	-1,005.38	4,310.24	0.00	0.00	0.00
10,900.00	90.00	359.60	6,949.00	4,333.76	-1,006.09	4,409.85	0.00	0.00	0.00
11,000.00	90.00	359.60	6,949.00	4,433.76	-1,006.79	4,509.46	0.00	0.00	0.00
11,100.00	90.00	359.60	6,949.00	4,533.75	-1,007.49	4,609.07	0.00	0.00	0.00
11,200.00	90.00	359.60	6,949.00	4,633.75	-1,008.19	4,708.68	0.00	0.00	0.00
11,300.00	90.00	359.60	6,949.00	4,733.75	-1,008.90	4,808.29	0.00	0.00	0.00
11,400.00	90.00	359.60	6,949.00	4,833.75	-1,009.60	4,907.90	0.00	0.00	0.00
11,500.00	90.00	359.60	6,949.00	4,933.74	-1,010.30	5,007.51	0.00	0.00	0.00
11,600.00	90.00	359.60	6,949.00	5,033.74	-1,011.00	5,107.12	0.00	0.00	0.00
11,700.00	90.00	359.60	6,949.00	5,133.74	-1,011.71	5,206.73	0.00	0.00	0.00
11,800.00	90.00	359.60	6,949.00	5,233.74	-1,012.41	5,306.34	0.00	0.00	0.00
11,900.00	90.00	359.60	6,949.00	5,333.73	-1,013.11	5,405.95	0.00	0.00	0.00
12,000.00	90.00	359.60	6,949.00	5,433.73	-1,013.81	5,505.56	0.00	0.00	0.00
12,100.00	90.00	359.60	6,949.00	5,533.73	-1,014.52	5,605.17	0.00	0.00	0.00
12,200.00	90.00	359.60	6,949.00	5,633.73	-1,015.22	5,704.78	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 #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)
12,300.00	90.00	359.60	6,949.00	5,733.72	-1,015.92	5,804.39	0.00	0.00	0.00
12,400.00	90.00	359.60	6,949.00	5,833.72	-1,016.62	5,904.00	0.00	0.00	0.00
12,500.00	90.00	359.60	6,949.00	5,933.72	-1,017.33	6,003.61	0.00	0.00	0.00
12,600.00	90.00	359.60	6,949.00	6,033.72	-1,018.03	6,103.22	0.00	0.00	0.00
12,700.00	90.00	359.60	6,949.00	6,133.71	-1,018.73	6,202.83	0.00	0.00	0.00
12,800.00	90.00	359.60	6,949.00	6,233.71	-1,019.43	6,302.44	0.00	0.00	0.00
12,900.00	90.00	359.60	6,949.00	6,333.71	-1,020.14	6,402.05	0.00	0.00	0.00
13,000.00	90.00	359.60	6,949.00	6,433.71	-1,020.84	6,501.67	0.00	0.00	0.00
13,100.00	90.00	359.60	6,949.00	6,533.70	-1,021.54	6,601.28	0.00	0.00	0.00
13,200.00	90.00	359.60	6,949.00	6,633.70	-1,022.24	6,700.89	0.00	0.00	0.00
13,300.00	90.00	359.60	6,949.00	6,733.70	-1,022.95	6,800.50	0.00	0.00	0.00
13,400.00	90.00	359.60	6,949.00	6,833.70	-1,023.65	6,900.11	0.00	0.00	0.00
13,500.00	90.00	359.60	6,949.00	6,933.69	-1,024.35	6,999.72	0.00	0.00	0.00
13,600.00	90.00	359.60	6,949.00	7,033.69	-1,025.05	7,099.33	0.00	0.00	0.00
13,700.00	90.00	359.60	6,949.00	7,133.69	-1,025.76	7,198.94	0.00	0.00	0.00
13,800.00	90.00	359.60	6,949.00	7,233.69	-1,026.46	7,298.55	0.00	0.00	0.00
13,900.00	90.00	359.60	6,949.00	7,333.68	-1,027.16	7,398.16	0.00	0.00	0.00
14,000.00	90.00	359.60	6,949.00	7,433.68	-1,027.86	7,497.77	0.00	0.00	0.00
14,100.00	90.00	359.60	6,949.00	7,533.68	-1,028.56	7,597.38	0.00	0.00	0.00
14,200.00	90.00	359.60	6,949.00	7,633.68	-1,029.27	7,696.99	0.00	0.00	0.00
14,300.00	90.00	359.60	6,949.00	7,733.67	-1,029.97	7,796.60	0.00	0.00	0.00
14,400.00	90.00	359.60	6,949.00	7,833.67	-1,030.67	7,896.21	0.00	0.00	0.00
14,500.00	90.00	359.60	6,949.00	7,933.67	-1,031.37	7,995.82	0.00	0.00	0.00
14,600.00	90.00	359.60	6,949.00	8,033.67	-1,032.08	8,095.43	0.00	0.00	0.00
14,700.00	90.00	359.60	6,949.00	8,133.66	-1,032.78	8,195.04	0.00	0.00	0.00
14,800.00	90.00	359.60	6,949.00	8,233.66	-1,033.48	8,294.65	0.00	0.00	0.00
14,900.00	90.00	359.60	6,949.00	8,333.66	-1,034.18	8,394.26	0.00	0.00	0.00
15,000.00	90.00	359.60	6,949.00	8,433.66	-1,034.89	8,493.87	0.00	0.00	0.00
15,100.00	90.00	359.60	6,949.00	8,533.65	-1,035.59	8,593.48	0.00	0.00	0.00
15,200.00	90.00	359.60	6,949.00	8,633.65	-1,036.29	8,693.09	0.00	0.00	0.00
15,300.00	90.00	359.60	6,949.00	8,733.65	-1,036.99	8,792.70	0.00	0.00	0.00
15,400.00	90.00	359.60	6,949.00	8,833.65	-1,037.70	8,892.31	0.00	0.00	0.00
15,500.00	90.00	359.60	6,949.00	8,933.64	-1,038.40	8,991.92	0.00	0.00	0.00
15,600.00	90.00	359.60	6,949.00	9,033.64	-1,039.10	9,091.53	0.00	0.00	0.00
15,700.00	90.00	359.60	6,949.00	9,133.64	-1,039.80	9,191.14	0.00	0.00	0.00
15,800.00	90.00	359.60	6,949.00	9,233.64	-1,040.51	9,290.75	0.00	0.00	0.00
15,900.00	90.00	359.60	6,949.00	9,333.63	-1,041.21	9,390.36	0.00	0.00	0.00
16,000.00	90.00	359.60	6,949.00	9,433.63	-1,041.91	9,489.97	0.00	0.00	0.00
16,100.00	90.00	359.60	6,949.00	9,533.63	-1,042.61	9,589.59	0.00	0.00	0.00
16,200.00	90.00	359.60	6,949.00	9,633.63	-1,043.32	9,689.20	0.00	0.00	0.00
16,300.00	90.00	359.60	6,949.00	9,733.62	-1,044.02	9,788.81	0.00	0.00	0.00
16,400.00	90.00	359.60	6,949.00	9,833.62	-1,044.72	9,888.42	0.00	0.00	0.00
16,500.00	90.00	359.60	6,949.00	9,933.62	-1,045.42	9,988.03	0.00	0.00	0.00
16,600.00	90.00	359.60	6,949.00	10,033.62	-1,046.13	10,087.64	0.00	0.00	0.00
16,700.00	90.00	359.60	6,949.00	10,133.61	-1,046.83	10,187.25	0.00	0.00	0.00
16,800.00	90.00	359.60	6,949.00	10,233.61	-1,047.53	10,286.86	0.00	0.00	0.00
16,900.00	90.00	359.60	6,949.00	10,333.61	-1,048.23	10,386.47	0.00	0.00	0.00
17,000.00	90.00	359.60	6,949.00	10,433.61	-1,048.94	10,486.08	0.00	0.00	0.00
17,100.00	90.00	359.60	6,949.00	10,533.60	-1,049.64	10,585.69	0.00	0.00	0.00
17,200.00	90.00	359.60	6,949.00	10,633.60	-1,050.34	10,685.30	0.00	0.00	0.00
17,300.00	90.00	359.60	6,949.00	10,733.60	-1,051.04	10,784.91	0.00	0.00	0.00
17,400.00	90.00	359.60	6,949.00	10,833.60	-1,051.75	10,884.52	0.00	0.00	0.00
17,500.00	90.00	359.60	6,949.00	10,933.60	-1,052.45	10,984.13	0.00	0.00	0.00
17,578.19	90.00	359.60	6,949.00	11,011.78	-1,053.00	11,062.02	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 #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)
TD @ 17578.19' MD/6949.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pioneer D31-775-SHL - hit/miss 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-KOF - plan hits target center - Point	0.00	0.00	6,363.23	221.69	-848.08	1,301,940.05	3,251,832.21	40.1587082	-104.5989800
Pioneer D31-775-TPZ - plan hits target center - Point	0.00	0.01	6,949.00	856.32	-981.66	1,302,574.68	3,251,698.63	40.1604540	-104.5994348
Pioneer D31-775-BHL - plan hits target center - Point	0.00	0.01	6,949.00	11,011.78	-1,053.00	1,312,730.12	3,251,627.29	40.1883326	-104.5993210

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				
3,993.23	3,959.00	Parkman				
4,574.81	4,526.00	Sussex				
5,375.89	5,307.00	Shannon				
6,327.76	6,235.00	Teepee Buttes				
7,106.54	6,874.00	Sharon Springs				
7,131.08	6,885.00	Top A Chalk				
7,131.08	6,885.00	Top A Marl				
7,184.31	6,906.00	Top B Chalk				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'
2,842.87	2,837.49	18.17	-69.49	Hold: 12.86° Inc, 284.65° Azm
6,459.29	6,363.23	221.69	-848.08	KOP: Build 9°/100' @ 6459.29' MD
7,422.48	6,949.00	856.32	-981.66	LP: 7422.48' MD, 90.00° Inc, 359.60° Azm
17,578.19	6,949.00	11,011.78	-1,053.00	TD @ 17578.19' MD/6949.00' TVD

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer D31-775

Pioneer D31-775

Plan #1

Anticollision Summary Report

26 September, 2018

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 #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	9/26/2018		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.00	17,578.19	Plan #1 (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
Offset Well - Wellbore - Design						
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D -	17,578.19	6,863.11	6,267.46	6,191.33	82.322	CC, ES, SF
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled	17,578.19	6,941.10	5,440.27	5,379.87	90.064	CC, ES, SF
Adams D30-30D - Adams D30-30D Gyros - Gyros	17,578.19	7,282.21	5,668.37	5,539.62	44.024	CC, ES, SF
Adams D30-30D - Adams D30-30D OH - As Drilled	17,578.19	7,295.21	5,668.35	5,539.59	44.024	CC, ES, SF
Adams D30-31D - Adams D30-31D Gyros - Gyros	17,578.19	7,292.94	4,369.08	4,245.11	35.244	CC, ES, SF
Adams D30-31D - Adams D30-31D OH - As-drilled	17,578.19	7,305.94	4,369.05	4,245.08	35.243	CC, ES, SF
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - A	17,578.19	7,183.62	3,121.13	3,006.07	27.125	CC, ES, SF
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red	17,578.19	6,939.30	3,118.38	3,014.12	29.910	CC, ES, SF
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D	17,578.19	6,756.87	4,145.73	4,039.60	39.064	CC, ES, SF
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D	17,578.19	6,912.36	2,329.32	2,216.32	20.614	CC, ES, SF
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D	17,578.19	6,844.73	3,483.84	3,368.09	30.097	CC, ES, SF
Dechant D30-17D - Dechant D30-17D - Dechant D30-17	17,578.19	7,237.72	4,741.75	4,597.62	32.900	CC, ES, SF
Dechant D30-20D - Dechant D30-20D - Dechant D30-20	17,578.19	6,920.11	2,944.03	2,883.11	48.327	CC, ES, SF
Dechant D30-24D - Dechant D30-24D - Dechant D30-24	17,578.19	6,952.35	2,069.80	1,973.48	21.489	CC, ES, SF
Dechant D30-25D - Dechant D30-25D - Dechant D30-25	17,578.19	7,050.21	1,559.80	1,489.63	22.229	CC, ES, SF
Dechant D31-27D - Dechant D31-27D - Dechant D31-27	17,578.19	7,121.18	2,816.93	2,692.97	22.725	CC, ES, SF
Dechant D31-28D - Dechant D31-28D - Dechant D31-28	17,578.19	6,849.78	1,441.35	1,325.88	12.482	CC, ES, SF
Dechant D31-29D - Dechant D31-29D - Dechant D31-29	17,578.19	6,961.68	357.18	262.95	3.791	CC, ES, SF
Dechant D31-77HN - Original Drilling - Original Drilling -	13,034.21	11,360.01	418.72	274.26	2.899	CC, ES, SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As	17,578.19	6,791.30	2,464.15	2,395.23	35.752	CC, ES, SF
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As	17,578.19	6,787.82	2,460.88	2,405.53	44.460	CC, ES, SF
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As	17,578.19	6,841.56	984.92	912.03	13.514	CC, ES, SF
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As	17,578.19	6,796.48	1,357.36	1,259.97	13.938	CC, ES, SF
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit	17,578.19	6,653.50	5,606.97	5,523.49	67.167	CC, ES, SF
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02 -	17,578.19	6,811.00	5,461.43	5,352.29	50.043	CC, ES, SF
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03 -	17,578.19	6,779.34	5,119.80	5,060.42	86.219	CC, ES, SF
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04 -	17,578.19	6,788.43	5,109.85	5,055.54	94.074	CC, ES, SF
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05 -	17,578.19	6,831.47	3,334.31	3,279.68	61.034	CC, ES, SF
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06 -	17,578.19	6,781.52	3,456.88	3,393.16	54.250	CC, ES, SF
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08 -	17,578.19	6,839.69	4,790.61	4,695.41	50.325	CC, ES, SF
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit	17,578.19	6,829.00	1,471.86	1,381.20	16.235	CC, ES, SF
McWilliams D29-32 - McWilliams D29-32 - McWilliams D	17,578.19	6,747.80	4,980.65	4,877.60	48.328	CC, ES, SF
McWilliams D30-07 - McWilliams D30-07 - McWilliams D	17,578.19	6,819.00	4,267.89	4,151.06	36.530	CC, ES, SF
McWilliams D30-18 - McWilliams D30-18 - McWilliams D	17,578.19	6,730.61	4,433.03	4,363.92	64.142	CC, ES, SF
McWilliams D30-19 - McWilliams D30-19 - McWilliams D	17,578.19	6,793.94	4,236.22	4,178.32	73.167	CC, ES, SF
McWilliams D30-21 - McWilliams D30-21 - McWilliams D	17,578.19	6,840.89	3,155.80	3,069.54	36.582	CC, ES, SF
McWilliams D30-22 - McWilliams D30-22 - McWilliams D	17,578.19	6,875.94	3,973.61	3,880.14	42.512	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 #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
D Section 31						
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	13,479.28	6,846.16	52.37	-32.19	0.619	Level 1, CC, ES, SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	15,216.32	6,926.50	2,659.79	2,557.21	25.929	CC, ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,922.80	2,666.12	2,563.07	25.871	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	16,453.69	7,192.58	1,382.35	1,258.62	11.173	CC, ES, SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	13,939.83	6,975.63	1,568.67	1,477.62	17.229	CC, ES
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	14,000.00	6,974.30	1,569.82	1,478.66	17.220	SF
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	16,336.43	6,969.02	902.33	790.51	8.070	CC, ES
Dechant D31-31D (PR) - Wellbore #1 - Gyro Surveys	16,400.00	6,969.23	904.57	791.93	8.031	SF
Dechant D31-31D (PR) - Wellbore #1 - As Drilled	15,294.71	6,920.29	1,635.59	1,534.02	16.103	CC
Dechant D31-31D (PR) - Wellbore #1 - As Drilled	15,300.00	6,920.20	1,635.60	1,534.01	16.100	ES, SF
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	15,338.23	6,848.75	594.32	506.49	6.767	CC, ES
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	15,400.00	6,848.79	597.52	509.06	6.755	SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	12,609.03	6,926.50	2,803.67	2,721.42	34.085	CC, ES
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	12,800.00	6,924.35	2,810.17	2,727.31	33.916	SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	12,541.38	6,960.51	1,586.82	1,504.75	19.336	CC, ES
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	12,700.00	6,954.71	1,594.72	1,511.81	19.234	SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	13,481.87	6,821.91	2,155.78	2,070.91	25.399	CC
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	13,500.00	6,822.07	2,155.86	2,070.89	25.371	ES
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,823.77	2,166.79	2,080.99	25.253	SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	13,250.40	6,837.42	3,192.88	3,109.61	38.341	CC, ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	6,839.90	3,224.38	3,138.86	37.700	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	14,503.63	6,811.60	3,238.83	3,146.25	34.983	CC, ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	14,900.00	6,809.10	3,262.99	3,168.41	34.500	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	14,175.31	6,799.24	2,463.46	2,373.48	27.377	CC
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	14,200.00	6,798.41	2,463.59	2,373.47	27.338	ES
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,791.91	2,473.68	2,382.69	27.188	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	14,673.04	6,831.96	1,136.46	1,040.96	11.900	CC, ES
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	6,832.38	1,136.78	1,041.19	11.893	SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	14,539.69	6,851.99	494.70	401.61	5.314	CC, ES, SF
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	14,683.98	6,839.00	2,026.72	1,819.51	9.781	CC
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	14,700.00	6,839.00	2,026.79	1,819.49	9.777	ES
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	14,800.00	6,839.00	2,030.04	1,822.30	9.772	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	16,400.00	6,840.30	107.59	0.15	1.001	Level 2, ES, SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	16,400.19	6,840.30	107.59	0.16	1.001	Level 2, CC
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	17,429.70	6,866.43	977.84	861.94	8.437	CC, ES, SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	15,688.67	6,840.00	996.69	781.69	4.636	CC, ES
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	15,700.00	6,840.00	996.75	781.72	4.635	SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	15,917.44	6,824.63	891.48	787.99	8.614	CC, ES, SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,176.83	6,791.97	3,369.89	3,256.55	29.732	CC
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,200.00	6,792.32	3,369.97	3,256.48	29.694	ES
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	17,578.19	6,797.78	3,393.70	3,278.32	29.413	SF
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	15,920.98	6,814.28	2,272.07	2,168.50	21.938	CC, ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	16,100.00	6,810.16	2,279.11	2,174.77	21.843	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	15,728.90	6,970.84	3,306.04	3,203.15	32.134	CC, ES
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	16,100.00	6,953.60	3,326.76	3,222.01	31.761	SF
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	12,871.77	6,841.71	971.42	890.92	12.068	CC, ES
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	12,900.00	6,842.21	971.83	891.27	12.064	SF
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	17,321.02	6,773.30	837.77	667.58	4.923	CC, ES
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	17,400.00	6,774.95	841.48	670.52	4.922	SF
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	16,481.59	6,833.00	2,774.19	2,553.14	12.550	CC
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	16,500.00	6,833.00	2,774.26	2,553.09	12.544	ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	16,600.00	6,833.00	2,776.72	2,555.01	12.524	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 #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 32						
HP D32-21D - Wellbore #1 - MWD Surveys	15,255.88	6,926.89	6,824.59	6,722.63	66.936	CC
HP D32-21D - Wellbore #1 - MWD Surveys	15,300.00	6,926.07	6,824.73	6,722.49	66.754	ES
HP D32-21D - Wellbore #1 - MWD Surveys	17,000.00	6,900.00	7,043.83	6,933.02	63.568	SF
HP D32-23D - Wellbore #1 - MWD Surveys	14,176.49	6,803.77	8,000.49	7,909.02	87.463	CC
HP D32-23D - Wellbore #1 - MWD Surveys	14,200.00	6,803.76	8,000.53	7,908.90	87.314	ES
HP D32-23D - Wellbore #1 - MWD Surveys	16,900.00	6,802.91	8,451.35	8,345.13	79.560	SF
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,330.17	7,010.23	8,100.36	7,989.71	73.207	CC
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	15,400.00	7,009.80	8,100.66	7,989.54	72.897	ES
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	17,500.00	6,996.79	8,385.93	8,263.61	68.558	SF
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,023.27	6,740.27	6,246.95	6,135.06	55.834	CC
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,100.00	6,738.98	6,247.42	6,135.00	55.574	ES
HP Farms D32-03 - Wellbore #1 - Gyro Surveys	17,578.19	6,730.97	6,271.54	6,156.08	54.318	SF
HP Farms D32-18D - Wellbore #1 - MWD Surveys	16,504.18	7,045.97	6,858.82	6,748.32	62.070	CC, ES
HP Farms D32-18D - Wellbore #1 - MWD Surveys	17,578.19	7,034.96	6,942.39	6,825.49	59.387	SF
HP Farms D32-24D - Wellbore #1 - MWD Surveys	13,906.30	7,082.68	6,860.36	6,769.78	75.743	CC, ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	16,200.00	7,069.22	7,233.63	7,130.38	70.065	SF
Norris 14-32 - Wellbore #1 - Projection Survey	13,023.11	6,859.00	4,673.83	4,556.07	39.691	CC, ES
Norris 14-32 - Wellbore #1 - Projection Survey	13,900.00	6,859.00	4,755.38	4,632.80	38.797	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	13,749.15	6,600.00	5,317.02	5,231.09	61.880	CC
Norris A Unit 2 - Wellbore #1 - As-Drilled	13,800.00	6,600.00	5,317.26	5,231.00	61.642	ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	15,000.00	6,600.00	5,462.17	5,369.44	58.905	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,141.30	6,822.68	8,730.92	8,617.71	77.119	CC
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,200.00	6,823.26	8,731.12	8,617.47	76.829	ES
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys	17,578.19	6,826.99	8,741.84	8,625.51	75.145	SF
Norris D32-10 - Wellbore #1 - Gyro Surveys	14,456.23	6,637.70	7,408.41	7,316.85	80.913	CC
Norris D32-10 - Wellbore #1 - Gyro Surveys	14,500.00	6,638.19	7,408.54	7,316.67	80.644	ES
Norris D32-10 - Wellbore #1 - Gyro Surveys	16,800.00	6,663.49	7,770.29	7,665.43	74.105	SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	12,800.00	12,800.00	7,415.17	7,314.24	73.468	ES, SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	13,171.13	6,800.00	7,405.88	7,323.28	89.659	CC
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,345.24	16,345.24	8,307.14	8,166.83	59.206	CC
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,400.00	16,400.00	8,307.32	8,166.42	58.960	ES
Norris D32-1J - Wellbore #1 - Gyro Surveys	16,600.00	16,600.00	8,311.05	8,168.03	58.113	SF
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,213.80	6,877.17	7,418.88	7,304.88	65.077	CC
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,300.00	6,877.57	7,419.38	7,304.76	64.730	ES
Norris D32-2 - Wellbore #1 - Gyro Surveys	17,578.19	6,878.87	7,427.83	7,311.28	63.733	SF
Norris D32-2J - Wellbore #1 - Gyro Surveys	16,726.46	6,713.37	5,513.72	5,404.31	50.395	CC
Norris D32-2J - Wellbore #1 - Gyro Surveys	16,800.00	6,713.14	5,514.21	5,404.29	50.169	ES
Norris D32-2J - Wellbore #1 - Gyro Surveys	17,578.19	6,710.89	5,579.11	5,464.73	48.776	SF
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,158.36	6,842.00	4,752.85	4,526.29	20.978	CC
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,200.00	6,842.00	4,753.03	4,526.19	20.953	ES
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	17,578.19	6,842.00	4,771.36	4,542.23	20.824	SF
Norris D32-5 - Wellbore #1 - Gyro Surveys	15,813.89	6,890.83	4,787.65	4,684.54	46.431	CC, ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	16,700.00	6,896.36	4,868.96	4,761.03	45.111	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys	15,796.43	6,936.55	6,005.40	5,902.19	58.189	CC
Norris D32-6 - Wellbore #1 - Gyro Surveys	15,800.00	6,936.54	6,005.40	5,902.17	58.175	ES
Norris D32-6 - Wellbore #1 - Gyro Surveys	17,200.00	6,934.56	6,167.24	6,056.24	55.562	SF
Norris D32-7 - Wellbore #1 - Gyro Surveys	15,840.50	6,827.04	7,349.05	7,245.98	71.301	CC
Norris D32-7 - Wellbore #1 - Gyro Surveys	15,900.00	6,825.75	7,349.29	7,245.80	71.016	ES
Norris D32-7 - Wellbore #1 - Gyro Surveys	17,578.19	6,800.00	7,551.56	7,438.31	66.679	SF
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	14,487.08	6,765.26	8,817.83	8,725.50	95.497	CC
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	14,500.00	6,765.25	8,817.84	8,725.41	95.402	ES
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	17,578.19	6,765.13	9,343.94	9,233.76	84.812	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 #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						
H Section 36						
Dechant 07-36 - Original Drilling - Original Drilling - As D	15,559.83	6,910.41	3,168.83	3,067.83	31.373	CC
Dechant 07-36 - Original Drilling - Original Drilling - As D	15,600.00	6,910.23	3,169.08	3,067.71	31.262	ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	16,100.00	6,908.07	3,214.54	3,109.51	30.605	SF
Dechant 13N-1HZ - Production Hole - Production Hole -	7,862.24	11,468.00	5,559.72	5,443.61	47.886	CC, ES
Dechant 13N-1HZ - Production Hole - Production Hole -	11,800.00	11,800.00	5,750.30	5,618.22	43.536	SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	12,708.92	600.00	7,968.81	7,911.70	139.541	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	12,800.00	600.00	7,969.33	7,911.53	137.891	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	16,500.00	600.00	8,824.63	8,745.14	111.013	SF
Dechant 14C-1HZ - Production Hole - Production Hole -	8,800.00	10,708.71	4,338.16	4,259.11	54.878	ES
Dechant 14C-1HZ - Production Hole - Production Hole -	8,862.62	10,662.96	4,338.05	4,259.13	54.965	CC
Dechant 14C-1HZ - Production Hole - Production Hole -	12,600.00	12,600.00	4,394.64	4,299.41	46.147	SF
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	12,705.20	610.00	7,908.75	7,851.72	138.677	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	12,800.00	610.00	7,909.31	7,851.57	136.971	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	16,500.00	610.00	8,772.04	8,692.71	110.566	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	13,106.81	6,875.19	3,179.67	3,081.98	32.551	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	13,700.00	6,872.64	3,234.53	3,132.48	31.698	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	15,223.85	6,928.64	2,477.29	2,376.28	24.527	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	15,700.00	6,930.03	2,522.63	2,416.43	23.754	SF
Dechant 35N-E1HZ - Production Hole - Production Hole	7,808.00	11,619.00	4,561.88	4,443.77	38.625	CC, ES
Dechant 35N-E1HZ - Production Hole - Production Hole	7,900.00	11,619.00	4,562.81	4,444.34	38.514	SF
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	12,706.29	612.00	7,922.14	7,865.08	138.841	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	12,800.00	612.00	7,922.70	7,864.93	137.152	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	16,500.00	612.00	8,783.65	8,704.27	110.647	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,833.83	11,494.00	5,025.79	4,909.23	43.115	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	11,200.00	11,200.00	5,103.01	4,979.82	41.426	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,758.27	11,651.36	3,873.78	3,755.15	32.653	CC
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,800.00	11,651.36	3,874.01	3,755.11	32.583	ES, SF
Dechant 37N-E1HZ - Production Hole - Production Hole	7,732.91	11,723.00	2,044.88	1,926.70	17.303	SF
Dechant 37N-E1HZ - Production Hole - Production Hole	10,246.24	9,207.50	2,007.56	1,918.74	22.600	ES
Dechant 37N-E1HZ - Production Hole - Production Hole	12,279.47	7,148.00	2,003.29	1,925.34	25.699	CC
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	12,733.35	648.00	7,144.77	7,088.73	127.507	CC
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	12,800.00	648.00	7,145.08	7,088.54	126.388	ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	15,900.00	648.00	7,815.07	7,740.44	104.720	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	7,741.44	12,384.00	2,616.58	2,494.62	21.455	CC, ES
Dechant 37N-W1HZ - Production Hole - Production Hole	7,900.00	12,384.00	2,621.38	2,498.45	21.325	SF
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	12,715.08	655.00	7,127.74	7,071.86	127.553	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	12,800.00	655.00	7,128.24	7,071.73	126.129	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	15,900.00	655.00	7,806.94	7,732.41	104.742	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,800.00	16,665.00	3,041.86	2,905.77	22.351	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	16,219.65	8,192.42	2,979.04	2,869.88	27.293	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drillir	7,700.00	16,823.50	1,909.37	1,708.73	9.516	SF
Dechant State 16C-1HZ - Original Drilling - Original Drillir	14,351.75	10,200.99	1,764.62	1,635.92	13.711	CC, ES
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,500.00	16,517.00	3,491.09	3,356.40	25.918	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	12,238.74	12,055.35	3,341.28	3,226.53	29.117	CC, ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	16,182.56	8,244.69	2,029.65	1,919.73	18.465	CC
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	16,500.00	16,500.00	2,034.38	1,882.52	13.397	ES, SF
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	17,535.47	6,869.00	2,535.00	2,420.01	22.045	CC
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	17,578.19	6,869.00	2,535.36	2,419.96	21.970	ES, SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,700.00	16,635.48	1,298.08	1,160.88	9.462	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	8,660.20	15,715.66	1,275.72	1,144.79	9.743	ES
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	9,017.56	15,358.13	1,273.90	1,145.03	9.886	CC
Dechant State H36-11D - Original Drilling - Original Drillir	14,367.46	6,775.23	4,335.36	4,243.73	47.312	CC
Dechant State H36-11D - Original Drilling - Original Drillir	14,400.00	6,775.67	4,335.48	4,243.57	47.168	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 #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						
H Section 36						
Dechant State H36-11D - Original Drilling - Original Drillir	15,500.00	15,500.00	4,480.48	4,350.72	34.530	SF
Dechant State H36-18D - Dechant State H36-18D Gyros	16,423.78	7,101.25	3,777.86	3,667.19	34.135	CC
Dechant State H36-18D - Dechant State H36-18D Gyros	16,500.00	7,098.41	3,778.63	3,666.73	33.768	ES
Dechant State H36-18D - Dechant State H36-18D Gyros	17,578.19	7,062.30	3,950.08	3,821.74	30.778	SF
Dechant State H36-18D - Dechant State H36-18D OH - A	16,423.82	7,114.24	3,777.82	3,667.15	34.134	CC
Dechant State H36-18D - Dechant State H36-18D OH - A	16,500.00	7,111.41	3,778.59	3,666.69	33.768	ES
Dechant State H36-18D - Dechant State H36-18D OH - A	17,578.19	7,075.30	3,950.03	3,821.69	30.777	SF
Dechant State H36-19 - Original Drilling - Original Drilling	16,776.35	6,576.70	5,145.37	5,035.53	46.844	CC
Dechant State H36-19 - Original Drilling - Original Drilling	16,800.00	6,576.54	5,145.43	5,035.38	46.756	ES
Dechant State H36-19 - Original Drilling - Original Drilling	17,578.19	6,571.59	5,207.47	5,091.58	44.933	SF
Dechant State H36-20D - Dechant State H36-20D Gyros	14,987.58	6,839.86	4,958.15	4,857.43	49.227	CC
Dechant State H36-20D - Dechant State H36-20D Gyros	15,000.00	6,839.81	4,958.17	4,857.38	49.196	ES
Dechant State H36-20D - Dechant State H36-20D Gyros	15,900.00	6,836.50	5,041.41	4,936.63	48.116	SF
Dechant State H36-20D - Dechant State H36-20D OH - A	14,987.57	6,852.86	4,958.15	4,857.43	49.227	CC
Dechant State H36-20D - Dechant State H36-20D OH - A	15,000.00	6,852.81	4,958.17	4,857.38	49.196	ES
Dechant State H36-20D - Dechant State H36-20D OH - A	15,900.00	6,849.50	5,041.40	4,936.63	48.116	SF
Dechant State H36-21D - Dechant State H36-21D Gyros	14,995.27	6,937.06	3,754.06	3,651.17	36.486	CC
Dechant State H36-21D - Dechant State H36-21D Gyros	15,000.00	6,937.08	3,754.07	3,651.15	36.476	ES
Dechant State H36-21D - Dechant State H36-21D Gyros	15,500.00	6,939.23	3,787.84	3,682.52	35.966	SF
Dechant State H36-21D - Dechant State H36-21D OH - A	14,995.25	6,950.06	3,754.09	3,651.20	36.486	CC
Dechant State H36-21D - Dechant State H36-21D OH - A	15,000.00	6,950.08	3,754.09	3,651.17	36.476	ES
Dechant State H36-21D - Dechant State H36-21D OH - A	15,500.00	6,952.23	3,787.87	3,682.55	35.967	SF
Dechant State H36-24 - Original Drilling - Original Drilling	13,796.10	7,030.92	3,691.26	3,602.05	41.378	CC
Dechant State H36-24 - Original Drilling - Original Drilling	13,800.00	7,030.97	3,691.26	3,602.02	41.362	ES
Dechant State H36-24 - Original Drilling - Original Drilling	14,700.00	7,043.44	3,800.29	3,704.05	39.486	SF
Dechant State H36-31D - Dechant State H36-31D OH - A	16,409.29	7,076.62	6,173.00	6,064.64	56.968	CC
Dechant State H36-31D - Dechant State H36-31D OH - A	16,500.00	7,075.91	6,173.67	6,064.59	56.598	ES
Dechant State H36-31D - Dechant State H36-31D OH - A	17,578.19	7,067.33	6,282.69	6,166.14	53.907	SF
Dechant State H36-32D - Dechant State H36-32D Gyros	15,166.55	6,866.91	6,188.71	6,084.70	59.504	CC
Dechant State H36-32D - Dechant State H36-32D Gyros	15,200.00	6,866.72	6,188.80	6,084.47	59.322	ES
Dechant State H36-32D - Dechant State H36-32D Gyros	17,100.00	6,855.11	6,483.67	6,365.11	54.688	SF
Dechant State H36-32D - Dechant State H36-32D OH - A	15,166.52	6,879.91	6,188.69	6,084.69	59.504	CC
Dechant State H36-32D - Dechant State H36-32D OH - A	15,200.00	6,879.72	6,188.78	6,084.46	59.322	ES
Dechant State H36-32D - Dechant State H36-32D OH - A	17,100.00	6,868.11	6,483.66	6,365.11	54.688	SF
Dechant State H36-33 - Dechant State H36-33D Gyros -	13,947.25	6,900.00	6,136.58	6,047.75	69.080	CC
Dechant State H36-33 - Dechant State H36-33D Gyros -	14,000.00	6,900.00	6,136.80	6,047.46	68.683	ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	17,100.00	6,900.00	6,899.09	6,778.83	57.369	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	13,947.23	6,913.00	6,136.57	6,047.74	69.080	CC
Dechant State H36-33 - Dechant State H36-33D OH - As	14,000.00	6,913.00	6,136.79	6,047.45	68.683	ES
Dechant State H36-33 - Dechant State H36-33D OH - As	17,100.00	6,913.00	6,899.09	6,778.83	57.369	SF
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	17,288.43	6,866.23	1,499.17	1,384.64	13.090	CC
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	17,300.00	6,866.15	1,499.21	1,384.55	13.076	ES
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	17,400.00	6,865.43	1,503.31	1,387.75	13.008	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri	17,312.72	6,896.67	3,215.99	3,101.26	28.031	CC, ES
HSR Dechant State 02-36 - Original Drilling - Original Dri	17,578.19	6,890.04	3,226.92	3,109.97	27.592	SF
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	16,120.40	6,841.00	2,628.20	2,409.81	12.034	CC, ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	16,300.00	6,841.00	2,634.33	2,414.37	11.977	SF
Spike State GWS H36-03 - Original Drilling - Original Dri	17,172.84	6,831.60	4,134.38	4,020.82	36.408	CC
Spike State GWS H36-03 - Original Drilling - Original Dri	17,300.00	17,300.00	4,136.30	3,984.56	27.258	ES
Spike State GWS H36-03 - Original Drilling - Original Dri	17,400.00	17,400.00	4,140.50	3,987.57	27.075	SF
Spike State GWS H36-04 - Original Drilling - Original Dri	17,325.00	6,737.87	5,632.32	5,511.41	46.583	CC
Spike State GWS H36-04 - Original Drilling - Original Dri	17,400.00	6,738.42	5,632.82	5,511.25	46.336	ES
Spike State GWS H36-04 - Original Drilling - Original Dri	17,578.19	6,739.73	5,638.00	5,514.94	45.813	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 #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						
H Section 36						
Spike State GWS H36-13 - Original Drilling - Original Dri	13,193.75	7,444.00	5,615.49	5,529.62	65.395	CC
Spike State GWS H36-13 - Original Drilling - Original Dri	13,200.00	7,444.00	5,615.49	5,529.57	65.358	ES
Spike State GWS H36-13 - Original Drilling - Original Dri	14,900.00	7,444.00	5,868.99	5,772.27	60.685	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	12,300.00	12,300.00	4,140.37	4,046.14	43.941	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	13,012.63	6,968.55	4,078.68	3,996.78	49.803	CC, ES
Spike State H36-02J - Original Drilling - Original Drilling -	16,103.79	6,897.86	4,689.83	4,553.36	34.366	CC, ES
Spike State H36-02J - Original Drilling - Original Drilling -	17,000.00	6,882.39	4,774.67	4,632.10	33.488	SF
Spike State H36-05 - Original Drilling - Original Drilling - /	15,926.37	6,789.21	5,691.03	5,587.34	54.885	CC
Spike State H36-05 - Original Drilling - Original Drilling - /	16,000.00	6,788.68	5,691.51	5,587.19	54.559	ES
Spike State H36-05 - Original Drilling - Original Drilling - /	17,400.00	6,777.46	5,878.71	5,764.86	51.637	SF
Spike State H36-11J - Original Drilling - Original Drilling -	13,765.64	6,902.49	4,926.14	4,838.83	56.423	CC
Spike State H36-11J - Original Drilling - Original Drilling -	13,800.00	6,903.08	4,926.26	4,838.66	56.236	ES
Spike State H36-11J - Original Drilling - Original Drilling -	15,200.00	6,922.90	5,130.67	5,033.53	52.817	SF
Spike State H36-12 - Original Drilling - Original Drilling - /	14,654.26	6,770.81	5,805.99	5,712.20	61.910	CC
Spike State H36-12 - Original Drilling - Original Drilling - /	14,700.00	6,771.39	5,806.17	5,712.00	61.657	ES
Spike State H36-12 - Original Drilling - Original Drilling - /	17,400.00	17,400.00	6,422.16	6,275.62	43.826	SF
Y Section 05						
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red \	11,604.31	6,782.17	5,743.63	5,672.55	80.804	CC, ES
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red \	13,400.00	6,780.54	6,017.79	5,937.21	74.688	SF
Olsen Y5-05Jl - Olsen Y5-05Jl - Olsen Y5-05Jl - As Drille	10,620.08	6,862.00	4,719.81	4,666.80	89.033	CC, ES
Olsen Y5-05Jl - Olsen Y5-05Jl - Olsen Y5-05Jl - As Drille	12,100.00	6,862.00	4,946.39	4,886.18	82.158	SF
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	10,625.54	6,914.00	7,416.59	7,315.18	73.137	CC
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	10,700.00	6,914.00	7,416.96	7,315.11	72.821	ES
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	13,100.00	6,914.00	7,818.49	7,703.42	67.947	SF
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	10,626.41	6,931.00	8,721.67	8,620.11	85.876	CC
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	10,700.00	6,931.00	8,721.98	8,619.97	85.504	ES
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	14,000.00	6,931.00	9,351.40	9,230.90	77.609	SF
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	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 Drille	13,000.00	6,936.00	9,465.83	9,352.77	83.725	SF
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	2,201.22	2,179.04	7,461.41	7,446.31	494.011	CC, ES
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	13,100.00	6,836.08	9,443.21	9,369.23	127.643	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	13,400.00	3,644.66	9,992.65	9,933.92	170.121	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	13,200.00	4,941.42	9,718.11	9,653.76	151.005	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	12,400.00	6,016.94	8,952.65	8,886.81	135.959	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	12,100.00	6,163.24	8,513.11	8,448.27	131.301	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	11,600.00	6,400.00	8,067.95	8,004.02	126.188	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	11,100.00	5,518.82	7,087.60	7,030.88	124.955	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	10,300.00	6,283.57	6,265.65	6,208.72	110.057	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	9,600.00	6,550.00	5,527.14	5,472.00	100.244	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	9,200.00	6,800.00	5,081.93	5,027.07	92.637	SF
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	2,727.07	3,403.29	4,369.38	4,348.22	206.546	CC
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	6,200.00	7,765.08	4,394.56	4,345.90	90.315	ES
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	8,400.00	6,950.00	4,588.60	4,535.76	86.842	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 #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Y Section 06						
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	9,294.76	6,889.99	2,229.48	2,172.40	39.058	CC
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	9,300.00	6,890.21	2,229.48	2,172.38	39.043	ES
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	9,600.00	6,903.25	2,250.24	2,191.97	38.615	SF
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	8,268.19	6,903.30	39.35	-12.94	0.753	Level 1, CC, ES, SF
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	11,546.01	6,798.39	3,212.76	3,142.09	45.461	CC, ES
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	12,100.00	6,784.34	3,260.15	3,186.91	44.514	SF
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	10,984.93	6,853.67	94.24	26.97	1.401	Level 3, CC, ES, 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 #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
Y Section 07						
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	6,653.21	6,530.85	476.50	429.93	10.232	CC, ES
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	6,700.00	6,572.64	477.84	430.93	10.186	SF
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	5,474.34	5,397.75	959.56	921.07	24.936	CC
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	5,600.00	5,521.94	959.80	920.40	24.357	ES
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	6,550.00	6,453.31	990.00	943.63	21.350	SF
HP Farms Y 7-15Jl (PR) - Wellbore #1 - No Surveys	2,200.00	2,194.00	4,098.46	4,046.92	79.530	CC
HP Farms Y 7-15Jl (PR) - Wellbore #1 - No Surveys	2,300.00	2,293.98	4,099.30	4,045.41	76.074	ES
HP Farms Y 7-15Jl (PR) - Wellbore #1 - No Surveys	6,800.00	6,668.74	4,711.88	4,553.69	29.787	SF
HP Y07-09 (PR) - Wellbore #1 - No Surveys	2,200.00	2,143.00	3,660.68	3,610.17	72.469	CC
HP Y07-09 (PR) - Wellbore #1 - No Surveys	2,300.00	2,242.98	3,662.18	3,609.31	69.274	ES
HP Y07-09 (PR) - Wellbore #1 - No Surveys	6,850.00	6,657.12	4,583.58	4,425.72	29.037	SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	4,823.27	5,478.79	3,123.42	3,058.70	48.263	CC
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	4,900.00	5,500.00	3,123.91	3,058.65	47.868	ES
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	6,200.00	6,337.57	3,246.28	3,174.08	44.964	SF
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	2,200.00	2,148.00	1,178.56	1,127.95	23.286	CC
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	2,300.00	2,247.98	1,180.23	1,127.27	22.283	ES
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	6,800.00	6,622.74	2,112.86	1,956.08	13.477	SF
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	2,232.97	2,216.08	1,906.85	1,891.49	124.129	CC, ES
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	6,800.00	6,698.59	2,940.93	2,893.30	61.744	SF
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	2,200.00	2,170.00	1,463.07	1,412.02	28.658	CC
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	2,400.00	2,369.84	1,465.00	1,409.25	26.278	ES
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	6,550.00	6,421.00	1,920.08	1,767.77	12.606	SF
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,200.00	2,193.00	1,070.00	1,054.72	70.019	CC, ES
Pioneer D31-716 - Pioneer D31-716 - Plan #1	17,578.19	17,771.53	3,760.72	3,574.87	20.235	SF
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,200.00	2,194.00	1,047.36	1,032.08	68.521	CC, ES
Pioneer D31-725 - Pioneer D31-725 - Plan #1	17,578.19	17,605.16	3,134.22	2,948.50	16.875	SF
Pioneer D31-735 - Pioneer D31-735 - Plan #1	2,200.00	2,194.00	1,025.00	1,009.72	67.058	CC, ES
Pioneer D31-735 - Pioneer D31-735 - Plan #1	17,578.19	17,438.33	2,506.79	2,321.25	13.511	SF
Pioneer D31-744 - Pioneer D31-744 - Plan #1	2,200.00	2,206.00	1,002.36	987.03	65.393	CC, ES
Pioneer D31-744 - Pioneer D31-744 - Plan #1	17,578.19	17,522.03	1,881.56	1,695.73	10.125	SF
Pioneer D31-756 - Pioneer D31-756 - Plan #1	2,200.00	2,201.00	45.05	29.74	2.943	CC, ES
Pioneer D31-756 - Pioneer D31-756 - Plan #1	2,300.00	2,301.02	46.76	30.74	2.919	SF
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,200.00	2,201.00	22.36	7.05	1.461	Level 3, CC, ES, SF
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,200.00	2,200.00	21.24	5.94	1.388	Level 3, CC
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,700.00	2,696.32	22.42	3.85	1.208	Level 3, ES, SF
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	2,874.13	3,601.26	3,296.64	3,272.55	136.865	CC
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	3,000.00	3,687.45	3,297.40	3,272.32	131.460	ES
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	6,550.00	6,587.98	3,700.37	3,648.34	71.116	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	5,052.41	5,833.33	2,279.32	2,236.35	53.037	CC
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	5,100.00	5,861.08	2,279.53	2,236.22	52.631	ES
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,841.77	2,474.48	2,421.94	47.101	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	2,800.00	2,659.03	1,047.99	1,029.12	55.555	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	2,800.00	2,677.17	1,021.52	1,002.56	53.881	SF
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,200.00	2,197.00	905.09	889.79	59.172	CC, ES
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,800.00	2,694.52	995.06	976.02	52.245	SF
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	2,200.00	2,198.00	882.45	867.15	57.678	CC, ES
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	7,250.00	7,330.42	2,533.83	2,482.72	49.583	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	7,400.00	7,253.34	1,921.21	1,869.80	37.374	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	2,394.14	195.13	178.44	11.687	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 #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
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	2,500.00	2,502.15	175.15	157.73	10.056	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	7,434.37	7,290.55	391.63	339.14	7.461	SF
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	7,248.60	7,385.32	57.36	5.13	1.098	Level 2, CC
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	7,250.00	7,384.20	57.37	5.11	1.098	Level 2, 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	2,300.68	97.89	81.88	6.114	ES
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	2,700.00	2,710.96	106.15	87.42	5.666	SF
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	2,200.00	2,153.00	3,553.24	3,502.53	70.065	CC
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	2,300.00	2,252.98	3,554.37	3,501.31	66.981	ES
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	6,800.00	6,627.74	4,301.63	4,144.36	27.352	SF
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	3,498.69	3,546.85	3,397.73	3,373.17	138.395	CC
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	3,800.00	3,830.41	3,398.55	3,371.88	127.432	ES
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	6,750.00	6,684.11	3,545.29	3,497.30	73.881	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	5,407.63	5,354.55	101.867	ES
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	7,000.00	6,771.05	6,435.03	6,274.52	40.093	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	500.081	ES
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	7,100.00	7,067.97	8,706.38	8,656.66	175.125	SF
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	2,203.31	2,186.80	7,499.60	7,484.46	495.332	CC, ES
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	11,600.00	6,791.34	9,970.74	9,906.66	155.585	SF
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,269.22	2,307.96	4,032.24	4,016.44	255.218	CC
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,300.00	2,338.26	4,032.40	4,016.39	251.810	ES
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	7,300.00	6,782.44	5,094.64	5,045.57	103.841	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	2,209.16	2,209.16	6,294.25	6,279.02	413.154	ES
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	10,800.00	6,852.93	8,396.27	8,335.59	138.368	SF
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,170.89	2,108.29	5,225.15	5,210.41	354.571	CC
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,130.07	5,225.17	5,210.25	350.286	ES
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	9,600.00	6,803.64	6,781.35	6,725.65	121.743	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	7,050.00	6,781.56	4,930.11	4,881.53	101.486	SF
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	2,200.00	2,195.00	7,842.49	7,790.94	152.123	CC
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	2,300.00	2,294.98	7,844.23	7,790.33	145.520	ES
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	7,300.00	6,932.53	8,944.87	8,780.60	54.454	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

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 #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Y Section 16						
Hullabaloo State Y21-716 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-726 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-736 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-746 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-756 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-763 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-769 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-775 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-781 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-787 - Original Drilling - Original Drill						Out of range
State 01 - Original Drilling - Original Drilling - As Drilled						Out of range
State 21 (PA) - Original Drilling - Original Drilling - As Drilled						Out of range
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Y Section 17						
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys						Out of range
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	2,200.00	2,158.00	7,292.48	7,241.66	143.515	CC
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	2,300.00	2,257.98	7,293.80	7,240.63	137.191	ES
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	7,000.00	6,775.05	8,230.09	8,069.38	51.212	SF
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	2,200.00	2,153.00	7,218.31	7,167.59	142.335	CC
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	2,300.00	2,252.98	7,219.83	7,166.77	136.056	ES
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	7,050.00	6,798.59	8,263.00	8,101.81	51.262	SF
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	2,250.65	2,320.69	6,363.51	6,347.73	403.271	CC, ES
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	7,000.00	7,298.05	7,248.64	147.725	SF
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	2,231.01	2,261.62	8,355.27	8,339.79	539.521	CC, ES
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,850.00	9,241.23	9,192.68	190.344	SF
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys						Out of range
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	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 Survey	2,200.00	2,143.58	9,089.11	9,074.15	607.459	ES
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	6,750.00	6,431.74	9,991.71	9,945.09	214.320	SF
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,293.76	2,543.52	9,290.46	9,273.74	555.691	CC
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,300.00	2,546.89	9,290.47	9,273.71	554.570	ES
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	5,800.00	5,412.68	9,987.05	9,947.60	253.104	SF
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	2,237.80	2,245.11	8,790.58	8,775.12	568.685	CC
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	2,300.00	2,325.52	8,791.00	8,775.04	550.887	ES
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	7,200.00	7,200.00	9,849.80	9,799.29	195.009	SF
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	2,200.00	2,170.00	9,751.54	9,700.49	191.006	CC
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	2,300.00	2,269.98	9,752.68	9,699.28	182.616	ES
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	4,100.00	4,033.10	9,985.33	9,890.16	104.915	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	9,474.24	9,421.49	179.628	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 #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						
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	2,300.00	2,315.42	5,904.00	5,888.08	370.735	ES
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	7,150.00	7,150.00	6,468.57	6,418.03	127.996	SF
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	2,743.64	3,043.62	8,407.67	8,387.63	419.455	CC
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	2,800.00	3,081.81	8,407.82	8,387.44	412.564	ES
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	7,050.00	7,088.48	8,849.33	8,799.14	176.327	SF
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	2,200.00	2,208.00	8,692.03	8,640.22	167.756	CC
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	2,400.00	2,407.84	8,695.12	8,638.61	153.869	ES
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	7,000.00	6,825.05	9,375.92	9,214.03	57.916	SF
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	0.00	0.00	6,564.66			
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	200.00	130.73	6,565.08	6,564.31	8,549.145	ES
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,832.37	7,281.00	7,232.32	149.567	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 #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4917.00ft

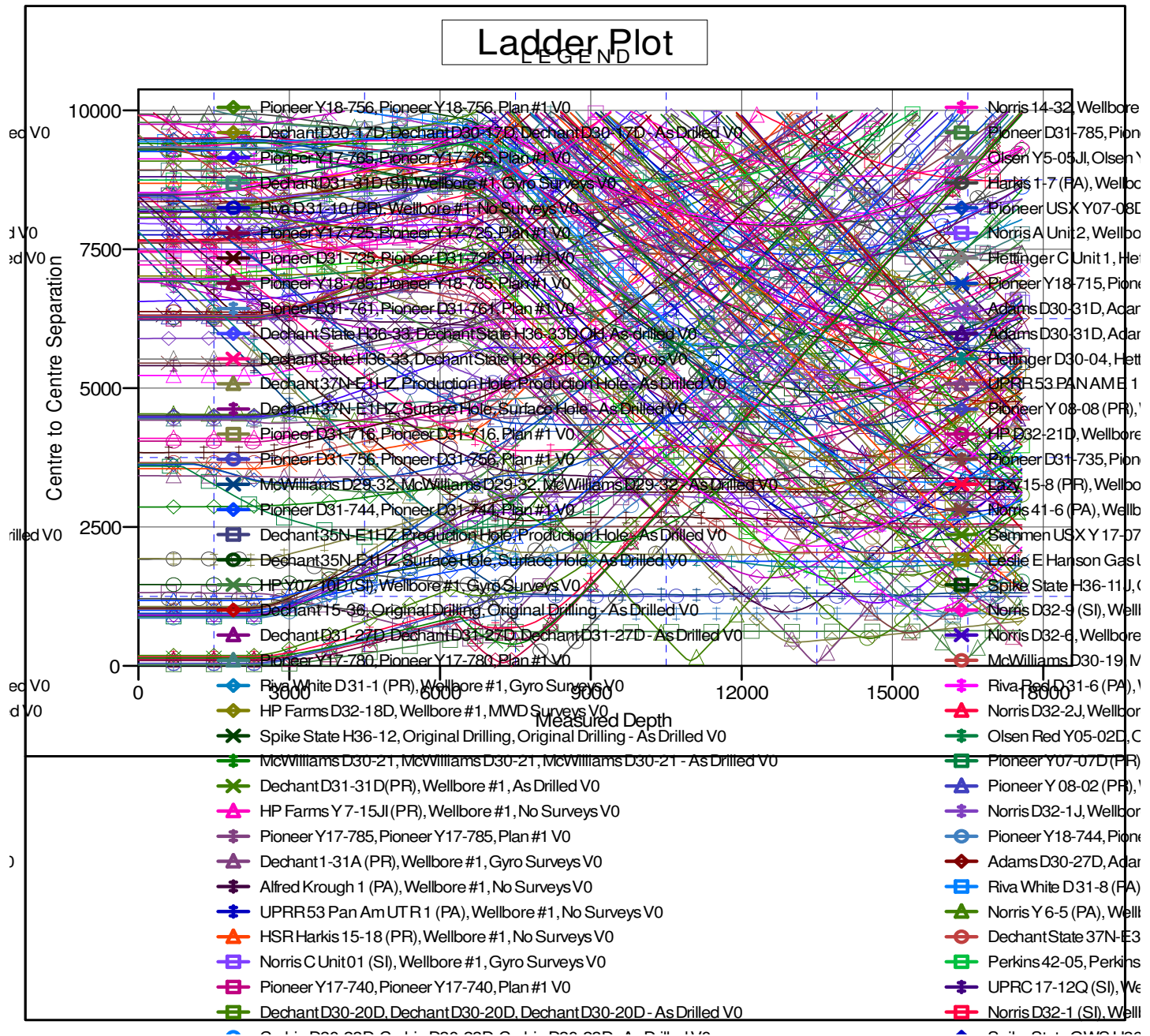
Coordinates are relative to: Pioneer D31-775

Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

Central Meridian is -105.5000000

Grid Convergence at Surface is: 0.58°

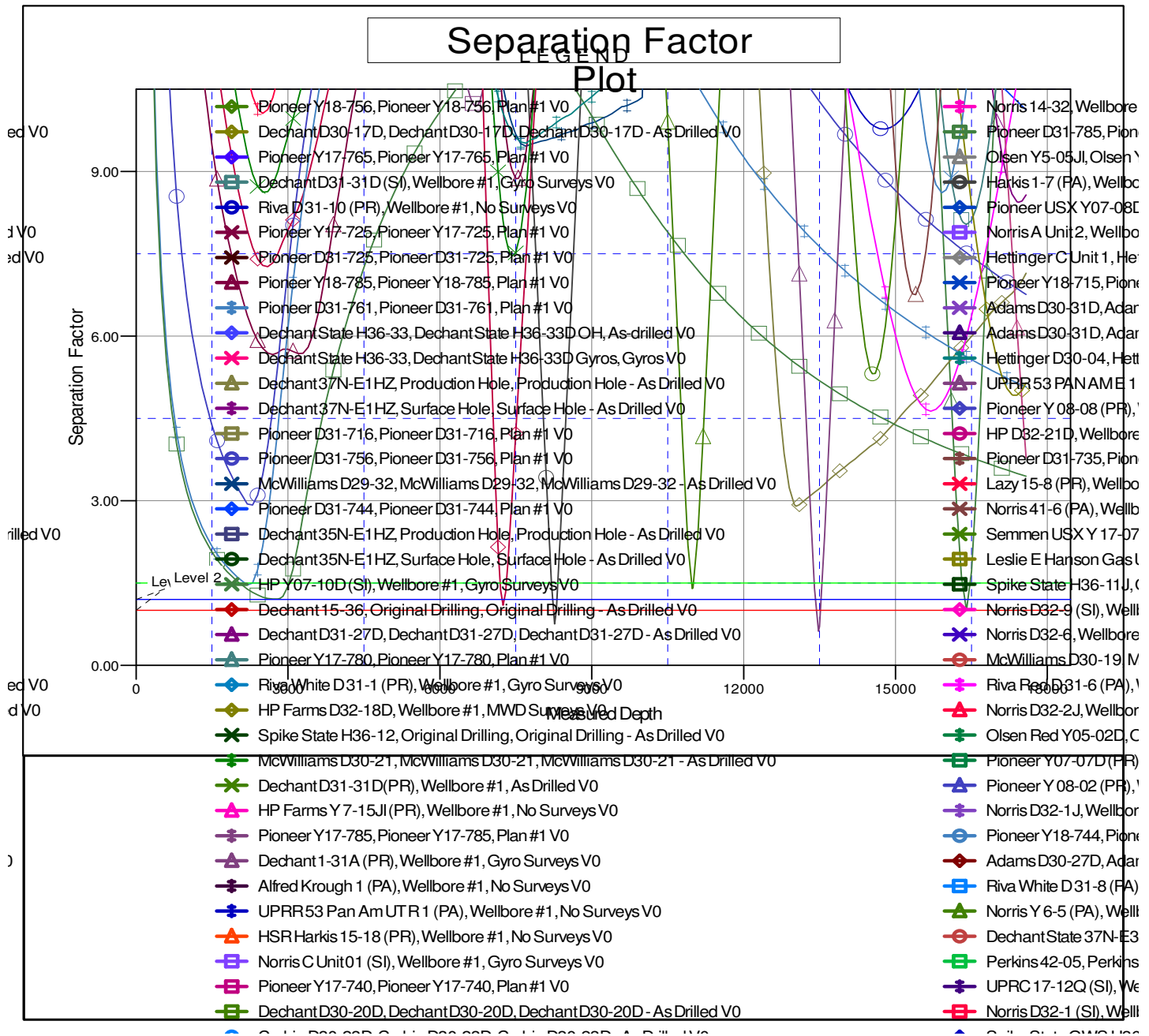


Noble Energy, Inc.
Anticollision Summary Report

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 #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4917.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Pioneer D31-775
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.58°



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