

Project: Mustang
Site: Y Section 07
Well: Pioneer Y18-735
Wellbore: Pioneer Y18-735
Design: Plan #1

Northern Region - DJ Basin

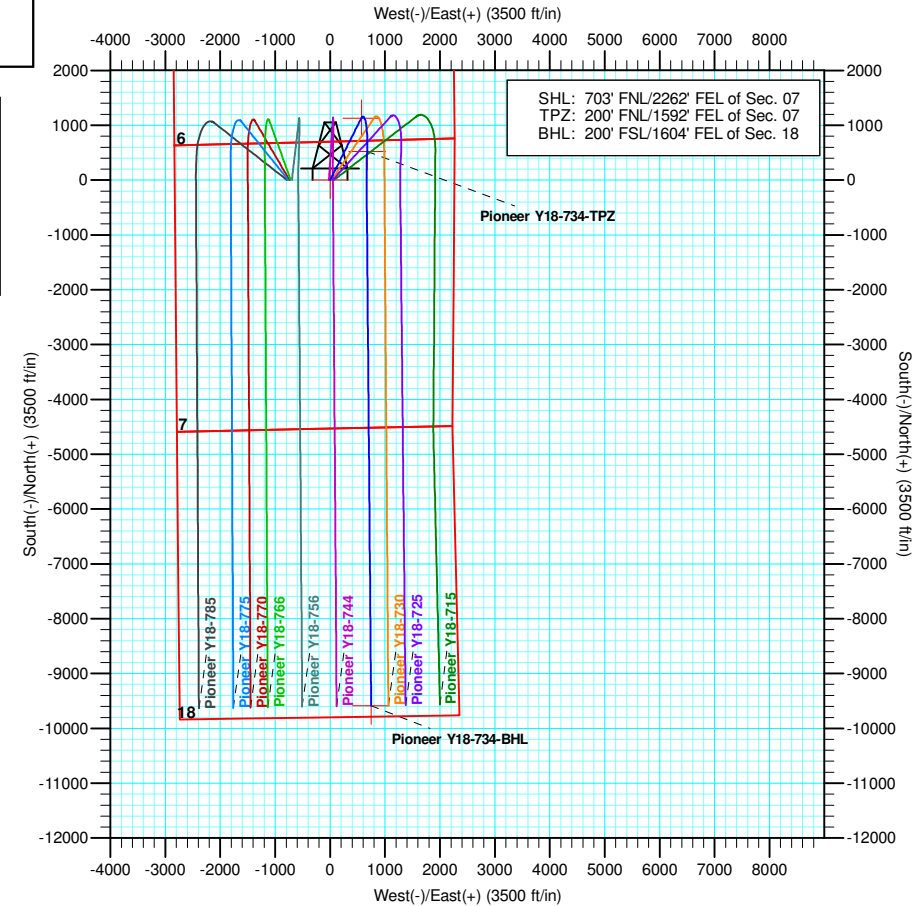
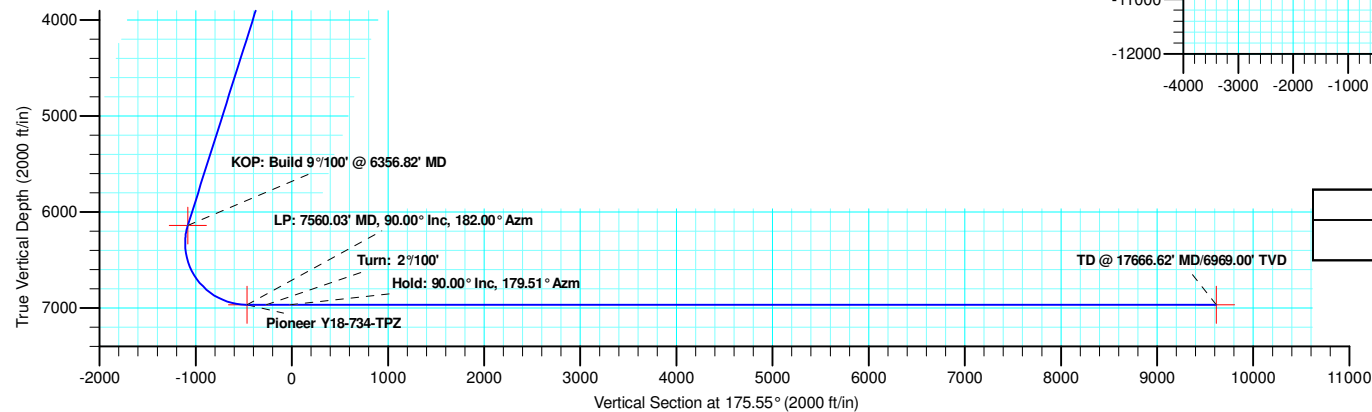
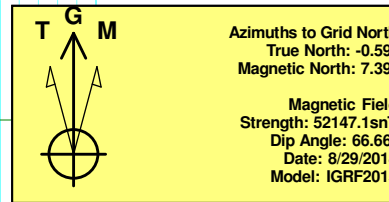
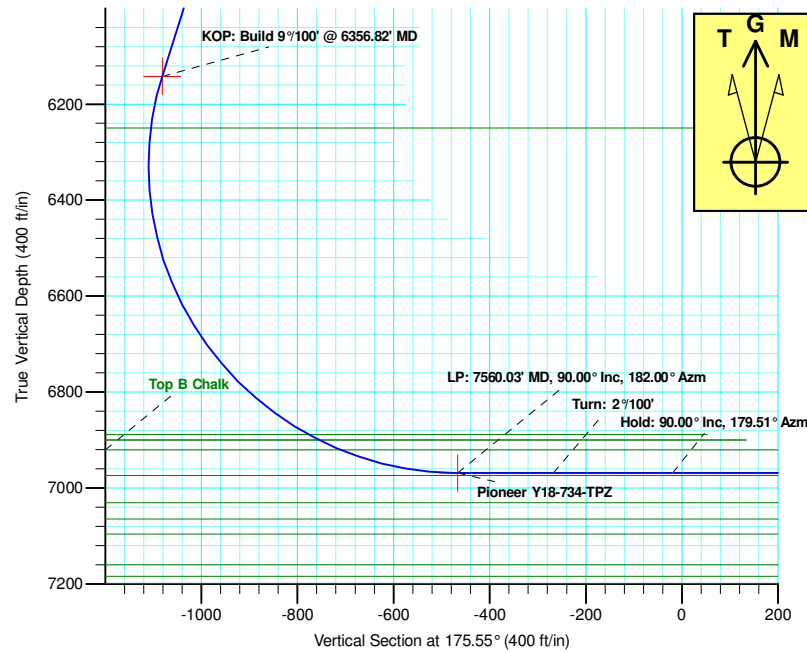
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	3210.39	20.21	26.70	3189.57	157.53	79.24	2.00	26.70	-150.91	
4	6356.82	20.21	26.70	6142.32	1128.48	567.63	0.00	0.00	-1081.04	
5	7560.03	90.00	182.00	6969.00	519.95	673.63	9.00	153.89	-466.12	Pioneer Y18-734-TPZ
6	7760.03	90.00	182.00	6969.00	320.07	666.65	0.00	0.00	-267.39	
7	8009.00	90.00	179.51	6969.00	71.14	663.37	1.00	-90.00	-19.47	
8	17666.62	90.00	179.51	6969.00	-9586.13	745.90	0.00	0.00	9615.11	Pioneer Y18-734-BHL

WELL DETAILS: Pioneer Y18-735

+N/-S	+E/-W	Northing	Ground Level: Easting	4885.00 Latitude	Longitude	Slot
0.00	0.00	1301717.90	3253562.73	40.1580500	-104.5927970	



Plan: Plan #1 (Pioneer Y18-735/Pioneer Y18-735)

Created By: Keith Noack Date: 8:23, September 27 2018

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-735

Pioneer Y18-735

Plan: Plan #1

Standard Planning Report

26 September, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
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:		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 Y18-735					
Well Position	+N/-S	-46.77 ft	Northing:	1,301,717.90 usft	Latitude:	40.1580500
	+E/-W	2,203.92 ft	Easting:	3,253,562.74 usft	Longitude:	-104.5927970
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,885.00 ft

Wellbore	Pioneer Y18-735				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/29/2018	7.97	66.66	52,147.14181673

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	175.55

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3,210.39	20.21	26.70	3,189.57	157.53	79.24	2.00	2.00	0.00	26.70	
6,356.82	20.21	26.70	6,142.32	1,128.48	567.63	0.00	0.00	0.00	0.00	
7,560.03	90.00	182.00	6,969.00	519.95	673.63	9.00	5.80	12.91	153.89	Pioneer Y18-734-TI
7,760.03	90.00	182.00	6,969.00	320.07	666.65	0.00	0.00	0.00	0.00	
8,009.00	90.00	179.51	6,969.00	71.14	663.37	1.00	0.00	-1.00	-90.00	
17,666.62	90.00	179.51	6,969.00	-9,586.13	745.90	0.00	0.00	0.00	0.00	Pioneer Y18-734-BI

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
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
738.00	0.00	0.00	738.00	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
1,086.00	0.00	0.00	1,086.00	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
1,895.00	0.00	0.00	1,895.00	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	26.70	2,299.98	1.56	0.78	-1.49	2.00	2.00	0.00
2,400.00	4.00	26.70	2,399.84	6.23	3.14	-5.97	2.00	2.00	0.00
2,500.00	6.00	26.70	2,499.45	14.02	7.05	-13.43	2.00	2.00	0.00
2,600.00	8.00	26.70	2,598.70	24.91	12.53	-23.86	2.00	2.00	0.00
2,700.00	10.00	26.70	2,697.47	38.88	19.56	-37.25	2.00	2.00	0.00
2,800.00	12.00	26.70	2,795.62	55.93	28.13	-53.58	2.00	2.00	0.00
2,900.00	14.00	26.70	2,893.06	76.02	38.24	-72.83	2.00	2.00	0.00
3,000.00	16.00	26.70	2,989.64	99.14	49.87	-94.97	2.00	2.00	0.00
3,100.00	18.00	26.70	3,085.27	125.26	63.01	-119.99	2.00	2.00	0.00
3,200.00	20.00	26.70	3,179.82	154.34	77.64	-147.85	2.00	2.00	0.00
3,210.39	20.21	26.70	3,189.57	157.53	79.24	-150.91	2.00	2.00	0.00
Hold: 20.21° Inc, 26.70° Azm									
3,300.00	20.21	26.70	3,273.67	185.18	93.15	-177.40	0.00	0.00	0.00
3,400.00	20.21	26.70	3,367.51	216.04	108.67	-206.96	0.00	0.00	0.00
3,500.00	20.21	26.70	3,461.36	246.90	124.19	-236.52	0.00	0.00	0.00
3,600.00	20.21	26.70	3,555.20	277.76	139.72	-266.09	0.00	0.00	0.00
3,700.00	20.21	26.70	3,649.05	308.62	155.24	-295.65	0.00	0.00	0.00
3,800.00	20.21	26.70	3,742.89	339.48	170.76	-325.21	0.00	0.00	0.00
3,900.00	20.21	26.70	3,836.73	370.34	186.28	-354.77	0.00	0.00	0.00
4,000.00	20.21	26.70	3,930.58	401.20	201.81	-384.33	0.00	0.00	0.00
4,046.27	20.21	26.70	3,974.00	415.47	208.99	-398.01	0.00	0.00	0.00
Parkman									
4,100.00	20.21	26.70	4,024.42	432.05	217.33	-413.89	0.00	0.00	0.00

Noble Energy, Inc.
Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
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	20.21	26.70	4,118.27	462.91	232.85	-443.45	0.00	0.00	0.00
4,300.00	20.21	26.70	4,212.11	493.77	248.37	-473.02	0.00	0.00	0.00
4,400.00	20.21	26.70	4,305.96	524.63	263.89	-502.58	0.00	0.00	0.00
4,500.00	20.21	26.70	4,399.80	555.49	279.42	-532.14	0.00	0.00	0.00
4,600.00	20.21	26.70	4,493.65	586.35	294.94	-561.70	0.00	0.00	0.00
4,650.46	20.21	26.70	4,541.00	601.92	302.77	-576.62	0.00	0.00	0.00
Sussex									
4,700.00	20.21	26.70	4,587.49	617.21	310.46	-591.26	0.00	0.00	0.00
4,800.00	20.21	26.70	4,681.34	648.06	325.98	-620.82	0.00	0.00	0.00
4,900.00	20.21	26.70	4,775.18	678.92	341.50	-650.38	0.00	0.00	0.00
5,000.00	20.21	26.70	4,869.02	709.78	357.03	-679.95	0.00	0.00	0.00
5,100.00	20.21	26.70	4,962.87	740.64	372.55	-709.51	0.00	0.00	0.00
5,200.00	20.21	26.70	5,056.71	771.50	388.07	-739.07	0.00	0.00	0.00
5,300.00	20.21	26.70	5,150.56	802.36	403.59	-768.63	0.00	0.00	0.00
5,400.00	20.21	26.70	5,244.40	833.22	419.12	-798.19	0.00	0.00	0.00
5,482.69	20.21	26.70	5,322.00	858.73	431.95	-822.64	0.00	0.00	0.00
Shannon									
5,500.00	20.21	26.70	5,338.25	864.08	434.64	-827.75	0.00	0.00	0.00
5,600.00	20.21	26.70	5,432.09	894.93	450.16	-857.32	0.00	0.00	0.00
5,700.00	20.21	26.70	5,525.94	925.79	465.68	-886.88	0.00	0.00	0.00
5,800.00	20.21	26.70	5,619.78	956.65	481.20	-916.44	0.00	0.00	0.00
5,900.00	20.21	26.70	5,713.63	987.51	496.73	-946.00	0.00	0.00	0.00
6,000.00	20.21	26.70	5,807.47	1,018.37	512.25	-975.56	0.00	0.00	0.00
6,100.00	20.21	26.70	5,901.32	1,049.23	527.77	-1,005.12	0.00	0.00	0.00
6,200.00	20.21	26.70	5,995.16	1,080.09	543.29	-1,034.68	0.00	0.00	0.00
6,300.00	20.21	26.70	6,089.00	1,110.94	558.82	-1,064.25	0.00	0.00	0.00
6,356.82	20.21	26.70	6,142.32	1,128.48	567.63	-1,081.04	0.00	0.00	0.00
KOP: Build 9°/100' @ 6356.82' MD									
6,400.00	16.80	32.63	6,183.27	1,140.40	574.35	-1,092.41	9.00	-7.89	13.72
6,450.00	13.18	43.05	6,231.57	1,150.66	582.15	-1,102.03	9.00	-7.24	20.85
6,468.88	11.97	48.52	6,250.00	1,153.53	585.08	-1,104.66	9.00	-6.43	28.97
Teepee Buttes									
6,500.00	10.27	60.12	6,280.54	1,157.05	589.91	-1,107.80	9.00	-5.46	37.25
6,550.00	8.79	86.08	6,329.87	1,159.53	597.59	-1,109.68	9.00	-2.95	51.93
6,600.00	9.45	114.46	6,379.26	1,158.09	605.14	-1,107.66	9.00	1.32	56.76
6,650.00	11.90	135.10	6,428.41	1,152.74	612.52	-1,101.75	9.00	4.89	41.27
6,700.00	15.29	147.77	6,477.01	1,143.50	619.67	-1,091.99	9.00	6.80	25.34
6,750.00	19.14	155.70	6,524.77	1,130.45	626.57	-1,078.43	9.00	7.70	15.85
6,800.00	23.22	160.99	6,571.38	1,113.65	633.16	-1,061.17	9.00	8.16	10.59
6,850.00	27.43	164.76	6,616.57	1,093.21	639.40	-1,040.31	9.00	8.41	7.53
6,900.00	31.71	167.58	6,660.05	1,069.25	645.26	-1,015.97	9.00	8.56	5.65
6,950.00	36.03	169.79	6,701.56	1,041.93	650.69	-988.32	9.00	8.66	4.42
7,000.00	40.40	171.59	6,740.84	1,011.42	655.67	-957.50	9.00	8.72	3.59
7,050.00	44.78	173.08	6,777.64	977.89	660.16	-923.73	9.00	8.77	2.99
7,100.00	49.18	174.36	6,811.75	941.56	664.14	-887.20	9.00	8.80	2.56
7,150.00	53.60	175.49	6,842.94	902.65	667.59	-848.15	9.00	8.83	2.24
7,200.00	58.02	176.49	6,871.03	861.41	670.47	-806.80	9.00	8.85	2.00
7,235.50	61.16	177.14	6,889.00	830.84	672.17	-776.19	9.00	8.86	1.84
Sharon Springs									
7,250.00	62.45	177.40	6,895.85	818.08	672.78	-763.42	9.00	8.87	1.76
7,259.10	63.26	177.55	6,900.00	809.99	673.13	-755.33	9.00	8.87	1.73
Top A Chalk - Top A Marl									
7,300.00	66.89	178.24	6,917.24	772.93	674.49	-718.28	9.00	8.87	1.66

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
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)
7,309.76	67.75	178.39	6,921.00	763.93	674.76	-709.29	9.00	8.88	1.61
Top B Chalk									
7,350.00	71.33	179.02	6,935.07	726.24	675.61	-671.65	9.00	8.88	1.56
7,400.00	75.77	179.76	6,949.22	678.31	676.11	-623.81	9.00	8.89	1.49
7,450.00	80.21	180.48	6,959.63	629.41	676.01	-575.08	9.00	8.89	1.43
7,500.00	84.66	181.18	6,966.20	579.87	675.29	-525.73	9.00	8.89	1.39
7,550.00	89.11	181.86	6,968.92	529.97	673.96	-476.09	9.00	8.90	1.37
7,560.03	90.00	182.00	6,969.00	519.95	673.63	-466.12	9.00	8.90	1.37
LP: 7560.03' MD, 90.00° Inc, 182.00° Azm									
7,600.00	90.00	182.00	6,969.00	480.00	672.23	-426.41	0.00	0.00	0.00
7,700.00	90.00	182.00	6,969.00	380.06	668.74	-327.04	0.00	0.00	0.00
7,760.03	90.00	182.00	6,969.00	320.07	666.65	-267.39	0.00	0.00	0.00
Turn: 2°/100'									
7,800.00	90.00	181.60	6,969.00	280.12	665.39	-227.66	1.00	0.00	-1.00
7,900.00	90.00	180.60	6,969.00	180.14	663.47	-128.13	1.00	0.00	-1.00
8,009.00	90.00	179.51	6,969.00	71.14	663.37	-19.47	1.00	0.00	-1.00
Hold: 90.00° Inc, 179.51° Azm									
8,100.00	90.00	179.51	6,969.00	-19.86	664.14	71.32	0.00	0.00	0.00
8,200.00	90.00	179.51	6,969.00	-119.85	665.00	171.08	0.00	0.00	0.00
8,300.00	90.00	179.51	6,969.00	-219.85	665.85	270.84	0.00	0.00	0.00
8,400.00	90.00	179.51	6,969.00	-319.85	666.71	370.60	0.00	0.00	0.00
8,500.00	90.00	179.51	6,969.00	-419.84	667.56	470.36	0.00	0.00	0.00
8,600.00	90.00	179.51	6,969.00	-519.84	668.42	570.12	0.00	0.00	0.00
8,700.00	90.00	179.51	6,969.00	-619.83	669.27	669.89	0.00	0.00	0.00
8,800.00	90.00	179.51	6,969.00	-719.83	670.13	769.65	0.00	0.00	0.00
8,900.00	90.00	179.51	6,969.00	-819.83	670.98	869.41	0.00	0.00	0.00
9,000.00	90.00	179.51	6,969.00	-919.82	671.83	969.17	0.00	0.00	0.00
9,100.00	90.00	179.51	6,969.00	-1,019.82	672.69	1,068.93	0.00	0.00	0.00
9,200.00	90.00	179.51	6,969.00	-1,119.82	673.54	1,168.69	0.00	0.00	0.00
9,300.00	90.00	179.51	6,969.00	-1,219.81	674.40	1,268.45	0.00	0.00	0.00
9,400.00	90.00	179.51	6,969.00	-1,319.81	675.25	1,368.21	0.00	0.00	0.00
9,500.00	90.00	179.51	6,969.00	-1,419.81	676.11	1,467.98	0.00	0.00	0.00
9,600.00	90.00	179.51	6,969.00	-1,519.80	676.96	1,567.74	0.00	0.00	0.00
9,700.00	90.00	179.51	6,969.00	-1,619.80	677.82	1,667.50	0.00	0.00	0.00
9,800.00	90.00	179.51	6,969.00	-1,719.79	678.67	1,767.26	0.00	0.00	0.00
9,900.00	90.00	179.51	6,969.00	-1,819.79	679.53	1,867.02	0.00	0.00	0.00
10,000.00	90.00	179.51	6,969.00	-1,919.79	680.38	1,966.78	0.00	0.00	0.00
10,100.00	90.00	179.51	6,969.00	-2,019.78	681.23	2,066.54	0.00	0.00	0.00
10,200.00	90.00	179.51	6,969.00	-2,119.78	682.09	2,166.31	0.00	0.00	0.00
10,300.00	90.00	179.51	6,969.00	-2,219.78	682.94	2,266.07	0.00	0.00	0.00
10,400.00	90.00	179.51	6,969.00	-2,319.77	683.80	2,365.83	0.00	0.00	0.00
10,500.00	90.00	179.51	6,969.00	-2,419.77	684.65	2,465.59	0.00	0.00	0.00
10,600.00	90.00	179.51	6,969.00	-2,519.76	685.51	2,565.35	0.00	0.00	0.00
10,700.00	90.00	179.51	6,969.00	-2,619.76	686.36	2,665.11	0.00	0.00	0.00
10,800.00	90.00	179.51	6,969.00	-2,719.76	687.22	2,764.87	0.00	0.00	0.00
10,900.00	90.00	179.51	6,969.00	-2,819.75	688.07	2,864.63	0.00	0.00	0.00
11,000.00	90.00	179.51	6,969.00	-2,919.75	688.93	2,964.40	0.00	0.00	0.00
11,100.00	90.00	179.51	6,969.00	-3,019.75	689.78	3,064.16	0.00	0.00	0.00
11,200.00	90.00	179.51	6,969.00	-3,119.74	690.64	3,163.92	0.00	0.00	0.00
11,300.00	90.00	179.51	6,969.00	-3,219.74	691.49	3,263.68	0.00	0.00	0.00
11,400.00	90.00	179.51	6,969.00	-3,319.74	692.34	3,363.44	0.00	0.00	0.00
11,500.00	90.00	179.51	6,969.00	-3,419.73	693.20	3,463.20	0.00	0.00	0.00
11,600.00	90.00	179.51	6,969.00	-3,519.73	694.05	3,562.96	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
Design:	Plan #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,700.00	90.00	179.51	6,969.00	-3,619.72	694.91	3,662.72	0.00	0.00	0.00	
11,800.00	90.00	179.51	6,969.00	-3,719.72	695.76	3,762.49	0.00	0.00	0.00	
11,900.00	90.00	179.51	6,969.00	-3,819.72	696.62	3,862.25	0.00	0.00	0.00	
12,000.00	90.00	179.51	6,969.00	-3,919.71	697.47	3,962.01	0.00	0.00	0.00	
12,100.00	90.00	179.51	6,969.00	-4,019.71	698.33	4,061.77	0.00	0.00	0.00	
12,200.00	90.00	179.51	6,969.00	-4,119.71	699.18	4,161.53	0.00	0.00	0.00	
12,300.00	90.00	179.51	6,969.00	-4,219.70	700.04	4,261.29	0.00	0.00	0.00	
12,400.00	90.00	179.51	6,969.00	-4,319.70	700.89	4,361.05	0.00	0.00	0.00	
12,500.00	90.00	179.51	6,969.00	-4,419.70	701.75	4,460.81	0.00	0.00	0.00	
12,600.00	90.00	179.51	6,969.00	-4,519.69	702.60	4,560.58	0.00	0.00	0.00	
12,700.00	90.00	179.51	6,969.00	-4,619.69	703.45	4,660.34	0.00	0.00	0.00	
12,800.00	90.00	179.51	6,969.00	-4,719.68	704.31	4,760.10	0.00	0.00	0.00	
12,900.00	90.00	179.51	6,969.00	-4,819.68	705.16	4,859.86	0.00	0.00	0.00	
13,000.00	90.00	179.51	6,969.00	-4,919.68	706.02	4,959.62	0.00	0.00	0.00	
13,100.00	90.00	179.51	6,969.00	-5,019.67	706.87	5,059.38	0.00	0.00	0.00	
13,200.00	90.00	179.51	6,969.00	-5,119.67	707.73	5,159.14	0.00	0.00	0.00	
13,300.00	90.00	179.51	6,969.00	-5,219.67	708.58	5,258.91	0.00	0.00	0.00	
13,400.00	90.00	179.51	6,969.00	-5,319.66	709.44	5,358.67	0.00	0.00	0.00	
13,500.00	90.00	179.51	6,969.00	-5,419.66	710.29	5,458.43	0.00	0.00	0.00	
13,600.00	90.00	179.51	6,969.00	-5,519.66	711.15	5,558.19	0.00	0.00	0.00	
13,700.00	90.00	179.51	6,969.00	-5,619.65	712.00	5,657.95	0.00	0.00	0.00	
13,800.00	90.00	179.51	6,969.00	-5,719.65	712.85	5,757.71	0.00	0.00	0.00	
13,900.00	90.00	179.51	6,969.00	-5,819.64	713.71	5,857.47	0.00	0.00	0.00	
14,000.00	90.00	179.51	6,969.00	-5,919.64	714.56	5,957.23	0.00	0.00	0.00	
14,100.00	90.00	179.51	6,969.00	-6,019.64	715.42	6,057.00	0.00	0.00	0.00	
14,200.00	90.00	179.51	6,969.00	-6,119.63	716.27	6,156.76	0.00	0.00	0.00	
14,300.00	90.00	179.51	6,969.00	-6,219.63	717.13	6,256.52	0.00	0.00	0.00	
14,400.00	90.00	179.51	6,969.00	-6,319.63	717.98	6,356.28	0.00	0.00	0.00	
14,500.00	90.00	179.51	6,969.00	-6,419.62	718.84	6,456.04	0.00	0.00	0.00	
14,600.00	90.00	179.51	6,969.00	-6,519.62	719.69	6,555.80	0.00	0.00	0.00	
14,700.00	90.00	179.51	6,969.00	-6,619.62	720.55	6,655.56	0.00	0.00	0.00	
14,800.00	90.00	179.51	6,969.00	-6,719.61	721.40	6,755.32	0.00	0.00	0.00	
14,900.00	90.00	179.51	6,969.00	-6,819.61	722.26	6,855.09	0.00	0.00	0.00	
15,000.00	90.00	179.51	6,969.00	-6,919.60	723.11	6,954.85	0.00	0.00	0.00	
15,100.00	90.00	179.51	6,969.00	-7,019.60	723.96	7,054.61	0.00	0.00	0.00	
15,200.00	90.00	179.51	6,969.00	-7,119.60	724.82	7,154.37	0.00	0.00	0.00	
15,300.00	90.00	179.51	6,969.00	-7,219.59	725.67	7,254.13	0.00	0.00	0.00	
15,400.00	90.00	179.51	6,969.00	-7,319.59	726.53	7,353.89	0.00	0.00	0.00	
15,500.00	90.00	179.51	6,969.00	-7,419.59	727.38	7,453.65	0.00	0.00	0.00	
15,600.00	90.00	179.51	6,969.00	-7,519.58	728.24	7,553.42	0.00	0.00	0.00	
15,700.00	90.00	179.51	6,969.00	-7,619.58	729.09	7,653.18	0.00	0.00	0.00	
15,800.00	90.00	179.51	6,969.00	-7,719.58	729.95	7,752.94	0.00	0.00	0.00	
15,900.00	90.00	179.51	6,969.00	-7,819.57	730.80	7,852.70	0.00	0.00	0.00	
16,000.00	90.00	179.51	6,969.00	-7,919.57	731.66	7,952.46	0.00	0.00	0.00	
16,100.00	90.00	179.51	6,969.00	-8,019.56	732.51	8,052.22	0.00	0.00	0.00	
16,200.00	90.00	179.51	6,969.00	-8,119.56	733.37	8,151.98	0.00	0.00	0.00	
16,300.00	90.00	179.51	6,969.00	-8,219.56	734.22	8,251.74	0.00	0.00	0.00	
16,400.00	90.00	179.51	6,969.00	-8,319.55	735.07	8,351.51	0.00	0.00	0.00	
16,500.00	90.00	179.51	6,969.00	-8,419.55	735.93	8,451.27	0.00	0.00	0.00	
16,600.00	90.00	179.51	6,969.00	-8,519.55	736.78	8,551.03	0.00	0.00	0.00	
16,700.00	90.00	179.51	6,969.00	-8,619.54	737.64	8,650.79	0.00	0.00	0.00	
16,800.00	90.00	179.51	6,969.00	-8,719.54	738.49	8,750.55	0.00	0.00	0.00	
16,900.00	90.00	179.51	6,969.00	-8,819.53	739.35	8,850.31	0.00	0.00	0.00	
17,000.00	90.00	179.51	6,969.00	-8,919.53	740.20	8,950.07	0.00	0.00	0.00	

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
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)	
17,100.00	90.00	179.51	6,969.00	-9,019.53	741.06	9,049.83	0.00	0.00	0.00	
17,200.00	90.00	179.51	6,969.00	-9,119.52	741.91	9,149.60	0.00	0.00	0.00	
17,300.00	90.00	179.51	6,969.00	-9,219.52	742.77	9,249.36	0.00	0.00	0.00	
17,400.00	90.00	179.51	6,969.00	-9,319.52	743.62	9,349.12	0.00	0.00	0.00	
17,500.00	90.00	179.51	6,969.00	-9,419.51	744.47	9,448.88	0.00	0.00	0.00	
17,600.00	90.00	179.51	6,969.00	-9,519.51	745.33	9,548.64	0.00	0.00	0.00	
17,666.62	90.00	179.51	6,969.00	-9,586.13	745.90	9,615.11	0.00	0.00	0.00	
TD @ 17666.62' MD/6969.00' TVD										

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 Y18-734-SHL	0.00	0.01	0.00	0.00	0.00	1,301,717.90	3,253,562.74	40.1580500	-104.5927970	
- plan hits target center										
- Point										
Pioneer Y18-734-KOF	0.00	0.00	6,142.33	1,128.48	567.63	1,302,846.38	3,254,130.37	40.1611317	-104.5907248	
- plan hits target center										
- Point										
Pioneer Y18-734-TPZ	0.00	0.00	6,969.00	519.95	673.63	1,302,237.85	3,254,236.36	40.1594583	-104.5903680	
- plan hits target center										
- Point										
Pioneer Y18-734-BHL	0.00	0.00	6,969.00	-9,586.13	745.90	1,292,131.79	3,254,308.63	40.1317152	-104.5904802	
- plan hits target center										
- Point										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
738.00	738.00	Fox Hills				
738.00	738.00	Pierre				
1,086.00	1,086.00	Upper Pierre Aquifer Top				
1,895.00	1,895.00	Upper Pierre Aquifer Base				
4,046.27	3,974.00	Parkman				
4,650.46	4,541.00	Sussex				
5,482.69	5,322.00	Shannon				
6,468.88	6,250.00	Teepee Buttes				
7,235.50	6,889.00	Sharon Springs				
7,259.10	6,900.00	Top A Chalk				
7,259.10	6,900.00	Top A Marl				
7,309.76	6,921.00	Top B Chalk				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-735
Company:	Northern Region - DJ Basin	TVD Reference:	KB @ 4915.00ft
Project:	Mustang	MD Reference:	KB @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-735		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
3,210.39	3,189.57	157.53	79.24	Hold: 20.21° Inc, 26.70° Azm	
6,356.82	6,142.32	1,128.48	567.63	KOP: Build 9°/100' @ 6356.82' MD	
7,560.03	6,969.00	519.95	673.63	LP: 7560.03' MD, 90.00° Inc, 182.00° Azm	
7,760.03	6,969.00	320.07	666.65	Turn: 2°/100'	
8,009.00	6,969.00	71.14	663.37	Hold: 90.00° Inc, 179.51° Azm	
17,666.62	6,969.00	-9,586.13	745.90	TD @ 17666.62' MD/6969.00' TVD	

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-735

Pioneer Y18-735

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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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	17,666.62	Plan #1 (Pioneer Y18-735)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - /						Out of range
Adams D30-29D - Wellbore #1 - Wellbore #1 - As Drilled						Out of range
Adams D30-30D - Adams D30-30D Gyros - Gyros						Out of range
Adams D30-30D - Adams D30-30D OH - As Drilled						Out of range
Adams D30-31D - Adams D30-31D Gyros - Gyros						Out of range
Adams D30-31D - Adams D30-31D OH - As-drilled						Out of range
Corbin D30-23D - Corbin D30-23D - Corbin D30-23D - A						Out of range
Corbin Red D30-04J - Corbin Red D30-04J - Corbin Red						Out of range
Corbin Red D30-09 - Corbin Red D30-09 - Corbin Red D						Out of range
Corbin Red D30-15 - Corbin Red D30-15 - Corbin Red D						Out of range
Corbin Red D30-16 - Corbin Red D30-16 - Corbin Red D						Out of range
Dechant D30-17D - Dechant D30-17D - Dechant D30-17						Out of range
Dechant D30-20D - Dechant D30-20D - Dechant D30-20						Out of range
Dechant D30-24D - Dechant D30-24D - Dechant D30-24						Out of range
Dechant D30-25D - Dechant D30-25D - Dechant D30-25						Out of range
Dechant D31-27D - Dechant D31-27D - Dechant D31-27						Out of range
Dechant D31-28D - Dechant D31-28D - Dechant D31-28						Out of range
Dechant D31-29D - Dechant D31-29D - Dechant D31-29						Out of range
Dechant D31-77HN - Original Drilling - Original Drilling - /	6,595.00	11,360.01	5,746.95	5,675.26	80.170	CC
Dechant D31-77HN - Original Drilling - Original Drilling - /	6,600.00	11,360.01	5,746.97	5,675.25	80.140	ES
Dechant D31-77HN - Original Drilling - Original Drilling - /	6,750.00	11,360.01	5,766.13	5,693.76	79.682	SF
Hanson D30-11 - Hanson D30-11 - Hanson D30-11 - As						Out of range
Hanson D30-12 - Hanson D30-12 - Hanson D30-12 - As						Out of range
Hanson D30-13 - Hanson D30-13 - Hanson D30-13 - As						Out of range
Hanson D30-14 - Hanson D30-14 - Hanson D30-14 - As						Out of range
Hettinger C Unit 1 - Hettinger C Unit 1 - Hettinger C Unit						Out of range
Hettinger D30-02 - Hettinger D30-02 - Hettinger D30-02						Out of range
Hettinger D30-03 - Hettinger D30-03 - Hettinger D30-03						Out of range
Hettinger D30-04 - Hettinger D30-04 - Hettinger D30-04						Out of range
Hettinger D30-05 - Hettinger D30-05 - Hettinger D30-05						Out of range
Hettinger D30-06 - Hettinger D30-06 - Hettinger D30-06						Out of range
Hettinger D30-08 - Hettinger D30-08 - Hettinger D30-08						Out of range
Leslie E Hanson Gas Unit 1 - Leslie E Hanson Gas Unit						Out of range
McWilliams D29-32 - McWilliams D29-32 - McWilliams D						Out of range
McWilliams D30-07 - McWilliams D30-07 - McWilliams D						Out of range
McWilliams D30-18 - McWilliams D30-18 - McWilliams D						Out of range
McWilliams D30-19 - McWilliams D30-19 - McWilliams D						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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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						
D Section 30						
McWilliams D30-21 - McWilliams D30-21 - McWilliams D						Out of range
McWilliams D30-22 - McWilliams D30-22 - McWilliams D						Out of range

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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 31						
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	6,506.45	6,115.30	6,250.27	6,204.96	137.939	CC, ES
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	7,100.00	6,872.95	6,482.89	6,433.91	132.363	SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	6,555.56	6,310.13	7,515.92	7,465.81	149.980	CC, ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,750.00	7,545.34	7,493.51	145.561	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	104.00	0.00	8,103.27	8,103.13	10,000.000	CC
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	400.00	254.24	8,104.25	8,102.36	4,273.457	ES
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	7,150.00	3,866.05	8,865.56	8,824.09	213.756	SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	6,528.17	6,142.94	6,303.09	6,255.69	132.959	CC, ES
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,901.29	6,426.32	6,375.89	127.438	SF
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	101.00	0.00	9,122.95	9,122.82	10,000.000	CC
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	200.00	59.58	9,123.16	9,122.57	10,000.000	ES
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,682.18	9,419.40	9,370.37	192.139	SF
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	6,544.89	6,309.14	7,634.11	7,586.48	160.272	CC
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	6,550.00	6,312.73	7,634.13	7,586.47	160.171	ES
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	7,000.00	6,832.54	7,787.84	7,737.75	155.465	SF
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	6,525.64	6,315.63	8,223.32	8,187.80	231.529	CC, ES
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	6,900.00	6,633.82	8,322.44	8,285.41	224.714	SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	6,559.54	6,342.03	4,913.38	4,864.25	99.999	CC, ES
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	6,850.00	6,649.52	4,978.53	4,927.81	98.147	SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,549.97	6,426.94	4,926.74	4,878.08	101.234	CC
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,550.00	6,426.96	4,926.74	4,878.08	101.233	ES
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,900.00	6,826.86	5,017.26	4,966.53	98.894	SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,554.34	6,273.29	5,780.78	5,734.91	126.035	CC, ES
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,592.10	5,901.76	5,853.90	123.307	SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	6,560.75	6,175.78	5,585.45	5,539.92	122.691	CC, ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	6,900.00	6,540.34	5,672.73	5,625.19	119.315	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	6,570.84	6,293.67	6,845.33	6,799.46	149.209	CC, ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,678.74	6,953.32	6,905.32	144.854	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	6,548.77	6,153.95	6,472.09	6,426.61	142.298	CC
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	6,550.00	6,154.68	6,472.09	6,426.60	142.275	ES
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	7,050.00	7,045.12	6,647.58	6,598.16	134.518	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,528.78	6,112.34	7,081.54	7,035.68	154.414	CC, ES
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,542.54	7,243.91	7,194.96	147.974	SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,500.61	6,046.16	7,441.57	7,396.46	164.994	CC, ES
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,750.00	6,750.00	7,484.88	7,436.68	155.279	SF
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	6,549.88	6,221.75	6,989.73	6,841.18	47.053	CC
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	6,550.00	6,221.87	6,989.73	6,841.17	47.052	ES
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	7,050.00	6,669.64	7,175.45	7,017.01	45.287	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	6,538.12	6,331.34	9,014.87	8,968.78	195.625	CC, ES
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	7,000.00	6,794.70	9,166.37	9,117.75	188.544	SF
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	6,532.32	6,070.35	9,836.39	9,791.19	217.602	CC, ES
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,850.00	9,911.37	9,862.78	203.985	SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	6,538.04	6,211.05	8,114.35	7,966.00	54.698	CC
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	6,550.00	6,222.87	8,114.46	7,965.83	54.597	ES
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	7,100.00	6,704.75	8,341.08	8,181.87	52.388	SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	6,549.15	6,380.10	8,371.45	8,325.25	181.213	CC
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	6,550.00	6,381.39	8,371.45	8,325.25	181.184	ES
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	7,000.00	7,000.00	8,517.35	8,468.15	173.129	SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	6,555.66	6,076.62	9,494.92	9,449.75	210.222	CC, ES
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,358.79	9,646.54	9,599.45	204.854	SF
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	6,558.27	6,286.38	8,217.89	8,172.01	179.118	CC, ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	7,100.00	6,907.25	8,435.89	8,386.99	172.521	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	6,601.33	6,722.52	8,091.13	8,043.91	171.353	CC, 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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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						
D Section 31						
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	6,950.00	7,002.24	8,185.66	8,136.85	167.706	SF
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,533.32	6,260.68	5,370.64	5,324.78	117.122	CC, ES
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,487.93	5,446.08	5,398.60	114.703	SF
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys						Out of range
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	6,559.38	6,225.14	8,779.08	8,630.48	59.077	CC, ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	7,100.00	6,697.75	8,995.44	8,836.45	56.579	SF
D Section 32						
HP D32-21D - Wellbore #1 - MWD Surveys	6,624.60	6,631.31	8,722.22	8,670.96	170.161	CC, ES
HP D32-21D - Wellbore #1 - MWD Surveys	7,000.00	6,952.46	8,818.88	8,766.02	166.841	SF
HP D32-23D - Wellbore #1 - MWD Surveys	6,624.37	6,290.34	8,502.54	8,453.07	171.903	CC, ES
HP D32-23D - Wellbore #1 - MWD Surveys	7,100.00	6,700.41	8,638.95	8,587.31	167.264	SF
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	6,433.70	4,050.00	9,312.65	9,270.96	223.370	CC, ES
HP Farms D 32-22D - Wellbore #1 - MWD Surveys	7,450.00	7,450.00	9,851.08	9,788.82	158.214	SF
HP Farms D32-03 - Wellbore #1 - Gyro Surveys						Out of range
HP Farms D32-18D - Wellbore #1 - MWD Surveys	6,602.16	6,484.34	9,831.96	9,775.78	175.027	CC, ES
HP Farms D32-18D - Wellbore #1 - MWD Surveys	7,000.00	6,934.30	9,942.27	9,884.11	170.934	SF
HP Farms D32-24D - Wellbore #1 - MWD Surveys	6,613.58	6,485.31	7,593.70	7,536.74	133.303	CC, ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	6,950.00	6,895.76	7,666.37	7,607.70	130.669	SF
Norris 14-32 - Wellbore #1 - Projection Survey	6,595.43	6,286.75	5,754.82	5,675.88	72.905	CC
Norris 14-32 - Wellbore #1 - Projection Survey	6,600.00	6,291.26	5,754.83	5,675.84	72.855	ES
Norris 14-32 - Wellbore #1 - Projection Survey	7,000.00	6,652.84	5,872.61	5,789.67	70.809	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	6,591.37	6,200.00	6,670.78	6,625.15	146.182	CC, ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	6,950.00	6,500.00	6,761.81	6,714.34	142.449	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-10 - Wellbore #1 - Gyro Surveys	6,622.47	6,275.82	8,355.82	8,309.92	182.068	CC, ES
Norris D32-10 - Wellbore #1 - Gyro Surveys	7,000.00	6,500.00	8,449.56	8,402.07	177.920	SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	6,602.92	5,950.37	7,335.88	7,291.03	163.586	CC, ES
Norris D32-15 - Wellbore #1 - Gyro Surveys	7,050.00	7,050.00	7,455.95	7,406.41	150.500	SF
Norris D32-1J - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-2 - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-2J - Wellbore #1 - Gyro Surveys	6,566.30	5,939.37	9,498.44	9,453.74	212.457	CC, ES
Norris D32-2J - Wellbore #1 - Gyro Surveys	7,250.00	6,855.96	9,822.07	9,773.32	201.469	SF
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	6,579.17	6,253.69	9,723.05	9,573.90	65.189	CC
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	6,600.00	6,274.26	9,723.39	9,573.76	64.983	ES
Norris D32-4 (P&A) - Wellbore #1 - No Surveys	7,150.00	6,737.94	9,958.59	9,798.84	62.339	SF
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,576.11	6,165.20	8,428.77	8,383.32	185.430	CC, ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,800.00	6,800.00	8,467.14	8,418.93	175.633	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys	6,617.25	6,579.17	8,837.02	8,790.21	188.791	CC, ES
Norris D32-6 - Wellbore #1 - Gyro Surveys	7,000.00	6,758.43	8,945.46	8,897.19	185.310	SF
Norris D32-7 - Wellbore #1 - Gyro Surveys	6,638.25	6,649.88	9,497.07	9,450.05	201.948	CC, ES
Norris D32-7 - Wellbore #1 - Gyro Surveys	6,900.00	7,000.00	9,541.29	9,492.52	195.660	SF
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	6,644.19	6,332.72	9,284.81	9,238.66	201.191	CC
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	6,650.00	6,335.50	9,284.83	9,238.66	201.067	ES
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys	7,150.00	6,699.70	9,434.85	9,386.55	195.333	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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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	6,494.20	6,291.29	9,669.17	9,623.29	210.741	CC
Dechant 07-36 - Original Drilling - Original Drilling - As D	6,500.00	6,295.61	9,669.20	9,623.28	210.571	ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	7,050.00	6,821.21	9,849.08	9,800.17	201.392	SF
Dechant 13N-1HZ - Production Hole - Production Hole -	5,968.41	11,468.00	8,032.49	7,922.59	73.090	CC
Dechant 13N-1HZ - Production Hole - Production Hole -	6,000.00	11,468.00	8,032.55	7,922.47	72.972	ES
Dechant 13N-1HZ - Production Hole - Production Hole -	7,250.00	11,468.00	8,111.91	7,996.99	70.590	SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	9,160.60	9,160.48	10,000.000	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	200.00	50.54	9,160.97	9,160.40	10,000.000	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	5,200.00	600.00	9,985.85	9,966.24	509.373	SF
Dechant 14C-1HZ - Production Hole - Production Hole -	6,292.53	11,731.00	6,864.71	6,782.93	83.945	CC
Dechant 14C-1HZ - Production Hole - Production Hole -	6,300.00	11,731.00	6,864.71	6,782.90	83.909	ES
Dechant 14C-1HZ - Production Hole - Production Hole -	7,050.00	11,731.00	6,894.12	6,810.15	82.106	SF
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	9,094.54	9,094.42	10,000.000	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	700.00	604.23	9,097.59	9,093.37	2,156.507	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	5,400.00	610.00	9,990.64	9,970.37	492.861	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,453.52	6,453.52	7,809.53	7,763.43	169.394	CC, ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,400.00	6,916.68	8,202.56	8,136.86	124.851	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,484.46	6,198.09	8,986.60	8,937.94	184.690	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	7,050.00	6,719.10	9,179.17	9,127.73	178.433	SF
Dechant 35N-E1HZ - Production Hole - Production Hole	6,072.84	11,619.00	7,039.70	6,927.11	62.526	CC
Dechant 35N-E1HZ - Production Hole - Production Hole	6,100.00	11,619.00	7,039.75	6,927.00	62.437	ES
Dechant 35N-E1HZ - Production Hole - Production Hole	6,950.00	11,619.00	7,086.30	6,970.06	60.963	SF
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	100.00	12.14	9,116.50	9,116.35	10,000.000	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	700.00	612.00	9,117.30	9,113.06	2,150.251	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	5,300.00	612.00	9,971.12	9,951.17	499.682	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,053.26	11,494.00	7,505.65	7,394.75	67.680	CC
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	6,100.00	11,494.00	7,505.79	7,394.62	67.517	ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,050.00	11,494.00	7,560.46	7,445.50	65.769	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,198.52	11,651.36	6,364.19	6,250.19	55.827	CC
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,200.00	11,651.36	6,364.19	6,250.18	55.822	ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,850.00	11,651.36	6,391.33	6,274.59	54.749	SF
Dechant 37N-E1HZ - Production Hole - Production Hole	6,418.40	11,723.00	4,546.24	4,431.17	39.508	CC
Dechant 37N-E1HZ - Production Hole - Production Hole	6,450.00	11,723.00	4,546.33	4,431.06	39.442	ES
Dechant 37N-E1HZ - Production Hole - Production Hole	6,750.00	11,723.00	4,555.23	4,438.91	39.160	SF
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	735.99	648.00	8,200.48	8,195.98	1,823.078	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	6,600.00	648.00	9,651.38	9,627.71	407.698	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	6,400.31	12,384.00	5,122.57	5,004.13	43.249	CC
Dechant 37N-W1HZ - Production Hole - Production Hole	6,450.00	12,384.00	5,122.75	5,004.01	43.141	ES
Dechant 37N-W1HZ - Production Hole - Production Hole	6,850.00	12,384.00	5,136.59	5,016.41	42.743	SF
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	414.39	326.39	8,171.84	8,169.62	3,681.961	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	800.00	655.00	8,172.34	8,167.60	1,721.691	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	6,600.00	655.00	9,623.99	9,600.32	406.598	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	6,659.34	16,665.00	5,566.68	5,432.63	41.527	CC
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	6,700.00	16,665.00	5,566.78	5,432.57	41.477	ES
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,050.00	16,665.00	5,576.32	5,441.21	41.272	SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,760.98	16,796.74	4,436.18	4,237.55	22.334	CC
Dechant State 16C-1HZ - Original Drilling - Original Drilling	6,850.00	16,832.91	4,436.79	4,236.93	22.200	ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,100.00	16,839.03	4,445.18	4,244.08	22.105	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	6,426.68	16,183.84	5,976.61	5,848.01	46.477	CC
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	6,450.00	16,178.43	5,976.66	5,848.00	46.452	ES
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,350.00	16,517.00	6,038.95	5,904.52	44.925	SF
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,546.14	11,466.00	6,950.60	6,885.07	106.063	CC
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,550.00	11,466.00	6,950.61	6,885.06	106.031	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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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
H Section 36						
Offset Well - Wellbore - Design						
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,750.00	11,466.00	6,977.09	6,910.74	105.171	SF
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,548.27	11,490.00	7,319.53	7,253.51	110.882	CC
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,550.00	11,490.00	7,319.53	7,253.51	110.871	ES
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,750.00	11,490.00	7,344.06	7,277.49	110.320	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	6,682.90	16,543.22	3,820.34	3,686.19	28.479	CC
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	6,700.00	16,545.42	3,820.37	3,686.12	28.457	ES
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,000.00	16,675.00	3,830.43	3,693.77	28.029	SF
Dechant State H36-11D - Original Drilling - Original Drillir	6,450.61	6,102.46	9,504.04	9,458.93	210.694	CC, ES
Dechant State H36-11D - Original Drilling - Original Drillir	7,100.00	6,611.88	9,714.71	9,666.41	201.143	SF
Dechant State H36-18D - Dechant State H36-18D Gyros						Out of range
Dechant State H36-18D - Dechant State H36-18D OH - /						Out of range
Dechant State H36-19 - Original Drilling - Original Drilling						Out of range
Dechant State H36-20D - Dechant State H36-20D Gyros						Out of range
Dechant State H36-20D - Dechant State H36-20D OH - /						Out of range
Dechant State H36-21D - Dechant State H36-21D Gyros	6,475.63	6,288.86	9,575.66	9,517.80	165.482	CC, ES
Dechant State H36-21D - Dechant State H36-21D Gyros	7,050.00	6,777.94	9,758.19	9,697.90	161.857	SF
Dechant State H36-21D - Dechant State H36-21D OH - /	6,475.63	6,301.86	9,575.66	9,517.80	165.482	CC, ES
Dechant State H36-21D - Dechant State H36-21D OH - /	7,050.00	6,790.94	9,758.19	9,697.90	161.857	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,449.31	6,249.80	8,650.65	8,600.74	173.343	CC
Dechant State H36-24 - Original Drilling - Original Drilling	6,450.00	6,250.40	8,650.65	8,600.74	173.328	ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,800.00	6,800.00	8,715.40	8,662.75	165.545	SF
Dechant State H36-31D - Dechant State H36-31D OH - /						Out of range
Dechant State H36-32D - Dechant State H36-32D Gyros						Out of range
Dechant State H36-32D - Dechant State H36-32D OH - /						Out of range
Dechant State H36-33 - Dechant State H36-33D Gyros -	219.55	129.55	9,923.52	9,922.69	10,000.000	CC
Dechant State H36-33 - Dechant State H36-33D Gyros -	300.00	166.33	9,923.70	9,922.45	7,942.167	ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	2,100.00	1,136.75	9,994.01	9,982.84	894.697	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	219.55	142.55	9,923.50	9,922.67	10,000.000	CC
Dechant State H36-33 - Dechant State H36-33D OH - As	300.00	179.33	9,923.68	9,922.43	7,941.480	ES
Dechant State H36-33 - Dechant State H36-33D OH - As	2,100.00	1,149.75	9,993.99	9,982.82	894.691	SF
HSR Dechant State 01-36 - Wellbore #1 - As Drilled						Out of range
HSR Dechant State 02-36 - Original Drilling - Original Dri						Out of range
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,496.09	6,170.69	9,831.58	9,684.06	66.648	CC
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,500.00	6,174.54	9,831.59	9,683.98	66.607	ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	7,000.00	6,634.84	9,990.13	9,832.21	63.263	SF
Spike State GWS H36-03 - Original Drilling - Original Dri						Out of range
Spike State GWS H36-04 - Original Drilling - Original Dri						Out of range
Spike State GWS H36-13 - Original Drilling - Original Dri	6,400.00	6,400.00	9,787.98	9,742.06	213.170	ES
Spike State GWS H36-13 - Original Drilling - Original Dri	6,422.72	6,318.23	9,787.81	9,742.09	214.098	CC
Spike State GWS H36-13 - Original Drilling - Original Dri	7,200.00	7,285.51	9,990.69	9,938.11	190.001	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,419.18	6,015.97	8,399.55	8,354.86	187.972	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	6,950.00	6,505.65	8,528.63	8,480.83	178.437	SF
Spike State H36-02J - Original Drilling - Original Drilling -						Out of range
Spike State H36-05 - Original Drilling - Original Drilling - /						Out of range
Spike State H36-11J - Original Drilling - Original Drilling -	6,444.94	6,250.64	9,550.24	9,504.67	209.585	CC
Spike State H36-11J - Original Drilling - Original Drilling -	6,450.00	6,255.02	9,550.25	9,504.65	209.424	ES
Spike State H36-11J - Original Drilling - Original Drilling -	7,100.00	6,694.20	9,743.88	9,695.29	200.525	SF
Spike State H36-12 - Original Drilling - Original Drilling - /						Out of range

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

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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 05						
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y05-02D	6,625.44	6,275.90	5,083.59	5,037.71	110.781	CC, ES
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y05-02D	6,950.00	6,581.99	5,148.50	5,100.84	108.040	SF
Olsen Y5-05J1 - Olsen Y5-05J1 - Olsen Y5-05J1 - As Drille	6,628.00	6,321.83	3,679.86	3,644.68	104.596	CC, ES
Olsen Y5-05J1 - Olsen Y5-05J1 - Olsen Y5-05J1 - As Drille	6,900.00	6,575.05	3,727.78	3,691.54	102.851	SF
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	6,705.53	6,449.34	5,737.62	5,656.98	71.147	CC, ES
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	7,150.00	6,809.94	5,825.81	5,741.27	68.912	SF
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	6,739.49	6,498.81	6,891.36	6,810.17	84.879	CC
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	6,750.00	6,508.77	6,891.40	6,810.10	84.760	ES
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	7,250.00	6,879.85	6,991.87	6,906.60	81.994	SF
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	6,846.23	6,602.22	6,437.87	6,355.46	78.123	CC
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	6,850.00	6,605.57	6,437.87	6,355.43	78.087	ES
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	7,300.00	6,906.24	6,497.46	6,411.83	75.882	SF
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins USX Y05-16	6,974.06	6,644.33	5,724.34	5,676.19	118.876	CC, ES
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins USX Y05-16	7,350.00	6,855.52	5,757.06	5,707.81	116.886	SF
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	4,003.83	2,800.00	5,355.58	5,332.03	227.424	CC, ES
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	17,666.62	17,687.00	6,548.36	6,369.45	36.601	SF
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	4,001.43	2,800.00	5,333.81	5,310.27	226.588	CC, ES
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	17,666.62	17,649.38	5,891.76	5,713.13	32.985	SF
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	6,778.98	5,904.87	5,137.75	5,092.04	112.410	CC
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	17,000.00	16,700.00	5,215.81	5,048.19	31.117	ES
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	17,666.62	17,288.06	5,234.52	5,056.95	29.479	SF
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	6,845.82	6,026.39	4,800.26	4,754.14	104.081	CC
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	17,666.62	17,587.51	4,908.82	4,731.05	27.613	ES, SF
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	7,380.77	7,186.11	4,534.96	4,484.87	90.544	CC
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	17,666.62	17,446.55	4,579.15	4,401.51	25.778	ES, SF
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	3,815.89	2,900.00	3,585.07	3,561.96	155.122	CC, ES
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	17,666.62	17,471.02	3,924.03	3,745.29	21.954	SF
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	6,817.81	6,208.19	3,198.49	3,151.74	68.407	CC
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	17,666.62	17,506.58	3,267.00	3,089.05	18.359	ES, SF
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	7,416.48	7,163.96	2,589.67	2,539.78	51.908	CC
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	17,666.62	17,357.35	2,611.66	2,434.06	14.705	ES, SF
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	7,451.63	7,428.59	2,270.57	2,219.91	44.822	CC
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	17,666.62	17,616.46	2,287.95	2,110.09	12.864	ES, SF
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	7,454.25	7,387.47	1,941.80	1,890.84	38.110	CC
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	17,656.28	17,568.11	1,955.58	1,777.42	10.977	ES
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	17,666.62	17,564.41	1,955.63	1,777.44	10.975	SF
Y Section 06						
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	6,532.68	6,221.63	1,584.59	1,538.79	34.599	CC, ES
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	6,650.00	6,317.34	1,596.12	1,549.58	34.296	SF
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	4,658.09	4,505.40	2,405.18	2,372.90	74.524	CC
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	4,700.00	4,538.22	2,405.28	2,372.73	73.888	ES
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,950.00	6,686.16	2,570.78	2,522.40	53.137	SF
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	6,575.84	6,277.67	3,915.20	3,869.39	85.452	CC, ES
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	6,800.00	6,530.84	3,951.89	3,904.66	83.668	SF
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,496.56	6,276.02	4,161.46	4,115.66	90.856	CC
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,500.00	6,280.10	4,161.47	4,115.64	90.803	ES
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,566.55	4,236.95	4,189.17	88.675	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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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	2,023.66	2,009.25	2,185.70	2,171.82	157.509	CC, ES
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	8,300.00	6,937.48	2,864.35	2,814.20	57.115	SF
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	1,146.74	1,148.74	1,969.08	1,961.36	255.080	CC
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	1,900.00	1,891.05	1,971.72	1,958.72	151.615	ES
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	9,100.00	6,961.02	2,480.93	2,428.61	47.422	SF
HP Farms Y 7-15JL (PR) - Wellbore #1 - No Surveys	12,048.64	6,965.00	577.02	393.04	3.136	CC, ES, SF
HP Y07-09 (PR) - Wellbore #1 - No Surveys	10,701.74	6,914.00	994.49	820.05	5.701	CC, ES, SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,300.00	7,173.91	572.04	499.05	7.837	SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,549.01	7,174.38	515.00	453.26	8.342	CC, ES
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	3,223.21	3,151.60	239.18	164.88	3.219	CC
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	3,300.00	3,223.67	240.64	164.62	3.165	ES
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	8,022.98	6,919.00	368.60	204.43	2.245	SF
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	8,633.78	6,936.99	334.11	283.16	6.558	CC, ES, SF
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	9,529.40	6,941.00	1,526.06	1,357.13	9.034	CC, ES
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	9,600.00	6,941.00	1,527.69	1,358.53	9.031	SF
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,200.00	2,195.00	187.56	172.27	12.268	CC
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,300.00	2,289.27	188.22	172.25	11.785	ES
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,600.00	2,570.07	200.87	182.98	11.224	SF
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,200.00	2,196.00	164.91	149.62	10.784	CC
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,300.00	2,291.02	165.58	149.60	10.363	ES
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,600.00	2,574.59	177.65	159.72	9.912	SF
Pioneer D31-735 - Pioneer D31-735 - Plan #1	7,286.24	7,193.94	60.82	10.05	1.198	Level 2, CC, ES, SF
Pioneer D31-744 - Pioneer D31-744 - Plan #1	2,757.13	2,749.63	107.06	87.82	5.563	CC
Pioneer D31-744 - Pioneer D31-744 - Plan #1	2,800.00	2,808.38	107.41	87.80	5.477	ES, SF
Pioneer D31-756 - Pioneer D31-756 - Plan #1	2,200.00	2,201.00	837.43	822.12	54.697	CC, ES
Pioneer D31-756 - Pioneer D31-756 - Plan #1	7,050.00	7,453.18	1,286.83	1,235.97	25.299	SF
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,200.00	2,201.00	860.09	844.78	56.177	CC, ES
Pioneer D31-761 - Pioneer D31-761 - Plan #1	7,400.00	7,210.56	1,630.85	1,579.93	32.033	SF
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,200.00	2,202.00	882.45	867.13	57.624	CC, ES
Pioneer D31-775 - Pioneer D31-775 - Plan #1	7,250.00	7,250.00	2,530.35	2,478.85	49.141	SF
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,200.00	2,202.00	903.69	888.38	59.011	CC, ES
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,800.00	2,649.26	979.53	960.74	52.131	SF
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	9,429.97	7,092.95	932.02	871.27	15.341	CC, ES
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	9,500.00	7,094.34	934.65	873.51	15.288	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,100.00	7,347.40	404.20	304.07	4.037	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,200.00	7,347.54	381.74	289.76	4.150	ES
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,238.23	7,347.60	379.82	292.11	4.330	CC
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,200.00	2,197.00	67.37	52.07	4.404	CC
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,300.00	2,295.22	67.86	51.86	4.242	ES
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,400.00	2,393.37	69.52	52.84	4.168	SF
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,200.00	2,198.00	45.00	29.70	2.941	CC
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,300.00	2,296.97	45.34	29.33	2.833	ES
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,400.00	2,395.91	46.44	29.75	2.781	SF
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,200.00	2,199.00	22.64	7.34	1.479	Level 3, CC
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,400.00	2,398.10	23.40	6.69	1.401	Level 3, ES, SF
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	2,200.00	2,200.00	22.36	7.06	1.461	Level 3, CC
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	2,300.00	2,300.04	23.03	7.01	1.438	Level 3, ES, SF
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,200.00	2,198.00	694.89	679.59	45.419	CC
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,300.00	2,300.78	695.48	679.45	43.403	ES
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	17,666.62	17,594.70	1,254.16	1,080.72	7.231	SF
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,200.00	2,199.00	717.53	702.23	46.888	CC, ES
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	17,666.62	17,682.47	1,883.85	1,710.28	10.854	SF
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,200.00	2,199.00	739.89	724.59	48.349	CC, 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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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 07						
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	17,666.62	17,793.50	2,202.63	2,029.10	12.693	SF
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,200.00	2,200.00	761.14	745.83	49.726	CC, ES
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	17,666.62	17,674.02	2,508.11	2,334.70	14.463	SF
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	2,200.00	2,200.00	784.90	769.59	51.278	CC, ES
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	17,666.62	17,884.22	3,136.06	2,962.67	18.087	SF
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	11,282.73	6,924.00	36.01	-142.15	0.202	Level 1, CC, ES, SF
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,298.85	6,987.99	2,438.54	2,374.53	38.100	CC
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,300.00	6,987.98	2,438.54	2,374.53	38.096	ES
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,700.00	6,984.82	2,471.31	2,405.49	37.544	SF
Y Section 08						
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	11,617.73	6,925.00	2,529.68	2,349.35	14.028	CC, ES
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	11,900.00	6,925.00	2,545.38	2,363.09	13.964	SF
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	11,449.05	7,057.85	5,259.98	5,194.96	80.886	CC
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	11,500.00	7,058.96	5,260.23	5,194.85	80.460	ES
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	13,400.00	7,100.42	5,609.98	5,533.19	73.058	SF
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	8,372.88	6,883.58	5,901.18	5,850.90	117.386	CC, ES
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	11,400.00	6,908.37	6,632.26	6,569.43	105.573	SF
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	8,330.31	6,898.52	2,476.72	2,426.52	49.333	CC, ES
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	8,700.00	6,904.48	2,504.16	2,452.98	48.931	SF
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	8,074.93	6,893.85	4,725.42	4,675.66	94.957	CC, ES
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	10,000.00	6,882.10	5,102.49	5,046.52	91.166	SF
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	7,697.94	6,874.54	3,640.29	3,590.87	73.662	CC, ES
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	8,600.00	6,883.92	3,720.06	3,669.20	73.144	SF
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	9,312.44	6,895.05	2,108.27	2,055.10	39.650	CC, ES
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	9,700.00	6,900.00	2,143.61	2,088.62	38.982	SF
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	9,404.02	6,966.00	6,181.23	6,012.33	36.597	CC, ES
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	10,600.00	6,966.00	6,295.87	6,120.91	35.985	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 Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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 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	14,239.30	8,411.00	9,754.15	9,669.88	115.748	CC
Hullabaloo State Y21-746 - Original Drilling - Original Dril	17,200.00	11,251.88	9,768.63	9,645.23	79.162	ES
Hullabaloo State Y21-746 - Original Drilling - Original Dril	17,666.62	11,515.19	9,779.52	9,650.73	75.930	SF
Hullabaloo State Y21-756 - Original Drilling - Original Dril	16,301.85	10,396.00	9,101.36	8,991.01	82.475	CC
Hullabaloo State Y21-756 - Original Drilling - Original Dril	16,400.00	10,396.00	9,101.89	8,990.77	81.909	ES
Hullabaloo State Y21-756 - Original Drilling - Original Dril	17,666.62	12,106.35	9,142.37	9,009.07	68.585	SF
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	13,203.40	7,654.00	8,616.06	8,542.94	117.822	CC
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	13,600.00	8,003.15	8,619.15	8,542.39	112.278	ES
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	16,900.00	16,900.00	8,732.27	8,572.35	54.604	SF
Hullabaloo State Y21-769 - Original Drilling - Original Dril	12,471.68	6,646.59	8,191.33	8,125.31	124.073	CC
Hullabaloo State Y21-769 - Original Drilling - Original Dril	16,100.00	16,100.00	8,256.06	8,110.14	56.579	ES
Hullabaloo State Y21-769 - Original Drilling - Original Dril	16,900.00	16,900.00	8,284.23	8,123.65	51.591	SF
Hullabaloo State Y21-775 - Original Drilling - Original Dril	13,050.07	7,231.38	7,802.21	7,731.78	110.775	CC
Hullabaloo State Y21-775 - Original Drilling - Original Dril	17,200.00	17,200.00	7,866.91	7,700.39	47.243	ES, SF
Hullabaloo State Y21-781 - Original Drilling - Original Dril	13,128.62	7,418.47	7,391.86	7,320.28	103.275	CC
Hullabaloo State Y21-781 - Original Drilling - Original Dril	13,900.00	13,900.00	7,401.29	7,304.82	76.725	ES
Hullabaloo State Y21-781 - Original Drilling - Original Dril	17,666.62	11,805.00	7,478.27	7,347.95	57.383	SF
Hullabaloo State Y21-787 - Original Drilling - Original Dril	12,958.39	7,209.21	6,956.63	6,886.34	98.964	CC
Hullabaloo State Y21-787 - Original Drilling - Original Dril	13,000.00	7,219.33	6,956.73	6,886.11	98.515	ES
Hullabaloo State Y21-787 - Original Drilling - Original Dril	17,666.62	12,252.00	7,045.60	6,911.67	52.606	SF
State 01 - Original Drilling - Original Drilling - As Drilled						Out of range
State 21 (PA) - Original Drilling - Original Drilling - As Dril	16,505.96	6,981.00	8,050.59	7,833.33	37.056	CC
State 21 (PA) - Original Drilling - Original Drilling - As Dril	16,600.00	6,981.00	8,051.13	7,833.12	36.929	ES
State 21 (PA) - Original Drilling - Original Drilling - As Dril	17,666.62	6,981.00	8,133.82	7,907.87	35.998	SF
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	14,465.55	7,034.90	7,555.86	7,469.30	87.296	CC
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	14,500.00	7,035.63	7,555.93	7,469.10	87.020	ES
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	17,300.00	6,916.61	8,069.85	7,965.67	77.455	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	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 17						
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	16,843.01	6,929.00	5,244.04	5,025.21	23.963	CC
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	16,900.00	6,929.00	5,244.35	5,025.04	23.913	ES
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	17,600.00	6,929.00	5,298.40	5,074.00	23.612	SF
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	14,107.21	6,929.00	2,538.94	2,341.00	12.826	CC, ES
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	14,300.00	6,929.00	2,546.25	2,346.80	12.766	SF
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,115.12	6,924.00	3,612.62	3,422.02	18.954	CC, ES
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,600.00	6,924.00	3,645.01	3,450.93	18.780	SF
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	13,020.10	6,981.31	2,432.17	2,356.63	32.198	CC, ES
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	13,400.00	6,972.67	2,461.64	2,383.47	31.491	SF
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,548.29	6,823.37	3,740.64	3,654.12	43.237	CC
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,600.00	6,823.04	3,740.99	3,654.05	43.030	ES
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	15,400.00	6,818.05	3,836.37	3,744.18	41.616	SF
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,322.71	6,893.40	3,459.37	3,351.35	32.025	CC, ES
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,666.62	6,891.69	3,476.42	3,365.77	31.419	SF
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,094.13	6,909.08	5,280.94	5,197.68	63.429	CC
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,100.00	6,909.16	5,280.94	5,197.64	63.393	ES
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	15,700.00	6,931.25	5,519.65	5,425.99	58.932	SF
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	13,087.57	6,928.16	6,300.38	6,224.40	82.919	CC
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.00	6,927.93	6,300.39	6,224.32	82.817	ES
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	15,400.00	6,900.01	6,711.27	6,620.73	74.130	SF
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	15,791.13	6,822.87	2,678.73	2,582.81	27.926	CC
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	15,800.00	6,822.78	2,678.75	2,582.75	27.903	ES
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	16,200.00	6,818.60	2,709.75	2,610.96	27.428	SF
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	16,847.78	6,941.00	2,694.06	2,474.94	12.295	CC, ES
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	17,100.00	6,941.00	2,705.84	2,484.80	12.241	SF
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	13,033.32	6,936.60	4,637.17	4,561.58	61.349	CC
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	13,100.00	6,937.51	4,637.65	4,561.55	60.942	ES
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,954.72	4,834.33	4,749.95	57.293	SF
Y Section 18						
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	13,931.84	6,937.75	2,309.42	2,227.49	28.186	CC, ES
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	14,200.00	6,935.43	2,324.94	2,241.64	27.910	SF
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	16,401.58	7,046.61	2,492.18	2,390.87	24.599	CC, ES
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	16,600.00	7,043.92	2,500.06	2,397.68	24.418	SF
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	16,594.39	6,979.00	134.69	-83.22	0.618	Level 1, CC, ES, SF
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	14,327.07	6,949.60	539.69	454.52	6.337	CC, ES, SF

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

Noble Energy, Inc.

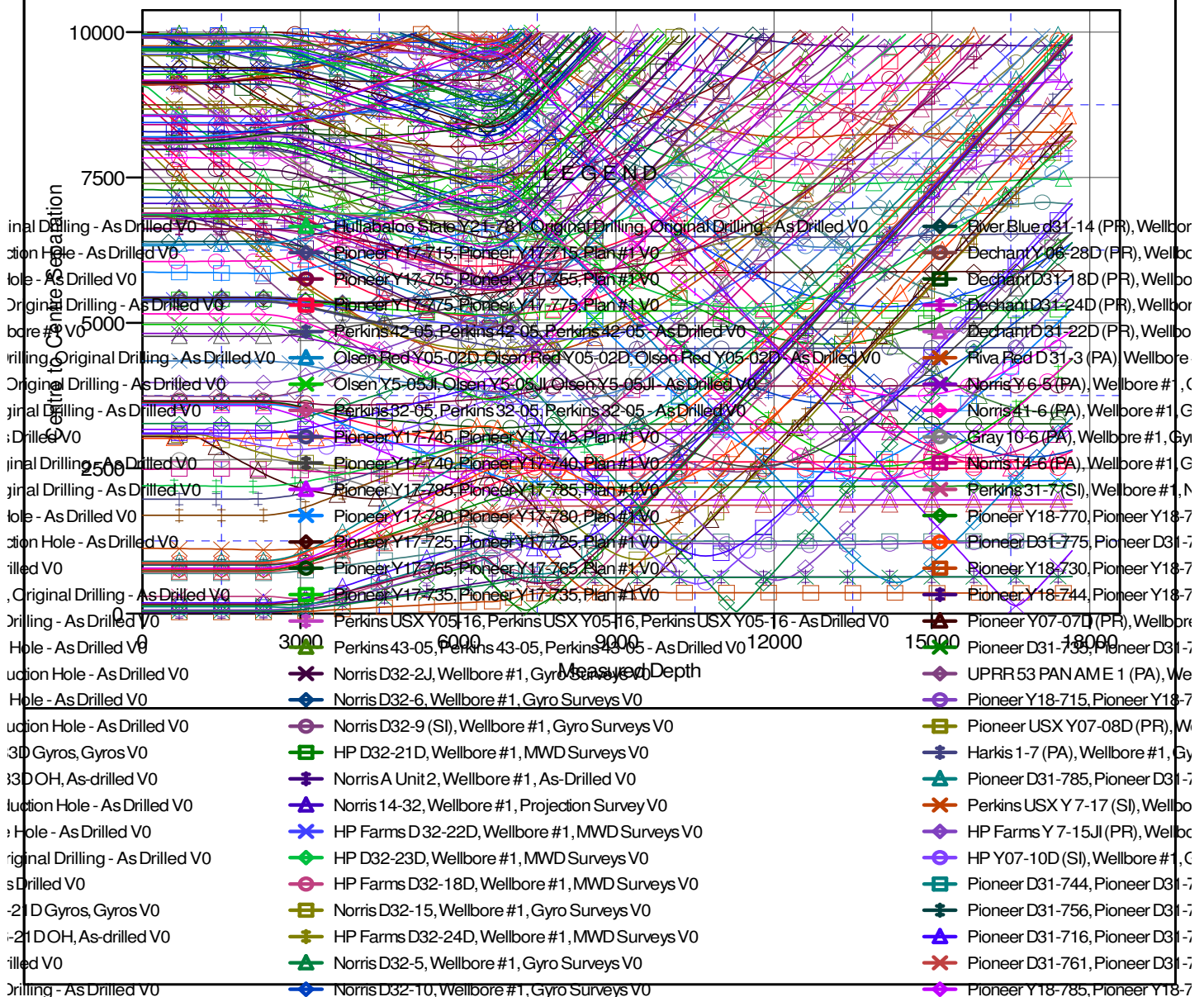
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4915.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Pioneer Y18-735
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.59°

Ladder Plot



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

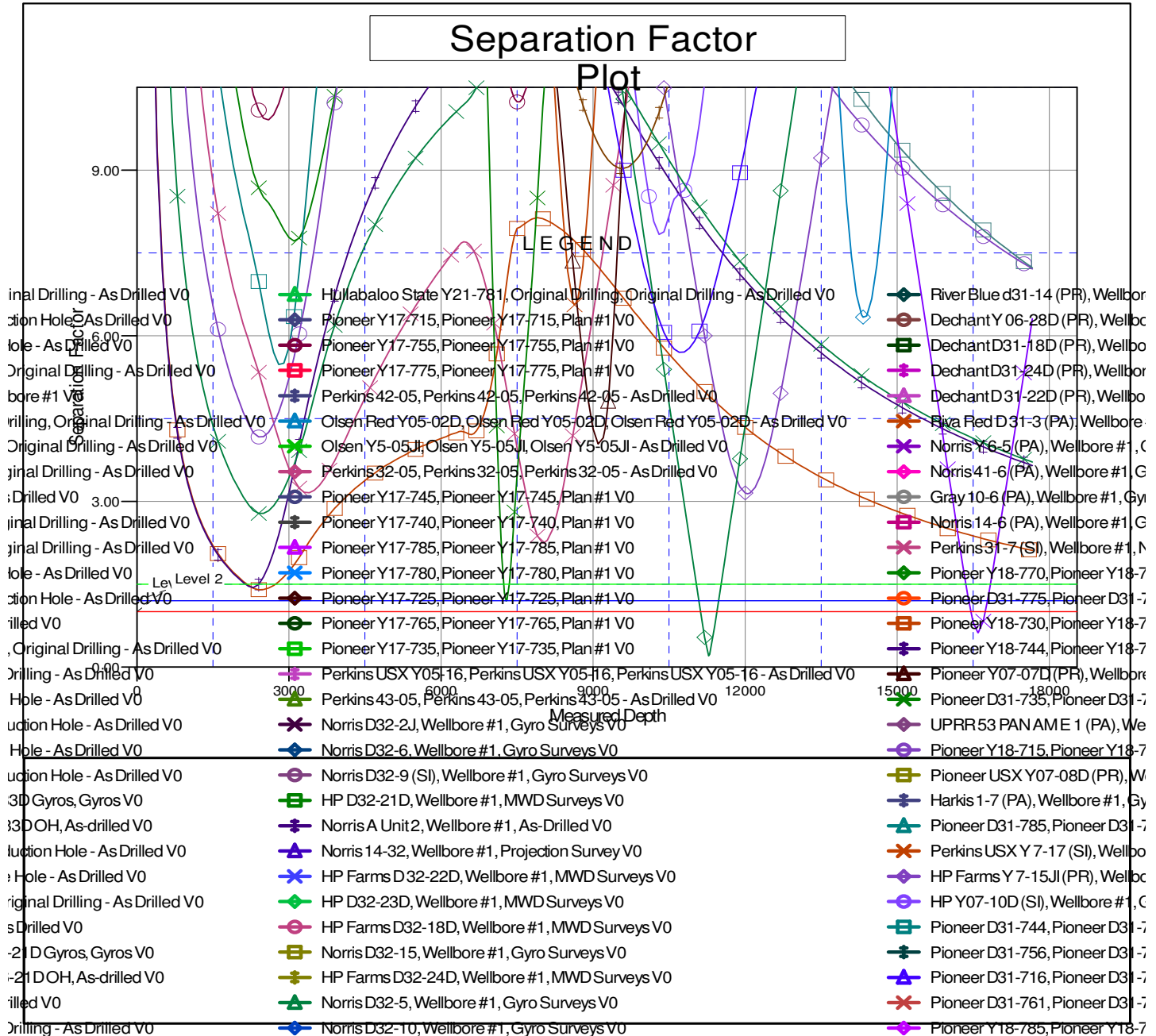
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-735
Project:	Mustang	TVD Reference:	KB @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	KB @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-735	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-735	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4915.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.5000000

Coordinates are relative to: Pioneer Y18-735
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.59°



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