

Project: Mustang
Site: Y Section 07
Well: Pioneer Y18-785
Wellbore: Pioneer Y18-785
Design: Plan #1

Northern Region - DJ Basin

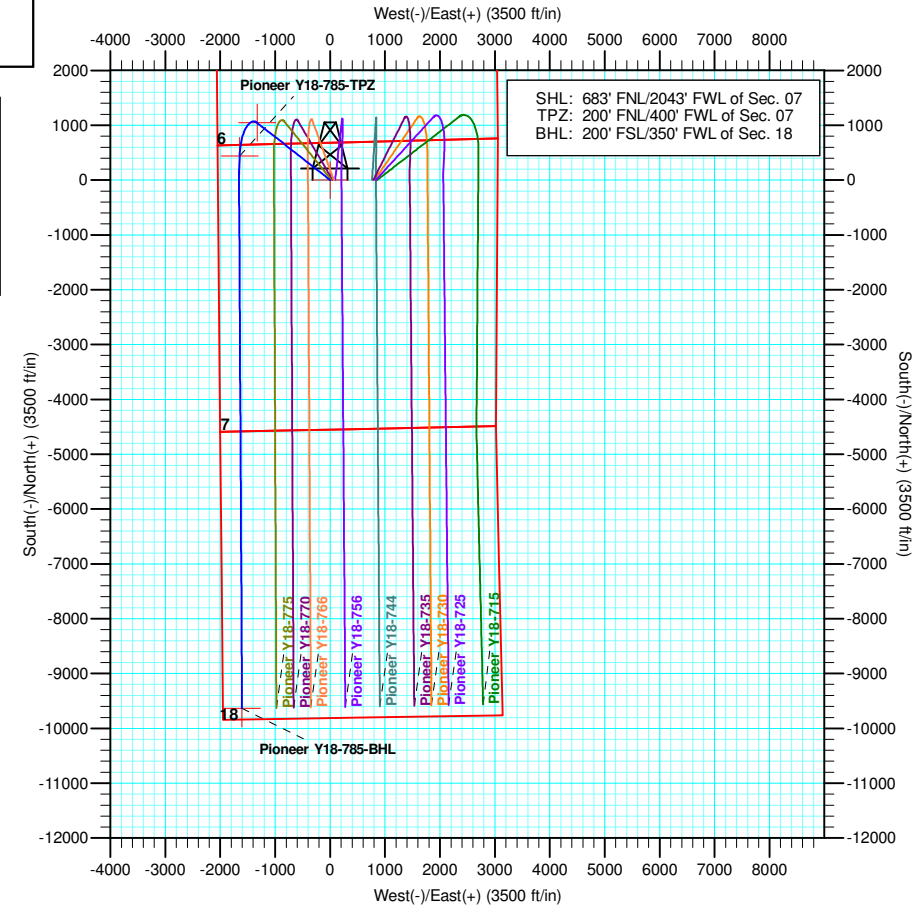
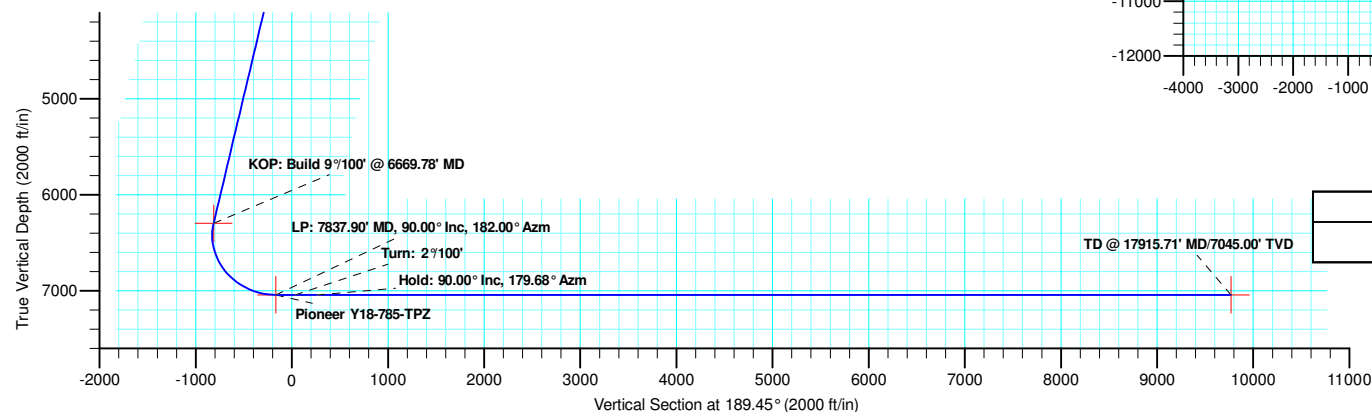
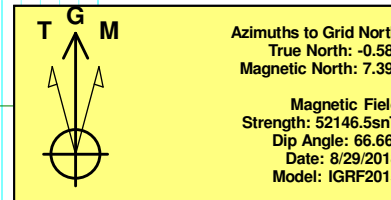
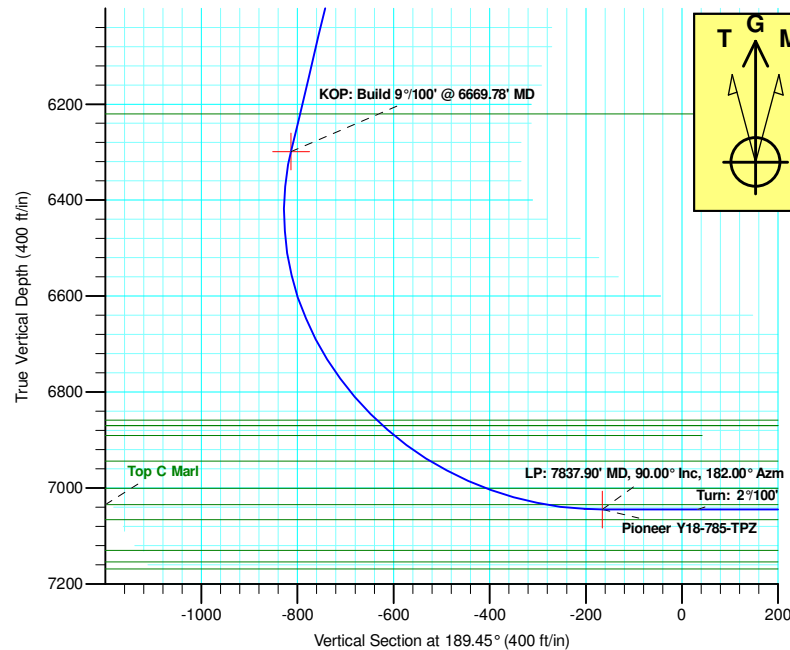
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

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	3511.85	26.24	308.19	3466.48	182.47	-231.98	2.00	308.19	-141.90	
4	6669.78	26.24	308.19	6299.06	1045.58	-1329.28	0.00	0.00	-813.09	
5	7837.90	90.00	182.00	7045.00	441.76	-1647.27	9.00	-123.27	-165.25	Pioneer Y18-785-TPZ
6	8037.90	90.00	182.00	7045.00	241.88	-1654.25	0.00	0.00	33.06	
7	8269.69	90.00	179.68	7045.00	10.12	-1657.65	1.00	-90.00	262.23	
8	17915.71	90.00	179.68	7045.00	-9635.74	-1604.12	0.00	0.00	9768.35	Pioneer Y18-785-BHL

WELL DETAILS: Pioneer Y18-785

+N/-S	+E/-W	Northing	Ground Level: Easting	4885.00 Latitude	Longitude	Slot
0.00	0.00	1301718.62	3252777.84	40.1580740	-104.5956050	



Plan: Plan #1 (Pioneer Y18-785/Pioneer Y18-785)

Created By: Keith Noack Date: 11:19, September 27 2018

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-785

Pioneer Y18-785

Plan: Plan #1

Standard Planning Report

26 September, 2018

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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 Y18-785					
Well Position	+N/-S	-46.04 ft	Northing:	1,301,718.62 usft	Latitude:	40.1580740
	+E/-W	1,419.03 ft	Easting:	3,252,777.84 usft	Longitude:	-104.5956050
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,885.00 ft

Wellbore	Pioneer Y18-785				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/29/2018	7.98	66.66	52,146.47579259

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	189.45

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	
3,511.85	26.24	308.19	3,466.48	182.47	-231.98	2.00	2.00	0.00	308.19	
6,669.78	26.24	308.19	6,299.06	1,045.58	-1,329.28	0.00	0.00	0.00	0.00	
7,837.90	90.00	182.00	7,045.00	441.76	-1,647.27	9.00	5.46	-10.80	-123.27	Pioneer Y18-785-TI
8,037.90	90.00	182.00	7,045.00	241.88	-1,654.25	0.00	0.00	0.00	0.00	
8,269.69	90.00	179.68	7,045.00	10.12	-1,657.65	1.00	0.00	-1.00	-90.00	
17,915.71	90.00	179.68	7,045.00	-9,635.74	-1,604.12	0.00	0.00	0.00	0.00	Pioneer Y18-785-BI

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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
708.00	0.00	0.00	708.00	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
1,056.00	0.00	0.00	1,056.00	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
1,865.00	0.00	0.00	1,865.00	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	308.19	2,299.98	1.08	-1.37	-0.84	2.00	2.00	0.00
2,400.00	4.00	308.19	2,399.84	4.31	-5.49	-3.36	2.00	2.00	0.00
2,500.00	6.00	308.19	2,499.45	9.70	-12.34	-7.55	2.00	2.00	0.00
2,600.00	8.00	308.19	2,598.70	17.24	-21.91	-13.40	2.00	2.00	0.00
2,700.00	10.00	308.19	2,697.47	26.91	-34.21	-20.92	2.00	2.00	0.00
2,800.00	12.00	308.19	2,795.62	38.70	-49.20	-30.10	2.00	2.00	0.00
2,900.00	14.00	308.19	2,893.06	52.61	-66.89	-40.91	2.00	2.00	0.00
3,000.00	16.00	308.19	2,989.64	68.61	-87.23	-53.35	2.00	2.00	0.00
3,100.00	18.00	308.19	3,085.27	86.68	-110.21	-67.41	2.00	2.00	0.00
3,200.00	20.00	308.19	3,179.82	106.81	-135.79	-83.06	2.00	2.00	0.00
3,300.00	22.00	308.19	3,273.17	128.97	-163.96	-100.29	2.00	2.00	0.00
3,400.00	24.00	308.19	3,365.21	153.12	-194.67	-119.08	2.00	2.00	0.00
3,500.00	26.00	308.19	3,455.84	179.25	-227.89	-139.39	2.00	2.00	0.00
3,511.85	26.24	308.19	3,466.48	182.47	-231.98	-141.90	2.00	2.00	0.00
Hold: 26.24° Inc, 308.19° Azm									
3,600.00	26.24	308.19	3,545.55	206.57	-262.62	-160.64	0.00	0.00	0.00
3,700.00	26.24	308.19	3,635.25	233.90	-297.36	-181.89	0.00	0.00	0.00
3,800.00	26.24	308.19	3,724.94	261.23	-332.11	-203.14	0.00	0.00	0.00
3,900.00	26.24	308.19	3,814.64	288.56	-366.86	-224.40	0.00	0.00	0.00
4,000.00	26.24	308.19	3,904.34	315.89	-401.60	-245.65	0.00	0.00	0.00
4,044.22	26.24	308.19	3,944.00	327.98	-416.97	-255.05	0.00	0.00	0.00
Parkman									
4,100.00	26.24	308.19	3,994.04	343.22	-436.35	-266.91	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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	26.24	308.19	4,083.73	370.55	-471.10	-288.16	0.00	0.00	0.00
4,300.00	26.24	308.19	4,173.43	397.89	-505.85	-309.42	0.00	0.00	0.00
4,400.00	26.24	308.19	4,263.13	425.22	-540.59	-330.67	0.00	0.00	0.00
4,500.00	26.24	308.19	4,352.83	452.55	-575.34	-351.92	0.00	0.00	0.00
4,600.00	26.24	308.19	4,442.52	479.88	-610.09	-373.18	0.00	0.00	0.00
4,676.34	26.24	308.19	4,511.00	500.75	-636.62	-389.40	0.00	0.00	0.00
Sussex									
4,700.00	26.24	308.19	4,532.22	507.21	-644.84	-394.43	0.00	0.00	0.00
4,800.00	26.24	308.19	4,621.92	534.54	-679.58	-415.69	0.00	0.00	0.00
4,900.00	26.24	308.19	4,711.61	561.87	-714.33	-436.94	0.00	0.00	0.00
5,000.00	26.24	308.19	4,801.31	589.21	-749.08	-458.20	0.00	0.00	0.00
5,100.00	26.24	308.19	4,891.01	616.54	-783.83	-479.45	0.00	0.00	0.00
5,200.00	26.24	308.19	4,980.71	643.87	-818.57	-500.70	0.00	0.00	0.00
5,300.00	26.24	308.19	5,070.40	671.20	-853.32	-521.96	0.00	0.00	0.00
5,400.00	26.24	308.19	5,160.10	698.53	-888.07	-543.21	0.00	0.00	0.00
5,500.00	26.24	308.19	5,249.80	725.86	-922.82	-564.47	0.00	0.00	0.00
5,547.05	26.24	308.19	5,292.00	738.72	-939.16	-574.47	0.00	0.00	0.00
Shannon									
5,600.00	26.24	308.19	5,339.50	753.19	-957.56	-585.72	0.00	0.00	0.00
5,700.00	26.24	308.19	5,429.19	780.52	-992.31	-606.98	0.00	0.00	0.00
5,800.00	26.24	308.19	5,518.89	807.86	-1,027.06	-628.23	0.00	0.00	0.00
5,900.00	26.24	308.19	5,608.59	835.19	-1,061.81	-649.48	0.00	0.00	0.00
6,000.00	26.24	308.19	5,698.29	862.52	-1,096.55	-670.74	0.00	0.00	0.00
6,100.00	26.24	308.19	5,787.98	889.85	-1,131.30	-691.99	0.00	0.00	0.00
6,200.00	26.24	308.19	5,877.68	917.18	-1,166.05	-713.25	0.00	0.00	0.00
6,300.00	26.24	308.19	5,967.38	944.51	-1,200.79	-734.50	0.00	0.00	0.00
6,400.00	26.24	308.19	6,057.08	971.84	-1,235.54	-755.75	0.00	0.00	0.00
6,500.00	26.24	308.19	6,146.77	999.18	-1,270.29	-777.01	0.00	0.00	0.00
6,581.64	26.24	308.19	6,220.00	1,021.49	-1,298.66	-794.36	0.00	0.00	0.00
Teepee Buttes									
6,600.00	26.24	308.19	6,236.47	1,026.51	-1,305.04	-798.26	0.00	0.00	0.00
6,669.78	26.24	308.19	6,299.06	1,045.58	-1,329.28	-813.09	0.00	0.00	0.00
KOP: Build 9°/100' @ 6669.78' MD									
6,700.00	24.84	302.77	6,326.33	1,053.15	-1,339.87	-818.82	9.00	-4.62	-17.93
6,750.00	23.02	292.60	6,372.05	1,062.59	-1,357.74	-825.20	9.00	-3.64	-20.33
6,800.00	21.95	281.16	6,418.27	1,068.16	-1,375.94	-827.71	9.00	-2.16	-22.89
6,850.00	21.72	269.05	6,464.71	1,069.82	-1,394.37	-826.32	9.00	-0.46	-24.21
6,900.00	22.37	257.17	6,511.08	1,067.55	-1,412.90	-821.04	9.00	1.30	-23.77
6,950.00	23.82	246.29	6,557.09	1,061.38	-1,431.43	-811.90	9.00	2.91	-21.75
7,000.00	25.94	236.85	6,602.46	1,051.33	-1,449.85	-798.97	9.00	4.25	-18.89
7,050.00	28.59	228.88	6,646.92	1,037.48	-1,468.02	-782.32	9.00	5.29	-15.93
7,100.00	31.62	222.25	6,690.18	1,019.90	-1,485.86	-762.05	9.00	6.07	-13.28
7,150.00	34.94	216.70	6,731.99	998.71	-1,503.24	-738.29	9.00	6.64	-11.08
7,200.00	38.47	212.04	6,772.07	974.03	-1,520.05	-711.19	9.00	7.07	-9.34
7,250.00	42.17	208.05	6,810.19	946.02	-1,536.20	-680.91	9.00	7.38	-7.96
7,300.00	45.98	204.61	6,846.12	914.85	-1,551.59	-647.63	9.00	7.62	-6.89
7,318.79	47.43	203.43	6,859.00	902.36	-1,557.16	-634.40	9.00	7.75	-6.28
Sharon Springs									
7,335.25	48.72	202.44	6,870.00	891.08	-1,561.93	-622.49	9.00	7.81	-6.01
Top A Chalk - Top A Marl									
7,350.00	49.88	201.59	6,879.62	880.71	-1,566.12	-611.57	9.00	7.86	-5.79
7,367.93	51.29	200.59	6,891.00	867.79	-1,571.10	-598.01	9.00	7.90	-5.57
Top B Chalk									

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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)
7,400.00	53.85	198.89	6,910.49	843.82	-1,579.70	-572.95	9.00	7.97	-5.28
7,450.00	57.87	196.46	6,938.55	804.39	-1,592.24	-532.00	9.00	8.05	-4.86
7,460.37	58.72	195.99	6,944.00	795.92	-1,594.70	-523.24	9.00	8.11	-4.60
Top B Marl									
7,500.00	61.94	194.24	6,963.62	762.68	-1,603.67	-488.98	9.00	8.14	-4.41
7,550.00	66.04	192.18	6,985.54	718.95	-1,613.92	-444.15	9.00	8.20	-4.12
7,590.80	69.41	190.59	7,001.00	681.94	-1,621.37	-406.42	9.00	8.25	-3.89
Top C Chalk									
7,600.00	70.17	190.25	7,004.18	673.45	-1,622.93	-397.79	9.00	8.27	-3.78
7,650.00	74.32	188.41	7,019.42	626.47	-1,630.64	-350.19	9.00	8.29	-3.67
7,700.00	78.48	186.65	7,031.18	578.30	-1,637.00	-301.63	9.00	8.32	-3.52
7,720.67	80.20	185.94	7,035.00	558.11	-1,639.23	-281.35	9.00	8.34	-3.44
Top C Marl									
7,750.00	82.65	184.94	7,039.37	529.24	-1,641.98	-252.42	9.00	8.35	-3.40
7,800.00	86.83	183.26	7,043.95	479.59	-1,645.53	-202.86	9.00	8.36	-3.36
7,837.90	90.00	182.00	7,045.00	441.76	-1,647.27	-165.25	9.00	8.36	-3.33
LP: 7837.90' MD, 90.00° Inc, 182.00° Azm									
7,900.00	90.00	182.00	7,045.00	379.69	-1,649.44	-103.67	0.00	0.00	0.00
8,000.00	90.00	182.00	7,045.00	279.75	-1,652.93	-4.52	0.00	0.00	0.00
8,037.90	90.00	182.00	7,045.00	241.88	-1,654.25	33.06	0.00	0.00	0.00
Turn: 2°/100'									
8,100.00	90.00	181.38	7,045.00	179.80	-1,656.08	94.59	1.00	0.00	-1.00
8,200.00	90.00	180.38	7,045.00	79.82	-1,657.62	193.47	1.00	0.00	-1.00
8,269.69	90.00	179.68	7,045.00	10.12	-1,657.65	262.23	1.00	0.00	-1.00
Hold: 90.00° Inc, 179.68° Azm									
8,300.00	90.00	179.68	7,045.00	-20.18	-1,657.49	292.09	0.00	0.00	0.00
8,400.00	90.00	179.68	7,045.00	-120.18	-1,656.93	390.64	0.00	0.00	0.00
8,500.00	90.00	179.68	7,045.00	-220.18	-1,656.38	489.19	0.00	0.00	0.00
8,600.00	90.00	179.68	7,045.00	-320.18	-1,655.82	587.74	0.00	0.00	0.00
8,700.00	90.00	179.68	7,045.00	-420.18	-1,655.27	686.29	0.00	0.00	0.00
8,800.00	90.00	179.68	7,045.00	-520.18	-1,654.71	784.84	0.00	0.00	0.00
8,900.00	90.00	179.68	7,045.00	-620.17	-1,654.16	883.39	0.00	0.00	0.00
9,000.00	90.00	179.68	7,045.00	-720.17	-1,653.60	981.94	0.00	0.00	0.00
9,100.00	90.00	179.68	7,045.00	-820.17	-1,653.05	1,080.49	0.00	0.00	0.00
9,200.00	90.00	179.68	7,045.00	-920.17	-1,652.49	1,179.04	0.00	0.00	0.00
9,300.00	90.00	179.68	7,045.00	-1,020.17	-1,651.94	1,277.59	0.00	0.00	0.00
9,400.00	90.00	179.68	7,045.00	-1,120.17	-1,651.38	1,376.14	0.00	0.00	0.00
9,500.00	90.00	179.68	7,045.00	-1,220.16	-1,650.83	1,474.69	0.00	0.00	0.00
9,600.00	90.00	179.68	7,045.00	-1,320.16	-1,650.27	1,573.24	0.00	0.00	0.00
9,700.00	90.00	179.68	7,045.00	-1,420.16	-1,649.72	1,671.79	0.00	0.00	0.00
9,800.00	90.00	179.68	7,045.00	-1,520.16	-1,649.16	1,770.34	0.00	0.00	0.00
9,900.00	90.00	179.68	7,045.00	-1,620.16	-1,648.61	1,868.89	0.00	0.00	0.00
10,000.00	90.00	179.68	7,045.00	-1,720.16	-1,648.05	1,967.44	0.00	0.00	0.00
10,100.00	90.00	179.68	7,045.00	-1,820.16	-1,647.50	2,065.99	0.00	0.00	0.00
10,200.00	90.00	179.68	7,045.00	-1,920.15	-1,646.94	2,164.54	0.00	0.00	0.00
10,300.00	90.00	179.68	7,045.00	-2,020.15	-1,646.39	2,263.09	0.00	0.00	0.00
10,400.00	90.00	179.68	7,045.00	-2,120.15	-1,645.83	2,361.64	0.00	0.00	0.00
10,500.00	90.00	179.68	7,045.00	-2,220.15	-1,645.28	2,460.19	0.00	0.00	0.00
10,600.00	90.00	179.68	7,045.00	-2,320.15	-1,644.72	2,558.74	0.00	0.00	0.00
10,700.00	90.00	179.68	7,045.00	-2,420.15	-1,644.17	2,657.29	0.00	0.00	0.00
10,800.00	90.00	179.68	7,045.00	-2,520.14	-1,643.61	2,755.84	0.00	0.00	0.00
10,900.00	90.00	179.68	7,045.00	-2,620.14	-1,643.06	2,854.39	0.00	0.00	0.00
11,000.00	90.00	179.68	7,045.00	-2,720.14	-1,642.50	2,952.94	0.00	0.00	0.00

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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)	
11,100.00	90.00	179.68	7,045.00	-2,820.14	-1,641.95	3,051.49	0.00	0.00	0.00	
11,200.00	90.00	179.68	7,045.00	-2,920.14	-1,641.39	3,150.04	0.00	0.00	0.00	
11,300.00	90.00	179.68	7,045.00	-3,020.14	-1,640.84	3,248.59	0.00	0.00	0.00	
11,400.00	90.00	179.68	7,045.00	-3,120.14	-1,640.28	3,347.14	0.00	0.00	0.00	
11,500.00	90.00	179.68	7,045.00	-3,220.13	-1,639.73	3,445.69	0.00	0.00	0.00	
11,600.00	90.00	179.68	7,045.00	-3,320.13	-1,639.17	3,544.24	0.00	0.00	0.00	
11,700.00	90.00	179.68	7,045.00	-3,420.13	-1,638.62	3,642.79	0.00	0.00	0.00	
11,800.00	90.00	179.68	7,045.00	-3,520.13	-1,638.06	3,741.34	0.00	0.00	0.00	
11,900.00	90.00	179.68	7,045.00	-3,620.13	-1,637.51	3,839.89	0.00	0.00	0.00	
12,000.00	90.00	179.68	7,045.00	-3,720.13	-1,636.95	3,938.44	0.00	0.00	0.00	
12,100.00	90.00	179.68	7,045.00	-3,820.12	-1,636.40	4,036.99	0.00	0.00	0.00	
12,200.00	90.00	179.68	7,045.00	-3,920.12	-1,635.84	4,135.54	0.00	0.00	0.00	
12,300.00	90.00	179.68	7,045.00	-4,020.12	-1,635.29	4,234.09	0.00	0.00	0.00	
12,400.00	90.00	179.68	7,045.00	-4,120.12	-1,634.73	4,332.64	0.00	0.00	0.00	
12,500.00	90.00	179.68	7,045.00	-4,220.12	-1,634.18	4,431.19	0.00	0.00	0.00	
12,600.00	90.00	179.68	7,045.00	-4,320.12	-1,633.62	4,529.74	0.00	0.00	0.00	
12,700.00	90.00	179.68	7,045.00	-4,420.12	-1,633.07	4,628.29	0.00	0.00	0.00	
12,800.00	90.00	179.68	7,045.00	-4,520.11	-1,632.51	4,726.84	0.00	0.00	0.00	
12,900.00	90.00	179.68	7,045.00	-4,620.11	-1,631.96	4,825.39	0.00	0.00	0.00	
13,000.00	90.00	179.68	7,045.00	-4,720.11	-1,631.40	4,923.93	0.00	0.00	0.00	
13,100.00	90.00	179.68	7,045.00	-4,820.11	-1,630.85	5,022.48	0.00	0.00	0.00	
13,200.00	90.00	179.68	7,045.00	-4,920.11	-1,630.29	5,121.03	0.00	0.00	0.00	
13,300.00	90.00	179.68	7,045.00	-5,020.11	-1,629.74	5,219.58	0.00	0.00	0.00	
13,400.00	90.00	179.68	7,045.00	-5,120.10	-1,629.18	5,318.13	0.00	0.00	0.00	
13,500.00	90.00	179.68	7,045.00	-5,220.10	-1,628.63	5,416.68	0.00	0.00	0.00	
13,600.00	90.00	179.68	7,045.00	-5,320.10	-1,628.07	5,515.23	0.00	0.00	0.00	
13,700.00	90.00	179.68	7,045.00	-5,420.10	-1,627.52	5,613.78	0.00	0.00	0.00	
13,800.00	90.00	179.68	7,045.00	-5,520.10	-1,626.96	5,712.33	0.00	0.00	0.00	
13,900.00	90.00	179.68	7,045.00	-5,620.10	-1,626.41	5,810.88	0.00	0.00	0.00	
14,000.00	90.00	179.68	7,045.00	-5,720.10	-1,625.85	5,909.43	0.00	0.00	0.00	
14,100.00	90.00	179.68	7,045.00	-5,820.09	-1,625.30	6,007.98	0.00	0.00	0.00	
14,200.00	90.00	179.68	7,045.00	-5,920.09	-1,624.74	6,106.53	0.00	0.00	0.00	
14,300.00	90.00	179.68	7,045.00	-6,020.09	-1,624.19	6,205.08	0.00	0.00	0.00	
14,400.00	90.00	179.68	7,045.00	-6,120.09	-1,623.63	6,303.63	0.00	0.00	0.00	
14,500.00	90.00	179.68	7,045.00	-6,220.09	-1,623.08	6,402.18	0.00	0.00	0.00	
14,600.00	90.00	179.68	7,045.00	-6,320.09	-1,622.52	6,500.73	0.00	0.00	0.00	
14,700.00	90.00	179.68	7,045.00	-6,420.08	-1,621.97	6,599.28	0.00	0.00	0.00	
14,800.00	90.00	179.68	7,045.00	-6,520.08	-1,621.41	6,697.83	0.00	0.00	0.00	
14,900.00	90.00	179.68	7,045.00	-6,620.08	-1,620.86	6,796.38	0.00	0.00	0.00	
15,000.00	90.00	179.68	7,045.00	-6,720.08	-1,620.30	6,894.93	0.00	0.00	0.00	
15,100.00	90.00	179.68	7,045.00	-6,820.08	-1,619.75	6,993.48	0.00	0.00	0.00	
15,200.00	90.00	179.68	7,045.00	-6,920.08	-1,619.19	7,092.03	0.00	0.00	0.00	
15,300.00	90.00	179.68	7,045.00	-7,020.08	-1,618.64	7,190.58	0.00	0.00	0.00	
15,400.00	90.00	179.68	7,045.00	-7,120.07	-1,618.08	7,289.13	0.00	0.00	0.00	
15,500.00	90.00	179.68	7,045.00	-7,220.07	-1,617.53	7,387.68	0.00	0.00	0.00	
15,600.00	90.00	179.68	7,045.00	-7,320.07	-1,616.97	7,486.23	0.00	0.00	0.00	
15,700.00	90.00	179.68	7,045.00	-7,420.07	-1,616.42	7,584.78	0.00	0.00	0.00	
15,800.00	90.00	179.68	7,045.00	-7,520.07	-1,615.86	7,683.33	0.00	0.00	0.00	
15,900.00	90.00	179.68	7,045.00	-7,620.07	-1,615.31	7,781.88	0.00	0.00	0.00	
16,000.00	90.00	179.68	7,045.00	-7,720.06	-1,614.75	7,880.43	0.00	0.00	0.00	
16,100.00	90.00	179.68	7,045.00	-7,820.06	-1,614.20	7,978.98	0.00	0.00	0.00	
16,200.00	90.00	179.68	7,045.00	-7,920.06	-1,613.64	8,077.53	0.00	0.00	0.00	
16,300.00	90.00	179.68	7,045.00	-8,020.06	-1,613.09	8,176.08	0.00	0.00	0.00	
16,400.00	90.00	179.68	7,045.00	-8,120.06	-1,612.53	8,274.63	0.00	0.00	0.00	

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
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)
16,500.00	90.00	179.68	7,045.00	-8,220.06	-1,611.98	8,373.18	0.00	0.00	0.00
16,600.00	90.00	179.68	7,045.00	-8,320.06	-1,611.42	8,471.73	0.00	0.00	0.00
16,700.00	90.00	179.68	7,045.00	-8,420.05	-1,610.87	8,570.28	0.00	0.00	0.00
16,800.00	90.00	179.68	7,045.00	-8,520.05	-1,610.31	8,668.83	0.00	0.00	0.00
16,900.00	90.00	179.68	7,045.00	-8,620.05	-1,609.76	8,767.38	0.00	0.00	0.00
17,000.00	90.00	179.68	7,045.00	-8,720.05	-1,609.20	8,865.93	0.00	0.00	0.00
17,100.00	90.00	179.68	7,045.00	-8,820.05	-1,608.65	8,964.48	0.00	0.00	0.00
17,200.00	90.00	179.68	7,045.00	-8,920.05	-1,608.09	9,063.03	0.00	0.00	0.00
17,300.00	90.00	179.68	7,045.00	-9,020.04	-1,607.54	9,161.58	0.00	0.00	0.00
17,400.00	90.00	179.68	7,045.00	-9,120.04	-1,606.98	9,260.13	0.00	0.00	0.00
17,500.00	90.00	179.68	7,045.00	-9,220.04	-1,606.43	9,358.68	0.00	0.00	0.00
17,600.00	90.00	179.68	7,045.00	-9,320.04	-1,605.87	9,457.22	0.00	0.00	0.00
17,700.00	90.00	179.68	7,045.00	-9,420.04	-1,605.32	9,555.77	0.00	0.00	0.00
17,800.00	90.00	179.68	7,045.00	-9,520.04	-1,604.76	9,654.32	0.00	0.00	0.00
17,900.00	90.00	179.68	7,045.00	-9,620.04	-1,604.21	9,752.87	0.00	0.00	0.00
17,915.71	90.00	179.68	7,045.00	-9,635.74	-1,604.12	9,768.35	0.00	0.00	0.00
TD @ 17915.71' MD/7045.00' TVD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Pioneer Y18-785-SHL - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,301,718.62	3,252,777.84	40.1580740	-104.5956050
Pioneer Y18-785-KOF - plan hits target center - Point	0.00	0.00	6,299.06	1,045.58	-1,329.28	1,302,764.20	3,251,448.56	40.1609812	-104.6003226
Pioneer Y18-785-BHL - plan hits target center - Point	0.00	0.00	7,045.00	-9,635.74	-1,604.12	1,292,082.90	3,251,173.72	40.1316687	-104.6016931
Pioneer Y18-785-TPZ - plan hits target center - Point	0.00	0.00	7,045.00	441.76	-1,647.27	1,302,160.38	3,251,130.57	40.1593326	-104.6014822

Noble Energy, Inc.

Planning Report

Database:	EDMP	Local Co-ordinate Reference:	Well Pioneer Y18-785
Company:	Northern Region - DJ Basin	TVD Reference:	Well @ 4915.00ft
Project:	Mustang	MD Reference:	Well @ 4915.00ft
Site:	Y Section 07	North Reference:	Grid
Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pioneer Y18-785		
Design:	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
708.00	708.00	Fox Hills				
708.00	708.00	Pierre				
1,056.00	1,056.00	Upper Pierre Aquifer Top				
1,865.00	1,865.00	Upper Pierre Aquifer Base				
4,044.22	3,944.00	Parkman				
4,676.34	4,511.00	Sussex				
5,547.05	5,292.00	Shannon				
6,581.64	6,220.00	Teepee Buttes				
7,318.79	6,859.00	Sharon Springs				
7,335.25	6,870.00	Top A Chalk				
7,335.25	6,870.00	Top A Marl				
7,367.93	6,891.00	Top B Chalk				
7,460.37	6,944.00	Top B Marl				
7,590.80	7,001.00	Top C Chalk				
7,720.67	7,035.00	Top C Marl				

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'	
3,511.85	3,466.48	182.47	-231.98	Hold: 26.24° Inc, 308.19° Azm	
6,669.78	6,299.06	1,045.58	-1,329.28	KOP: Build 9°/100' @ 6669.78' MD	
7,837.90	7,045.00	441.76	-1,647.27	LP: 7837.90' MD, 90.00° Inc, 182.00° Azm	
8,037.90	7,045.00	241.88	-1,654.25	Turn: 2°/100'	
8,269.69	7,045.00	10.12	-1,657.65	Hold: 90.00° Inc, 179.68° Azm	
17,915.71	7,045.00	-9,635.74	-1,604.12	TD @ 17915.71' MD/7045.00' TVD	

Northern Region - DJ Basin

Mustang

Y Section 07

Pioneer Y18-785

Pioneer Y18-785

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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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	17,915.71	Plan #1 (Pioneer Y18-785)	2_MWD+IFR1+MS	A008Mb: IFR dec & multi-station analysis	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
D Section 30						
Adams D30-27D - Adams D30-27D - Adams D30-27D - /						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 - /	6,873.57	11,360.01	5,471.84	5,418.19	101.989	CC, ES
Dechant D31-77HN - Original Drilling - Original Drilling - /	7,050.00	11,360.01	5,498.71	5,444.34	101.148	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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						
Offset Well - Wellbore - Design						
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	6,823.21	6,233.52	5,842.08	5,793.46	120.180	CC, ES
Dechant 1-31A (PR) - Wellbore #1 - Gyro Surveys	7,200.00	6,536.61	5,952.00	5,901.07	116.855	SF
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	6,756.95	6,370.56	8,139.42	8,084.12	147.187	CC, ES
Dechant D 31-22D (PR) - Wellbore #1 - Gyro Surveys	7,150.00	6,855.92	8,247.72	8,189.73	142.240	SF
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	104.00	0.00	8,160.67	8,160.53	10,000.000	CC
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	400.00	255.70	8,161.54	8,159.63	4,291.997	ES
Dechant D31-18D (PR) - Wellbore #1 - As Drilled	7,000.00	4,028.00	8,822.59	8,775.24	186.322	SF
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	6,759.84	6,145.05	6,589.36	6,537.65	127.438	CC, ES
Dechant D31-24D (PR) - Wellbore #1 - Gyro Surveys	7,200.00	7,200.00	6,707.79	6,651.63	119.446	SF
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	6,711.04	4,144.71	8,703.72	8,661.74	207.297	CC, ES
Dechant D31-31D (SI) - Wellbore #1 - Gyro Surveys	7,300.00	6,831.52	8,861.79	8,808.91	167.586	SF
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	6,786.96	6,363.72	7,898.41	7,846.41	151.873	CC, ES
Dechant D31-31D(PR) - Wellbore #1 - As Drilled	7,250.00	6,904.10	8,056.31	8,001.26	146.339	SF
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	6,860.61	6,430.79	7,705.70	7,667.16	199.943	CC, ES
Dechant State D31-32 (SI) - Wellbore #1 - Wellbore #1 -	7,450.00	7,450.00	7,964.02	7,922.22	190.521	SF
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	6,701.40	6,285.00	5,848.61	5,794.45	107.989	CC, ES
Dechant Y 06-27D (PR) - Wellbore #1 - As Drilled	7,200.00	6,795.85	6,014.99	5,957.63	104.864	SF
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	6,768.46	6,470.37	5,265.76	5,216.15	106.152	CC, ES
Dechant Y 06-28D (PR) - Wellbore #1 - As Drilled	7,150.00	6,946.24	5,368.51	5,316.01	102.252	SF
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,744.83	6,744.83	6,327.41	6,276.94	125.381	CC
Riva Blue 31-15 (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,750.00	6,327.43	6,276.92	125.276	ES, SF
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	6,700.30	6,145.58	6,597.43	6,549.27	136.985	CC, ES
Riva Blue 31-16 (PR) - Wellbore #1 - Gyro Surveys	7,150.00	6,590.70	6,733.55	6,682.27	131.302	SF
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	6,733.13	6,278.27	7,722.15	7,673.40	158.412	CC, ES
Riva Blue 31-9 (PR) - Wellbore #1 - Gyro Surveys	7,250.00	6,763.81	7,905.25	7,853.19	151.848	SF
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	6,741.58	6,147.12	7,098.04	7,049.68	146.797	CC, ES
Riva Blue D 31-04J (PR) - Wellbore #1 - Gyro Surveys	7,300.00	7,043.32	7,303.46	7,250.21	137.166	SF
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,790.33	6,183.26	7,170.57	7,121.43	145.932	CC
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,192.19	7,170.64	7,121.42	145.673	ES
Riva Blue D 31-11 (PR) - Wellbore #1 - Gyro Surveys	7,300.00	6,615.81	7,363.55	7,310.76	139.494	SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,850.00	6,850.00	6,905.93	6,855.27	136.310	ES, SF
Riva Blue D 31-12 (SI) - Wellbore #1 - Gyro Surveys	6,859.87	6,447.27	6,905.88	6,856.62	140.208	CC
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	6,771.77	6,284.13	7,419.37	7,266.60	48.565	CC
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	6,800.00	6,310.27	7,419.98	7,266.56	48.363	ES
Riva D 31-10 (PR) - Wellbore #1 - No Surveys	7,300.00	6,738.12	7,620.67	7,457.25	46.633	SF
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	6,845.79	6,492.04	8,778.61	8,729.12	177.384	CC
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,498.05	8,778.62	8,729.09	177.248	ES
Riva Red D 31-2J (PA) - Wellbore #1 - Gyro Surveys	7,300.00	6,852.85	8,934.97	8,882.87	171.526	SF
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	6,809.54	6,199.97	9,883.32	9,834.70	203.286	CC, ES
Riva Red D 31-3 (PA) - Wellbore #1 - Gyro Surveys	7,200.00	6,895.49	9,989.22	9,937.03	191.403	SF
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	6,810.11	6,320.65	8,154.91	8,001.42	53.132	CC, ES
Riva Red D 31-6 (PA) - Wellbore #1 - No Surveys	7,350.00	6,772.62	8,370.60	8,206.56	51.028	SF
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	6,825.62	6,501.14	8,374.30	8,324.73	168.942	CC, ES
Riva Red D31-06X (SI) - Wellbore #1 - Gyro Surveys	6,950.00	6,950.00	8,386.01	8,334.40	162.485	SF
Riva White D 31-1 (PR) - Wellbore #1 - Gyro Surveys						Out of range
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	6,750.00	6,750.00	8,673.55	8,623.18	172.203	ES
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	6,779.23	6,329.61	8,672.88	8,623.85	176.893	CC
Riva White D 31-7 (PR) - Wellbore #1 - Gyro Surveys	7,250.00	6,880.54	8,837.73	8,785.35	168.735	SF
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	6,784.01	6,835.56	8,879.81	8,829.08	175.044	CC, ES
Riva White D 31-8 (PA) - Wellbore #1 - Gyro Surveys	7,200.00	7,194.19	9,003.22	8,950.28	170.054	SF
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,796.50	6,361.55	5,380.57	5,331.40	109.430	CC
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	6,800.00	6,363.62	5,380.58	5,331.38	109.377	ES
River Blue d31-14 (PR) - Wellbore #1 - Gyro Surveys	7,150.00	6,572.44	5,479.12	5,427.94	107.067	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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	6,844.22	6,112.31	9,683.04	9,595.01	109.999	CC
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,117.84	9,683.07	9,594.86	109.779	ES
River Red D 31-4 (PA) - Wellbore #1 - Gyro Surveys	7,500.00	6,626.69	9,992.34	9,888.59	96.315	SF
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	6,767.76	6,274.42	9,361.58	9,209.01	61.358	CC, ES
UPRR 53 Pan Am UT R 1 (PA) - Wellbore #1 - No Surve	7,350.00	6,765.62	9,601.73	9,437.70	58.537	SF
D Section 32						
HP D32-21D - Wellbore #1 - MWD Surveys						Out of range
HP D32-23D - Wellbore #1 - MWD Surveys						Out of range
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	5,345.94	5,830.91	9,435.56	9,386.08	190.695	CC
HP Farms D32-24D - Wellbore #1 - MWD Surveys	5,400.00	5,840.00	9,435.69	9,385.94	189.692	ES
HP Farms D32-24D - Wellbore #1 - MWD Surveys	7,200.00	6,948.50	9,683.86	9,623.88	161.446	SF
Norris 14-32 - Wellbore #1 - Projection Survey	5,598.59	5,250.23	7,298.53	7,231.13	108.293	CC
Norris 14-32 - Wellbore #1 - Projection Survey	6,100.00	5,699.98	7,301.89	7,228.22	99.119	ES
Norris 14-32 - Wellbore #1 - Projection Survey	7,250.00	6,722.19	7,526.67	7,439.56	86.398	SF
Norris A Unit 2 - Wellbore #1 - As-Drilled	5,741.08	5,433.42	8,249.95	8,208.82	200.604	CC
Norris A Unit 2 - Wellbore #1 - As-Drilled	5,900.00	5,522.41	8,250.64	8,208.46	195.598	ES
Norris A Unit 2 - Wellbore #1 - As-Drilled	6,850.00	6,850.00	8,298.51	8,247.29	161.998	SF
Norris D32-1 (SI) - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-10 - Wellbore #1 - Gyro Surveys						Out of range
Norris D32-15 - Wellbore #1 - Gyro Surveys	580.21	480.22	9,193.44	9,190.08	2,742.258	CC
Norris D32-15 - Wellbore #1 - Gyro Surveys	700.00	548.20	9,193.74	9,189.73	2,288.203	ES
Norris D32-15 - Wellbore #1 - Gyro Surveys	7,100.00	7,100.00	9,590.37	9,537.94	182.925	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						Out of range
Norris D32-4 (P&A) - Wellbore #1 - No Surveys						Out of range
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,696.19	6,696.19	9,620.89	9,570.84	192.216	CC
Norris D32-5 - Wellbore #1 - Gyro Surveys	6,700.00	6,700.00	9,620.90	9,570.82	192.096	ES
Norris D32-5 - Wellbore #1 - Gyro Surveys	7,100.00	7,100.00	9,728.15	9,675.21	183.786	SF
Norris D32-6 - Wellbore #1 - Gyro Surveys						Out of range
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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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 07-36 - Original Drilling - Original Drilling - As D	6,940.72	6,562.35	8,419.57	8,370.34	171.009	CC, ES
Dechant 07-36 - Original Drilling - Original Drilling - As D	7,400.00	6,897.67	8,572.32	8,520.67	165.974	SF
Dechant 13N-1HZ - Production Hole - Production Hole -	7,675.68	11,468.00	5,050.13	4,933.62	43.345	CC, ES, SF
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	8,590.80	8,590.68	10,000.000	CC
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	200.00	51.45	8,591.19	8,590.61	10,000.000	ES
Dechant 13N-1HZ - Surface Hole - Surface Hole - As Dri	8,500.00	600.00	9,987.20	9,954.85	308.756	SF
Dechant 14C-1HZ - Production Hole - Production Hole -	7,600.00	11,731.00	3,850.64	3,766.07	45.531	SF
Dechant 14C-1HZ - Production Hole - Production Hole -	7,659.90	11,731.00	3,849.00	3,764.52	45.565	CC, ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	100.00	0.00	8,528.61	8,528.48	10,000.000	CC
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	700.00	606.25	8,531.45	8,527.22	2,018.925	ES
Dechant 14C-1HZ - Surface Hole - Surface Hole - As Dri	8,500.00	610.00	9,942.10	9,909.77	307.479	SF
Dechant 15-36 - Original Drilling - Original Drilling - As D	6,973.98	6,528.72	6,166.04	6,109.61	109.260	CC
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,000.00	6,552.20	6,166.53	6,109.38	107.901	ES
Dechant 15-36 - Original Drilling - Original Drilling - As D	7,650.00	6,969.96	6,466.95	6,397.44	93.028	SF
Dechant 24-36 - Original Drilling - Original Drilling - As D	6,910.08	6,472.32	7,882.46	7,827.32	142.945	CC, ES
Dechant 24-36 - Original Drilling - Original Drilling - As D	7,300.00	6,827.39	7,994.41	7,936.96	139.150	SF
Dechant 35N-E1HZ - Production Hole - Production Hole	7,550.00	11,619.00	4,059.48	3,942.44	34.685	SF
Dechant 35N-E1HZ - Production Hole - Production Hole	7,648.97	11,619.00	4,055.42	3,938.66	34.732	CC, ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	100.00	12.28	8,549.27	8,549.13	10,000.000	CC
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	700.00	612.00	8,550.09	8,545.85	2,016.406	ES
Dechant 35N-E1HZ - Surface Hole - Surface Hole - As D	8,500.00	612.00	9,951.92	9,919.57	307.652	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,600.00	11,494.00	4,519.01	4,402.84	38.899	SF
Dechant 35N-W1HZ - Original Drilling - Original Drilling -	7,664.42	11,494.00	4,517.31	4,401.22	38.912	CC, ES
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,500.00	11,651.36	3,375.42	3,258.91	28.972	SF
Dechant 36N-W1HZ - Original Drilling - Original Drilling -	7,634.04	11,651.36	3,367.38	3,251.67	29.102	CC, ES
Dechant 37N-E1HZ - Production Hole - Production Hole	7,350.00	11,723.00	1,584.06	1,470.85	13.991	SF
Dechant 37N-E1HZ - Production Hole - Production Hole	7,489.53	11,723.00	1,571.85	1,461.21	14.207	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	735.99	648.00	7,702.38	7,697.88	1,712.287	CC, ES
Dechant 37N-E1HZ - Surface Hole - Surface Hole - As D	9,200.00	648.00	9,932.27	9,897.57	286.238	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	7,450.00	12,384.00	2,135.36	2,016.36	17.945	SF
Dechant 37N-W1HZ - Production Hole - Production Hole	7,550.00	12,384.00	2,128.99	2,010.93	18.033	ES
Dechant 37N-W1HZ - Production Hole - Production Hole	7,557.42	12,384.00	2,128.96	2,010.98	18.045	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	426.07	338.07	7,674.18	7,671.87	3,333.801	CC
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	800.00	655.00	7,674.70	7,669.96	1,616.848	ES
Dechant 37N-W1HZ - Surface Hole - Surface Hole - As C	9,300.00	655.00	9,979.74	9,944.65	284.399	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,550.00	16,665.00	2,548.44	2,414.50	19.027	SF
Dechant State 15C-1HZ - Wellbore #1 - As Drilled	7,613.96	16,665.00	2,546.09	2,412.52	19.062	CC, ES
Dechant State 16C-1HZ - Original Drilling - Original Drillir	7,500.00	16,839.03	1,440.27	1,245.20	7.383	SF
Dechant State 16C-1HZ - Original Drilling - Original Drillir	7,533.91	16,839.03	1,439.38	1,244.87	7.400	CC, ES
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,550.00	16,517.00	2,984.00	2,849.36	22.163	SF
Dechant State 36N-E1HZ - Wellbore #1 - Wellbore #1	7,613.18	16,517.00	2,982.03	2,847.61	22.185	CC, ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	6,963.57	11,466.00	5,607.69	5,552.42	101.468	CC, ES
Dechant State 37N-E36HZ - Wellbore #1 - As Drilled	7,100.00	11,466.00	5,623.25	5,567.60	101.045	SF
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	6,994.41	11,490.00	5,798.28	5,742.07	103.149	CC, ES
Dechant State 37N-W36HZ - Wellbore #1 - As Drilled	7,100.00	11,490.00	5,807.37	5,751.00	103.009	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,400.00	16,675.00	854.54	724.35	6.564	SF
Dechant State 38N-1HZ - Wellbore #1 - As Drilled	7,437.06	16,675.00	853.12	723.88	6.601	CC, ES
Dechant State H36-11D - Original Drilling - Original Drillir	6,981.66	6,428.30	7,822.76	7,774.15	160.951	CC, ES
Dechant State H36-11D - Original Drilling - Original Drillir	7,350.00	6,700.01	7,914.52	7,863.94	156.468	SF
Dechant State H36-18D - Dechant State H36-18D Gyros	6,953.33	6,853.43	9,447.46	9,363.74	112.842	CC, ES
Dechant State H36-18D - Dechant State H36-18D Gyros	7,300.00	7,200.00	9,530.20	9,444.50	111.211	SF
Dechant State H36-18D - Dechant State H36-18D OH - A	6,953.33	6,866.43	9,447.49	9,363.76	112.842	CC, ES
Dechant State H36-18D - Dechant State H36-18D OH - A	7,300.00	7,213.00	9,530.22	9,444.52	111.211	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
H Section 36						
Dechant State H36-19 - Original Drilling - Original Drilling						Out of range
Dechant State H36-20D - Dechant State H36-20D Gyros	6,986.26	6,504.14	8,674.86	8,607.60	128.965	CC, ES
Dechant State H36-20D - Dechant State H36-20D Gyros	7,350.00	6,822.17	8,762.90	8,693.87	126.950	SF
Dechant State H36-20D - Dechant State H36-20D OH - /	6,986.26	6,517.14	8,674.85	8,607.59	128.965	CC, ES
Dechant State H36-20D - Dechant State H36-20D OH - /	7,350.00	6,835.17	8,762.89	8,693.86	126.950	SF
Dechant State H36-21D - Dechant State H36-21D Gyros	6,958.33	6,558.61	8,113.88	8,054.09	135.722	CC, ES
Dechant State H36-21D - Dechant State H36-21D Gyros	7,250.00	6,823.91	8,174.40	8,113.19	133.559	SF
Dechant State H36-21D - Dechant State H36-21D OH - /	6,958.33	6,571.61	8,113.87	8,054.09	135.722	CC, ES
Dechant State H36-21D - Dechant State H36-21D OH - /	7,250.00	6,836.91	8,174.39	8,113.19	133.559	SF
Dechant State H36-24 - Original Drilling - Original Drilling	6,965.45	6,524.33	7,010.01	6,954.92	127.249	CC, ES
Dechant State H36-24 - Original Drilling - Original Drilling	7,050.00	7,050.00	7,014.70	6,957.73	123.132	SF
Dechant State H36-31D - Dechant State H36-31D OH - /						Out of range
Dechant State H36-32D - Dechant State H36-32D Gyros	7,022.60	6,517.72	9,529.78	9,481.04	195.520	CC, ES
Dechant State H36-32D - Dechant State H36-32D Gyros	7,100.00	7,100.00	9,533.76	9,482.97	187.709	SF
Dechant State H36-32D - Dechant State H36-32D OH - /	7,022.60	6,530.72	9,529.75	9,481.01	195.519	CC, ES
Dechant State H36-32D - Dechant State H36-32D OH - /	7,100.00	7,100.00	9,533.73	9,482.98	187.871	SF
Dechant State H36-33 - Dechant State H36-33D Gyros -	7,056.58	6,700.00	8,555.38	8,483.92	119.709	CC, ES
Dechant State H36-33 - Dechant State H36-33D Gyros -	7,550.00	6,900.00	8,701.40	8,627.11	117.132	SF
Dechant State H36-33 - Dechant State H36-33D OH - As	7,056.58	6,713.00	8,555.36	8,483.89	119.709	CC, ES
Dechant State H36-33 - Dechant State H36-33D OH - As	7,550.00	6,913.00	8,701.38	8,627.09	117.132	SF
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	6,886.53	6,563.80	9,726.21	9,676.56	195.917	CC, ES
HSR Dechant State 01-36 - Wellbore #1 - As Drilled	7,400.00	6,894.93	9,925.13	9,872.93	190.109	SF
HSR Dechant State 02-36 - Original Drilling - Original Dri						Out of range
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	6,911.83	6,416.00	8,789.16	8,634.21	56.722	CC, ES
HSR Dechant/State 07-36 (PA) - Original Drilling - Origin	7,400.00	6,804.49	8,962.84	8,798.80	54.641	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	7,085.40	6,649.80	7,620.32	7,571.11	154.873	CC, ES
Spike State GWS H36-13 - Original Drilling - Original Dri	7,500.00	6,821.34	7,723.47	7,672.54	151.643	SF
Spike State GWS H36-14 - Original Drilling - Original Dri	6,996.25	6,370.54	6,528.35	6,479.96	134.904	CC
Spike State GWS H36-14 - Original Drilling - Original Dri	7,000.00	6,373.87	6,528.36	6,479.94	134.833	ES
Spike State GWS H36-14 - Original Drilling - Original Dri	7,700.00	7,700.00	6,833.81	6,779.18	125.077	SF
Spike State H36-02J - Original Drilling - Original Drilling -	6,981.91	6,679.58	9,525.97	9,451.53	127.977	CC
Spike State H36-02J - Original Drilling - Original Drilling -	7,000.00	6,695.90	9,526.20	9,451.18	126.985	ES
Spike State H36-02J - Original Drilling - Original Drilling -	7,700.00	7,130.65	9,858.86	9,768.69	109.345	SF
Spike State H36-05 - Original Drilling - Original Drilling - /	7,008.71	6,663.24	9,866.66	9,817.31	199.930	CC, ES
Spike State H36-05 - Original Drilling - Original Drilling - /	7,450.00	6,827.07	9,996.98	9,945.87	195.597	SF
Spike State H36-11J - Original Drilling - Original Drilling -	7,019.18	6,491.64	7,646.77	7,598.04	156.950	CC, ES
Spike State H36-11J - Original Drilling - Original Drilling -	7,400.00	6,745.71	7,740.18	7,689.56	152.906	SF
Spike State H36-12 - Original Drilling - Original Drilling - /	7,028.38	6,530.15	8,886.58	8,837.75	182.000	CC, ES
Spike State H36-12 - Original Drilling - Original Drilling - /	7,450.00	6,723.62	9,000.21	8,949.60	177.826	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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 Y	2,271.03	2,209.96	6,859.80	6,844.35	443.911	CC
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y	2,500.00	2,434.56	6,860.57	6,843.52	402.492	ES
Olsen Red Y05-02D - Olsen Red Y05-02D - Olsen Red Y	7,200.00	6,598.28	7,395.24	7,344.40	145.472	SF
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	2,200.00	2,115.00	5,458.16	5,446.81	480.717	CC
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	2,500.00	2,414.45	5,459.10	5,446.16	421.939	ES
Olsen Y5-05JI - Olsen Y5-05JI - Olsen Y5-05JI - As Drille	7,150.00	6,646.99	5,980.24	5,940.80	151.628	SF
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	2,200.00	2,167.00	7,535.04	7,508.48	283.654	CC
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	2,300.00	2,266.98	7,535.60	7,507.81	271.147	ES
Perkins 32-05 - Perkins 32-05 - Perkins 32-05 - As Drille	7,450.00	6,905.55	8,570.54	8,482.42	97.253	SF
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	2,200.00	2,184.00	8,662.82	8,636.11	324.298	CC
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	2,300.00	2,283.98	8,663.52	8,635.58	310.077	ES
Perkins 42-05 - Perkins 42-05 - Perkins 42-05 - As Drille	7,500.00	6,947.62	9,815.84	9,727.43	111.019	SF
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	2,200.00	2,189.00	8,130.19	8,103.44	303.863	CC
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	2,300.00	2,288.98	8,131.11	8,103.12	290.569	ES
Perkins 43-05 - Perkins 43-05 - Perkins 43-05 - As Drille	7,600.00	6,993.18	9,495.12	9,406.52	107.176	SF
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	2,201.37	2,180.53	7,366.82	7,351.71	487.563	CC, ES
Perkins USX Y05-16 - Perkins USX Y05-16 - Perkins US	11,200.00	6,929.90	9,975.07	9,916.55	170.434	SF
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	2,200.00	2,185.00	6,216.98	6,201.73	407.592	CC, ES
Pioneer Y17-715 - Pioneer Y17-715 - Plan #1	17,915.71	17,661.49	9,684.38	9,505.71	54.203	SF
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	2,200.00	2,184.00	6,195.01	6,179.76	406.247	CC, ES
Pioneer Y17-725 - Pioneer Y17-725 - Plan #1	17,915.71	17,649.38	9,027.04	8,848.04	50.428	SF
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	2,200.00	2,182.00	6,172.84	6,157.59	404.983	CC, ES
Pioneer Y17-735 - Pioneer Y17-735 - Plan #1	17,915.71	17,216.46	8,369.83	8,193.06	47.347	SF
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	2,200.00	2,181.00	6,150.87	6,135.63	403.637	CC, ES
Pioneer Y17-740 - Pioneer Y17-740 - Plan #1	17,915.71	17,587.51	8,042.71	7,864.37	45.097	SF
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	2,200.00	2,180.00	6,128.70	6,113.47	402.277	CC, ES
Pioneer Y17-745 - Pioneer Y17-745 - Plan #1	17,915.71	17,446.55	7,714.81	7,536.99	43.384	SF
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	2,200.00	2,171.00	4,416.84	4,401.63	290.528	CC, ES
Pioneer Y17-755 - Pioneer Y17-755 - Plan #1	17,915.71	17,471.02	7,060.25	6,881.63	39.528	SF
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	2,200.00	2,171.00	4,394.96	4,379.76	289.089	CC, ES
Pioneer Y17-765 - Pioneer Y17-765 - Plan #1	17,915.71	17,506.58	6,402.01	6,223.65	35.893	SF
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	2,200.00	2,171.00	4,373.46	4,358.25	287.675	CC, ES
Pioneer Y17-775 - Pioneer Y17-775 - Plan #1	17,915.71	17,357.35	5,747.84	5,570.45	32.401	SF
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	2,200.00	2,171.00	4,351.69	4,336.49	286.243	CC, ES
Pioneer Y17-780 - Pioneer Y17-780 - Plan #1	17,915.71	17,616.46	5,418.24	5,239.63	30.336	SF
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	2,959.21	3,611.17	4,257.43	4,234.70	187.284	CC
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	3,000.00	3,651.39	4,257.61	4,234.59	184.945	ES
Pioneer Y17-785 - Pioneer Y17-785 - Plan #1	17,915.71	17,564.41	5,089.45	4,910.94	28.511	SF
Y Section 06						
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	4,109.03	3,802.64	2,765.46	2,737.46	98.754	CC
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	4,200.00	3,873.76	2,765.93	2,737.29	96.578	ES
Gray 10-6 (PA) - Wellbore #1 - Gyro Surveys	6,950.00	6,474.79	3,064.71	3,014.85	61.457	SF
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,727.39	6,294.01	709.63	660.82	14.538	CC, ES
Norris 14-6 (PA) - Wellbore #1 - Gyro Surveys	6,800.00	6,365.77	713.84	664.45	14.452	SF
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	5,612.72	5,152.85	5,222.70	5,183.22	132.279	CC
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	5,700.00	5,214.28	5,222.99	5,182.89	130.243	ES
Norris 41-6 (PA) - Wellbore #1 - Gyro Surveys	6,850.00	6,850.00	5,263.79	5,212.64	102.892	SF
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	6,840.01	6,405.04	3,359.34	3,310.16	68.302	CC, ES
Norris Y 6-5 (PA) - Wellbore #1 - Gyro Surveys	7,100.00	6,643.95	3,413.11	3,362.13	66.957	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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	8,260.25	7,033.57	253.66	201.83	4.895	CC, ES, SF
Harkis 1-7 (PA) - Wellbore #1 - Gyro Surveys	9,037.43	7,050.08	644.13	590.83	12.086	CC, ES, SF
HP Farms Y 7-15JI (PR) - Wellbore #1 - No Surveys	12,267.99	7,041.00	2,541.29	2,355.08	13.647	CC, ES
HP Farms Y 7-15JI (PR) - Wellbore #1 - No Surveys	12,400.00	7,041.00	2,544.71	2,357.96	13.626	SF
HP Y07-09 (PR) - Wellbore #1 - No Surveys	2,200.00	2,145.00	3,593.24	3,542.69	71.078	CC
HP Y07-09 (PR) - Wellbore #1 - No Surveys	2,300.00	2,244.98	3,594.97	3,542.06	67.947	ES
HP Y07-09 (PR) - Wellbore #1 - No Surveys	11,300.00	6,990.00	4,126.62	3,948.04	23.107	SF
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,768.25	7,231.93	2,599.19	2,536.41	41.405	CC
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	10,800.00	7,232.00	2,599.38	2,536.33	41.225	ES
HP Y07-10D (SI) - Wellbore #1 - Gyro Surveys	12,100.00	7,235.36	2,920.50	2,840.73	36.610	SF
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	2,200.00	2,150.00	1,081.11	1,030.46	21.343	CC
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	2,300.00	2,249.98	1,082.43	1,029.42	20.420	ES
Perkins 31-7 (SI) - Wellbore #1 - No Surveys	3,400.00	3,315.21	1,278.37	1,200.22	16.358	SF
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	2,234.55	2,218.37	1,814.23	1,798.85	117.988	CC, ES
Perkins USX Y 7-17 (SI) - Wellbore #1 - Gyro Surveys	9,400.00	7,041.60	3,485.13	3,430.98	64.371	SF
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	2,200.00	2,172.00	1,464.40	1,413.31	28.661	CC
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	2,300.00	2,271.98	1,465.42	1,411.97	27.417	ES
Pioneer 22-7 (SI) - Wellbore #1 - No Surveys	9,800.00	7,017.00	1,585.45	1,413.61	9.226	SF
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,200.00	2,195.00	972.45	957.17	63.606	CC, ES
Pioneer D31-716 - Pioneer D31-716 - Plan #1	2,800.00	2,635.47	1,066.05	1,047.31	56.873	SF
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,200.00	2,196.00	949.81	934.52	62.110	CC, ES
Pioneer D31-725 - Pioneer D31-725 - Plan #1	2,800.00	2,642.55	1,042.71	1,023.93	55.522	SF
Pioneer D31-735 - Pioneer D31-735 - Plan #1	2,200.00	2,196.00	927.45	912.16	60.648	CC, ES
Pioneer D31-735 - Pioneer D31-735 - Plan #1	3,100.00	2,980.44	1,102.82	1,081.72	52.260	SF
Pioneer D31-744 - Pioneer D31-744 - Plan #1	2,200.00	2,204.00	904.81	889.49	59.057	CC, ES
Pioneer D31-744 - Pioneer D31-744 - Plan #1	6,950.00	7,481.13	2,269.31	2,217.24	43.579	SF
Pioneer D31-756 - Pioneer D31-756 - Plan #1	2,679.62	2,678.38	34.04	15.32	1.819	CC, ES
Pioneer D31-756 - Pioneer D31-756 - Plan #1	2,700.00	2,701.53	34.22	15.34	1.813	SF
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,782.78	2,779.77	46.52	27.07	2.392	CC
Pioneer D31-761 - Pioneer D31-761 - Plan #1	2,800.00	2,803.38	46.65	27.05	2.381	ES, SF
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,200.00	2,202.00	97.55	82.24	6.370	CC
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,300.00	2,298.74	97.88	81.88	6.117	ES
Pioneer D31-775 - Pioneer D31-775 - Plan #1	2,700.00	2,685.46	105.67	87.10	5.689	SF
Pioneer D31-785 - Pioneer D31-785 - Plan #1	7,665.80	7,454.75	65.77	9.85	1.176	Level 2, CC, ES, SF
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	2,824.89	3,569.48	3,226.45	3,202.83	136.569	CC, ES
Pioneer USX Y07-08D (PR) - Wellbore #1 - As Drilled	10,400.00	7,160.05	4,112.77	4,048.31	63.800	SF
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	3,741.53	5,122.74	2,540.70	2,507.83	77.288	CC
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	3,800.00	5,149.23	2,541.08	2,507.79	76.338	ES
Pioneer Y07-07D (PR) - Wellbore #1 - Gyro Surveys	10,400.00	7,440.97	2,887.89	2,784.04	27.808	SF
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	2,200.00	2,197.00	852.26	836.97	55.718	CC, ES
Pioneer Y18-715 - Pioneer Y18-715 - Plan #1	17,915.71	17,948.75	4,390.42	4,216.81	25.290	SF
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	2,200.00	2,198.00	829.90	814.60	54.243	CC, ES
Pioneer Y18-725 - Pioneer Y18-725 - Plan #1	17,915.71	17,897.41	3,762.44	3,588.56	21.637	SF
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	2,200.00	2,199.00	807.54	792.23	52.769	CC, ES
Pioneer Y18-730 - Pioneer Y18-730 - Plan #1	17,915.71	17,871.13	3,450.66	3,276.64	19.829	SF
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	2,200.00	2,200.00	784.90	769.59	51.278	CC, ES
Pioneer Y18-735 - Pioneer Y18-735 - Plan #1	17,915.71	17,666.62	3,136.22	2,962.63	18.066	SF
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	2,200.00	2,200.00	762.53	747.23	49.817	CC, ES
Pioneer Y18-744 - Pioneer Y18-744 - Plan #1	17,915.71	17,711.08	2,508.53	2,334.50	14.414	SF
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,200.00	2,198.00	90.01	74.71	5.883	CC, ES
Pioneer Y18-756 - Pioneer Y18-756 - Plan #1	2,300.00	2,297.63	91.57	75.56	5.719	SF
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,200.00	2,199.00	67.36	52.06	4.402	CC, ES
Pioneer Y18-766 - Pioneer Y18-766 - Plan #1	2,400.00	2,400.52	70.53	53.81	4.217	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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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	2,200.00	2,199.00	45.01	29.70	2.941	CC
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,300.00	2,299.79	45.51	29.49	2.842	ES
Pioneer Y18-770 - Pioneer Y18-770 - Plan #1	2,400.00	2,400.57	47.01	30.29	2.812	SF
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,200.00	2,200.00	23.76	8.45	1.552	CC
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,300.00	2,300.52	24.04	8.02	1.501	ES
Pioneer Y18-775 - Pioneer Y18-775 - Plan #1	2,400.00	2,401.04	24.88	8.17	1.489	Level 3, SF
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	11,500.47	7,000.00	3,080.01	2,899.49	17.062	CC, ES
UPRC 7-10Q (PR) - Wellbore #1 - No Surveys	11,700.00	7,000.00	3,086.46	2,905.10	17.018	SF
UPRR 53 PAN AM E 1 (PA) - Wellbore #1 - Gyro Survey	11,523.13	7,071.43	677.34	612.12	10.386	CC, ES, SF
Y Section 08						
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	2,200.00	2,156.00	5,332.52	5,281.74	105.026	CC
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	2,300.00	2,255.98	5,334.26	5,281.13	100.404	ES
Alfred Krough 1 (PA) - Wellbore #1 - No Surveys	12,700.00	7,001.00	5,713.65	5,526.59	30.544	SF
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	770.90	731.93	7,560.84	7,555.92	1,536.852	CC
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	2,217.23	2,222.92	7,563.60	7,548.28	493.869	ES
Lazy 15-8 (PR) - Wellbore #1 - Gyro Surveys	15,500.00	7,292.34	9,214.27	9,128.19	107.033	SF
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	2,203.86	2,188.96	7,402.12	7,386.97	488.583	CC, ES
Norris C Unit 01 (SI) - Wellbore #1 - Gyro Surveys	12,900.00	6,945.06	9,994.24	9,926.18	146.845	SF
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,281.91	2,319.90	3,934.74	3,918.85	247.651	CC
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	2,300.00	2,337.96	3,934.79	3,918.77	245.683	ES
Norris C Unit 02 (PA) - Wellbore #1 - Gyro Surveys	10,500.00	6,966.30	5,917.92	5,860.86	103.714	SF
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	100.00	41.03	6,186.88	6,186.69	10,000.000	CC
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	2,210.08	2,210.08	6,196.70	6,181.45	406.570	ES
Pioneer Y 08-02 (PR) - Wellbore #1 - Gyro Surveys	12,700.00	6,926.57	8,994.18	8,928.53	137.005	SF
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,168.85	2,108.24	5,127.69	5,112.96	348.135	CC
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,131.65	5,127.72	5,112.80	343.625	ES
Pioneer Y 08-03 (SI) - Wellbore #1 - Gyro Surveys	11,200.00	6,932.12	7,444.31	7,385.11	125.736	SF
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	296.09	250.10	3,746.43	3,744.90	2,445.603	CC
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	2,200.00	2,138.50	3,749.71	3,734.77	250.897	ES
Pioneer Y 08-05 (SI) - Wellbore #1 - Gyro Surveys	11,800.00	11,800.00	5,693.57	5,614.09	71.642	SF
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	2,200.00	2,197.00	7,746.29	7,694.70	150.141	CC
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	2,300.00	2,296.98	7,747.82	7,693.88	143.617	ES
Pioneer Y 08-08 (PR) - Wellbore #1 - No Surveys	12,100.00	7,042.00	9,621.22	9,438.35	52.610	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
Y Section 16						
Hullabaloo State Y21-716 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-726 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-736 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-746 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-756 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-763 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-769 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-775 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-781 - Original Drilling - Original Drill						Out of range
Hullabaloo State Y21-787 - Original Drilling - Original Drill						Out of range
State 01 - Original Drilling - Original Drilling - As Drilled						Out of range
State 21 (PA) - Original Drilling - Original Drilling - As Drilled						Out of range
State Y16-05D - Wellbore #1 - Wellbore #1 - As Drilled						Out of range

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 Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	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	17,044.89	7,005.00	8,376.69	8,156.26	38.002	CC
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	17,100.00	7,005.00	8,376.87	8,156.06	37.937	ES
UPRC 17-15Q (PA) - Wellbore #1 - No Surveys	17,915.71	7,005.00	8,421.83	8,195.75	37.252	SF
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	14,317.21	7,005.00	5,663.41	5,463.58	28.342	CC, ES
UPRC 17-5Q (PR) - Wellbore #1 - No Surveys	15,100.00	7,005.00	5,717.25	5,513.01	27.993	SF
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,321.91	7,000.00	6,734.11	6,541.53	34.968	CC
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	13,400.00	7,000.00	6,734.56	6,541.50	34.884	ES
HP Farms Y 17-03 (PR) - Wellbore #1 - No Surveys	14,500.00	7,000.00	6,836.38	6,637.10	34.306	SF
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	13,227.45	7,120.23	5,551.27	5,474.39	72.213	CC, ES
HP Farms Y 17-04 (PR) - Wellbore #1 - Gyro Surveys	14,700.00	7,110.48	5,743.22	5,659.05	68.235	SF
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,754.79	6,810.68	6,867.31	6,781.08	79.643	CC
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	14,800.00	6,810.42	6,867.46	6,780.94	79.376	ES
HP Farms Y 17-06 (PR) - Wellbore #1 - Gyro Surveys	16,800.00	6,800.00	7,165.38	7,068.29	73.806	SF
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,529.82	6,912.97	6,594.29	6,486.42	61.128	CC
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,600.00	6,912.61	6,594.67	6,486.32	60.867	ES
Lana Y 17-14JI (SI) - Wellbore #1 - Gyro Surveys	17,915.71	6,910.95	6,605.57	6,495.22	59.859	SF
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,296.73	6,961.78	8,405.68	8,322.02	100.478	CC
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	14,400.00	6,963.03	8,406.31	8,321.97	99.673	ES
Semmen USX Y 17-07 (PR) - Wellbore #1 - Gyro Survey	17,500.00	7,000.00	8,995.26	8,894.24	89.048	SF
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,290.73	2,541.61	9,207.73	9,191.03	551.217	CC
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	2,300.00	2,546.62	9,207.75	9,190.99	549.556	ES
Sloan 41-17 - Wellbore #1 - Wellbore #1 - As Drilled	16,600.00	6,937.66	9,987.83	9,892.77	105.067	SF
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	16,000.74	6,817.39	5,809.13	5,713.53	60.761	CC, ES
UPRC 17-12Q (SI) - Wellbore #1 - Gyro Surveys	17,300.00	6,796.79	5,952.62	5,850.26	58.152	SF
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	17,057.30	7,017.00	5,826.74	5,605.97	26.393	CC
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	17,100.00	7,017.00	5,826.89	5,605.85	26.361	ES
UPRC 17-13Q (SI) - Wellbore #1 - Wellbore #1	17,800.00	7,017.00	5,873.88	5,648.81	26.098	SF
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	13,238.09	7,012.72	7,758.28	7,681.94	101.632	CC
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	13,300.00	7,013.63	7,758.53	7,681.80	101.119	ES
UPRR USX Y 17-02 (PR) - Wellbore #1 - Gyro Surveys	16,200.00	7,050.45	8,304.36	8,212.37	90.271	SF
Y Section 18						
ADA Harkins Unit A1 (PA) - Wellbore #1 - Gyro Surveys	14,155.53	7,109.67	811.11	727.55	9.707	CC, ES, SF
Charles R Milliken Unit 1 (PR) - Wellbore #1 - Gyro Surveys	16,625.49	7,101.24	639.48	537.73	6.285	CC, ES, SF
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	16,811.59	7,055.00	3,266.61	3,046.98	14.873	CC, ES
HSR Harkis 15-18 (PR) - Wellbore #1 - No Surveys	17,000.00	7,055.00	3,272.04	3,051.46	14.834	SF
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Su	14,542.10	6,992.39	3,665.48	3,580.00	42.879	CC, ES
Lyle V Cooksey Gas Unit 1 (PR) - Wellbore #1 - Gyro Su	15,100.00	6,978.62	3,707.67	3,619.68	42.138	SF

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

Noble Energy, Inc.

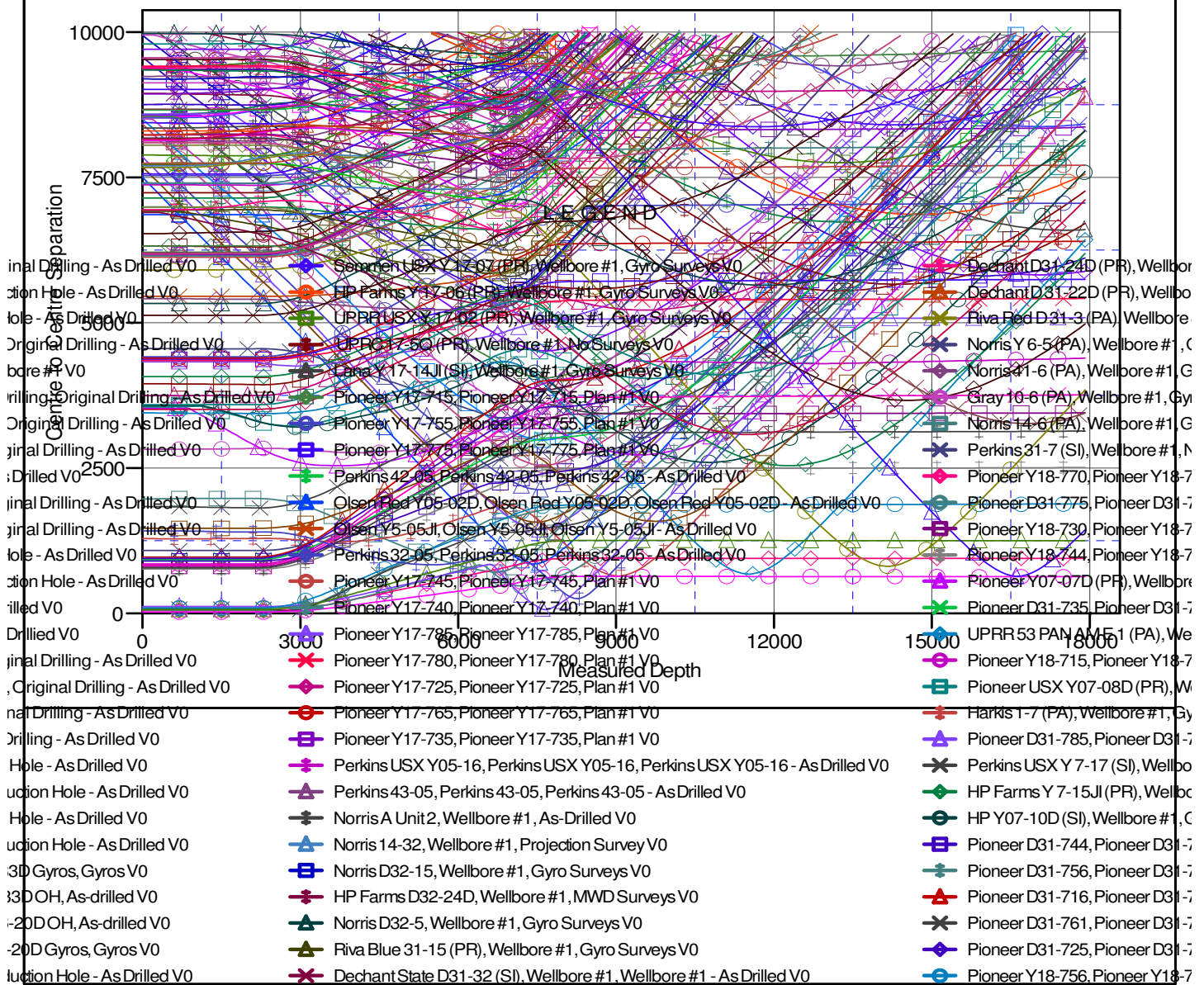
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

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

Coordinates are relative to: Pioneer Y18-785
Coordinate System is US State Plane 1983, Colorado Northern Zone
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

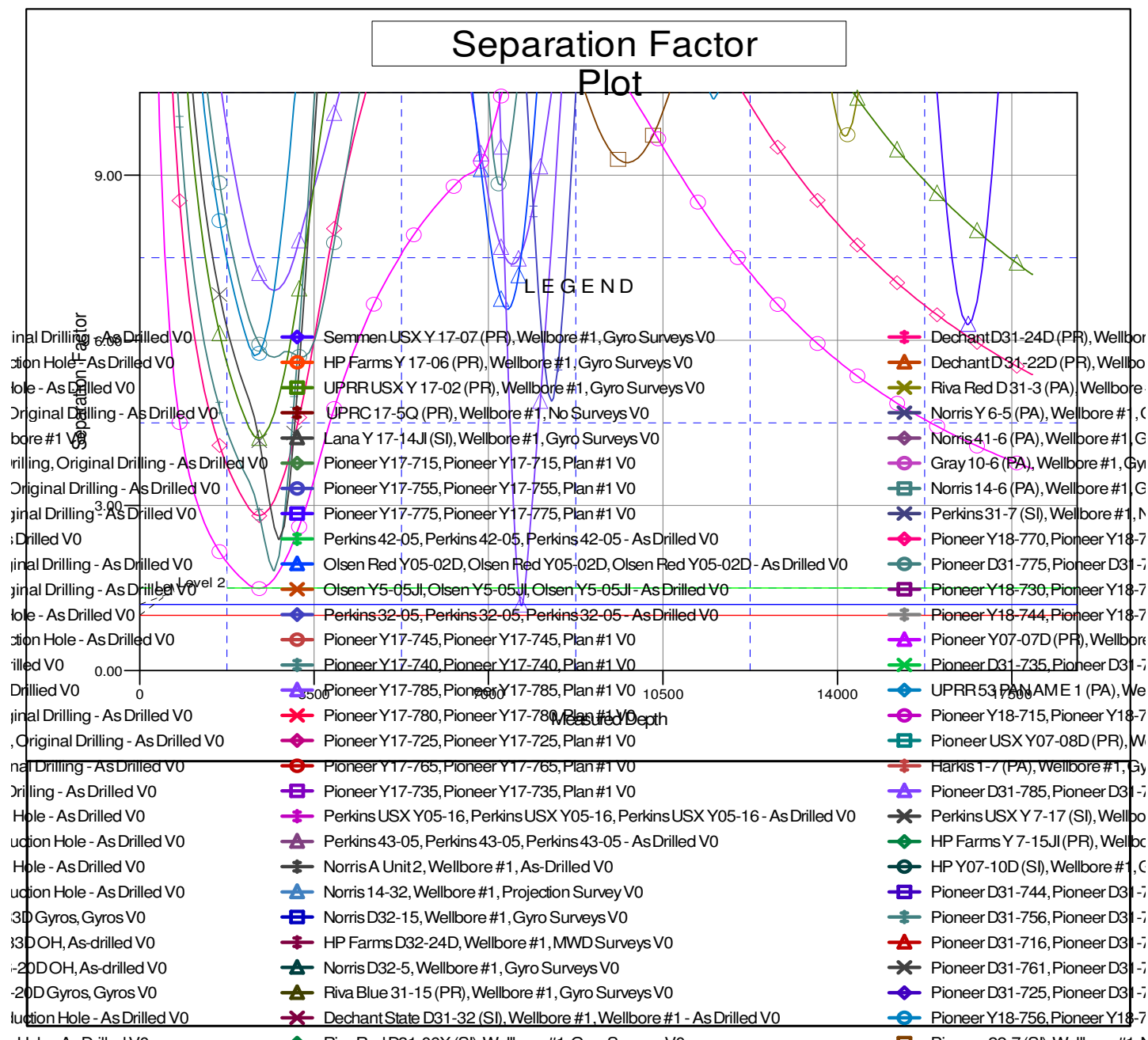
Anticollision Summary Report

Company:	Northern Region - DJ Basin	Local Co-ordinate Reference:	Well Pioneer Y18-785
Project:	Mustang	TVD Reference:	Well @ 4915.00ft
Reference Site:	Y Section 07	MD Reference:	Well @ 4915.00ft
Site Error:	0.00 ft	North Reference:	Grid
Reference Well:	Pioneer Y18-785	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 ft	Output errors are at	2.00 sigma
Reference Wellbore	Pioneer Y18-785	Database:	EDMP
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Coordinates are relative to: Pioneer Y18-785

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