

Project: Mustang
Site: Y Section 07
Well: Pioneer Y18-756
Wellbore: Pioneer Y18-756
Design: Plan #1

Northern Region - DJ Basin

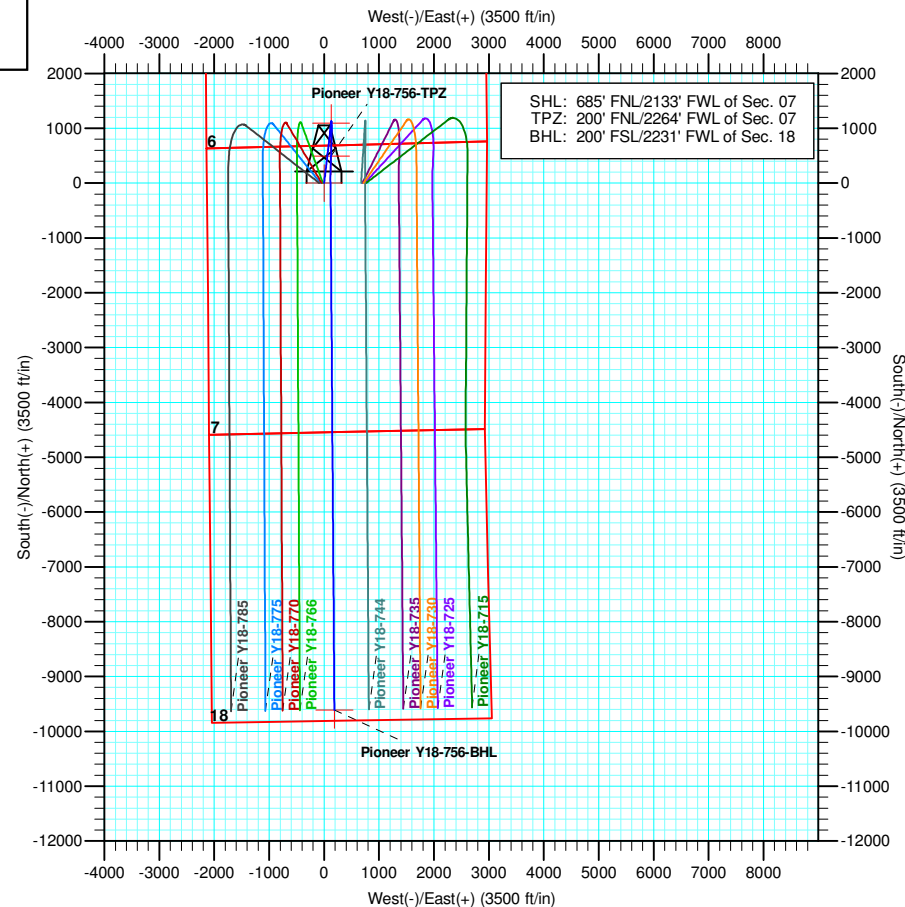
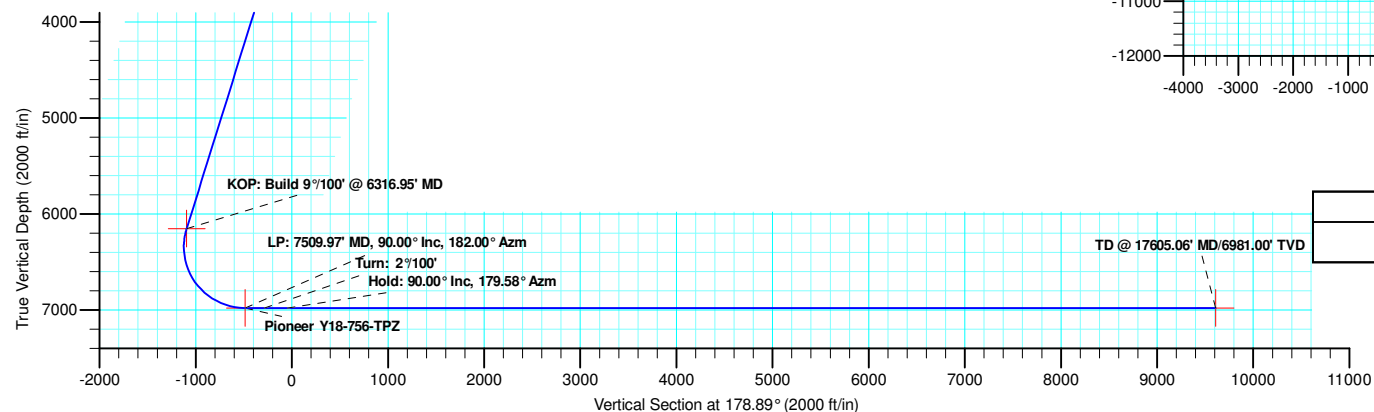
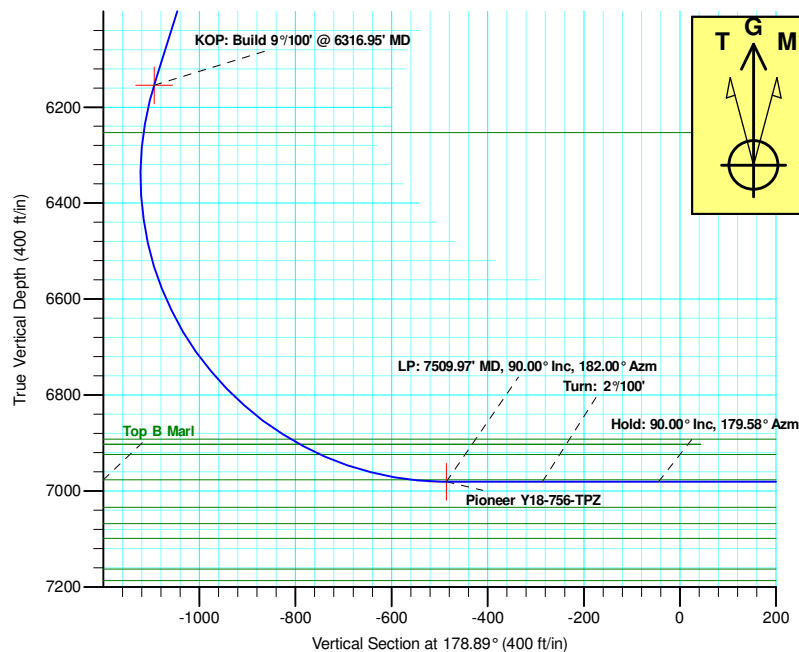
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	3071.46	17.43	6.59	3058.08	130.66	15.09	2.00	6.59	-130.34	
4	6316.95	17.43	6.59	6154.57	1096.35	126.65	0.00	0.00	-1093.68	
5	7509.97	90.00	182.00	6981.00	488.41	126.20	9.00	175.19	-485.86	Pioneer Y18-756-TPZ
6	7709.97	90.00	182.00	6981.00	288.53	119.22	0.00	0.00	-286.16	
7	7952.08	90.00	179.58	6981.00	46.47	115.88	1.00	-90.00	-44.20	
8	17605.06	90.00	179.58	6981.00	-9606.25	186.82	0.00	0.00	9608.07	Pioneer Y18-756-BHL

WELL DETAILS: Pioneer Y18-756

+N/-S	+E/-W	Northing	Ground Level: Easting	4883.00 Latitude	Longitude	Slot
0.00	0.00	1301718.45	3252867.85	40.1580710	-104.5952830	



Plan: Plan #1 (Pioneer Y18-756/Pioneer Y18-756)

Created By: Keith Noack Date: 9:06, September 27 2018

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-756

Pioneer Y18-756

Plan: Plan #1

Standard Planning Report

26 September, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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 Y18-756					
Well Position	+N/-S	-46.22 ft	Northing:	1,301,718.45 usft	Latitude:	40.1580710
	+E/-W	1,509.03 ft	Easting:	3,252,867.85 usft	Longitude:	-104.5952830
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,883.00 ft

Wellbore	Pioneer Y18-756				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/29/2018	7.97	66.66	52,146.52917990

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	178.89

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	
3,071.46	17.43	6.59	3,058.08	130.66	15.09	2.00	2.00	0.00	6.59	
6,316.95	17.43	6.59	6,154.57	1,096.35	126.65	0.00	0.00	0.00	0.00	
7,509.97	90.00	182.00	6,981.00	488.41	126.20	9.00	6.08	14.70	175.19	Pioneer Y18-756-TI
7,709.97	90.00	182.00	6,981.00	288.53	119.22	0.00	0.00	0.00	0.00	
7,952.08	90.00	179.58	6,981.00	46.47	115.88	1.00	0.00	-1.00	-90.00	
17,605.06	90.00	179.58	6,981.00	-9,606.25	186.82	0.00	0.00	0.00	0.00	Pioneer Y18-756-BI

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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
741.00	0.00	0.00	741.00	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
1,089.00	0.00	0.00	1,089.00	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
1,898.00	0.00	0.00	1,898.00	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	6.59	2,299.98	1.73	0.20	-1.73	2.00	2.00	0.00
2,400.00	4.00	6.59	2,399.84	6.93	0.80	-6.92	2.00	2.00	0.00
2,500.00	6.00	6.59	2,499.45	15.59	1.80	-15.55	2.00	2.00	0.00
2,600.00	8.00	6.59	2,598.70	27.70	3.20	-27.63	2.00	2.00	0.00
2,700.00	10.00	6.59	2,697.47	43.24	4.99	-43.13	2.00	2.00	0.00
2,800.00	12.00	6.59	2,795.62	62.19	7.18	-62.04	2.00	2.00	0.00
2,900.00	14.00	6.59	2,893.06	84.53	9.77	-84.33	2.00	2.00	0.00
3,000.00	16.00	6.59	2,989.64	110.24	12.74	-109.98	2.00	2.00	0.00
3,071.46	17.43	6.59	3,058.08	130.66	15.09	-130.34	2.00	2.00	0.00
Hold: 17.43° Inc, 6.59° Azm									
3,100.00	17.43	6.59	3,085.31	139.15	16.08	-138.81	0.00	0.00	0.00
3,200.00	17.43	6.59	3,180.72	168.91	19.51	-168.50	0.00	0.00	0.00
3,300.00	17.43	6.59	3,276.13	198.66	22.95	-198.18	0.00	0.00	0.00
3,400.00	17.43	6.59	3,371.54	228.42	26.39	-227.86	0.00	0.00	0.00
3,500.00	17.43	6.59	3,466.95	258.17	29.82	-257.54	0.00	0.00	0.00
3,600.00	17.43	6.59	3,562.36	287.93	33.26	-287.22	0.00	0.00	0.00
3,700.00	17.43	6.59	3,657.76	317.68	36.70	-316.91	0.00	0.00	0.00
3,800.00	17.43	6.59	3,753.17	347.44	40.14	-346.59	0.00	0.00	0.00
3,900.00	17.43	6.59	3,848.58	377.19	43.57	-376.27	0.00	0.00	0.00
4,000.00	17.43	6.59	3,943.99	406.94	47.01	-405.95	0.00	0.00	0.00
4,034.60	17.43	6.59	3,977.00	417.24	48.20	-416.22	0.00	0.00	0.00
Parkman									
4,100.00	17.43	6.59	4,039.40	436.70	50.45	-435.64	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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	17.43	6.59	4,134.81	466.45	53.89	-465.32	0.00	0.00	0.00
4,300.00	17.43	6.59	4,230.22	496.21	57.32	-495.00	0.00	0.00	0.00
4,400.00	17.43	6.59	4,325.63	525.96	60.76	-524.68	0.00	0.00	0.00
4,500.00	17.43	6.59	4,421.03	555.72	64.20	-554.37	0.00	0.00	0.00
4,600.00	17.43	6.59	4,516.44	585.47	67.64	-584.05	0.00	0.00	0.00
4,628.88	17.43	6.59	4,544.00	594.07	68.63	-592.62	0.00	0.00	0.00
Sussex									
4,700.00	17.43	6.59	4,611.85	615.23	71.07	-613.73	0.00	0.00	0.00
4,800.00	17.43	6.59	4,707.26	644.98	74.51	-643.41	0.00	0.00	0.00
4,900.00	17.43	6.59	4,802.67	674.74	77.95	-673.09	0.00	0.00	0.00
5,000.00	17.43	6.59	4,898.08	704.49	81.39	-702.78	0.00	0.00	0.00
5,100.00	17.43	6.59	4,993.49	734.25	84.82	-732.46	0.00	0.00	0.00
5,200.00	17.43	6.59	5,088.90	764.00	88.26	-762.14	0.00	0.00	0.00
5,300.00	17.43	6.59	5,184.31	793.76	91.70	-791.82	0.00	0.00	0.00
5,400.00	17.43	6.59	5,279.71	823.51	95.13	-821.51	0.00	0.00	0.00
5,447.47	17.43	6.59	5,325.00	837.63	96.77	-835.59	0.00	0.00	0.00
Shannon									
5,500.00	17.43	6.59	5,375.12	853.27	98.57	-851.19	0.00	0.00	0.00
5,600.00	17.43	6.59	5,470.53	883.02	102.01	-880.87	0.00	0.00	0.00
5,700.00	17.43	6.59	5,565.94	912.78	105.45	-910.55	0.00	0.00	0.00
5,800.00	17.43	6.59	5,661.35	942.53	108.88	-940.23	0.00	0.00	0.00
5,900.00	17.43	6.59	5,756.76	972.28	112.32	-969.92	0.00	0.00	0.00
6,000.00	17.43	6.59	5,852.17	1,002.04	115.76	-999.60	0.00	0.00	0.00
6,100.00	17.43	6.59	5,947.58	1,031.79	119.20	-1,029.28	0.00	0.00	0.00
6,200.00	17.43	6.59	6,042.98	1,061.55	122.63	-1,058.96	0.00	0.00	0.00
6,300.00	17.43	6.59	6,138.39	1,091.30	126.07	-1,088.65	0.00	0.00	0.00
6,316.95	17.43	6.59	6,154.57	1,096.35	126.65	-1,093.68	0.00	0.00	0.00
KOP: Build 9°/100' @ 6316.95' MD									
6,350.00	14.47	7.59	6,186.34	1,105.36	127.77	-1,102.67	9.00	-8.96	3.02
6,400.00	10.00	10.19	6,235.19	1,115.83	129.36	-1,113.10	9.00	-8.93	5.21
6,418.04	8.40	11.80	6,253.00	1,118.66	129.91	-1,115.92	9.00	-8.89	8.91
Teepee Buttes									
6,450.00	5.59	16.89	6,284.72	1,122.43	130.84	-1,119.68	9.00	-8.80	15.92
6,500.00	1.70	60.05	6,334.61	1,125.13	132.18	-1,122.35	9.00	-7.78	86.33
6,550.00	3.88	160.25	6,384.57	1,123.91	133.40	-1,121.10	9.00	4.37	200.41
6,600.00	8.23	172.00	6,434.28	1,118.77	134.47	-1,115.94	9.00	8.70	23.48
6,650.00	12.68	175.59	6,483.44	1,109.75	135.39	-1,106.91	9.00	8.91	7.19
6,700.00	17.16	177.33	6,531.74	1,096.90	136.15	-1,094.05	9.00	8.96	3.49
6,750.00	21.65	178.37	6,578.89	1,080.31	136.76	-1,077.44	9.00	8.97	2.07
6,800.00	26.14	179.07	6,624.59	1,060.06	137.20	-1,057.20	9.00	8.98	1.39
6,850.00	30.63	179.57	6,668.57	1,036.30	137.48	-1,033.43	9.00	8.99	1.01
6,900.00	35.13	179.95	6,710.55	1,009.16	137.58	-1,006.30	9.00	8.99	0.77
6,950.00	39.62	180.26	6,750.27	978.82	137.52	-975.96	9.00	8.99	0.62
7,000.00	44.12	180.52	6,787.49	945.45	137.29	-942.61	9.00	8.99	0.51
7,050.00	48.62	180.73	6,821.99	909.28	136.90	-906.44	9.00	8.99	0.43
7,100.00	53.12	180.92	6,853.53	870.51	136.34	-867.69	9.00	9.00	0.38
7,150.00	57.61	181.09	6,881.94	829.38	135.62	-826.59	9.00	9.00	0.33
7,169.24	59.34	181.15	6,892.00	812.99	135.30	-810.20	9.00	9.00	0.31
Sharon Springs									
7,191.47	61.34	181.21	6,903.00	793.67	134.90	-790.90	9.00	9.00	0.30
Top A Chalk - Top A Marl									
7,200.00	62.11	181.24	6,907.04	786.16	134.74	-783.39	9.00	9.00	0.29
7,238.48	65.57	181.35	6,924.00	751.64	133.96	-748.89	9.00	9.00	0.28

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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)
Top B Chalk									
7,250.00	66.61	181.38	6,928.67	741.11	133.71	-738.37	9.00	9.00	0.27
7,300.00	71.11	181.51	6,946.70	694.50	132.53	-691.79	9.00	9.00	0.26
7,350.00	75.61	181.63	6,961.01	646.62	131.22	-643.95	9.00	9.00	0.25
7,400.00	80.11	181.75	6,971.53	597.78	129.78	-595.14	9.00	9.00	0.24
7,438.56	83.57	181.84	6,977.00	559.64	128.58	-557.03	9.00	9.00	0.23
Top B Marl									
7,450.00	84.60	181.86	6,978.18	548.26	128.22	-545.66	9.00	9.00	0.23
7,500.00	89.10	181.98	6,980.92	498.37	126.54	-495.82	9.00	9.00	0.23
7,509.97	90.00	182.00	6,981.00	488.41	126.20	-485.86	9.00	9.00	0.23
LP: 7509.97' MD, 90.00° Inc, 182.00° Azm									
7,600.00	90.00	182.00	6,981.00	398.44	123.06	-395.97	0.00	0.00	0.00
7,709.97	90.00	182.00	6,981.00	288.53	119.22	-286.16	0.00	0.00	0.00
Turn: 2°/100'									
7,800.00	90.00	181.10	6,981.00	198.54	116.78	-196.23	1.00	0.00	-1.00
7,900.00	90.00	180.10	6,981.00	98.54	115.74	-96.27	1.00	0.00	-1.00
7,952.08	90.00	179.58	6,981.00	46.47	115.88	-44.20	1.00	0.00	-1.00
Hold: 90.00° Inc, 179.58° Azm									
8,000.00	90.00	179.58	6,981.00	-1.46	116.23	3.71	0.00	0.00	0.00
8,100.00	90.00	179.58	6,981.00	-101.45	116.97	103.71	0.00	0.00	0.00
8,200.00	90.00	179.58	6,981.00	-201.45	117.70	203.70	0.00	0.00	0.00
8,300.00	90.00	179.58	6,981.00	-301.45	118.44	303.69	0.00	0.00	0.00
8,400.00	90.00	179.58	6,981.00	-401.44	119.17	403.69	0.00	0.00	0.00
8,500.00	90.00	179.58	6,981.00	-501.44	119.91	503.68	0.00	0.00	0.00
8,600.00	90.00	179.58	6,981.00	-601.44	120.64	603.67	0.00	0.00	0.00
8,700.00	90.00	179.58	6,981.00	-701.44	121.38	703.66	0.00	0.00	0.00
8,800.00	90.00	179.58	6,981.00	-801.43	122.11	803.66	0.00	0.00	0.00
8,900.00	90.00	179.58	6,981.00	-901.43	122.85	903.65	0.00	0.00	0.00
9,000.00	90.00	179.58	6,981.00	-1,001.43	123.58	1,003.64	0.00	0.00	0.00
9,100.00	90.00	179.58	6,981.00	-1,101.43	124.32	1,103.63	0.00	0.00	0.00
9,200.00	90.00	179.58	6,981.00	-1,201.42	125.05	1,203.63	0.00	0.00	0.00
9,300.00	90.00	179.58	6,981.00	-1,301.42	125.79	1,303.62	0.00	0.00	0.00
9,400.00	90.00	179.58	6,981.00	-1,401.42	126.52	1,403.61	0.00	0.00	0.00
9,500.00	90.00	179.58	6,981.00	-1,501.41	127.26	1,503.61	0.00	0.00	0.00
9,600.00	90.00	179.58	6,981.00	-1,601.41	127.99	1,603.60	0.00	0.00	0.00
9,700.00	90.00	179.58	6,981.00	-1,701.41	128.73	1,703.59	0.00	0.00	0.00
9,800.00	90.00	179.58	6,981.00	-1,801.41	129.46	1,803.58	0.00	0.00	0.00
9,900.00	90.00	179.58	6,981.00	-1,901.40	130.20	1,903.58	0.00	0.00	0.00
10,000.00	90.00	179.58	6,981.00	-2,001.40	130.93	2,003.57	0.00	0.00	0.00
10,100.00	90.00	179.58	6,981.00	-2,101.40	131.67	2,103.56	0.00	0.00	0.00
10,200.00	90.00	179.58	6,981.00	-2,201.40	132.40	2,203.55	0.00	0.00	0.00
10,300.00	90.00	179.58	6,981.00	-2,301.39	133.14	2,303.55	0.00	0.00	0.00
10,400.00	90.00	179.58	6,981.00	-2,401.39	133.87	2,403.54	0.00	0.00	0.00
10,500.00	90.00	179.58	6,981.00	-2,501.39	134.61	2,503.53	0.00	0.00	0.00
10,600.00	90.00	179.58	6,981.00	-2,601.38	135.34	2,603.52	0.00	0.00	0.00
10,700.00	90.00	179.58	6,981.00	-2,701.38	136.08	2,703.52	0.00	0.00	0.00
10,800.00	90.00	179.58	6,981.00	-2,801.38	136.81	2,803.51	0.00	0.00	0.00
10,900.00	90.00	179.58	6,981.00	-2,901.38	137.55	2,903.50	0.00	0.00	0.00
11,000.00	90.00	179.58	6,981.00	-3,001.37	138.28	3,003.50	0.00	0.00	0.00
11,100.00	90.00	179.58	6,981.00	-3,101.37	139.02	3,103.49	0.00	0.00	0.00
11,200.00	90.00	179.58	6,981.00	-3,201.37	139.75	3,203.48	0.00	0.00	0.00
11,300.00	90.00	179.58	6,981.00	-3,301.37	140.49	3,303.47	0.00	0.00	0.00
11,400.00	90.00	179.58	6,981.00	-3,401.36	141.22	3,403.47	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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)
11,500.00	90.00	179.58	6,981.00	-3,501.36	141.96	3,503.46	0.00	0.00	0.00
11,600.00	90.00	179.58	6,981.00	-3,601.36	142.69	3,603.45	0.00	0.00	0.00
11,700.00	90.00	179.58	6,981.00	-3,701.36	143.43	3,703.44	0.00	0.00	0.00
11,800.00	90.00	179.58	6,981.00	-3,801.35	144.16	3,803.44	0.00	0.00	0.00
11,900.00	90.00	179.58	6,981.00	-3,901.35	144.90	3,903.43	0.00	0.00	0.00
12,000.00	90.00	179.58	6,981.00	-4,001.35	145.63	4,003.42	0.00	0.00	0.00
12,100.00	90.00	179.58	6,981.00	-4,101.34	146.37	4,103.42	0.00	0.00	0.00
12,200.00	90.00	179.58	6,981.00	-4,201.34	147.10	4,203.41	0.00	0.00	0.00
12,300.00	90.00	179.58	6,981.00	-4,301.34	147.84	4,303.40	0.00	0.00	0.00
12,400.00	90.00	179.58	6,981.00	-4,401.34	148.57	4,403.39	0.00	0.00	0.00
12,500.00	90.00	179.58	6,981.00	-4,501.33	149.31	4,503.39	0.00	0.00	0.00
12,600.00	90.00	179.58	6,981.00	-4,601.33	150.04	4,603.38	0.00	0.00	0.00
12,700.00	90.00	179.58	6,981.00	-4,701.33	150.78	4,703.37	0.00	0.00	0.00
12,800.00	90.00	179.58	6,981.00	-4,801.33	151.51	4,803.36	0.00	0.00	0.00
12,900.00	90.00	179.58	6,981.00	-4,901.32	152.24	4,903.36	0.00	0.00	0.00
13,000.00	90.00	179.58	6,981.00	-5,001.32	152.98	5,003.35	0.00	0.00	0.00
13,100.00	90.00	179.58	6,981.00	-5,101.32	153.71	5,103.34	0.00	0.00	0.00
13,200.00	90.00	179.58	6,981.00	-5,201.31	154.45	5,203.33	0.00	0.00	0.00
13,300.00	90.00	179.58	6,981.00	-5,301.31	155.18	5,303.33	0.00	0.00	0.00
13,400.00	90.00	179.58	6,981.00	-5,401.31	155.92	5,403.32	0.00	0.00	0.00
13,500.00	90.00	179.58	6,981.00	-5,501.31	156.65	5,503.31	0.00	0.00	0.00
13,600.00	90.00	179.58	6,981.00	-5,601.30	157.39	5,603.31	0.00	0.00	0.00
13,700.00	90.00	179.58	6,981.00	-5,701.30	158.12	5,703.30	0.00	0.00	0.00
13,800.00	90.00	179.58	6,981.00	-5,801.30	158.86	5,803.29	0.00	0.00	0.00
13,900.00	90.00	179.58	6,981.00	-5,901.30	159.59	5,903.28	0.00	0.00	0.00
14,000.00	90.00	179.58	6,981.00	-6,001.29	160.33	6,003.28	0.00	0.00	0.00
14,100.00	90.00	179.58	6,981.00	-6,101.29	161.06	6,103.27	0.00	0.00	0.00
14,200.00	90.00	179.58	6,981.00	-6,201.29	161.80	6,203.26	0.00	0.00	0.00
14,300.00	90.00	179.58	6,981.00	-6,301.29	162.53	6,303.25	0.00	0.00	0.00
14,400.00	90.00	179.58	6,981.00	-6,401.28	163.27	6,403.25	0.00	0.00	0.00
14,500.00	90.00	179.58	6,981.00	-6,501.28	164.00	6,503.24	0.00	0.00	0.00
14,600.00	90.00	179.58	6,981.00	-6,601.28	164.74	6,603.23	0.00	0.00	0.00
14,700.00	90.00	179.58	6,981.00	-6,701.27	165.47	6,703.22	0.00	0.00	0.00
14,800.00	90.00	179.58	6,981.00	-6,801.27	166.21	6,803.22	0.00	0.00	0.00
14,900.00	90.00	179.58	6,981.00	-6,901.27	166.94	6,903.21	0.00	0.00	0.00
15,000.00	90.00	179.58	6,981.00	-7,001.27	167.68	7,003.20	0.00	0.00	0.00
15,100.00	90.00	179.58	6,981.00	-7,101.26	168.41	7,103.20	0.00	0.00	0.00
15,200.00	90.00	179.58	6,981.00	-7,201.26	169.15	7,203.19	0.00	0.00	0.00
15,300.00	90.00	179.58	6,981.00	-7,301.26	169.88	7,303.18	0.00	0.00	0.00
15,400.00	90.00	179.58	6,981.00	-7,401.26	170.62	7,403.17	0.00	0.00	0.00
15,500.00	90.00	179.58	6,981.00	-7,501.25	171.35	7,503.17	0.00	0.00	0.00
15,600.00	90.00	179.58	6,981.00	-7,601.25	172.09	7,603.16	0.00	0.00	0.00
15,700.00	90.00	179.58	6,981.00	-7,701.25	172.82	7,703.15	0.00	0.00	0.00
15,800.00	90.00	179.58	6,981.00	-7,801.24	173.56	7,803.14	0.00	0.00	0.00
15,900.00	90.00	179.58	6,981.00	-7,901.24	174.29	7,903.14	0.00	0.00	0.00
16,000.00	90.00	179.58	6,981.00	-8,001.24	175.03	8,003.13	0.00	0.00	0.00
16,100.00	90.00	179.58	6,981.00	-8,101.24	175.76	8,103.12	0.00	0.00	0.00
16,200.00	90.00	179.58	6,981.00	-8,201.23	176.50	8,203.12	0.00	0.00	0.00
16,300.00	90.00	179.58	6,981.00	-8,301.23	177.23	8,303.11	0.00	0.00	0.00
16,400.00	90.00	179.58	6,981.00	-8,401.23	177.97	8,403.10	0.00	0.00	0.00
16,500.00	90.00	179.58	6,981.00	-8,501.23	178.70	8,503.09	0.00	0.00	0.00
16,600.00	90.00	179.58	6,981.00	-8,601.22	179.44	8,603.09	0.00	0.00	0.00
16,700.00	90.00	179.58	6,981.00	-8,701.22	180.17	8,703.08	0.00	0.00	0.00
16,800.00	90.00	179.58	6,981.00	-8,801.22	180.91	8,803.07	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
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)
16,900.00	90.00	179.58	6,981.00	-8,901.21	181.64	8,903.06	0.00	0.00	0.00
17,000.00	90.00	179.58	6,981.00	-9,001.21	182.38	9,003.06	0.00	0.00	0.00
17,100.00	90.00	179.58	6,981.00	-9,101.21	183.11	9,103.05	0.00	0.00	0.00
17,200.00	90.00	179.58	6,981.00	-9,201.21	183.85	9,203.04	0.00	0.00	0.00
17,300.00	90.00	179.58	6,981.00	-9,301.20	184.58	9,303.03	0.00	0.00	0.00
17,400.00	90.00	179.58	6,981.00	-9,401.20	185.32	9,403.03	0.00	0.00	0.00
17,500.00	90.00	179.58	6,981.00	-9,501.20	186.05	9,503.02	0.00	0.00	0.00
17,605.06	90.00	179.58	6,981.00	-9,606.25	186.82	9,608.07	0.00	0.00	0.00
TD @ 17605.06' MD/6981.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pioneer Y18-756-SHL - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,301,718.45	3,252,867.85	40.1580710	-104.5952830
Pioneer Y18-756-KOF - plan hits target center - Point	0.00	0.00	6,154.57	1,096.35	126.65	1,302,814.79	3,252,994.50	40.1610769	-104.5947898
Pioneer Y18-756-BHL - plan hits target center - Point	0.00	0.00	6,981.00	-9,606.25	186.82	1,292,112.21	3,253,054.67	40.1316967	-104.5949654
Pioneer Y18-756-TPZ - plan hits target center - Point	0.00	0.00	6,981.00	488.41	126.20	1,302,206.86	3,252,994.05	40.1594082	-104.5948137

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
741.00	741.00	Fox Hills				
741.00	741.00	Pierre				
1,089.00	1,089.00	Upper Pierre Aquifer Top				
1,898.00	1,898.00	Upper Pierre Aquifer Base				
4,034.60	3,977.00	Parkman				
4,628.88	4,544.00	Sussex				
5,447.47	5,325.00	Shannon				
6,418.04	6,253.00	Teepee Buttes				
7,169.24	6,892.00	Sharon Springs				
7,191.47	6,903.00	Top A Chalk				
7,191.47	6,903.00	Top A Marl				
7,238.48	6,924.00	Top B Chalk				
7,438.56	6,977.00	Top B Marl				

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-756
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4913.00ft
Project:	Mustang	MD Reference:	Well @ 4913.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-756		
Design:	Plan #1		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
2,200.00	2,200.00	0.00	0.00	Build: 2°/100'	
3,071.46	3,058.08	130.66	15.09	Hold: 17.43° Inc, 6.59° Azm	
6,316.95	6,154.57	1,096.35	126.65	KOP: Build 9°/100' @ 6316.95' MD	
7,509.97	6,981.00	488.41	126.20	LP: 7509.97' MD, 90.00° Inc, 182.00° Azm	
7,709.97	6,981.00	288.53	119.22	Turn: 2°/100'	
7,952.08	6,981.00	46.47	115.88	Hold: 90.00° Inc, 179.58° Azm	
17,605.06	6,981.00	-9,606.25	186.82	TD @ 17605.06' MD/6981.00' TVD	

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-756

Pioneer Y18-756

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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	17,605.06	Plan #1 (Pioneer Y18-756)	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 - /	6,578.38	11,360.01	5,462.64	5,403.25	91.980	CC, ES
Dechant D31-77HN - Original Drilling - Original Drilling - /	6,700.00	11,360.01	5,475.31	5,415.56	91.629	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
McWilliams D30-21 - McWilliams D30-21 - 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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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 D30-22 - 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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	6,496.05	6,146.94	5,923.72	5,878.76	131.745	CC
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	6,500.00	6,149.65	5,923.73	5,878.75	131.677	ES
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,486.41	6,017.02	5,970.10	128.225	SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	6,509.87	6,329.25	7,660.43	7,609.71	151.058	CC, ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,815.91	7,744.82	7,692.15	147.045	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	102.00	0.00	8,150.36	8,150.23	10,000.000	CC
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	400.00	257.01	8,151.25	8,149.35	4,276.184	ES
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	6,750.00	3,871.27	8,567.98	8,526.31	205.612	SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	6,493.52	6,141.75	6,274.43	6,226.85	131.859	CC, ES
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,855.63	6,337.75	6,287.58	126.347	SF
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	6,345.02	4,038.23	8,864.99	8,826.95	233.082	CC
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	6,350.00	4,039.61	8,865.01	8,826.95	232.934	ES
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,714.41	9,072.55	9,024.04	187.015	SF
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	6,509.08	6,323.87	7,621.26	7,573.52	159.637	CC, ES
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	7,000.00	6,898.92	7,800.37	7,750.11	155.198	SF
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	6,513.51	6,348.92	7,890.49	7,855.38	224.770	CC, ES
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	6,850.00	6,631.96	7,975.28	7,938.89	219.151	SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	6,507.91	6,321.67	5,148.49	5,098.54	103.076	CC, ES
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	6,800.00	6,644.54	5,211.92	5,160.38	101.110	SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,521.10	6,449.00	4,881.90	4,834.79	103.629	CC, ES
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,850.00	6,847.35	4,962.94	4,913.86	101.123	SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,511.07	6,246.85	5,856.97	5,811.64	129.201	CC, ES
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,900.00	6,562.70	5,974.07	5,926.82	126.424	SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	6,505.87	6,169.05	5,874.82	5,829.75	130.338	CC, ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	6,850.00	6,542.98	5,961.04	5,913.93	126.536	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	6,516.87	6,286.87	7,094.98	7,049.54	156.145	CC, ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,722.65	7,231.61	7,183.85	151.417	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	6,503.38	6,148.73	6,599.79	6,554.78	146.613	CC, ES
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	7,000.00	7,028.82	6,770.43	6,721.57	138.578	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,499.27	6,126.99	6,982.95	6,937.49	153.596	CC
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,500.00	6,127.73	6,982.96	6,937.49	153.575	ES
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,541.11	7,135.62	7,087.26	147.545	SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,491.10	6,082.19	7,088.70	7,043.94	158.352	CC
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,500.00	6,100.00	7,088.79	7,043.93	158.039	ES
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	7,200.00	7,200.00	7,417.63	7,368.09	149.719	SF
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	6,510.95	6,239.56	7,038.93	6,890.48	47.416	CC, ES
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	7,000.00	6,681.49	7,217.42	7,059.28	45.638	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	6,515.38	6,359.28	8,808.22	8,762.53	192.772	CC, ES
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	6,950.00	6,792.57	8,947.09	8,899.10	186.424	SF
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	6,500.19	6,100.00	9,756.99	9,712.14	217.504	CC, ES
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	7,000.00	6,869.18	9,934.31	9,886.02	205.704	SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	6,508.68	6,238.30	8,012.24	7,863.82	53.983	CC, ES
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	7,050.00	6,716.99	8,228.15	8,069.28	51.790	SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	6,520.34	6,406.57	8,257.21	8,211.39	180.247	CC, ES
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	7,000.00	6,966.34	8,426.02	8,377.53	173.769	SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	6,504.95	6,110.05	9,700.95	9,656.11	216.329	CC, ES
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys	6,950.00	6,384.19	9,851.14	9,804.44	210.972	SF
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	6,514.54	6,514.54	8,297.05	8,250.82	179.452	CC, ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	7,000.00	6,853.48	8,474.64	8,426.45	175.859	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	6,551.53	6,767.85	8,318.33	8,271.37	177.135	CC, ES
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	6,900.00	7,063.12	8,410.60	8,362.13	173.497	SF
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,514.17	6,300.00	5,195.36	5,149.85	114.172	CC, ES
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,500.00	5,260.18	5,213.27	112.143	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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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						
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	6,480.45	5,831.74	9,844.28	9,767.27	127.819	CC
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	6,500.00	5,851.17	9,844.58	9,766.96	126.834	ES
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	6,900.00	6,222.79	9,973.43	9,884.79	112.517	SF
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	6,511.96	6,234.57	8,921.34	8,772.99	60.136	CC, ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	7,050.00	6,709.99	9,133.94	8,975.20	57.541	SF
D Section 32						
HP D32-21D - Wellbore #1 - MWD Surveys	6,535.70	6,608.68	9,380.07	9,328.95	183.458	CC, ES
HP D32-21D - Wellbore #1 - MWD Surveys	7,000.00	6,992.05	9,516.13	9,463.10	179.450	SF
HP D32-23D - Wellbore #1 - MWD Surveys	6,512.03	6,215.82	9,319.70	9,270.99	191.305	CC, ES
HP D32-23D - Wellbore #1 - MWD Surveys	7,050.00	6,692.78	9,476.68	9,425.41	184.829	SF
HP Farms D 32-22D - Wellbore #1 - MWD Surveys						Out of range
HP Farms D32-03 - Wellbore #1 - Gyro Surveys						Out of range
HP Farms D32-18D - Wellbore #1 - MWD Surveys						Out of range
HP Farms D32-24D - Wellbore #1 - MWD Surveys	6,514.77	6,449.02	8,340.40	8,284.90	150.297	CC, ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	6,950.00	6,939.19	8,450.81	8,393.18	146.662	SF
Norris 14-32 - Wellbore #1 - Projection Survey	6,519.14	6,267.75	6,315.26	6,236.87	80.557	CC, ES
Norris 14-32 - Wellbore #1 - Projection Survey	6,950.00	6,664.27	6,437.49	6,354.78	77.831	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	6,510.13	6,173.20	7,263.67	7,218.51	160.837	CC, ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	6,850.00	6,452.76	7,339.64	7,292.72	156.424	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-10 - Wellbore #1 - Gyro Surveys	6,520.19	6,218.95	9,111.19	9,065.88	201.068	CC, ES
Norris D32-10 - Wellbore #1 - Gyro Surveys	6,950.00	6,500.00	9,221.61	9,174.40	195.327	SF
Norris D32-15 - Wellbore #1 - Gyro Surveys	6,493.31	5,940.00	8,180.88	8,136.54	184.527	CC
Norris D32-15 - Wellbore #1 - Gyro Surveys	6,500.00	5,942.66	8,180.90	8,136.54	184.390	ES
Norris D32-15 - Wellbore #1 - Gyro Surveys	7,100.00	6,525.36	8,374.31	8,326.83	176.357	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	6,496.40	5,953.48	9,955.33	9,911.00	224.540	CC
Norris D32-2J - Wellbore #1 - Gyro Surveys	6,500.00	5,955.20	9,955.34	9,910.99	224.445	ES
Norris D32-2J - Wellbore #1 - Gyro Surveys	6,700.00	6,072.32	9,986.08	9,940.76	220.379	SF
Norris D32-4 (P&A) - Wellbore #1 - No Surveys						Out of range
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,507.89	6,143.89	8,844.49	8,799.51	196.652	CC, ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,950.00	6,721.04	8,980.05	8,932.27	187.917	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys	6,540.47	6,589.58	9,387.69	9,341.19	201.879	CC, ES
Norris D32-6 - Wellbore #1 - Gyro Surveys	6,950.00	6,782.79	9,504.76	9,456.72	197.846	SF
Norris D32-7 - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-9 (SI) - Wellbore #1 - Gyro Surveys						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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	6,509.57	6,362.68	9,066.11	9,020.41	198.365	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	7,000.00	6,812.93	9,218.86	9,170.66	191.266	SF
Dechant 13N-1HZ - Production Hole - Production Hole -	6,985.19	11,468.00	6,879.36	6,765.22	60.271	CC
Dechant 13N-1HZ - Production Hole - Production Hole -	7,000.00	11,468.00	6,879.38	6,765.20	60.252	ES
Dechant 13N-1HZ - Production Hole - Production Hole -	7,300.00	11,468.00	6,887.34	6,772.72	60.087	SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	8,654.50	8,654.38	10,000.000	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	200.00	52.26	8,654.90	8,654.32	10,000.000	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	6,600.00	600.00	9,863.24	9,839.57	416.668	SF
Dechant 14C-1HZ - Production Hole - Production Hole -	7,102.49	11,731.00	5,678.82	5,595.35	68.038	CC, ES
Dechant 14C-1HZ - Production Hole - Production Hole -	7,150.00	11,731.00	5,679.08	5,595.61	68.036	SF
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	8,591.83	8,591.70	10,000.000	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	700.00	608.99	8,594.69	8,590.46	2,029.307	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	6,600.00	610.00	9,801.44	9,777.77	414.066	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,501.43	6,296.74	7,041.32	6,993.66	147.737	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,550.00	6,345.28	7,042.70	6,993.61	143.471	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,350.00	6,923.73	7,409.54	7,344.28	113.553	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,496.81	6,292.78	8,431.49	8,381.77	169.608	CC
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,500.00	6,296.43	8,431.49	8,381.76	169.536	ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,950.00	6,703.06	8,567.85	8,515.98	165.193	SF
Dechant 35N-E1HZ - Production Hole - Production Hole	6,984.06	11,619.00	5,879.62	5,763.85	50.786	CC, ES
Dechant 35N-E1HZ - Production Hole - Production Hole	7,050.00	11,619.00	5,880.03	5,764.22	50.776	SF
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	100.00	14.01	8,612.65	8,612.50	10,000.000	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	700.00	612.00	8,613.47	8,609.23	2,031.360	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	6,600.00	612.00	9,816.40	9,792.71	414.488	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,003.79	11,494.00	6,345.18	6,230.72	55.434	CC, ES
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,150.00	11,494.00	6,347.11	6,232.50	55.381	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	6,950.00	11,651.36	5,191.83	5,075.68	44.699	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,030.17	11,651.36	5,191.13	5,075.04	44.718	CC, ES
Dechant 37N-E1HZ - Production Hole - Production Hole	6,850.00	11,723.00	3,365.22	3,249.76	29.147	SF
Dechant 37N-E1HZ - Production Hole - Production Hole	6,977.76	11,723.00	3,362.42	3,247.33	29.217	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	733.99	648.00	7,757.17	7,752.68	1,727.225	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	6,550.00	648.00	8,991.18	8,967.85	385.422	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	6,950.00	12,384.00	3,936.89	3,817.37	32.939	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	7,025.06	12,384.00	3,936.03	3,816.58	32.952	CC, ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	422.90	336.90	7,728.90	7,726.61	3,380.279	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	800.00	655.00	7,729.44	7,724.69	1,628.380	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	6,550.00	655.00	8,964.60	8,941.27	384.385	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,137.16	16,665.00	4,362.27	4,227.85	32.454	CC, ES, SF
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,112.95	16,839.03	3,230.41	3,030.31	16.145	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drilling	7,150.00	16,839.03	3,230.72	3,030.59	16.143	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,019.56	16,454.46	4,800.36	4,667.31	36.079	CC
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,050.00	16,463.00	4,800.47	4,667.29	36.045	ES
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,150.00	16,517.00	4,802.10	4,668.24	35.875	SF
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,565.51	11,466.00	6,278.23	6,217.79	103.876	CC, ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,750.00	11,466.00	6,302.68	6,241.67	103.303	SF
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,575.47	11,490.00	6,589.27	6,527.97	107.493	CC, ES
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,700.00	11,490.00	6,599.91	6,538.35	107.220	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,050.00	16,675.00	2,621.23	2,485.36	19.293	ES, SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,050.20	16,675.00	2,621.23	2,485.36	19.293	CC
Dechant State H36-11D - Original Drilling - Original Drilling	6,488.83	6,166.08	8,738.60	8,693.58	194.089	CC, ES
Dechant State H36-11D - Original Drilling - Original Drilling	7,000.00	6,616.70	8,883.82	8,836.18	186.502	SF
Dechant State H36-18D - Dechant State H36-18D Gyros						Out of range
Dechant State H36-18D - Dechant State H36-18D OH - A						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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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						
Dechant State H36-19 - Original Drilling - Original Drilling						Out of range
Dechant State H36-20D - Dechant State H36-20D Gyros	6,486.87	6,260.17	9,612.37	9,549.06	151.844	CC, ES
Dechant State H36-20D - Dechant State H36-20D Gyros	6,900.00	6,578.31	9,708.70	9,643.71	149.397	SF
Dechant State H36-20D - Dechant State H36-20D OH - /	6,486.87	6,273.17	9,612.36	9,549.05	151.844	CC, ES
Dechant State H36-20D - Dechant State H36-20D OH - /	6,900.00	6,591.31	9,708.69	9,643.70	149.397	SF
Dechant State H36-21D - Dechant State H36-21D Gyros	6,499.47	6,333.54	8,891.23	8,833.87	155.023	CC
Dechant State H36-21D - Dechant State H36-21D Gyros	6,500.00	6,333.82	8,891.23	8,833.87	155.016	ES
Dechant State H36-21D - Dechant State H36-21D Gyros	7,000.00	6,812.88	9,042.07	8,982.63	152.120	SF
Dechant State H36-21D - Dechant State H36-21D OH - /	6,499.47	6,346.54	8,891.23	8,833.87	155.023	CC
Dechant State H36-21D - Dechant State H36-21D OH - /	6,500.00	6,346.82	8,891.23	8,833.87	155.016	ES
Dechant State H36-21D - Dechant State H36-21D OH - /	7,000.00	6,825.88	9,042.07	8,982.63	152.120	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,488.49	6,327.72	7,891.78	7,841.23	156.109	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	6,950.00	6,832.45	8,010.44	7,957.27	150.673	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 -	218.59	130.59	9,462.26	9,461.42	10,000.000	CC
Dechant State H36-33 - Dechant State H36-33D Gyros -	300.00	169.16	9,462.44	9,461.18	7,513.321	ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	7,150.00	6,823.83	9,919.01	9,852.65	149.459	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	218.59	143.59	9,462.23	9,461.40	10,000.000	CC
Dechant State H36-33 - Dechant State H36-33D OH - As	300.00	182.16	9,462.42	9,461.16	7,512.670	ES
Dechant State H36-33 - Dechant State H36-33D OH - As	7,150.00	6,836.83	9,918.99	9,852.62	149.459	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	6,501.69	6,232.30	9,309.08	9,160.77	62.769	CC, ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	7,100.00	6,749.53	9,541.49	9,381.86	59.773	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	6,502.72	6,376.43	8,855.09	8,809.31	193.407	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	7,050.00	7,033.37	8,975.49	8,925.94	181.120	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,472.03	6,083.73	7,557.11	7,512.40	169.033	CC, ES
Spike State GWS H36-14 - Original Drilling - Original Dri	6,900.00	6,498.76	7,649.11	7,601.95	162.205	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 -	6,499.33	6,313.27	8,705.96	8,660.42	191.190	CC
Spike State H36-11J - Original Drilling - Original Drilling -	6,500.00	6,313.78	8,705.96	8,660.42	191.173	ES
Spike State H36-11J - Original Drilling - Original Drilling -	7,050.00	6,693.21	8,860.03	8,812.06	184.728	SF
Spike State H36-12 - Original Drilling - Original Drilling - /	6,495.34	6,279.78	9,955.31	9,909.90	219.200	CC
Spike State H36-12 - Original Drilling - Original Drilling - /	6,500.00	6,283.65	9,955.33	9,909.88	219.058	ES
Spike State H36-12 - Original Drilling - Original Drilling - /	6,750.00	6,500.01	9,988.70	9,941.84	213.161	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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	6,513.37	6,191.37	5,917.19	5,872.00	130.950	CC, ES
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y05-02D	7,450.00	7,450.00	6,326.79	6,276.14	124.901	SF
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	6,527.05	6,278.65	4,505.58	4,470.85	129.734	CC, ES
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	6,900.00	6,627.55	4,579.04	4,542.87	126.601	SF
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	6,539.87	6,343.46	6,784.39	6,705.21	85.690	CC
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	6,550.00	6,353.57	6,784.42	6,705.13	85.561	ES
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	7,150.00	6,850.94	6,917.22	6,832.51	81.657	SF
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	6,545.74	6,366.32	7,980.62	7,901.22	100.514	CC
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	6,550.00	6,370.57	7,980.63	7,901.18	100.450	ES
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	7,250.00	6,914.67	8,131.87	8,046.51	95.267	SF
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	6,570.02	6,395.52	7,594.75	7,515.01	95.247	CC
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	6,600.00	6,425.28	7,594.93	7,514.85	94.836	ES
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	7,300.00	6,937.70	7,702.58	7,616.94	89.934	SF
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins USX Y05-16	6,603.75	6,395.21	6,914.19	6,867.97	149.602	CC
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins USX Y05-16	6,650.00	6,438.73	6,914.44	6,867.94	148.710	ES
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins USX Y05-16	7,300.00	6,855.85	6,979.50	6,930.57	142.649	SF
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	2,642.13	2,337.21	6,128.45	6,111.11	353.487	CC
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	3,100.00	2,500.00	6,129.30	6,109.84	315.074	ES
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	17,605.06	17,676.82	7,802.51	7,623.76	43.650	SF
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	2,642.54	2,337.22	6,106.45	6,089.11	352.186	CC
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	3,100.00	2,500.00	6,107.27	6,087.82	313.939	ES
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	17,605.06	17,649.38	7,145.80	6,967.11	39.989	SF
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	2,667.22	2,344.33	6,084.21	6,066.76	348.693	CC
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	3,100.00	2,500.00	6,084.98	6,065.53	312.769	ES
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	17,605.06	17,259.44	6,488.39	6,311.16	36.611	SF
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	5,180.45	4,700.00	5,885.25	5,850.07	167.277	CC
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	5,200.00	4,700.00	5,885.28	5,850.03	166.939	ES
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	17,605.06	17,587.51	6,162.36	5,984.44	34.635	SF
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	6,916.96	6,810.72	5,766.64	5,718.09	118.792	CC
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	17,605.06	17,446.55	5,833.29	5,655.63	32.834	ES, SF
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	2,728.71	2,400.00	4,329.08	4,311.24	242.671	CC
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	3,071.46	2,535.00	4,329.70	4,310.25	222.681	ES
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	17,605.06	17,471.02	5,178.15	4,999.53	28.990	SF
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	3,810.15	3,329.42	4,219.38	4,194.38	168.802	CC, ES
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	17,605.06	17,506.58	4,520.90	4,342.83	25.388	SF
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	7,153.70	7,067.36	3,826.33	3,777.13	77.766	CC
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	17,605.06	17,357.35	3,865.69	3,688.21	21.781	ES, SF
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	7,275.60	7,366.21	3,507.31	3,456.95	69.651	CC
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	17,605.06	17,616.46	3,539.45	3,361.31	19.869	ES, SF
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	7,279.78	7,338.51	3,180.21	3,129.65	62.893	CC
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	17,605.06	17,564.41	3,208.87	3,030.57	17.997	ES, SF
Y Section 06						
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	6,509.03	6,253.05	1,845.07	1,799.61	40.587	CC, ES
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	6,650.00	6,384.26	1,859.37	1,813.04	40.138	SF
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,472.89	6,267.43	1,398.41	1,353.07	30.845	CC
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,500.00	6,297.65	1,398.60	1,353.07	30.717	ES
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,750.00	6,548.45	1,421.14	1,374.07	30.189	SF
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	6,513.67	6,243.14	4,312.35	4,267.04	95.172	CC, ES
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	6,800.00	6,557.05	4,367.14	4,320.09	92.822	SF
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,516.18	6,330.39	3,592.96	3,547.41	78.879	CC, ES
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,800.00	6,576.26	3,650.71	3,603.61	77.509	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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	2,018.43	2,007.15	1,490.98	1,477.13	107.646	CC, ES
Harkis 11-7 (PA) - Wellbore #1 - Gyro Surveys	8,000.00	6,957.09	1,609.89	1,560.26	32.441	SF
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	8,743.49	6,981.41	1,220.80	1,169.43	23.767	CC, ES
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	8,800.00	6,981.34	1,222.11	1,170.58	23.718	SF
HP Farms Y 7-15J1 (PR) - Wellbore #1 - No Surveys	11,977.42	6,979.00	670.33	486.20	3.641	CC, ES
HP Farms Y 7-15J1 (PR) - Wellbore #1 - No Surveys	12,000.00	6,979.00	670.71	486.44	3.640	SF
HP Y07-09 (PR) - Wellbore #1 - No Surveys	10,628.63	6,928.00	2,240.22	2,065.71	12.837	CC, ES
HP Y07-09 (PR) - Wellbore #1 - No Surveys	10,800.00	6,928.00	2,246.77	2,071.27	12.802	SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,477.72	7,181.71	730.61	669.09	11.875	CC
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,500.00	7,181.74	730.95	668.86	11.772	ES
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,800.00	7,182.16	798.54	724.71	10.816	SF
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	7,951.40	6,933.00	873.93	709.81	5.325	CC
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	7,952.08	6,933.00	873.94	709.81	5.325	ES, SF
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	8,561.30	6,961.78	1,577.19	1,526.43	31.069	CC, ES
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	8,700.00	6,960.79	1,583.28	1,532.14	30.961	SF
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	9,459.31	6,955.00	281.72	112.75	1.667	CC, ES, SF
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,200.00	2,197.00	882.45	867.15	57.691	CC, ES
Pioneer D31-716 - Pioneer D31-716 - Plan #1	7,800.00	6,407.52	2,264.20	2,216.17	47.139	SF
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,200.00	2,198.00	859.80	844.51	56.198	CC, ES
Pioneer D31-725 - Pioneer D31-725 - Plan #1	7,150.00	7,150.00	1,768.21	1,717.26	34.704	SF
Pioneer D31-735 - Pioneer D31-735 - Plan #1	2,200.00	2,198.00	837.45	822.15	54.737	CC, ES
Pioneer D31-735 - Pioneer D31-735 - Plan #1	7,250.00	7,052.89	1,168.59	1,118.65	23.396	SF
Pioneer D31-744 - Pioneer D31-744 - Plan #1	7,332.61	7,141.26	558.02	507.86	11.125	CC, ES, SF
Pioneer D31-756 - Pioneer D31-756 - Plan #1	7,226.35	7,195.56	65.33	15.20	1.303	Level 3, CC, ES, SF
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,200.00	2,203.00	165.20	149.88	10.785	CC
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,300.00	2,302.98	165.41	149.37	10.316	ES
Pioneer D31-761 - Pioneer D31-761 - Plan #1	7,592.58	7,018.58	371.36	321.51	7.449	SF
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,200.00	2,204.00	187.56	172.24	12.242	CC, ES
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,400.00	2,391.47	195.02	178.36	11.706	SF
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,200.00	2,204.00	208.80	193.48	13.628	CC, ES
Pioneer D31-785 - Pioneer D31-785 - Plan #1	2,400.00	2,389.85	216.37	199.72	12.995	SF
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	9,356.96	7,094.21	2,176.31	2,115.86	36.000	CC, ES
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	9,600.00	7,099.43	2,189.84	2,128.36	35.621	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,166.80	7,367.80	864.08	776.63	9.881	CC
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,200.00	7,367.87	864.72	775.44	9.685	ES
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	9,400.00	7,368.30	894.99	796.51	9.088	SF
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,200.00	2,199.00	762.26	746.95	49.810	CC, ES
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	17,605.06	17,965.04	2,508.45	2,334.75	14.441	SF
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,200.00	2,200.00	739.89	724.59	48.338	CC, ES
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	17,605.06	17,897.41	1,883.19	1,710.15	10.883	SF
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,200.00	2,201.00	717.53	702.22	46.866	CC, ES
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	17,605.06	17,871.13	1,575.66	1,402.94	9.123	SF
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	2,200.00	2,202.00	694.89	679.58	45.376	CC
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	2,300.00	2,291.99	695.43	679.44	43.488	ES
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	17,605.06	17,666.62	1,254.20	1,080.66	7.227	SF
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	6,582.12	6,571.62	614.70	566.73	12.813	CC
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	17,600.92	17,712.19	634.96	461.81	3.667	ES, SF
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,200.00	2,201.00	22.64	7.33	1.479	Level 3, CC, ES
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,300.00	2,300.72	23.44	7.42	1.463	Level 3, SF
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,200.00	2,201.00	45.00	29.69	2.939	CC, ES
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,300.00	2,300.20	46.09	30.07	2.877	SF
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,200.00	2,202.00	66.25	50.93	4.326	CC, ES
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,300.00	2,300.53	67.57	51.55	4.218	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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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 Y18-785 - Pioneer Y18-785 - Plan #1	2,200.00	2,202.00	90.01	74.69	5.877	CC, ES
Pioneer Y18-785 - Pioneer Y18-785 - Plan #1	2,300.00	2,299.51	91.60	75.59	5.721	SF
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	11,210.86	6,938.00	1,210.43	1,032.16	6.790	CC, ES
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	11,300.00	6,938.00	1,213.71	1,034.91	6.788	SF
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,229.72	7,004.95	1,192.12	1,128.19	18.649	CC, ES
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,300.00	7,004.39	1,194.19	1,129.88	18.569	SF
Y Section 08						
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	11,542.78	6,939.00	3,776.51	3,596.08	20.931	CC, ES
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	12,000.00	6,939.00	3,804.09	3,620.79	20.753	SF
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	11,371.80	7,101.63	6,505.92	6,440.88	100.027	CC
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	11,400.00	7,102.24	6,505.98	6,440.76	99.748	ES
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	14,100.00	7,161.22	7,054.54	6,973.84	87.420	SF
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	8,293.91	6,884.21	7,144.20	7,094.29	143.134	CC
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	8,300.00	6,884.26	7,144.21	7,094.28	143.100	ES
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	12,500.00	6,920.30	8,290.34	8,222.69	122.541	SF
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	8,255.53	6,907.67	3,719.69	3,669.79	74.547	CC, ES
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	9,200.00	6,914.50	3,837.72	3,785.15	73.004	SF
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	7,997.32	6,907.82	5,968.07	5,918.61	120.656	CC
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	8,000.00	6,907.81	5,968.07	5,918.60	120.648	ES
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	11,000.00	6,886.71	6,680.85	6,620.91	111.457	SF
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	7,573.58	6,876.48	4,880.84	4,831.78	99.487	CC, ES
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	9,600.00	6,897.06	5,215.21	5,161.36	96.843	SF
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	9,238.00	6,900.00	3,352.44	3,299.57	63.418	CC, ES
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	10,100.00	6,900.00	3,461.48	3,404.93	61.206	SF
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	9,324.70	6,980.00	7,425.41	7,256.52	43.965	CC, ES
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	11,100.00	6,980.00	7,634.69	7,456.82	42.924	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 Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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						Out of range
Hullabaloo State Y21-756 - Original Drilling - Original Dril						Out of range
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	13,121.17	7,654.00	9,864.63	9,791.64	135.164	CC
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	13,400.00	13,400.00	9,868.00	9,779.55	111.572	ES
Hullabaloo State Y21-763 - Original Drilling - Original Drilli	16,800.00	16,800.00	9,985.53	9,826.51	62.793	SF
Hullabaloo State Y21-769 - Original Drilling - Original Dril	12,349.02	6,227.00	9,436.75	9,372.61	147.125	CC
Hullabaloo State Y21-769 - Original Drilling - Original Dril	12,400.00	6,227.00	9,436.89	9,372.39	146.304	ES
Hullabaloo State Y21-769 - Original Drilling - Original Dril	16,800.00	16,800.00	9,537.73	9,378.09	59.748	SF
Hullabaloo State Y21-775 - Original Drilling - Original Dril	12,965.13	7,227.69	9,050.83	8,980.66	128.978	CC
Hullabaloo State Y21-775 - Original Drilling - Original Dril	17,100.00	17,100.00	9,120.60	8,955.12	55.116	ES, SF
Hullabaloo State Y21-781 - Original Drilling - Original Dril	13,037.92	7,408.53	8,640.50	8,569.18	121.160	CC
Hullabaloo State Y21-781 - Original Drilling - Original Dril	13,400.00	7,741.00	8,641.70	8,567.16	115.936	ES
Hullabaloo State Y21-781 - Original Drilling - Original Dril	17,605.06	11,805.00	8,732.31	8,602.01	67.017	SF
Hullabaloo State Y21-787 - Original Drilling - Original Dril	12,883.10	7,207.59	8,205.13	8,135.05	117.093	CC
Hullabaloo State Y21-787 - Original Drilling - Original Dril	13,000.00	7,232.79	8,205.88	8,134.93	115.655	ES
Hullabaloo State Y21-787 - Original Drilling - Original Dril	17,605.06	12,252.00	8,298.30	8,164.25	61.903	SF
State 01 - Original Drilling - Original Drilling - As Drilled						Out of range
State 21 (PA) - Original Drilling - Original Drilling - As Dril	16,424.40	6,995.00	9,303.27	9,085.87	42.793	CC
State 21 (PA) - Original Drilling - Original Drilling - As Dril	16,500.00	6,995.00	9,303.57	9,085.59	42.679	ES
State 21 (PA) - Original Drilling - Original Drilling - As Dril	17,605.06	6,995.00	9,377.89	9,151.81	41.482	SF
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	14,384.29	7,020.78	8,806.10	8,719.80	102.044	CC
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	14,500.00	7,023.22	8,806.86	8,719.67	101.013	ES
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled	17,605.06	6,923.22	9,376.41	9,270.19	88.271	SF

Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	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	16,764.81	6,943.00	6,497.13	6,278.12	29.666	CC
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	16,800.00	6,943.00	6,497.23	6,277.94	29.629	ES
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	17,605.06	6,943.00	6,551.24	6,326.23	29.116	SF
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	14,032.25	6,943.00	3,788.76	3,590.65	19.125	CC, ES
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	14,500.00	6,943.00	3,817.52	3,616.25	18.967	SF
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,038.88	6,938.00	4,861.25	4,670.51	25.487	CC
HP Farms Y 17-06 (PR) - Wellbore #1 - No Surveys	13,100.00	6,938.00	4,861.63	4,670.45	25.430	ES
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,800.00	6,938.00	4,920.47	4,724.67	25.131	SF
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	12,944.33	7,014.10	3,680.20	3,604.60	48.679	CC, ES
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	13,700.00	7,000.00	3,756.93	3,676.73	46.845	SF
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,472.03	6,803.51	4,990.86	4,904.66	57.901	CC
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,500.00	6,803.36	4,990.94	4,904.53	57.759	ES
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	15,800.00	6,800.00	5,164.51	5,070.13	54.721	SF
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,246.68	6,889.41	4,713.10	4,605.24	43.699	CC
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,300.00	6,889.17	4,713.40	4,605.13	43.533	ES
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,605.06	6,887.78	4,726.70	4,616.22	42.782	SF
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,016.02	6,916.69	6,530.78	6,447.66	78.564	CC
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,100.00	6,917.85	6,531.32	6,447.56	77.979	ES
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	16,200.00	6,945.22	6,886.21	6,789.62	71.289	SF
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	13,007.84	6,942.28	7,548.98	7,473.12	99.515	CC
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	13,100.00	6,940.28	7,549.55	7,473.03	98.666	ES
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	16,100.00	6,900.01	8,157.58	8,063.28	86.504	SF
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	15,716.21	6,805.26	3,930.46	3,834.82	41.095	CC, ES
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	16,500.00	6,793.62	4,007.83	3,907.35	39.885	SF
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	16,772.63	6,955.00	3,947.15	3,727.84	17.998	CC
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	16,800.00	6,955.00	3,947.25	3,727.72	17.981	ES
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	17,200.00	6,955.00	3,970.22	3,747.96	17.862	SF
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	12,956.08	6,951.74	5,885.66	5,810.17	77.960	CC
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	13,000.00	6,952.31	5,885.83	5,810.01	77.635	ES
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	15,000.00	6,977.06	6,230.40	6,142.63	70.984	SF
Y Section 18						
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	13,862.12	6,995.21	1,060.78	978.58	12.904	CC, ES
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	13,900.00	6,994.72	1,061.46	979.01	12.875	SF
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	16,332.60	7,048.64	1,239.54	1,138.30	12.244	CC, ES
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	16,400.00	7,047.54	1,241.37	1,139.74	12.214	SF
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	16,522.31	6,993.00	1,387.48	1,169.36	6.361	CC, ES
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	16,600.00	6,993.00	1,389.65	1,171.01	6.356	SF
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	14,254.51	6,948.90	1,789.85	1,704.83	21.053	CC, ES
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Surveys	14,400.00	6,945.69	1,795.75	1,709.77	20.887	SF

Noble Energy, Inc.

Anticollision Summary Report

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Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4913.00ft

Coordinates are relative to: Pioneer Y18-756

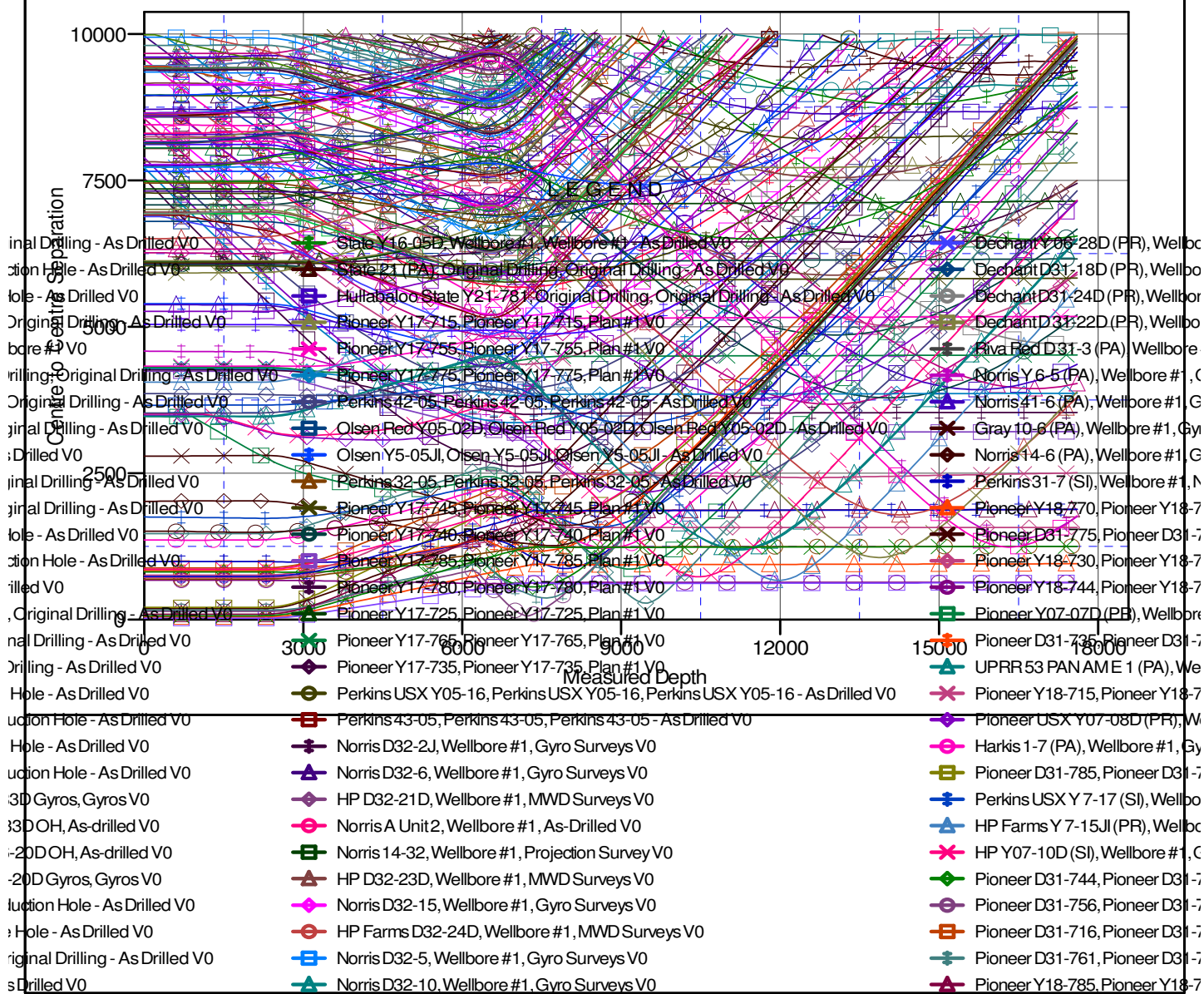
Offset Depths are relative to Offset Datum

Coordinate System is US State Plane 1983, Colorado Northern Zone

Central Meridian is -105.5000000

Grid Convergence at Surface is: 0.58°

Ladder Plot



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

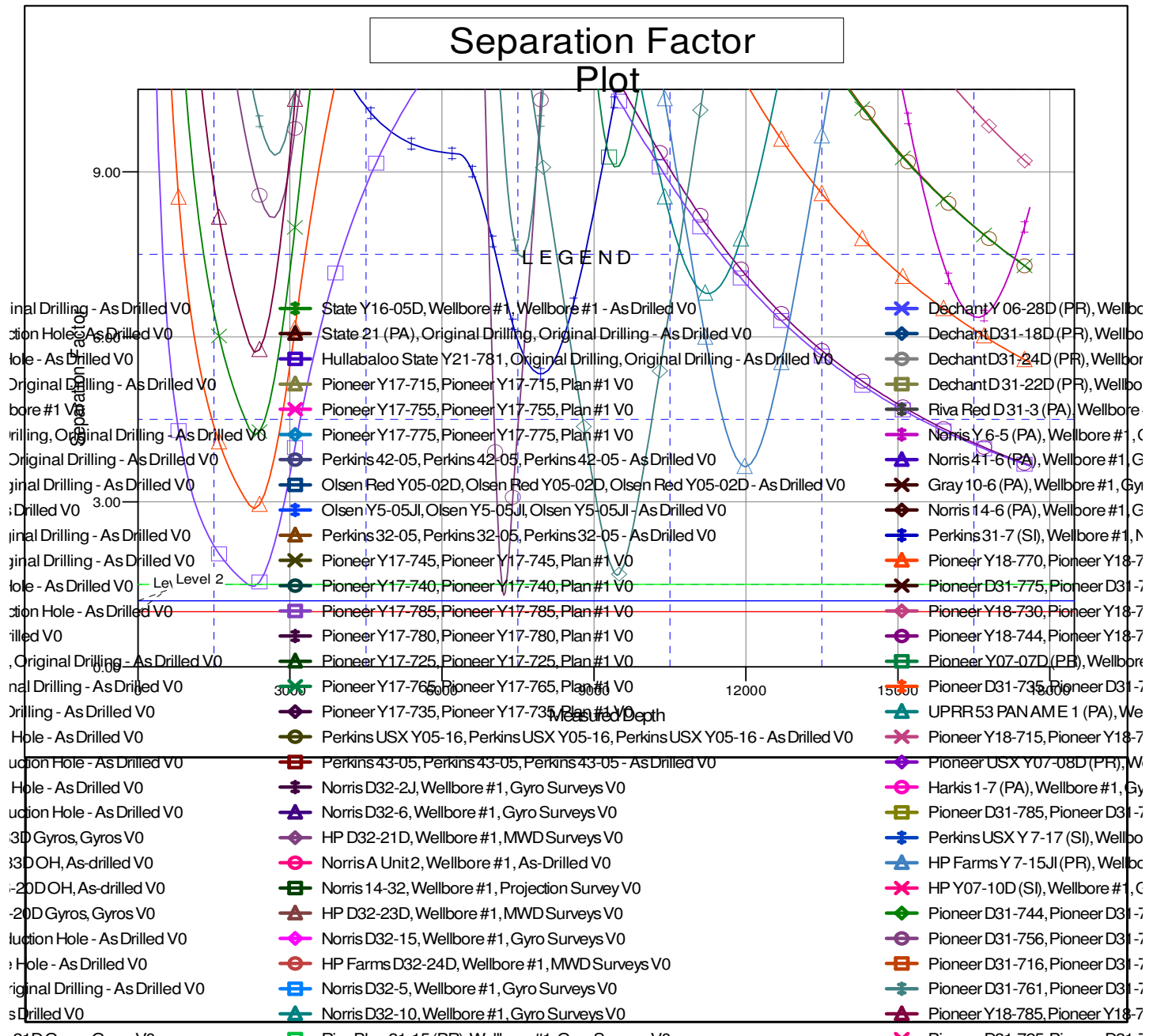
Noble Energy, Inc.

Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-756
Project:	Mustang	TVD Reference:	Well @ 4913.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4913.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-756	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-756	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Well @ 4913.00ft
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.5000000

Coordinates are relative to: Pioneer Y18-756
 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